Setting the Bar

Implementing the TCFD Recommendations for Oil and Gas Methane Disclosure

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Environmental Defense Fund (EDF) is one of the world's largest environmental nonprofit organizations, with more than 2 million members and a global staff of over 700 scientists, economists, policy experts and other professionals. EDF finds practical and lasting solutions to the most serious environmental problems. Working with businesses, scientists and academics, EDF takes a leading role in minimizing the environmental and health risks associated with the development of oil and natural gas globally.

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The PRI works with its international network of signatories to put the six Principles for Responsible Investment into practice. Its goals are to understand the investment implications of environmental, social and governance (ESG) issues and to support signatories in integrating these issues into investment and ownership decisions. The PRI acts in the long-term interests of its signatories, of the financial markets and economies in which they operate and ultimately of the environment and society as a whole. The six Principles for Responsible Investment are a voluntary and aspirational set of investment principles that offer a menu of possible actions for incorporating ESG issues into investment practice. The Principles were developed by investors, for investors. In implementing them, signatories contribute to developing a more sustainable global financial system.

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Foreword

Robeco has been at the forefront of sustainability investing since the 1990s and performs engagement services for assets worth USD 285 billion. We recognize the challenge climate change poses to our clients' portfolios, and our responsibility to incorporate that risk into our investment decisions. Doing so requires consistent accurate and actionable climate disclosure, leading to our public support of the Task Force on Climate-related Financial Disclosures (TCFD). Implementing the TCFD recommendations will provide investors and other stakeholders the information required to assess the material climate risks and opportunities facing our global economy.

In Robeco's climate engagement, we have found oil and gas methane emissions to be not only a serious climate risk, but also a near-term climate opportunity. Methane is a potent climate change agent – undermining the fuel's climate competitiveness and damaging the role natural gas can play in the long-term at a time when renewables grow cheaper by the day. Additionally, the emissions are needlessly wasted product with a real economic value. However, cost-effective solutions exist today to manage these emissions. Robust management and subsequent reporting on methane is an opportunity for oil and gas companies to demonstrate how seriously they are tackling climate-risk management.

Setting the Bar: Implementing the TCFD Recommendations for Oil and Gas Methane Disclosure is a valuable and timely contribution to the dialogue around climate risk disclosure, as companies and investors work to implement the TCFD framework. The report's recommendations and detailed guidance provide a valuable road map as companies work to demonstrate how they are managing methane emissions.

As investors tilt portfolios towards more sustainable companies, oil and gas companies who proactively and transparently manage methane will be better positioned to compete in a low carbon world. We encourage oil and gas companies to read this report, and look forward to working with them to adopt its suggestions.

Peter Ferket

Head of Investments
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About This Guide

The Task Force on Climate-Related Financial Disclosure (TCFD or the Task Force) published its final recommendations in 2017, and now both companies and investors are moving towards implementation of TCFD's recommendations. While the Task Force's recommendations are widely supported, questions remain about how to take the guidance of the Task Force and put it into practice, especially for industry-specific issues. The Task Force itself recognizes that further work is required to "provide example disclosures to assist preparers in developing disclosures consistent with the Task Force's recommendations."[1]

Methane emissions present material risks and opportunities to the oil and gas industry requiring robust disclosure

Methane emissions present both material climate risks, and compelling business opportunities for oil and gas companies. Methane is the primary component of uncombusted natural gas and is estimated to be at least 84 times more powerful than carbon dioxide as a warming agent over a 20-year time period. [2] The oil and gas industry is one of the largest anthropogenic sources of methane emissions, but cost-effective reduction solutions exist today.

How to report on methane within the TCFD framework

This paper follows the TCFD's four-part framework: governance, strategy, risk management, and metrics and targets.

This paper provides support and guidance to oil and gas companies and their investors on how to put the TCFD framework into practical use for disclosure on methane emissions. This paper includes guidance on the risks and opportunities of methane, recommended disclosures across TCFD's four-part structure, and real-world examples of what methane reporting in these four categories looks like today. The guide concludes with a suggested implementation timeline.

While the guide is aimed at upstream oil and gas companies and their public equity investors, the document can also be useful for investors in private companies, and energy lenders such as investment banks and insurance companies, who may be looking to benchmark methane performance as they implement environmental, social and governance (ESG) and risk-management policies. Likewise, this guide can also be a reference for oil and gas companies further down the value chain, for whom methane risk is also an issue.

1 "Recommendations of the Task Force on Climate-Related Financial Disclosures." Task Force on Climate-Related Financial Disclosures, Financial Stability Board, June 2017, www.fsb-tcfd.org/wp-content/uploads/2017/06/FINAL-TCFD-Report-062817.pdf.

2 According to EDF calculations based on IPCC AR5 CH 8. Myhre, G., D. Shindell, F.-M. Bréon, W. Collins, J. Fuglestvedt, J. Huang, D. Koch, J.-F. Lamarque, D. Lee, B. Mendoza, T. Nakajima, A. Robock, G. Stephens, T. Takemura and H. Zhang, 2013: Anthropogenic and Natural Radiative Forcing. In: Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Stocker, T.F., D. Qin, G.-K. Plattner, M. Tignor, S.K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex and P.M1. Midgley (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

Introduction

Investors broadly recognize climate change as a material risk and opportunity for their portfolios and expect company disclosure commensurate with that fact. The work of the TCFD builds on and seeks to harmonize existing initiatives on transparency. Created in 2015, it is the first industry-led effort tasked with developing recommendations for voluntary, consistent and comparable climate-related disclosures across all sectors.

The TCFD is composed of 32 members, chosen by the Financial Stability Board (FSB) to include investors, auditors, industry executives (including some from the oil and gas industry), and other experts. As an industry-led initiative the TCFD builds on the prior work of non-governmental organizations (NGOs) regarding climate-related disclosure and strives to provide overarching recommendations that can guide and further align existing reporting frameworks.

This paper specifically focuses on methane risk in the oil and gas industry, examining how investors and companies can use the TCFD recommendations to improve disclosure about this potent greenhouse gas.

The TCFD approach to climate-related disclosure

As a temporary arm of the FSB established in 2015, the Task Force was charged with developing recommendations for voluntary, consistent and comparable climate-related disclosures, in order to provide useful decision-making information to stakeholders like investors, lenders or insurance companies.

