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EXTRACTIVES & MINERALS PROCESSING SECTOR

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# OIL & GAS – EXPLORATION & PRODUCTION

## Sustainability Accounting Standard

Sustainable Industry Classification System® (SICS®) EM-EP

Prepared by the  
Sustainability Accounting Standards Board

October 2018

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# OIL & GAS – EXPLORATION & PRODUCTION

## Sustainability Accounting Standard

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### About SASB

The SASB Foundation was founded in 2011 as a not-for-profit, independent standards-setting organization. The SASB Foundation’s mission is to establish and maintain industry-specific standards that assist companies in disclosing financially material, decision-useful sustainability information to investors.

The SASB Foundation operates in a governance structure similar to the structure adopted by other internationally recognized bodies that set standards for disclosure to investors, including the Financial Accounting Standards Board (FASB) and the International Accounting Standards Board (IASB). This structure includes a board of directors (“the Foundation Board”) and a standards-setting board (“the Standards Board” or “the SASB”). The Standards Board develops, issues, and maintains the SASB standards. The Foundation Board oversees the strategy, finances and operations of the entire organization, and appoints the members of the Standards Board.

The Foundation Board is not involved in setting standards, but is responsible for overseeing the Standards Board’s compliance with the organization’s due process requirements. As set out in the *SASB Rules of Procedure*, the SASB’s standards-setting activities are transparent and follow careful due process, including extensive consultation with companies, investors, and relevant experts.

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## INTRODUCTION

### Purpose of SASB Standards

The SASB’s use of the term “sustainability” refers to corporate activities that maintain or enhance the ability of the company to create value over the long term. Sustainability accounting reflects the governance and management of a company’s environmental and social impacts arising from production of goods and services, as well as its governance and management of the environmental and social capitals necessary to create long-term value. The SASB also refers to sustainability as “ESG” (environmental, social, and governance), though traditional corporate governance issues such as board composition are not included within the scope of the SASB’s standards-setting activities.

SASB standards are designed to identify a minimum set of sustainability issues most likely to impact the operating performance or financial condition of the typical company in an industry, regardless of location. SASB standards are designed to enable communications on corporate performance on industry-level sustainability issues in a cost-effective and decision-useful manner using existing disclosure and reporting mechanisms.

Businesses can use the SASB standards to better identify, manage, and communicate to investors sustainability information that is financially material. Use of the standards can benefit businesses by improving transparency, risk management, and performance. SASB standards can help investors by encouraging reporting that is comparable, consistent, and financially material, thereby enabling investors to make better investment and voting decisions.

### Overview of SASB Standards

The SASB has developed a set of 77 industry-specific sustainability accounting standards (“SASB standards” or “industry standards”), categorized pursuant to SASB’s [Sustainable Industry Classification System® \(SICS®\)](#). Each SASB standard describes the industry that is the subject of the standard, including any assumptions about the predominant business model and industry segments that are included. SASB standards include:

1. **Disclosure topics** – A minimum set of industry-specific disclosure topics reasonably likely to constitute material information, and a brief description of how management or mismanagement of each topic may affect value creation.
2. **Accounting metrics** – A set of quantitative and/or qualitative accounting metrics intended to measure performance on each topic.
3. **Technical protocols** – Each accounting metric is accompanied by a technical protocol that provides guidance on definitions, scope, implementation, compilation, and presentation, all of which are intended to constitute suitable criteria for third-party assurance.
4. **Activity metrics** – A set of metrics that quantify the scale of a company’s business and are intended for use in conjunction with accounting metrics to normalize data and facilitate comparison.

Furthermore, the *SASB Standards Application Guidance* establishes guidance applicable to the use of all industry standards and is considered part of the standards. Unless otherwise specified in the technical protocols contained in the industry standards, the guidance in the SASB Standards Application Guidance applies to the definitions, scope, implementation, compilation, and presentation of the metrics in the industry standards.

The *SASB Conceptual Framework* sets out the basic concepts, principles, definitions, and objectives that guide the Standards Board in its approach to setting standards for sustainability accounting. The *SASB Rules of Procedure* is focused on the governance processes and practices for standards setting.

## Use of the Standards

SASB standards are intended for use in communications to investors regarding sustainability issues that are likely to impact corporate ability to create value over the long term. Use of SASB standards is voluntary. A company determines which standard(s) is relevant to the company, which disclosure topics are financially material to its business, and which associated metrics to report, taking relevant legal requirements into account<sup>1</sup>. In general, a company would use the SASB standard specific to its primary industry as identified in *SICS*<sup>®</sup>. However, companies with substantial business in multiple *SICS*<sup>®</sup> industries can consider reporting on these additional SASB industry standards.

It is up to a company to determine the means by which it reports SASB information to investors. One benefit of using SASB standards may be achieving regulatory compliance in some markets. Other investor communications using SASB information could be sustainability reports, integrated reports, websites, or annual reports to shareholders. There is no guarantee that SASB standards address all financially material sustainability risks or opportunities unique to a company's business model.

## Industry Description

Oil & Gas - Exploration & Production (E&P) companies explore for, extract, or produce energy products such as crude oil and natural gas, which comprise the upstream operations of the oil and gas value chain. Companies in the industry develop conventional and unconventional oil and gas reserves; these include, but are not limited to, shale oil and/or gas reserves, oil sands, and gas hydrates. Activities covered by this standard include the development of both on-shore and off-shore reserves. The E&P industry creates contracts with the Oil and Gas Services industry to conduct several E&P activities and to obtain equipment and oilfield services.

Note: The Standards discussed below are for “pure-play” E&P activities, or independent E&P companies. Integrated oil and gas companies conduct upstream operations but are also involved in the distribution and/or refining or marketing of products. SASB has separate standards for the Oil and Gas Midstream (EM-MD) and Refining & Marketing industries (EM-RM). As such, integrated companies should also consider the disclosure topics and metrics from these standards. SASB also has separate standards for Oil and Gas Services (EM-SV).

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<sup>1</sup> **Legal Note:** SASB standards are not intended to, and indeed cannot, replace any legal or regulatory requirements that may be applicable to a reporting entity's operations.

## SUSTAINABILITY DISCLOSURE TOPICS & ACCOUNTING METRICS

**Table 1. Sustainability Disclosure Topics & Accounting Metrics**

TOPIC	ACCOUNTING METRIC	CATEGORY	UNIT OF MEASURE	CODE
Greenhouse Gas Emissions	Gross global Scope 1 emissions, percentage methane, percentage covered under emissions-limiting regulations	Quantitative	Metric tons CO <sub>2</sub> -e (t), Percentage (%)	EM-EP-110a.1
	Amount of gross global Scope 1 emissions from: (1) flared hydrocarbons, (2) other combustion, (3) process emissions, (4) other vented emissions, and (5) fugitive emissions	Quantitative	Metric tons CO <sub>2</sub> -e	EM-EP-110a.2
	Discussion of long-term and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	Discussion and Analysis	n/a	EM-EP-110a.3
Air Quality	Air emissions of the following pollutants: (1) NO <sub>x</sub> (excluding N <sub>2</sub> O), (2) SO <sub>x</sub> , (3) volatile organic compounds (VOCs), and (4) particulate matter (PM <sub>10</sub> )	Quantitative	Metric tons (t)	EM-EP-120a.1
Water Management	(1) Total fresh water withdrawn, (2) total fresh water consumed, percentage of each in regions with High or Extremely High Baseline Water Stress	Quantitative	Thousand cubic meters (m <sup>3</sup> ), Percentage (%)	EM-EP-140a.1
	Volume of produced water and flowback generated; percentage (1) discharged, (2) injected, (3) recycled; hydrocarbon content in discharged water	Quantitative	Thousand cubic meters (m <sup>3</sup> ), Percentage (%), Metric tons (t)	EM-EP-140a.2
	Percentage of hydraulically fractured wells for which there is public disclosure of all fracturing fluid chemicals used	Quantitative	Percentage (%)	EM-EP-140a.3
	Percentage of hydraulic fracturing sites where ground or surface water quality deteriorated compared to a baseline <sup>2</sup>	Quantitative	Percentage (%)	EM-EP-140a.4
Biodiversity Impacts	Description of environmental management policies and practices for active sites	Discussion and Analysis	n/a	EM-EP-160a.1
	Number and aggregate volume of hydrocarbon spills, volume in Arctic, volume impacting shorelines with ESI rankings 8-10, and volume recovered	Quantitative	Number, Barrels (bbls)	EM-EP-160a.2
	Percentage of (1) proved and (2) probable reserves in or near sites with protected conservation status or endangered species habitat	Quantitative	Percentage (%)	EM-EP-160a.3

<sup>2</sup> Note to **EM-EP-140a.4** – The entity shall disclose its policies and practices related to ground and surface water quality management.

TOPIC	ACCOUNTING METRIC	CATEGORY	UNIT OF MEASURE	CODE
Security, Human Rights & Rights of Indigenous Peoples	Percentage of (1) proved and (2) probable reserves in or near areas of conflict	Quantitative	Percentage (%)	EM-EP-210a.1
	Percentage of (1) proved and (2) probable reserves in or near indigenous land	Quantitative	Percentage (%)	EM-EP-210a.2
	Discussion of engagement processes and due diligence practices with respect to human rights, indigenous rights, and operation in areas of conflict	Discussion and Analysis	n/a	EM-EP-210a.3
Community Relations	Discussion of process to manage risks and opportunities associated with community rights and interests	Discussion and Analysis	n/a	EM-EP-210b.1
	Number and duration of non-technical delays	Quantitative	Number, Days	EM-EP-210b.2
Workforce Health & Safety	(1) Total recordable incident rate (TRIR), (2) fatality rate, (3) near miss frequency rate (NMFR), and (4) average hours of health, safety, and emergency response training for (a) full-time employees, (b) contract employees, and (c) short-service employees	Quantitative	Rate, Hours (h)	EM-EP-320a.1
	Discussion of management systems used to integrate a culture of safety throughout the exploration and production lifecycle	Discussion and Analysis	n/a	EM-EP-320a.2
Reserves Valuation & Capital Expenditures	Sensitivity of hydrocarbon reserve levels to future price projection scenarios that account for a price on carbon emissions	Quantitative	Million barrels (MMbbls), Million standard cubic feet (MMscf)	EM-EP-420a.1
	Estimated carbon dioxide emissions embedded in proved hydrocarbon reserves	Quantitative	Metric tons (t) CO <sub>2</sub> -e	EM-EP-420a.2
	Amount invested in renewable energy, revenue generated by renewable energy sales	Quantitative	Reporting currency	EM-EP-420a.3
	Discussion of how price and demand for hydrocarbons and/or climate regulation influence the capital expenditure strategy for exploration, acquisition, and development of assets	Discussion and Analysis	n/a	EM-EP-420a.4
Business Ethics & Transparency	Percentage of (1) proved and (2) probable reserves in countries that have the 20 lowest rankings in Transparency International's Corruption Perception Index	Quantitative	Percentage (%)	EM-EP-510a.1
	Description of the management system for prevention of corruption and bribery throughout the value chain	Discussion and Analysis	n/a	EM-EP-510a.2

TOPIC	ACCOUNTING METRIC	CATEGORY	UNIT OF MEASURE	CODE
Management of the Legal & Regulatory Environment	Discussion of corporate positions related to government regulations and/or policy proposals that address environmental and social factors affecting the industry	Discussion and Analysis	n/a	EM-EP-530a.1
Critical Incident Risk Management	Process Safety Event (PSE) rates for Loss of Primary Containment (LOPC) of greater consequence (Tier 1)	Quantitative	Rate	EM-EP-540a.1
	Description of management systems used to identify and mitigate catastrophic and tail-end risks	Discussion and Analysis	n/a	EM-EP-540a.2

**Table 2. Activity Metrics**

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Production of: (1) oil, (2) natural gas, (3) synthetic oil, and (4) synthetic gas	Quantitative	Thousand barrels per day (Mbbbl/day); Million standard cubic feet per day (MMscf/day)	EM-EP-000.A
Number of offshore sites	Quantitative	Number	EM-EP-000.B
Number of terrestrial sites	Quantitative	Number	EM-EP-000.C



# Greenhouse Gas Emissions

## Topic Summary

Exploration & Production (E&P) activities generate significant direct greenhouse gas (GHG) emissions from a variety of sources. Emissions can be combusted, including those arising from flaring or power generation equipment, as well as uncombusted, including those emissions arising from gas processing equipment, venting, flaring, and fugitive methane. Regulatory efforts to reduce GHG emissions in response to the risks posed by climate change may result in additional regulatory compliance costs and risks for E&P companies. With natural gas production from shale resources expanding, the management of the emission of methane, a highly potent GHG, from oil and gas E&P systems has emerged as a major operational, reputational, and regulatory risk for companies. Furthermore, the development of unconventional hydrocarbon resources may be more or less GHG-intensive than conventional oil and gas, with associated impacts to regulatory risk. Energy efficiency, use of less carbon-intensive fuels, or process improvements to reduce fugitive emissions, venting, and flaring, can provide benefits to E&P companies in the form of climate risk mitigation, lower costs, or increased revenues.

## Accounting Metrics

### EM-EP-110a.1. Gross global Scope 1 emissions, percentage methane, percentage covered under emissions-limiting regulations

- 1 The entity shall disclose its gross global Scope 1 greenhouse gas (GHG) emissions to the atmosphere of the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF<sub>6</sub>), and nitrogen trifluoride (NF<sub>3</sub>).
  - 1.1 Emissions of all GHGs shall be consolidated and disclosed in metric tons of carbon dioxide equivalent (CO<sub>2</sub>-e), and calculated in accordance with published 100-year time horizon global warming potential (GWP) values. To date, the preferred source for GWP values is the [Intergovernmental Panel on Climate Change \(IPCC\) Fifth Assessment Report \(2014\)](#).
  - 1.2 Gross emissions are GHGs emitted into the atmosphere before accounting for offsets, credits, or other similar mechanisms that have reduced or compensated for emissions.
- 2 Scope 1 emissions are defined and shall be calculated according to the methodology contained in [The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard](#) (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).
  - 2.1 These emissions include direct emissions of GHGs from stationary or mobile sources; these sources include but are not limited to: equipment at well sites, production facilities, refineries, chemical plants, terminals, fixed site

drilling rigs, office buildings, marine vessels transporting products, tank truck fleets, mobile drilling rigs, and moveable equipment at drilling and production facilities.