In June 2017, the TCFD published three key documents that outlined the Task Force's final reporting recommendations and suggestions for implementation. The first is the Final Report: Recommendations of the Task Force on Climate-related Financial Disclosures, which provides the context and framework for climate-related financial reporting.[3] The TCFD also published two documents for a more technical, implementation-focused audience, including the Annex: Implementing the Recommendations of the TCFD, and the Technical Supplement: The Use of Scenario Analysis in the Disclosure of Climate-related Risks and Opportunities.[4]

The Task Force identified four core categories for climate-related financial disclosures: governance, strategy, risk management, and metrics and targets. The TCFD defines each of these categories in the following manner:

Governance: *The organization's governance around climate-related risks and opportunities*

Strategy: *The actual and potential impact of climate-related risks and opportunities on the organization's business, strategy, and financial planning*

Risk Management: *The processes used by the organization to identify, assess, and manage climate-related risks*

Metrics and Targets: *The metrics and targets used to assess and manage relevant climate-related risks and opportunities* [5]

3 Op. cit. "Recommendations of the Task Force on Climate-related Financial Disclosures."

4 "Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures." Task Force on Climate-related Financial Disclosures, Financial Stability Board, June 2017, https://www.fsb-tcfd.org/wp-content/uploads/2017/12/FINAL-TCFD-Annex-Amended-121517.pdf

5 Op. cit. "Recommendations of the Task Force on Climate-related Financial Disclosures."

The TCFD recommendations have been positively received in the financial and corporate community. Over 500 organizations have formally expressed their support for the TCFD framework. These include major asset managers and owners like APG Groep N.V., Blackrock, California State Teachers' Retirement System, Fidelity, Legal & General, Robeco, State Street, Vanguard and Wellington. Oil and gas companies such as BHP, Eni, Equinor, Shell, Suncor and Total have also backed the report.[6]

However, the level of implementation of the recommendations has been varied with many companies just beginning to incorporate TCFD guidance. CDP's 2018 report Ready or not: Are companies prepared for the TCFD recommendations? reviewed 1,681 companies globally, and found a wide spectrum of climate-related financial disclosures and varying degrees of alignment with TCFD, especially looking across geographies and sectors.[7] Companies, particularly those within the oil and gas industry, were identified as needing further work to provide investors with necessary disclosure and maximize the potential of the TCFD framework.

Methane emissions present material risks and opportunities to the oil and gas industry

Methane, which is the primary component of uncombusted natural gas, is at least 84 times more powerful than carbon dioxide as a warming agent over a 20-year time period.[8] Methane emissions account for about 25% of the warming experienced today and the oil and gas industry is the largest industrial source globally, losing billions each year in lost product.[9]

Yet, the oil and gas industry has touted natural gas as a cleaner burning fossil fuel, especially when compared to coal. However, methane emissions threaten this potential climate benefit of natural gas, posing a serious reputational risk for the energy source.

Methane is also a significant near-term opportunity for the oil and gas industry. Smart methane management can demonstrate that the industry can be part of the climate solution. Methane management is also an economic opportunity since emissions represent a loss of saleable product. Global oil and gas methane emissions are estimated to be worth at least USD 30 billion.[10] A recent International Energy Agency (IEA) analysis found the industry can reduce global methane emissions by 75% using proven technologies, with nearly 50% of emissions reduced at no net cost.[11] Given the relative ease and cost-effectiveness of emission reduction opportunities, investors increasingly view methane management as a proxy for the effectiveness of a company's operational and climate-risk management.

The material risks and opportunities associated with methane are outlined in Table 1, which is adapted from the TCFD framework.[12] Considering the range of categories that methane touches upon, no comprehensive oil and gas climate-risk disclosure is complete without a clearly articulated approach to methane.

6 "TCFD Supporters as of September 2018." Task Force on Climate-related Financial Disclosures, Financial Stability Board, September 2018, https://www.fsb-tcfd.org/tcfd-supporters/

7 "Ready or not: Are companies prepared for the TCFD recommendations?" CDP, Climate Disclosure Standards Board, March 2018, http://b8f65cb373b1b7b15feb-c70d8ead6ced550b4d987d7c03fcdd1d.r81.cf3.rackcdn.com/cms/reports/documents/000/003/116/original/TCFD-Preparedness-Report.pdf?1521558217

8 Op. cit. According to EDF calculations based on IPCC AR5 CH 8.

9 Ibid.

10 Larsen, Kate, et al. Untapped Potential: Reducing Global Methane Emissions from Oil and Natural Gas Systems. Rhodium Group, 2015, Untapped Potential: Reducing Global Methane Emissions from Oil and Natural Gas Systems, www.edf.org/sites/default/files/content/rhg_untappedpotential_april2015.pdf.

11 World Energy Outlook 2017. International Energy Agency, 2017, World Energy Outlook 2017, www.iea.org/Textbase/npsum/weo2017SUM.pdf.

12 Op. cit. "Recommendations of the Task Force on Climate-related Financial Disclosures."

TABLE 1

Type	Examples of Methane-Related Risks	Potential Financial Impact
Transition Risks	**Reputation**	
	Erosion of social license to operate	Reduced revenue from decreased demand for fossil fuels
	Decreased demand for high-emissions fuel sources	Reduced revenue from decreased production capacity (e.g., delayed planning approvals, supply chain interruptions)
	Decreased appetite for financing high-emissions fuel sources	Increased costs from negative impacts of workforce management and planning (e.g., employee attraction and retention)
	Reputational damage to "clean" brand of natural gas	Reduction in capital availability and higher cost of capital (e.g., as fewer investors favor higher-emission industries)
	Increasing calls for methane management from stakeholders (e.g., local communities, investors, employees)	
	Market	
	Decreased demand for high-emissions fuel sources	Reduced demand for fossil fuels due to shift in consumer preferences
	Decreased appetite for financing high-emissions fuel sources	Re-pricing of assets (e.g., fossil fuel reserves, securities valuations)
		Reduction in capital availability and higher cost of capital (e.g., as fewer investors favor higher-emissions producers)
	Technology	
	Decreased demand for high-emissions fuel sources	Costs to adopt/deploy new practices and processes
	Increasing competition due to technology advances in other lower-emission fuel sources	Reduced demand due to increasing cost-effectiveness of other lower-emission fuel sources
		Write-offs and early retirement of existing out-of-date assets
	Policy and Legal	
	Setting a price on carbon/methane emissions	Increased operating costs (e.g., cost of reporting mandates, costs of regulatory requirements)
	Enhanced methane emissions-reporting obligations	Increased costs and/or reduced demand for natural gas resulting from fines and judgments
	Costs of compliance for existing and future methane emissions regulations	
	Exposures to litigation given current and future methane regulations	

TABLE 1 CONTINUED

Type	Examples of Methane-Related Opportunities	Potential Financial Impact
Resources Efficiency	Implementation of more efficient oil and gas production Retention and sale of gas that would have been lost through emissions	Reduced operating costs (e.g., through efficiency gains and cost reductions) Increased production capacity, resulting in increased revenues Benefits to workforce management and planning (e.g., improved health and safety) resulting in lower costs
Energy Source	Use of zero emissions technologies on well pads Leveraging new monitoring technology, including continuous monitoring and mobile monitoring	Reduced operations costs (e.g., through use of lowest cost abatement) Reduced exposure to GHG emissions and therefore less sensitivity to changes in cost of carbon Returns on investment in low-emission technology Increased capital availability (e.g., as more investors favor lower-emissions producers) Reputational benefits resulting in increased demand for goods/services
Product Services	Maintenance of "clean" brand of natural gas Leveraging new monitoring technology, including continuous monitoring and mobile monitoring	Better competitive position to reflect shifting consumer preferences, resulting in increased revenues Increased revenue and/or business opportunity from market development of new technologies

Governance

TCFD Recommendation:

Disclose the organization's governance around climate-related risks and opportunities

TCFD Recommended Disclosures

a) Describe the board's oversight of climate-related risks and opportunities

b) Describe management's role in assessing and managing climate-related risks and opportunities

Methane management is a key governance challenge for companies in the oil and gas sector. While addressing methane emissions is in many ways an operational issue, and thus largely the responsibility of management, there is an important role for the board to play in setting and overseeing the company's long-term climate strategy. The board also has responsibility for evaluating management performance. In the case of methane, that includes ensuring that the right strategic direction is in place to encourage a rigorous approach to methane risk management, and sufficient information is provided to evaluate that progress over time and against peers.

Investors will read the governance section of a TCFD report to understand the reporting structure and accountability mechanisms between senior management and the board regarding climate matters, including methane management.

A complete response to the TCFD would include methane-specific discussions under the following areas:

a) Describe the board's oversight of climate-related risks and opportunities

The board of directors plays a key role in overseeing a company's overall approach to addressing climate change and ensuring that the company's long-term business strategy addresses climate risk and opportunity. With regard to methane, investors will look to this section to help them understand:

- How is responsibility for methane allocated within the company, both at board and management level? Is methane managed within the same structure as the company's overall climate risk strategy?

Reporting in Practice

Shell reports:

"The Board committees (see "Corporate governance" on page 80) play an important role in assisting the Board with regard to governance and management of climate change risks and opportunities. The responsibilities of the Corporate and Social Responsibility Committee (CSRC) include the review of the management of environmental and social impacts of projects and operations. In 2017, among the key topics were the energy transition, GHG emission targets, and other carbon dioxide (CO_2) and methane-related developments, such as Shell's net carbon footprint ambition and guiding principles on reducing methane emissions."

Source: "Shell Annual Report 2017." Financial Reporting, Shell, https://www.shell.com/investors/financial-reporting/annual-publications/annual-reports-download-centre.html

GOVERNANCE CONTINUED

- The processes and frequency by which the board and/or board committees are informed about methane-related issues. How is methane incorporated into the board's overall climate strategy? Within the past year, how many times has methane been on the agenda of the board and/or board committees?

- How the company ensures that the board has the appropriate skills to properly manage climate risk broadly, and methane risk specifically. Is climate competency part of the skills matrix the company uses to evaluate new director candidates? How does the board educate those directors who may not have outside experience with methane-related issues?

- How does the board monitor and oversee progress against metrics and targets for addressing methane risk both over time and against peers? What metrics are chosen for this board-level monitoring and why? Does the board hear from outside experts and/or other stakeholders regarding the effectiveness of management's methane management program?

- How are reductions in methane emissions incentivized at the board level?

b) Describe management's role in assessing and managing climate-related risks and opportunities

Management has an important role to play in carrying out a company's methane management strategy. A key question for investors is whether incentives for senior management are aligned in a way that encourages executives to appropriately prioritize the issue. In this section investors will seek to understand:

- What are the reporting structures and accountability mechanisms within management for addressing methane? Is methane managed within the same structure as the company's overall climate risk strategy?

- How is senior management incentivized?

- How is methane risk managed in the context of mergers, acquisitions, partnerships and joint ventures (JVs)? As a company creates and manages partnerships/JVs or acquires new assets, how does the company ensure strong standards for new and existing operations in terms of methane emissions reductions and management? What standards are used?

- What voluntary initiatives is the company a participant in and how does that impact company management involvement in methane management?

Reporting in Practice

Shell Reports:

"In 2016, sustainable development continued to account for 20% of our corporate scorecard, which helps determine the annual bonus levels of all our employees, including members of the Shell Executive Committee (20% also in 2017). The Executive Committee's sustainable development measures were split evenly between our safety and environmental performance. The Remuneration Committee has focused the environmental component on GHG emissions in three specific business areas: refining, chemical plants and flaring in upstream assets. This goes beyond carbon dioxide to include other GHGs such as methane."

Note: GHG metrics were not included in the corporate scorecard until 2017

Source: "Shell Onshore Operating Principles in Action in North America: Methane Fact Sheet." Energy and Innovation, Shell, https://www.shell.com/energy-and-innovation/natural-gas/tight-and-shale-gas/shells-principles-for-producing-tight-shale-oil-and-gas.html

Strategy

TCFD Recommendation:

Disclose the actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning where such information is material

Recommended Disclosures

a) Describe the climate-related risks and opportunities the organization has identified over the short, medium and long term

b) Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy and financial planning

c) Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario

Methane management is a key strategic challenge for oil and gas companies (See Table 1). Investors will read the strategy section of a TCFD report to understand how methane-related risks and opportunities impact its business, and how methane mitigation is integrated into the company's short- and long-term strategies.

Reporting in Practice

ConocoPhillips reports:

"As a result of our strategy and scenario work, we decided to take the following actions, as reflected in our Climate Change Action Plan:

- Prepare for diverse portfolio and policy environments.
- Monitor global regulation and legislation developments and engage appropriately.
- Identify and fund profitable emissions reduction projects, such as methane emission reductions.
- Continue the use of a Marginal Abatement Cost Curve (MACC) in Long Range Planning.
- Focus near-term technology investments on reducing both costs and emissions where feasible, for example in the Oil Sands by improving the steam-to-oil ratio in extraction.
- Monitor for potential disruptive technologies that might impact the market for oil and gas."

Source: "Key Findings." Climate Change Strategy, ConocoPhillips, http://www.conocophillips.com/environment/climate-change/climate-change-strategy/key-findings/

STRATEGY CONTINUED

A complete response to the TCFD would include methane-specific discussions under the following areas:

a) Describe the climate-related risks and opportunities the organization has identified over the short, medium and long term

A company can highlight methane-related issues in its discussion of overall climate-related risks and opportunities. While these risks and opportunities will vary by company, most will fall under the categories defined in Table 1.