2.2 Acceptable calculation methodologies include those that conform with the GHG Protocol as the base reference, but provide additional guidance, such as industry- or region-specific guidance. Examples include but are not limited to:

2.2.1 *GHG Reporting Guidance for the Aerospace Industry* published by International Aerospace Environmental Group (IAEG)

2.2.2 *Greenhouse Gas Inventory Guidance: Direct Emissions from Stationary Combustion Sources* published by the U.S. Environmental Protection Agency (EPA)

2.2.3 India GHG Inventory Program

2.2.4 ISO 14064-1

2.2.5 *Petroleum Industry Guidelines for reporting GHG emissions*, 2nd edition, 2011, published by IPIECA

2.2.6 *Protocol for the quantification of greenhouse gas emissions from waste management activities* published by Entreprises pour l'Environnement (EpE)

2.3 GHG emission data shall be consolidated according to the approach with which the entity consolidates its financial reporting data, which is generally aligned with the "financial control" approach defined by the GHG Protocol as well as:

2.3.1 The financial approach detailed in Chapter 3 of the IPIECA/API/OGP *Petroleum Industry Guidelines for Reporting Greenhouse Gas Emissions*, Second Edition, 2011 (hereafter, the "IPIECA GHG Guidelines")

2.3.2 The approach provided by the Climate Disclosure Standards Board (CDSB) that is described in REQ-07, "Organisational boundary," of the *CDSB Framework for reporting environmental information, natural capital and associated business impacts* (April 2018)

3 The entity shall disclose the percentage of gross global Scope 1 emissions from methane emissions.

3.1 The percentage of gross global Scope 1 GHG emissions from methane emissions shall be calculated as the methane emissions in metric tons of carbon dioxide equivalents (CO<sub>2</sub>-e) divided by the gross global Scope 1 GHG emissions in metric tons of carbon dioxide equivalents (CO<sub>2</sub>-e).

4 The entity shall disclose the percentage of its emissions that are covered under an emissions-limiting regulation or that is intended to directly limit or reduce emissions, such as cap-and-trade schemes, carbon tax/fee systems, and other emissions control (e.g., command-and-control approach) and permit-based mechanisms.

4.1 Examples of emissions-limiting regulations include, but are not limited to:

- 4.1.1 California Cap-and-Trade (California Global Warming Solutions Act)
- 4.1.2 European Union Emissions Trading Scheme (EU ETS)
- 4.1.3 Quebec Cap-and-Trade (Draft Bill 42 of 2009)
- 4.2 The percentage shall be calculated as the total amount of gross global Scope 1 GHG emissions (CO<sub>2</sub>-e) that are covered under emissions-limiting regulations divided by the total amount of gross global Scope 1 GHG emissions (CO<sub>2</sub>-e).
  - 4.2.1 For emissions that are subject to multiple emissions-limiting regulations, the entity shall not account for those emissions more than once.
- 4.3 The scope of emissions-limiting regulations excludes emissions covered under voluntary emissions-limiting regulations (e.g., voluntary trading systems) as well as disclosure-based regulations [e.g., the U.S. Environmental Protection Agency (EPA) GHG Reporting Program].
- 5 The entity may discuss any change in its emissions from the previous reporting period, including whether the change was due to emissions reductions, divestment, acquisition, mergers, changes in output, and/or changes in calculation methodology.
- 6 In the case that current reporting of GHG emissions to the CDP or other entity (e.g., a national regulatory disclosure program) differs in terms of the scope and consolidation approach used, the entity may disclose those emissions. However, primary disclosure shall be according to the guidelines described above.
- 7 The entity may discuss the calculation methodology for its emissions disclosure, such as if data are from continuous emissions monitoring systems (CEMS), engineering calculations, or mass balance calculations.

**EM-EP-110a.2. Amount of gross global Scope 1 emissions from: (1) flared hydrocarbons, (2) other combustion, (3) process emissions, (4) other vented emissions, and (5) fugitive emissions**

- 1 The entity shall disclose the amount of direct greenhouse gas (GHG) emissions in CO<sub>2</sub>-e from the following sources (1) flared hydrocarbons, (2) other combustion, (3) process emissions, (4) other vented emissions, and (5) fugitive emissions from operations.
  - 1.1 Sources shall generally correspond to the definitions provided in the [API Compendium of Greenhouse Gas Emissions Methodologies for the Oil and Natural Gas Industry \(2009\)](#).
  - 1.2 Flared hydrocarbons shall include all emissions emitted from flares and which are associated with the management and disposal of unrecoverable natural gas via combustion of hydrocarbon products from routine operations, upsets, or emergencies.

- 1.3 Other combusted emissions shall include, but are not limited to:
  - 1.3.1 Emissions from stationary devices, including, but not limited to boilers, heaters, furnaces, reciprocating internal combustion engines and turbines, incinerators, and thermal/catalytic oxidizers
  - 1.3.2 Emissions from mobile sources, including, but not limited to barges, ships, railcars, and trucks for material transport; planes/helicopters and other company vehicles for personnel transport; forklifts, all terrain vehicles, construction equipment, and other off-road mobile equipment
- 1.4 Other combusted emissions shall exclude those emissions disclosed as flared hydrocarbons.
- 1.5 Process emissions shall include those emissions that are not combusted and are intentional or designed into the process or technology to occur during normal operations and are a result of some form of chemical transformation or processing step. Such emissions include but are not limited to: emissions from hydrogen plants, amine units, glycol dehydrators, fluid catalytic cracking unit and reformer generation, and flexi-coker coke burn.
- 1.6 Vented emissions shall include those emissions that are not combusted and are intentional or designed into the process or technology to occur during normal operations, and which include, but are not limited to:
  - 1.6.1 Venting from crude oil, condensate, or natural gas product storage tanks, gas-driven pneumatic devices, gas samplers, chemical injection pumps, exploratory drilling, loading/ballasting/transit, and loading racks
  - 1.6.2 Venting resulting from maintenance/turn-arounds, including, but not limited to decoking of furnace tubes, well unloading, vessel and gas compressor depressurizing, compressor starts, gas sampling, and pipeline blowdowns
  - 1.6.3 Venting from non-routine activities, including but not limited to pressure relief valves, pressure control valves, fuel supply unloading valves, and emergency shut-down devices
- 1.7 Vented emissions shall exclude those emissions disclosed as process emissions.
- 1.8 Fugitive emissions shall include those emissions that can be individually found and fixed to reduce emissions rates to near zero and which include, but are not limited to, emissions from valves, flanges, connectors, pumps, compressor seal leaks, catadyne heaters, and wastewater treatment and surface impoundments.

### **EM-EP-110a.3. Discussion of long-term and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets**

- 1 The entity shall discuss its long-term and short-term strategy or plan to manage its Scope 1 greenhouse gas (GHG) emissions.