- How does the company consider methane risks and opportunities over differing time horizons? How does the company define short-, medium- and long-term?

- How does the company determine the financial impact methane risks and opportunities could have on the organization?

- Describe the methane risks and opportunities identified by the company

b) Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy and financial planning

In this section, investors will seek to understand how climate change considerations impact a company's financial planning and strategy. Notably, these sections should be supported by relevant metrics, like emissions figures, expenditures and investments.

While methane can be implicated in many aspects of the strategic planning process for oil and gas companies, it is likely to be particularly material in the following areas:

- How are methane emissions factored into business and strategy planning? Disclosure around methane emissions may include its impact on:

    - Products and services - What extent is the company shifting towards natural gas in response to market and climate dynamics? How do fugitive methane emissions impact that strategy?

    - Value chain - How is the company taking steps to engage with its midstream and downstream peers to reduce emissions?

    - Policy engagement - Has the company taken steps to engage with policymakers on methane emissions, either directly or via industry groups? How does that fit into the company's strategy when considering methane risk at the industry level?

    - Adaptation and mitigation activities - How does the company plan to deploy methane emission reducing technologies for both new and existing facilities?

    - Investment in research and development - How does the company approach research and development regarding methane emission-reducing technologies? What voluntary initiatives, investments or technology challenges does the company participate in?

    - Operations - How do potential methane emissions factor into company decisions on locations and activities of facilities?

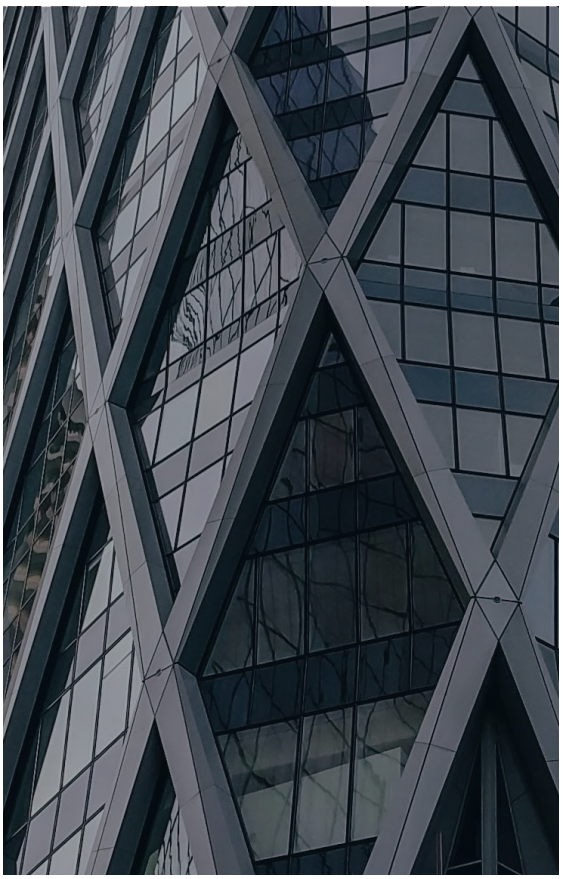
STRATEGY CONTINUED

• How does methane management serve as an input into the company's financial planning process? What time periods are used? How are methane risks and opportunities prioritized in financial planning? Disclosure surrounding methane may include its impact on:

o Capital expenditures and capital allocation - Describe the process by which methane emission mitigation efforts compete for capital with other opportunities. Is a price on carbon, lower discount rate (given methane's high near-term impact) or other modeled externality used to more accurately reflect the full economic value of methane reduction, or do methane projects need to compete on equal terms with other capital opportunities? How does this capital expenditure plan support the company's methane management goals?

o Acquisitions or divestments - How are methane emissions considered in due diligence for acquisitions? For existing facilities, how is methane mitigation incorporated into the operation, maintenance, retrofit and retirement of legacy facilities?

o Access to capital - How does the company factor investor demand for low-carbon investment when deploying capital towards methane emission reducing opportunities?



STRATEGY CONTINUED

c) Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario

As companies go through the two-degree scenario analysis process suggested by the TCFD, it will be important for them to consider sensitivities around methane emission mitigation and how that impacts considerations around total carbon budgets. Research by former Southwestern Energy executive Mark Boling has shown that aggressive methane emission mitigation can materially reduce the risk of asset stranding in the oil and gas sector by expanding the available carbon budget for use of its products.[13] Companies may find that adjusting such sensitivities provides an even stronger rationale for investing in methane emission mitigation than the base economics would suggest, giving the company an opportunity to report how such analysis influences strategy and decision-making. In addition to the scenario analysis process, investors will look to see how the exercise informs strategy decisions.

- What is the company's overall approach to incorporating methane emissions into scenario analysis?
- What underlying assumptions around methane emissions does the company use in its scenario analysis?
- How has the company considered methane sensitivity in its scenario analysis in terms of its own emissions, and those downstream (and upstream, where applicable) of its operations?
- How does methane sensitivity change as the company looks at scenarios over different time horizons?
- How did conducting scenario analysis impact the company's approach to methane management? How does the company use scenario analysis to inform business decisions, strategy and financial planning?

Reporting in Practice

Total reports:

Already accounting for nearly 50% of our energy mix, natural gas is at the heart of our ambition to be the responsible energy major…Natural gas plays an important role in the optimal energy mix envisaged in the IEA's 2C scenario. While the share of oil and especially coal in the global energy mix is expected to diminish between now and 2035, natural gas will boost its share of the total to 23%, driven by an approximately 15% increase in volume.

The reason is that natural gas emits fewer greenhouse gases (GHG) than any other fossil fuel. According to a CIRAIG study, life cycle GHG emissions from gas during power generation are less than half those of coal.

Moreover, given its abundance and availability, the current reserve life is estimated at more than 200 years, natural gas is a vital adjunct to growth in renewable energies, inherently intermittent resources.

But while natural gas is the backbone of the 2C scenario, it cannot be used to its full potential unless certain environmental risks, - such as the methane emissions connect with its production and transportation – are mitigated. We are wholly committed to addressing this major environmental challenge …

So we're taking action, first by mobilizing in the field to educate employees and to detect and reduce methane emissions in our operated scope. In this way, we kept them below 0.5% of the natural gas produced in 2016. We've also joined campaigns beyond our walls: for several years we have been an active participant in international initiatives designed to improve methods of measuring and mitigating methane emissions."

Source: "Integrating Climate Into our Strategy." Reports and Publications, Total SA, https://www.total.com/sites/default/files/atoms/files/integrating_climate_into_our_strategy_eng.pdf

13 Boling, Mark. "Case Study Download: Natural Gas and Methane Emissions." 2C Energy, 2cnrg.com/case-study-download-natural-gas-methane-emissions/.

Risk Management

TCFD Recommendation:

Disclose how the organization identifies, assesses, and manages climate-related risks

Recommended Disclosures

a) Describe the organization's processes for identifying and assessing climate-related risks

b) Describe the organization's processes for managing climate-related risks

c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management

The risk management section of the TCFD focuses on the processes a company has in place to identify, assess, prioritize and mitigate climate-related risks.

A complete response to the TCFD would include methane-specific discussions under the following areas:

Reporting in Practice

ConocoPhillips reports:

"We use a well-established management system approach to assess and address our risks. We start by identifying and mapping climate-related risks through our Sustainable Development (SD) Risk Management Practice, which helps us evaluate and categorize risks before documenting them in a risk register. We then address the issues by formulating action plans to integrate climate-related risk mitigation into business practices and decision-making. Our risk mitigation performance is measured and monitored by identifying key indicators and assessing the results of our actions…Our management system allows us to adjust and continuously improve our climate-related risk management processes and tools. In 2017, we revised and improved our Climate Change Assessment for major projects, and our Sustainable Development Risk Assessment Tool to help practitioners identify and characterize climate- and SD-related risks. We also set priorities to strengthen our sustainability approach and further improve our performance on climate-related issues. Our priorities include:

- Mandatory SD Risk Management Practice implementation.
- GHG emissions intensity target planning.
- Reporting and disclosure strategy.
- Investor engagement on sustainability and climate-related priorities and performance."

Note: GHG emission intensity includes a specific focus on methane reduction

Source: ConocoPhillips 2017 CDP Oil and Gas Questionnaire, CDP, www.cdp.net

RISK MANAGEMENT CONTINUED

a) Describe the organization's processes for identifying and assessing climate-related risks

As discussed earlier in this paper, methane emissions pose a variety of potential risks to companies (See Table 1).

- Has the company undertaken a formal materiality analysis for methane emission risk? If so, what were the results?

- Of the different categories of methane-related risk (see Table 1), which does the company see as more and less material?

- What processes does the company have in place to continually assess these risks?

- What is the company's process for tracking and evaluating emerging regulations related to methane?

b) Describe the organization's processes for managing climate-related risks

Investors will look to see how a company is managing methane risk both at the corporate level and in its operations. For each category of risk noted previously (see Table 1), the company can discuss how it makes decisions to mitigate, transfer, accept, and/or control those risks. In particular, investors will be eager to understand:

- What methane risk management plans has the company pursued after its risk identification process?

- How does the company use direct measurement to most accurately identify, quantify and prioritize specific sources of methane leaks?

Reporting in Practice

Southwestern Energy reports:

"SWN's operating and maintenance program focuses on product delivery efficiency – that is, minimizing the loss of natural gas and oil. Field personnel visit each SWN facility at least once a week, at which time leaks can be identified and addressed, if not already identified through remote monitoring.

In addition, we have been proactive in addressing methane emissions through several voluntary efforts. First, we engaged with the scientific community and technology vendors to assess our methane emissions profile. These studies led us to deploy a companywide leak detection and repair (LDAR) program, beginning in 2014, using cutting-edge leak detection equipment, as a complement to our regular operation and maintenance practices. The LDAR program includes annual instrument surveys (using optical gas imaging cameras or laser-based analyzers), leak detection surveys, leak repairs, re-surveys and recordkeeping sufficient to track and trend leaks. We also utilize Bacharach Hi-Flow measurement devices to quantify the emissions detected. Together, our operating and maintenance practices and our LDAR program have led to a significant reduction in leaks over time."

Source: "Air." Our Responsibility, Southwestern Energy, www.swn.com/responsibility/pages/air.aspx.

- How is methane mitigation incorporated into the design standards, construction, operation, and maintenance of both new and existing facilities?

- How does the company use leak detection and repair (LDAR) to manage methane risk? This can include details on the scope, frequency and methodology of an LDAR program, how the scope, frequency and methodology were chosen, and how findings from a program are leveraged into forward-looking methane management plans.

- How does the company approach methane risk management for non-operated facilities? How does it work with JV partners to ensure risk management standards?

- How does the company approach methane risk management for more oil-heavy assets? Is it different for gas-heavy assets? If so, why?

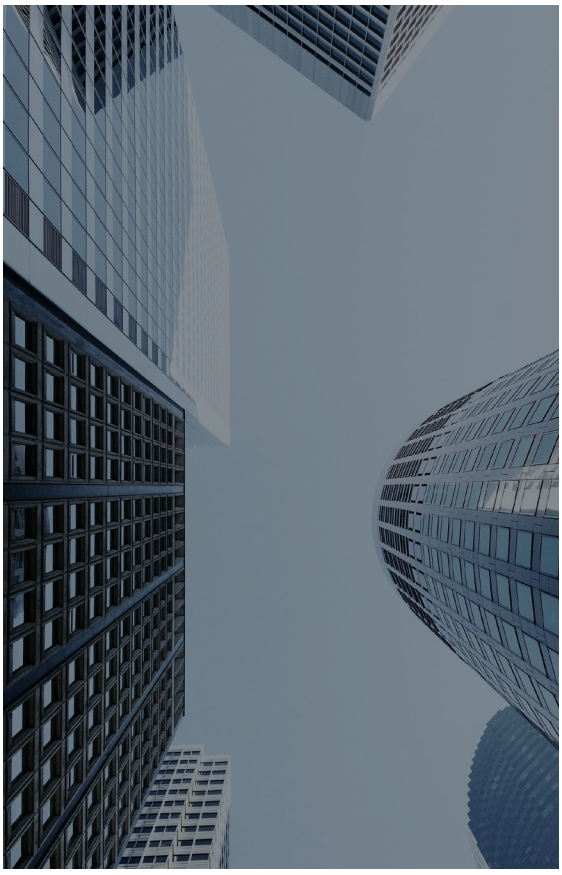
- What training programs or other resources are in place for employees and/or contractors to enhance prevention, monitoring and/or mitigation of emissions?

c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management

It is important to understand not just how methane fits into a company's climate risk management, but also how it fits into a company's general business risk management practices. Since methane emissions present a material business risk, in real economic terms, methane emission risk should be incorporated into a company's overall risk management processes.

- How are methane emissions included in the company's overall approach to enterprise risk management (ERM)?