- 1.1 Scope 1 emissions are defined according to *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).
  - 1.2 The scope of GHG emissions includes the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF<sub>6</sub>), and nitrogen trifluoride (NF<sub>3</sub>).
- 2 The entity shall discuss its emission reduction target(s) and analyze its performance against the target(s), including the following, where relevant:
    - 2.1 The scope of the emission reduction target (e.g., the percentage of total emissions to which the target is applicable);
    - 2.2 Whether the target is absolute- or intensity-based, and the metric denominator, if it is an intensity-based target;
    - 2.3 The percentage reduction against the base year, with the base year representing the first year against which emissions are evaluated towards the achievement of the target;
    - 2.4 The timelines for the reduction activity, including the start year, the target year, and the base year;
    - 2.5 The mechanism(s) for achieving the target; and
    - 2.6 Any circumstances in which the target or base year emissions have been, or may be, recalculated retrospectively or the target or base year has been reset which may include, but are not limited to energy efficiency efforts, energy source diversification, carbon capture and storage, or the implementation of leak detection and repair processes.
  - 3 The entity shall discuss activities and investments required to achieve the plans and/or targets, and any risks or limiting factors that might affect achievement of the plans and/or targets.
  - 4 The entity shall discuss the scope of its strategies, plans, and/or reduction targets, such as whether they pertain differently to different business units, geographies, or emissions sources.
    - 4.1 Categories of emissions sources generally correspond to those defined in the API Compendium of Greenhouse Gas Emissions Methodologies for the Oil and Natural Gas Industry (2009), and may include:
      - 4.1.1 Flared hydrocarbons, including all emissions emitted from flares and which are associated with the management and disposal of unrecoverable natural gas via combustion of hydrocarbon products from routine operations, upsets, or emergencies

- 4.1.2 Other combusted emissions, including, but not limited to: (1) emissions from stationary devices, including, but not limited to boilers, heaters, furnaces, reciprocating internal combustion engines and turbines, incinerators, and thermal/catalytic oxidizers, (2) emissions from mobile sources, including, but not limited to barges, ships, railcars, and trucks for material transport; planes/helicopters and other company vehicles for personnel transport; forklifts, all terrain vehicles, construction equipment, and other off-road mobile equipment, and (3) other combusted emissions shall exclude those emissions disclosed as flared hydrocarbons
  - 4.1.3 Process emissions, including, but not limited to those emissions that are not combusted and are intentional or designed into the process or technology to occur during normal operations and are a result of some form of chemical transformation or processing step. Such emissions include, but are not limited to those from hydrogen plants, amine units, glycol dehydrators, fluid catalytic cracking unit and reformer generation, and flexi-coker coke burn
  - 4.1.4 Vented emissions, including those emissions that are not combusted and are intentional or designed into the process or technology to occur during normal operations, and which include, but are not limited to: (1) venting from crude oil, condensate, or natural gas product storage tanks, gas-driven pneumatic devices, gas samplers, chemical injection pumps, exploratory drilling, loading/ballasting/transit, and loading racks, (2) venting resulting from maintenance/turn-arounds, including, but not limited to decoking of furnace tubes, well unloading, vessel and gas compressor depressurizing, compressor starts, gas sampling, and pipeline blowdowns, and (3) venting from non-routine activities, including but not limited to pressure relief valves, pressure control valves, fuel supply unloading valves, and emergency shut-down devices
  - 4.1.5 Fugitive emissions, including, but not limited to those emissions which can be individually found and “fixed” to make emissions “near zero” and which include, but are not limited to emissions from valves, flanges, connectors, pumps, compressor seal leaks, catalytic heaters, and wastewater treatment and surface impoundments
- 5 The entity shall discuss whether its strategies, plans, and/or reduction targets are related to, or associated with, emissions limiting and/or emissions reporting-based programs or regulations (e.g., the EU Emissions Trading Scheme, Quebec Cap-and-Trade System, California Cap-and-Trade Program), including regional, national, international or sectoral programs.
  - 6 Disclosure of strategies, plans, and/or reduction targets shall be limited to activities that were ongoing (active) or reached completion during the reporting period.

# Air Quality

## Topic Summary

Air emissions from E&P operations other than greenhouse gas emissions include hazardous air pollutants, criteria air pollutants, and volatile organic compounds (VOCs), which can have significant, localized human health and environmental impacts. Of particular concern are sulfur dioxide, nitrogen dioxide, and VOC emissions. The financial impacts on companies from air emissions will vary depending on the specific locations of operations and the prevailing air emissions regulations. As E&P operations expand close to population centers, the impacts on human health are likely to be exacerbated if air emissions limits are breached. Active management of the issue—through technological and process improvements—could allow companies to limit the impact of regulations in an environment of increasing regulatory and public concerns about air quality. Companies could benefit from operational efficiencies that may lead to a lower cost structure over time.

## Accounting Metrics

### **EM-EP-120a.1. Air emissions of the following pollutants: (1) NO<sub>x</sub> (excluding N<sub>2</sub>O), (2) SO<sub>x</sub>, (3) volatile organic compounds (VOCs), and (4) particulate matter (PM<sub>10</sub>)**

- 1 The entity shall disclose its emissions of air pollutants, in metric tons per pollutant, that are released into the atmosphere.
  - 1.1 The scope of disclosure includes air pollutants associated with the entity's direct air emissions resulting from the entity's activities and sources of emissions, including, but not limited to stationary or mobile sources, production facilities, office buildings, and transportation fleets.
- 2 The entity shall disclose emissions consistent with IPIECA's Oil and Gas Industry Guidance on Voluntary Sustainability Reporting, as noted below.
- 3 The entity shall disclose its emissions of (1) oxides of nitrogen (NO<sub>x</sub>), reported as NO<sub>x</sub>.
  - 3.1 The scope of NO<sub>x</sub> includes NO and NO<sub>2</sub>, but excludes N<sub>2</sub>O
- 4 The entity shall disclose its emissions of (2) oxides of sulfur (SO<sub>x</sub>), reported as SO<sub>x</sub>.
  - 4.1 The scope of SO<sub>x</sub> includes SO<sub>2</sub> and SO<sub>3</sub>
- 5 The entity shall disclose its emissions of (3) non-methane volatile organic compounds (VOCs).
  - 5.1 VOCs are defined as any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, ammonium carbonate, and methane, that participates in atmospheric

photochemical reactions, except those designated by the U.S. Environmental Protection Agency (EPA) as having negligible photochemical reactivity.

5.1.1 This definition is aligned with U.S. 40 CFR Part 51.100, where a list of compounds that have been determined to have negligible photochemical reactivity can be obtained.

5.1.2 Where applicable regulatory definitions of VOCs may conflict with this definition, such as the EU Paints Directive (Directive 2004/42/EC), and Schedule 1 of the Canadian Environmental Protection Act 1999, the entity may define VOCs as per the applicable regulatory definition.

6 The entity shall disclose its emissions of (4) particulate matter 10 micrometers or less in diameter (PM<sub>10</sub>), reported as PM<sub>10</sub>.

6.1 PM<sub>10</sub> is defined, according to U.S. 40 CFR Part 51.100, as any airborne finely divided solid or liquid material with an aerodynamic diameter less than or equal to a nominal 10 micrometers.

7 The entity may discuss the calculation methodology for its emissions disclosure, such as whether data are from continuous emissions monitoring systems (CEMS), engineering calculations, or mass balance calculations.