- Has the company evaluated its memberships in trade and industry organizations for alignment with the company's methane management and overall climate strategies? How does the company consider a trade organization's position on climate and methane issues when evaluating membership?



Metrics & Targets

TCFD Recommendation:

Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material

TCFD Recommended Disclosures

a) Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process

b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks

c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets

The last part of the TCFD's four-part framework focuses on the metrics and targets companies use to assess and manage material climate-related risks and opportunities. This information can help investors understand relative company performance on methane risk management as well as provide further insight regarding how a company approaches the issue from a governance, strategy and risk management perspective.

A Note on Data Accuracy

The usefulness of a company's metrics is related to the accuracy of the underlying data, particularly when it comes to a company's emissions. While there are a number of options to compile emissions inventories, the majority of companies rely on emission factors and engineering equations to estimate emissions.

However, the weight of methane measurement studies suggest that conventional emissions estimates tend to underestimate total emissions. A new report published in Science integrated measurement data to determine that methane emissions from U.S. oil and gas operations are 60% higher than previous EPA assessments. As such, companies should include robust use of direct measurement to verify estimates that are informed in accordance with the latest science.

Public disclosure of audited emissions data and the methods used to estimate emissions is needed to ensure confidence in the accuracy of reported performance. For more detailed guidance on this topic, refer to the Data and Transparency section of EDF's Taking Aim report.

METRICS & TARGETS CONTINUED

The quantitative metrics in this section aren't meant to be analyzed on their own, but in conjunction with the more qualitative and narrative-based disclosures from the prior three sections. The metrics are designed to help investors understand and track how companies are implementing policies and processes around governance, strategy and risk management. For example, a company may discuss how methane mitigation technology research and development (R&D) and adoption fits into their emissions management strategy (see Strategy section, part b) while also disclosing the amount of capital invested into such new technologies. See Table 2 for a breakdown of how the following metrics link with the disclosures recommended in the previous three sections of the TCFD framework.

a) Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.

The following suggested metrics are intended to support and provide greater context for the previous mentioned disclosures around governance, strategy and risk management. Investors will want to understand:

- **Internal carbon/methane price** – Companies should disclose if they utilize an internal price on carbon as they consider new projects and if/how it applies to methane emissions. If a company's internal carbon price does apply to methane, companies should disclose which Global Warming Potential (GWP) timeframe they use to translate a carbon price to a methane price, a 100- or 20-year time frame. If a company has an internal price on carbon but does not apply it to methane it should explain why.

- **Monetary value of methane emissions** – Methane emissions represent lost product, which are a sign of operational inefficiency and lost revenues. Helping investors to understand the financial impacts of lost methane enables them to better understand the potential opportunities for bringing more product to the bottom line.

- **Breakdown of Scope 1 emissions by source** – Because there are different solutions for methane emissions according to source, it is also helpful to know the relative breakdown of sources to understand the implications for expenditures related to minimizing emissions. Sources can be broken down by business segment (e.g., exploration and production vs. storage and processing), by emissions category (e.g., venting vs. fugitive emissions), by specific source (e.g. pneumatics, tanks) and by geographies (e.g., basins, countries).

Reporting in Practice

Chevron reports:

Emissions category	Gross Scope 1 methane emissions (metric tonnes CH_4)
Combustion	16,000
Flaring	36,000
Process emissions	33,000
Vented emissions	63,000
Fugitive emissions	45,000

Source: Chevron 2017 CDP Oil and Gas Questionnaire, CDP, www.cdp.net.

METRICS & TARGETS CONTINUED

• **Expenditures on methane emissions mitigation** – To help investors understand how companies mitigate methane risk and its impact on expenditures, companies may disclose their spending on methane mitigation equipment and operational practices. To help investors understand how companies are managing future emissions, companies can provide a breakdown of resources spent on retrofitting existing assets vs. minimizing/preventing emissions on new assets.

• **Investment in methane mitigation research and development** – There is an increasing focus on using emerging technological innovations to reduce methane emissions, especially through finding and fixing sources quicker and more cost-effectively. Companies may spend R&D, or be a leading technology tester/adopter, as a means of both risk mitigation and competitive opportunity. Companies can also disclose their investments in methane reducing technology (e.g., equity investments, pilot participation). As consumer preferences move towards cleaner forms of energy, minimizing methane emissions through R&D and new technology adoption can help markets understand how the company is positioning itself to be competitive in the future.

• **Returns from methane reducing investments** – Companies should also report metrics around climate-related opportunities, not just the risks. Companies can provide metrics regarding the internal rate of return and payback periods from methane reducing investments such as equipment retrofits or deployment of new technologies.

• **Percentage of emissions inventory informed by direct measurement** – The TCFD recommends that companies "provide a description of the methodologies used to calculate or estimate climate-related metrics."[14] Given that directly measuring emissions is more accurate than using emission factors and engineering equations, investors will want to understand what percentage of a company's emissions inventory is informed by direct measurement (See A Note on Data Accuracy, p. 19). Companies that do not utilize direct measurement will risk underestimating their emissions and will also lack the detailed information needed to develop and execute an optimized risk management plan. Companies may also disclose what other methods are used to inform the remaining percentages of their emissions inventory (e.g., engineering calculations vs. source/company specific emissions factors).

Reporting in Practice

Noble Energy Reports:

Methodology	Proportion of total methane emissions estimated with methodology
Direct detection and measurement	5% to <10%
Engineering calculations	>75%
Source-specific emission factors (IPCC Tier 3)	>75%
IPCC Tier 1 and/or Tier 2 emission factors	>0% to <5%

Source: Noble Energy 2017 CDP Oil and Gas Questionnaire, CDP, www.cdp.net.

14 Op. cit. "Recommendations of the Task Force on Climate-Related Financial Disclosures."

METRICS & TARGETS CONTINUED

• **Frequency of LDAR program** - LDAR is one of the most effective solutions for reducing methane emissions and key for identifying and fixing "super-emitters." Understanding how a company conducts its LDAR programs is a good proxy for a company's broader risk management strategy. The more often a company looks for methane leaks, the more quickly they will be found and repaired, the more effectively emissions will be reduced. A company should report how often its assets are surveyed via LDAR per year, including use of any new technologies like continuous monitors. If a company uses different frequencies on different assets, it may consider reporting metrics like leak recurrence rates to contextualize that strategy.

• **Scope of LDAR program** – A comprehensive LDAR program will inspect all assets under a company's operational control to ensure all potential sources of emissions are checked for leaks. A company should report the percentage of assets monitored via its LDAR program.

b) Disclose Scope 1, Scope 2 and, if appropriate, Scope 3 greenhouse gas (GHG) emissions and the related risks

• **Scope 1 emissions** - Companies should disclose their Scope 1 methane emissions from their direct operations in an absolute, stand-alone figure.

o Methane, due to its near-term warming impact, its economic value and its method of being regulated requires separate reporting from carbon dioxide and other greenhouse gases. Methane risk cannot be fully understood if the emissions are only disclosed in a consolidated CO_2 equivalent (CO_2e) figure.

o Emissions should be reported from all sources, including both oil and gas assets. According to the IEA, more than half of upstream methane emissions come from oil production.[15]

o Ignoring emissions related to oil production (which may include "stranded" gas assets) would provide an inaccurate and incomplete picture of a company's methane footprint. It would also be inconsistent with the TCFD's Fundamental Principles for Effective Disclosure, which highlights in Principle #2 the recommendation that disclosures be "specific and complete."[16]

• **Scope 2 emissions** – Companies may consider reporting Scope 2 methane emissions. However, for upstream, it's unlikely they would have significant methane emissions from Scope 2 for energy procurement.

• **Scope 3 emissions** – With consideration to existing technology and data availability, companies should estimate Scope 3 emissions in their respective value chains.

o Per TCFD guidance, "(Relatively) high carbon emissions in the value chain may accelerate development of alternative technologies in a low-carbon economy. The level of emissions informs vulnerability to a significant decrease in future earning capacity."[17]

o Initiatives exist today for utilities and downstream companies to work with upstream suppliers to get accurate methane data in order to report a Scope 3 methane figure.[18] Upstream companies are likely to face increasing commercial pressure from consumers to provide transparency on the emissions related to their product.

• **Methane intensity figure** – The TCFD recommends companies disclose industry-specific GHG emissions ratios when applicable. The predominant emissions ratio used by upstream industry companies for methane is total methane emissions from oil and gas operations divided by total natural gas production. If a company finds other ratios more appropriate, it is important that the company is transparent and consistent in whatever methodology it uses to arrive at its methane intensity figure.

The metrics and their associated TCFD categories, financial categories and climate-related categories are outlined Table 2 below, which is adapted from the TCFD framework.[19]

15 Op. cit. World Energy Outlook 2017.

16 Op. cit. "Recommendations of the Task Force on Climate-Related Financial Disclosures."

17 Ibid.

18 "Natural Gas Supply Collaborative." M.J. Bradley & Associates, 2018, www.mjbradley.com/content/natural-gas-supply-collaborative.

19 Op. cit. "Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures."

Metric	Related TCFD Category	Financial Category	Climate- Related Category	Unit of Measurement
Internal carbon/methane price	Strategy	Revenues	GHG Emissions	Local currency / Metric tonne
Expenditures on methane emissions mitigation	Strategy	Expenditures	Risk Adaptation & Mitigation	Local currency
Investment in methane mitigation research and development	Strategy	Capital	Risk Adaptation & Mitigation	Local currency
Returns from methane reducing investments	Strategy	Capital	Risk Adaptation & Mitigation	Local currency / time
Methane intensity	Strategy	Revenues	GHG emissions	Volume of methane emissions / Volume of natural gas or hydrocarbon production
Scope 1 methane emissions	Risk Management	Revenues	GHG Emissions	MT
Scope 2 methane emissions	Risk Management	Revenues	GHG Emissions	MT
Scope 3 methane emissions	Risk Management	Revenues	GHG Emissions	MT
Scope 1 emissions broken down by source	Risk Management	Revenues	GHG Emissions	MT
Percent of emissions inventory informed by direct measurement	Risk Management	Revenues	GHG Emissions	Emissions inventory informed by direct measurement / Total emissions inventory
Monetary value of methane emissions	Risk Management	Revenues	GHG Emissions	Local currency
Frequency of LDAR program	Risk Management	Assets	Risk Adaptation & Mitigation	Number of LDAR inspections per facility per year
Scope of LDAR program	Risk Management	Assets	Risk Adaptation & Mitigation	Assets covered by LDAR program / Total assets

METRICS & TARGETS CONTINUED

c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets

Emissions Reduction Target - In April 2018, EDF released Taking Aim: Hitting the mark on oil and gas methane targets to help inform companies and investors around setting and assessing methane targets.[20] While work remains to be done to develop a framework for a science-based methane target, companies can still set ambitious targets based on technical data that support their strategy and risk management priorities.

Methane targets should address:

- **Scope**: Full coverage of upstream production – including emissions from both oil and gas production – is essential for completeness. Moreover, because joint ventures are so prevalent in the global oil and gas industry, companies should consider how to extend emission reduction efforts beyond operated assets.

- **Form:** Companies should be clear on the form and methodology of their targets. Absolute, methane-specific targets provide more certainty on environmental outcomes by defining the future level of allowable emissions. If a company uses a methane intensity target, the company should provide robust transparency into the calculations used for that intensity figure, so investors can quantify the emissions ramifications.

- **Stringency:** When considering absolute reduction targets, ambition is key to achieving meaningful results. IEA analysis and corporate experience suggests that reducing emissions by 75% is feasible, providing a reference point for companies to develop targets.[21] Regarding intensity targets, high ambition can provide some assurance that the target will deliver lower emissions, even if production or throughput increases. A strong aspiration for an upstream methane intensity target is no more than 0.20% oil and gas methane emissions over total natural gas production.

- **Timeline:** Setting a time-bound target is important for several reasons. A deadline enables internal and external stakeholders to assess progress. Additionally, a deadline signals management commitment and creates a public-facing framework for planning and implementation.

- **Data and Transparency:** Over time, credible corporate target setting requires accurate, audited data from companies asserting progress in reducing emissions. Public disclosure of emissions data and the methods used to both measure and estimate emissions is needed to ensure confidence in the accuracy of reported performance.

Reporting in Practice

Eni reports:

"Eni is committed to reducing methane emissions that are essentially concentrated in the upstream chain, where fugitive methane emissions today cover around half of the total. In upstream operations, Eni has achieved a reduction of almost 2 $MtCO_2eq$ compared to the estimated 2014 value and has the objective of reducing 80% of fugitive methane emissions to 2025 vs 2014."

Source: ENI online sustainability reporting https://www.eni.com/en_IT/sustainability/climate-change-and-new-forms-of-energy/reducing-emissions.page

20 "Taking Aim: Hitting the mark on oil and gas methane targets." Environmental Defense Fund, 2018. https://www.edf.org/sites/default/files/documents/EDF_TakingAim.pdf

21 World Energy Outlook 2017. International Energy Agency, 2017, World Energy Outlook 2017, www.iea.org/Textbase/npsum/weo2017SUM.pdf.