# Water Management

## Topic Summary

Depending on the extraction technique, exploration and production operations may consume significant quantities of water, which may expose companies to the risk of reduced water availability, regulations limiting usage, or related cost increases, particularly in water-stressed regions. Contamination of local water resources can result from incidents involving produced water, flowback water, hydraulic fracturing fluids, and other well fluids. Historically, there has been concern regarding the impacts of hydraulic fracturing operations on the contamination of groundwater supplies. In the U.S., concerns about chemicals used in hydraulic fracturing fluids have led to increased disclosure by companies through a voluntary industry registry, FracFocus. There have also been related state regulations, as well as legislative proposals to repeal federal exemptions for hydraulic fracturing operations. Reducing water use and contamination through recycling, other water management strategies, and use of non-toxic fracturing fluids could create operational efficiency for companies and lower their operating costs. Such strategies could also minimize the impacts that regulations, water supply shortages, and community-related disruptions have on operations.

## Accounting Metrics

### **EM-EP-140a.1. (1) Total fresh water withdrawn, (2) total fresh water consumed, percentage of each in regions with High or Extremely High Baseline Water Stress**

- 1 The entity shall disclose the amount of water, in thousands of cubic meters, that was withdrawn from freshwater sources:
  - 1.1 Fresh water may be defined according to the local statutes and regulations where the entity operates. Where there is no regulatory definition, fresh water shall be considered to be water that has less than 1000 parts per million of dissolved solids per the [U.S. Geological Survey](#).
  - 1.2 Water obtained from a water utility in compliance with U.S. [National Primary Drinking Water Regulations](#) can be assumed to meet the definition of fresh water.
- 2 The entity shall disclose the amount of fresh water, in thousands of cubic meters, that was consumed in its operations.
  - 2.1 Water consumption is defined as:
    - 2.1.1 Water that evaporates during withdrawal, usage, and discharge;
    - 2.1.2 Water that is directly or indirectly incorporated into the entity's product or service;
    - 2.1.3 Water that does not otherwise return to the same catchment area from which it was withdrawn, such as water returned to another catchment area or the sea.

- 3 The entity shall analyze all of its operations for water risks and identify activities that withdraw and consume water in locations with High (40–80%) or Extremely High (>80%) Baseline Water Stress as classified by the World Resources Institute's (WRI) Water Risk Atlas tool, [Aqueduct](#).
- 4 The entity shall disclose its water withdrawn in locations with High or Extremely High Baseline Water Stress as a percentage of the total water withdrawn.
- 5 The entity shall disclose its water consumed in locations with High or Extremely High Baseline Water Stress as a percentage of the total water consumed.

**EM-EP-140a.2. Volume of produced water and flowback generated; percentage (1) discharged, (2) injected, (3) recycled; hydrocarbon content in discharged water**

- 1 The entity shall disclose the volume, in thousands of cubic meters, of produced water and flowback fluid generated during its activities.
- 2 Produced water is defined according to the U.S. Environmental Protection Agency (EPA) according to 40 CFR 435.41 as water (brine) obtained from the hydrocarbon bearing formation strata during the extraction of oil and gas. This can include formation water, injection water, and any chemicals added downhole or during the oil/water separation process.
- 3 Flowback is defined as the recovered hydraulic fracturing fluid that returns to the surface during a hydraulic fracturing operation that may often be mixed with produced water.
- 4 The entity shall calculate the percentage of produced water and flowback fluid that was:
  - 4.1 Discharged directly to the environment or indirectly discharged through a third party, such as a local wastewater treatment plant
  - 4.2 Injected, such as into a Class II injection well under the EPA's Underground Injection Control (UIC) program, or equivalent
  - 4.3 Recycled for use in other wells in fracturing fluids or in other drilling and production processes
- 5 The entity shall disclose the amount, in metric tons, of hydrocarbons water that was discharged to the environment.
  - 5.1 The scope of disclosure includes produced water, flowback, process water, storm water, or other water that was discharged to the environment.
  - 5.2 Measurements of hydrocarbon content should be made using test methods required or approved by local regulatory authorities (or equivalent applicable standards).

### **EM-EP-140a.3. Percentage of hydraulically fractured wells for which there is public disclosure of all fracturing fluid chemicals used**

- 1 The entity shall disclose the percentage of hydraulically fractured wells for which there is public disclosure of all fracturing fluid chemicals used.
  - 1.1 The percentage shall be calculated as the number of hydraulically fractured wells for which it provides public disclosure of all of the chemical content of fracturing fluid, divided by the total number of hydraulically fractured wells.
  - 1.2 The entity shall include in the percentage only those wells for which all fluid chemicals are publicly disclosed, including the chemicals that meet the definition of a trade secret, according to [Appendix E to 29 CFR Part §1910.1200](#) and may be exempt from disclosure on a material safety data sheet (MSDS).
- 2 Public disclosure includes, but is not limited to, posting to a publicly accessible corporate website or the [FracFocus Chemical Disclosure Registry](#).

### **EM-EP-140a.4. Percentage of hydraulic fracturing sites where ground or surface water quality deteriorated compared to a baseline**

- 1 The entity shall calculate the percentage as: the total number of hydraulic fracturing well sites for which it detected a deterioration in the ground or surface water surrounding the well site as compared to a baseline measurement, divided by the total number of hydraulic fracturing well sites.
- 2 Deterioration in water quality is, at a minimum, defined as occurring when testing indicates:
  - 2.1 Presence of thermogenic gas or a mixture of thermogenic and biogenic gas that was not present in baseline testing.
  - 2.2 An increase in methane concentration by more than 5.0 mg/l between sampling periods.
  - 2.3 Benzene, toluene, ethylbenzene, or xylenes (BTEX compounds) or total petroleum hydrocarbons (TPH) are present in higher concentrations as compared to the baseline.
- 3 The entity shall determine whether water quality deteriorated against a baseline through monitoring of ground and surface water surrounding hydraulically fractured well sites.
  - 3.1 Determinations shall be consistent with Chapter 3 of the Wyoming Oil and Gas Conservation Commission (WOGCC) Rules and Regulations and/or the Colorado Oil and Gas Conservation Commission's (COGCC) Rule 609 — Statewide Groundwater Baseline Sampling and Monitoring.
- 4 The initial baseline sample shall occur:
  - 4.1 Prior to drilling or before installation of a surface oil and gas facility on a location

- 4.2 Prior to re-stimulation of a well, if more than 12 months have passed since the initial pre-drilling sampling event or the most recent re-stimulation sampling event
- 5 Ongoing monitoring shall occur with at least the following frequency:
  - 5.1 One subsequent sampling between 12 and 18 months after well completion or facility installation
  - 5.2 A second subsequent sampling between 60 and 78 months after the previous sampling event. Dry holes are exempt from this requirement
- 6 The entity shall collect initial baseline samples and subsequent monitoring samples from all available water sources within a one-half mile radius of a proposed well, multi-well site, or dedicated injection well.
  - 6.1 The entity shall follow sampling guidance from the WOGCC and COGCC for the collection of samples, including for instances when few or no sampling sites exist or are accessible.
- 7 If the entity does not conduct baseline water quality assessments and ongoing monitoring for any of its well sites, then it shall disclose the percentage of wells for which there is no baseline and/or ongoing monitoring.
- 8 The entity may disclose whether results of baseline groundwater quality tests and ongoing monitoring are communicated to local regulatory authorities (where not required by local law) and/or residents and business owners in proximity to hydraulic fracturing sites.