METRICS & TARGETS CONTINUED

Operational and Technology Targets - In addition to emissions targets, companies may consider setting operations-focused targets that serve to support the goal of reducing emissions. A few examples of operational targets include:

- **Frequency / Scope of LDAR** – A company may consider setting a target to increase the frequency or scope of their LDAR program. For example, if a company conducts LDAR once per year, an interim target may be to increase it to twice a year on the way to quarterly LDAR. A company may also consider increasing the number of assets inspected.

- **Retrofitting existing equipment** – The existing stock of equipment in the field is responsible for the majority of methane emissions and replacing and/or retrofitting that equipment is necessary to reduce emissions. A company may set a target to replace certain types of old, higher-emitting technology within a certain time frame.

- **Increasing use of direct measurement** – To improve the accuracy of its emissions inventory, a company may set a target around increasing the percentage of emissions covered by direct measurement.

- **New technology adoption** – With a robust market for methane mitigation technology, one strategy for effective risk reduction will be to adopt and deploy new equipment that can speed reductions at less cost. Companies may consider setting targets on the number of sites that will serve to test new equipment, or the amount of R&D funding set aside for investing in new technologies.

Reporting in Practice

ExxonMobil reports:

"We are voluntarily undertaking a three-year plan beginning in 2017 to phase out high-bleed pneumatic devices from our operations. We are also committed to instituting extensive personnel training, extending research, and implementing facility design improvements to new operations – including in XTO's planned expansion in the Delaware Basin. "Pneumatic" devices are valves that periodically vent pressure buildup in order to maintain safety, system integrity and efficient operations. Pressure release occurs mechanically, meaning no electric or external power source is required. "High bleed" pneumatics vent more frequently and at higher volumes, and in XTO's operations are generally older.

XTO's commitment to phasing out high-bleed pneumatic devices will focus largely on facilities across our U.S. assets, where we will be phasing out approximately 1,250 of these devices. Moving forward, XTO is also committing to employ better technology solutions, such as lower-emitting devices and instrument air for new construction."

Source: XTO Energy methane emissions reduction program https://corporate.exxonmobil.com/en/energy/natural-gas/environment-and-safety/xto-energy-methane-emissions-reduction-program

Illustrative Implementation Phases

Table 3 is an illustrative roadmap of implementation phases for the previous recommendations. The outline is a suggestion, with recognition that each company is on an individual disclosure journey, with varying levels of existing reporting and resources. Adapted from TCFD Secretariat presentation "Beginning the Journey" March 2018.[22]

TABLE 3

Phase 1	Phase 2	Phase 3
Implementing TCFD		
Define the governance processes to address climate risks and the establishment of oversight committees if and when needed. Establish processes related to initiating risk management and risk identification in the organization	Incorporate climate risk into risk identification and assessment process Identify and, where possible, disclose useful metrics assessing risks and opportunities Identify climate-related scenarios and consider how these might affect the organization	Define organization targets based on identified metrics Incorporate climate risk into risk identification and assessment process Integrate scenario planning
Reporting TCFD		
Disclose the governance processes to address climate risks and the establishment of oversight committees if and when needed Disclose initial steps taken to identify available metrics assessing risks and opportunities	Disclose the organization's governance approach and oversight committees established with clear responsibility lines Disclose processes in place to define a methane risks strategy and provide relevant early recommendations Disclose the processes implemented to identify risk management and risk identification in the organization Disclose processes to initiate climate-related scenarios analysis and consider how these might affect the organization in the long term Disclose sectoral engagement work in this field	Disclose the organization's governance approach and any relevant updates Disclose methane risks strategy and relevant recommendations Disclose the organization's risk management and risk identification findings within the organization. Disclose how organization is integrating scenario assessments with its investment processes and how these might affect the organization; disclose sectoral engagement work in this field Disclose metrics used for assessing the methane-related risks and opportunities Disclose sectoral engagement work in this field

22 TCFD Secretariat. "Overview of Recommendations and Guidance." ASEAN Conference on the Recommendations of the TCFD, March 2018.

Conclusion

The mission of the TCFD is to "help companies understand what financial markets want from disclosure in order to measure and respond to climate change risks and encourage firms to align their disclosure with investor needs."[23] Investors recognize methane as both a material risk and opportunity for the climate and the long-term competitiveness of natural gas. Therefore, investors are demanding greater transparency. In this context, methane disclosure is an opportunity for industry to build trust with the financial markets by demonstrating it takes climate risks seriously. As investors shift portfolios towards more sustainable companies, oil and gas companies that incorporate the suggestions made within this report will be in a more advantageous position with investors and industry peers.

23 "Our Mission." Task Force on Climate-related Financial Disclosures, Financial Stability Board, https://www.fsb-tcfd.org/about/#

Additional Resources

Climate-related financial disclosure by oil and gas companies: implementing the TCFD recommendations (2018)

Released on behalf of the Task Force on Climate-related Financial Disclosures (TCFD) Oil and Gas Preparer Forum and the World Business Council for Sustainable Development (WBCSD), this report provides an in-depth description of the current state of climate-related financial disclosure and effective disclosure practices among leading oil and gas companies like Eni, Equinor (formerly Statoil ASA), Shell and Total.

Ready or not: Are companies prepared for the TCFD recommendations? (2018)

This joint Climate Disclosure Standards Board (CDSB) and CDP research report assesses the level of preparedness of companies to disclose material climate-related information according to the TCFD recommendations. It focuses on the companies' reporting practices and management processes for climate-related matters, and whether there are any significant geographical or sectorial variations.

Taking Aim (2018)

A report by EDF presents the business and environmental case for oil and gas companies to set sound methane targets. As companies face increasing pressure from a wide variety of stakeholders to demonstrate sincerity on climate action, this paper provides five key criteria for companies to craft robust methane targets and how stakeholders can evaluate them.

The Disclosure Divide (2018)

A report by EDF shows that reporting on methane has improved slightly, though unevenly, within the U.S. oil and gas industry. The report analyzes the disclosure of 65 top oil and gas companies operating in the U.S., and discusses both macro trends in reporting, and company-specific results.

An Investor's Guide to Methane (2016)

Oil and gas industry investors face increasing financial, reputational and regulatory risks from widespread methane emissions. This report, a collaboration between EDF and PRI, is a guide to help investors manage methane risk through company engagement.

Rising Risk (2016)

A first-of-its-kind report by EDF shows that leading oil and gas companies are putting themselves and their investors at financial and reputational risk by failing to adequately disclose meaningful information on methane emissions.

POWERED BY CDP DATA

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Setting the Bar

Implementing the TCFD Recommendations for Oil and Gas Methane Disclosure

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