Note to **EM-EP-140a.4**

- 1 The entity shall describe its policies and practices related to its management of ground and surface water quality.
- 2 Applicable policies and practices may include, but are not limited to:
  - 2.1 Well design and well integrity management
  - 2.2 Hydraulic fracturing procedures
  - 2.3 Surface facility design, including the use of backflow preventers, storage tank design, and impoundment design
  - 2.4 Surface and groundwater quality and testing
  - 2.5 Chemicals management
  - 2.6 Water reuse, processing, and disposal

# Biodiversity Impacts

## Topic Summary

The exploration and production (E&P) industry's activities can have significant impacts on biodiversity. Examples include habitat loss and alteration through land use for exploration, production, disposing of drilling and associated wastes, and decommissioning of onshore and offshore wells. Oil spills and leaks are a threat to species and habitats impacted by hydrocarbon contamination. Biodiversity impacts of E&P operations can affect the valuation of oil and gas reserves and create operational risks. The environmental characteristics of the land where reserves are located could increase extraction costs as a result of increasing awareness and protection of ecosystems, making such reserves uneconomical to extract. Companies could also face regulatory or reputational barriers to accessing reserves in ecologically sensitive areas. This may include new protection statuses afforded to areas where reserves are located. Areas such as the Arctic and certain shorelines with mangroves and swamps are not only extremely ecologically sensitive, but also entail more complex and expensive cleanup operations if hydrocarbon spills or leaks occur there. Negative future impacts on the value of reserves could be mitigated by taking into consideration the location of reserves in or near protected areas when making investment or capital expenditure decisions. Companies with a good track record of minimizing biodiversity impacts could gain a competitive advantage in accessing new reserves in or near protected areas. Ongoing E&P operations could be at risk in the absence of effective environmental management plans for different stages of the project lifecycle, due to regulatory penalties, litigation, community protests, and associated costs.

## Accounting Metrics

### EM-EP-160a.1. Description of environmental management policies and practices for active sites

- 1 The entity shall describe its environmental management plan(s) implemented at active sites, including, where relevant:
  - 1.1 Lifecycle stages to which the plan(s) apply, such as: pre-bid (when the entity is considering acquisition of a site), exploration and appraisal, site development, hydrocarbon production, and during closure, decommissioning, and restoration
  - 1.2 The topics addressed by the plan(s), such as: ecological and biodiversity impacts, waste generation, noise impacts, emissions to air, discharges to water, natural resource consumption, and hazardous chemical usage
  - 1.3 The underlying references for its plan(s), including whether they are codes, guidelines, standards, or regulations; whether they were developed by the entity, an industry organization, a third-party organization (e.g., a non-governmental organization), a governmental agency, or some combination of these groups
- 2 The scope of disclosure includes all terrestrial and offshore operations in which the entity is involved as an operator, partner, or contractor, and which are in the exploration, development, production, or decommissioning phase.

- 3 Where applicable and relevant, the entity shall describe differences between policies and practices in terrestrial areas and in marine areas.
- 4 Where environmental management policies and practices differ significantly by hydrocarbon resource the entity shall describe differences for each resource.
- 5 Where applicable and relevant, the entity shall describe specific policies and practices that apply to areas with protected conservation status and/or areas of critical habitat, which are defined by the International Finance Corporation (IFC) [Performance Standard 6](#) as:
  - 5.1 Areas with high biodiversity value, including (i) habitat of significant importance to Critically Endangered and/or Endangered species; (ii) habitat of significant importance to endemic and/or restricted-range species; (iii) habitat supporting globally significant concentrations of migratory species and/or congregatory species; (iv) highly threatened and/or unique ecosystems; and/or (v) areas associated with key evolutionary processes.<sup>3</sup>
- 6 If the management policies and practices do not apply to all of the entity's sites or operations, it shall indicate the percentage of sites to which they were applied.
- 7 The entity shall disclose the degree to which its policies and practices are aligned with the International Finance Corporation's (IFC) [Performance Standards on Environmental and Social Sustainability](#), January 1, 2012, including specifically:
  - 7.1 Performance Standard 1 — Assessment and Management of Environmental and Social Risks and Impacts
  - 7.2 Performance Standard 3 — Resource Efficiency and Pollution Prevention
  - 7.3 Performance Standard 4 — Community Health, Safety, and Security
  - 7.4 Performance Standard 6 — Biodiversity Conservation and Sustainable Management of Living Natural Resources
- 8 Additional relevant references may include:
  - 8.1 [“Environmental management in oil and gas exploration and production — An overview of issue and management approaches,”](#) Joint E&P Forum/UNEP Technical Publication 1997
  - 8.2 [“Towards Sustainable Decommissioning and Closure of Oil Fields and Mines: A Toolkit to Assist Government Agencies,”](#) DRAFT Version 2.0, November 2009, World Bank Multistakeholder Initiative

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<sup>3</sup> International Finance Corporation (IFC), Performance Standard 6, *Biodiversity Conservation and Sustainable Management of Living Natural Resources*, January 1, 2012.

## **EM-EP-160a.2. Number and aggregate volume of hydrocarbon spills, volume in Arctic, volume impacting shorelines with ESI rankings 8-10, and volume recovered**

- 1 The entity shall disclose the total number and volume (in barrels) of hydrocarbon spills where:
  - 1.1 Spills are defined as greater than 1bbl (42 U.S. gallons or 159 liters).
  - 1.2 Spills include those that reached the environment and exclude spills that were contained within impermeable secondary containment.
- 2 Consistent with IPIECA's Oil and Gas Industry Guidance on Voluntary Sustainability Reporting (hereafter, "IPIECA Guidance"), the volume reported shall represent the total estimated amount spilled that reached the environment and not be reduced by the amount of such hydrocarbon subsequently recovered, evaporated, or otherwise lost.
- 3 Consistent with IPIECA Guidance, the scope of releases from operations and events includes:
  - 3.1 Above-ground and below-ground facilities
  - 3.2 Sabotage, earthquakes, or other events outside operational control
  - 3.3 Company-owned and operated transport
  - 3.4 Leakage over time, which is counted once at the time it is identified
- 4 The entity may disclose spills to soil and water separately. A spill that qualifies as a spill to both soil and water should be reported as a single spill to water, with the volume properly apportioned to soil and water.
- 5 The entity shall disclose the volume of spills, in barrels, that occurred in the Arctic, which is considered to be the area north of the Arctic Circle, or north of the parallel of latitude at 66° 33' north.
- 6 The entity shall disclose the volume of spills impacting environmentally sensitive shorelines.
  - 6.1 The scope of spills to environmentally sensitive shorelines shall include spills to water that reached the soil or spills directly to the soil of shorelines with Environmentally Sensitive Index (ESI) levels 8 through 10, where levels are defined according to U.S. National Oceanic and Atmospheric Administration (NOAA)'s [shoreline sensitivity rankings list](#).
- 7 The entity shall calculate the volume of spills recovered as the amount of spilled hydrocarbons (in bbls) removed from the environment through short-term spill response activities, excluding:
  - 7.1 Amounts that were recovered during longer-term remediation at spill sites
  - 7.2 Amounts that evaporated, burned, or were dispersed

- 8 The entity shall calculate recovery rates using an accepted standard or guideline, such as [California Code of Regulations, Title 14, Division 1, Subdivision 4, Chapter 7, Subchapter 2, Determining Amount of Petroleum Hydrocarbons Recovered, Sections 877-880, Effective June 13, 2009.](#)

### **EM-EP-160a.3. Percentage of (1) proved and (2) probable reserves in or near sites with protected conservation status or endangered species habitat**

- 1 The entity shall disclose the percentage of net proved reserves located in sites either with protected conservation status or in areas of endangered species habitat.
  - 1.1 The percentage of proved reserves shall be calculated as the amount of proved reserves located in areas either with protected conservation status or in areas of endangered species habitat divided by the total amount of proved reserves.
- 2 The entity shall disclose the percentage of net probable reserves located in sites either with protected conservation status or in areas of endangered species habitat.
  - 2.1 The percentage of probable reserves shall be calculated as the amount of probable reserves located in areas either with protected conservation status or in areas of endangered species habitat divided by the total amount of probable reserves.
- 3 Reserves are considered to be in areas of protected conservation status if they are located within:
  - 3.1 International Union for Conservation of Nature (IUCN) Protected Areas (categories I-VI)
  - 3.2 Ramsar Wetlands of International Importance
  - 3.3 UNESCO World Heritage Sites
  - 3.4 Biosphere Reserves recognized within the framework of UNESCO's Man and the Biosphere (MAB) Programme
  - 3.5 Natura 2000 sites
  - 3.6 Sites that meet the IUCN's definition of a protected area: "A protected area is a clearly defined geographical space, recognized, dedicated and managed, through legal or other effective means, to achieve the long term conservation of nature with associated ecosystem services and cultural values"<sup>4</sup>
    - 3.6.1 These sites may be listed in the World Database of Protected Areas (WDPA) and mapped on [ProtectedPlanet](#)
- 4 Reserves are considered to be in endangered species habitat if they are in or near areas where IUCN Red List of Threatened Species that are classified as Critically Endangered (CR) or Endangered (EN) are extant.

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<sup>4</sup> Dudley, N. (ed.) (2008) Guidelines for Applying Protected Areas Management Categories. IUCN: Gland, Switzerland. p.8-9.



- 4.1 A species is considered extant in an area if it is a resident, present during breeding or non-breeding season, or if it makes use of the area for passage.
  - 4.1.1 For the purposes of disclosure, "passage" is defined as all areas of land or water that a migratory species inhabits, stays in temporarily, crosses or overflies at any time on its normal migration route.
- 5 For the purposes of this disclosure, "near" is defined as within 5 kilometers (km) of the boundary of an area of protected conservation status or an endangered species habitat to the location of the entity's proven and probable reserves.
- 6 The entity shall follow guidance published by the U.S. Securities and Exchange Commission (SEC) in its [Oil and Gas Reporting Modernization](#) (Regulation S-X Section §210.4-10) for the classifying of reserves as proved and probable.
  - 6.1 Reserves of oil products shall be calculated in millions of barrels.
  - 6.2 Reserves of natural gas products shall be calculated in millions of standard cubic feet.
- 7 The entity may separately identify reserves in areas with additional ecological, biodiversity, or conservation designations such as those listed by the [A-Z Guide of Areas of Biodiversity Importance](#) prepared by the United Nations Environment Programme's World Conservation Monitoring Centre (UNEP-WCMC).
- 8 The entity may discuss reserves that are located in protected areas or endangered species habitat, but present low risk to biodiversity or ecosystem services; the entity may provide similar discussion for reserves located in areas with no official designation of high biodiversity value but that present high biodiversity or ecosystem services risks.

# Security, Human Rights & Rights of Indigenous Peoples

## Topic Summary

Exploration and production (E&P) companies face additional community-related risks when operating in conflict zones; in areas with weak or absent governance institutions, rule of law, and legislation to protect human rights; or in areas with vulnerable communities such as indigenous peoples. Companies using private or government security forces to protect their workers and assets may knowingly or unknowingly contribute to human rights violations, including use of excessive force. Indigenous people are often the most vulnerable sections of the population, with limited capacity to defend their unique rights and interests. Companies perceived as contributing to human rights violations or failing to account for indigenous peoples' rights may be affected due to protests, riots, or suspension of permits. They could face substantial costs related to compensation or settlement payments and write-downs in the value of their reserves in such areas. In the absence of country laws to address such cases, several international instruments have emerged to provide guidelines for companies, including obtaining the free, prior, and informed consent of indigenous peoples for decisions that affect them. With greater awareness, several countries are also beginning to implement specific laws protecting indigenous peoples' rights, creating increasing regulatory risk for companies.

## Accounting Metrics

### EM-EP-210a.1. Percentage of (1) proved and (2) probable reserves in or near areas of conflict

- 1 The entity shall disclose the percentage of net proved reserves that are located in or near areas of active conflict.
  - 1.1 The percentage of proved reserves shall be calculated as the amount of proved reserves located in or near areas of conflict divided by the total amount of proved reserves.
- 2 The entity shall disclose the percentage of net probable reserves that are located in or near areas of active conflict.
  - 2.1 The percentage of probable reserves shall be calculated as the amount of probable reserves located in or near areas of conflict divided by the total amount of probable reserves.
- 3 Active conflict is defined according to the Uppsala Conflict Data Program (UCDP) [definition](#) as:
  - 3.1 A conflict, both state-based and non-state, is deemed to be active if there are at least 25 battle-related deaths per calendar year in one of the conflict's dyads.
- 4 Reserves shall be considered to be in or near an area of active conflict if they are located in the same country as the active conflict.
  - 4.1 If the entity can demonstrate that a conflict is contained to a region, state, or designated area that is not proximate to its reserves, then it may exclude these from the scope of disclosure.

- 4.2 If reserves are located in a country, region, or state adjacent to an active conflict and/or can be reasonably expected to be operationally impacted by the conflict, then these reserves shall be included in the scope of disclosure.
- 5 The entity shall follow guidance published by the U.S. Securities and Exchange Commission (SEC) in its [Oil and Gas Reporting Modernization](#) (Regulation S-X Section §210.4-10) for the classifying of reserves as proved and probable.
  - 5.1 Reserves of oil products shall be calculated in millions of barrels.
  - 5.2 Reserves of natural gas products shall be calculated in millions of standard cubic feet.

### **EM-EP-210a.2. Percentage of (1) proved and (2) probable reserves in or near indigenous land**

- 1 The entity shall disclose the percent of net proved reserves that are located in or near areas that are considered to be indigenous peoples' land.
  - 1.1 The percentage of proved reserves shall be calculated as the amount of proved reserves located in or near indigenous land divided by the total amount of proved reserves.
- 2 The entity shall disclose the percent of net probable reserves that are located in or near areas that are considered to be indigenous peoples' land.
  - 2.1 The percentage of probable reserves shall be calculated as the amount of probable reserves located in or near indigenous land divided by the total amount of probable reserves.
- 3 Indigenous lands are considered those occupied by people who self-identify as indigenous, per Article 33 of the United Nations Declaration on the Rights of Indigenous Peoples and the International Labour Organization Convention No. 169, and likely have one or more of the following characteristics based on the [working definition](#) of "Indigenous Peoples" adopted by the United Nations:
  - 3.1 Historical continuity with pre-colonial and/or pre-settler societies
  - 3.2 Strong link to territories and surrounding natural resources
  - 3.3 Distinct social, economic, or political systems
  - 3.4 Distinct language, culture, and beliefs
  - 3.5 Form non-dominant groups of society
  - 3.6 Resolve to maintain and reproduce ancestral environments and systems as distinctive peoples and communities

- 4 For the purposes of this disclosure, "near" is defined as within 5 kilometers of the recognized boundary of an area considered to be indigenous land to the location of the entity's proven and probable reserves.
- 5 The entity shall follow guidance published by the U.S. Securities and Exchange Commission (SEC) in its [Oil and Gas Reporting Modernization](#) (Regulation S-X Section §210.4-10) for the classifying of reserves as proved and probable.
  - 5.1 Reserves of oil products shall be calculated in millions of barrels.
  - 5.2 Reserves of natural gas products shall be calculated in millions of standard cubic feet.

### **EM-EP-210a.3. Discussion of engagement processes and due diligence practices with respect to human rights, indigenous rights, and operation in areas of conflict**

- 1 The entity shall describe its due diligence practices and procedures with respect to indigenous rights of communities in which it operates or intends to operate, which include, but are not limited to:
  - 1.1 Upholding ILO Convention No. 169
  - 1.2 Use of free, prior, and informed consent (or consultation) processes
  - 1.3 The establishment of project grievance mechanisms
  - 1.4 The establishment of formal community agreements
- 2 The entity shall describe its due diligence practices and procedures with respect to human rights, including:
  - 2.1 Upholding the fundamental International Labour Organization (ILO) conventions on freedom of association (No. 87), collective bargaining (No. 98), forced labor (No. 29, No. 105), child labor (No. 138, No. 182), fair wages (No. 100), and discrimination (No. 111)
  - 2.2 Implementation of the European Commission's "Oil and Gas Sector Guide on Implementing the UN Guiding Principles on Business and Human Rights," specifically Human Rights Due Diligence (Principle 17a-c)
  - 2.3 Implementation of Voluntary Principles on Security and Human Rights
- 3 The entity shall discuss its practices and procedures while operating in areas of conflict, such as:
  - 3.1 Describing its approach according to IPIECA's "Guide to operating in areas of conflict for the oil and gas industry," which includes "do no harm," "do something," and "do something + +"
- 4 An area of conflict is located in the same country as an active conflict, or adjacent to an active conflict that can be reasonably expected to impact the entity's operations.
- 5 Active conflict is defined according to the Uppsala Conflict Data Program (UCDP) [definition](#) as:

- 5.1 A conflict, both state-based and non-state, is deemed to be active if there are at least 25 battle-related deaths per calendar year in one of the conflict's dyads.
- 6 The discussion shall include due diligence processes employed during all stages of project development (i.e., prior, during, and post).
- 7 The discussion may include how local or regional factors are considered in the entity's engagement processes and due diligence practices with respect to human rights, indigenous rights, and operations in areas of conflict.
- 8 The discussion shall include how practices apply to the entity's business partners, such as contractors, sub-contractors, suppliers, and joint venture partners.
  - 8.1 Where practices do not apply to business partners, the entity may discuss factors that prevent the application of such practices.

# Community Relations

## Topic Summary

Exploration and production (E&P) activities take place over a number of years, and companies may be involved in multiple projects in a region that can have a wide range of community impacts. Community rights and interests may be affected by environmental and social impacts of E&P operations, such as competition for access to local energy or water resources, air and water emissions, and waste from operations. E&P companies frequently need support from local communities to be able to obtain permits and leases and conduct their activities without disruptions. Companies may experience adverse financial impacts if the community interferes, or lobbies its government to interfere, with the rights of an E&P company in relation to their ability to access, develop, and produce reserves. In addition to community concerns about the direct impacts of projects, the presence of E&P activities may result in associated socioeconomic impacts related to education, health, livelihoods, and food security for the community. E&P companies that are perceived as engaging in rent-seeking and exploiting a country or community's resources without providing any socioeconomic benefits in return may be exposed to the risk of resource nationalism actions by host governments and communities. These could include imposition of ad hoc taxes and export restrictions. These risks may vary depending on the country, and could be higher in countries heavily reliant on oil and gas for their economic growth. Companies in the extractives industries can adopt various community engagement strategies in their global operations to manage risks and opportunities associated with community rights and interests, such as integrating community engagement into each phase of the project cycle. Companies are beginning to adopt a "shared value" approach to provide a key socioeconomic benefit to the community while allowing the company to profitably operate.

## Accounting Metrics

### **EM-EP-210b.1. Discussion of process to manage risks and opportunities associated with community rights and interests**

- 1 The entity shall discuss its processes, procedures, and practices to manage risks and opportunities associated with the rights and interests of communities in areas where it conducts business, where community rights and interests include:
  - 1.1 Economic rights and interests, including, but not limited to, to employment, fair wages, payment transparency, and respect of infrastructure and agricultural land
  - 1.2 Environmental rights and interests, including, but not limited to, clean local air and water, as well as safe discharge and disposal of waste
  - 1.3 Social rights and interests, including, but not limited to, adequate health care, education, and housing
  - 1.4 Cultural rights and interests, including, but not limited to protection of places of cultural significance (e.g., sacred sites or burial sites)

- 2 The entity shall disclose the following, where relevant:
  - 2.1 Lifecycle stages to which its practices apply, such as: pre-bid (when the entity is considering acquisition of a site), exploration and appraisal, site development, hydrocarbon production, and during closure, decommissioning, and restoration
  - 2.2 The community rights and interests (enumerated above) specifically addressed by the practices
  - 2.3 The underlying references for its procedures, including whether they are codes, guidelines, standards, or regulations and whether they were developed by the entity, an industry organization, a third-party organization (e.g., a non-governmental organization), a governmental agency, or some combination of these groups
- 3 Risks and opportunities include, but are not limited to: non-technical delays, availability and development of local content, availability and access to adequate infrastructure, community actions related to resource nationalism, and challenges associated with resettlement and access to land.
- 4 The entity shall disclose the degree to which its policies and practices are aligned with the International Finance Corporation's (IFC) [Performance Standards on Environmental and Social Sustainability](#), January 1, 2012, including specifically:
  - 4.1 Performance Standard 4 — Community Health, Safety, and Security
  - 4.2 Performance Standard 5 — Land Acquisition and Involuntary Resettlement
  - 4.3 Performance Standard 8 — Cultural Heritage
- 5 The discussion shall include how practices apply to business partners such as contractors, sub-contractors, suppliers, and joint venture partners.
- 6 The entity may describe its efforts to eliminate or mitigate community risks and/or address community concerns, including, but not limited to:
  - 6.1 The use of social impact assessment (SIA) that evaluates, manages, and mitigates risks
  - 6.2 Efforts to engage with stakeholders, build consensus, and collaborate with communities
  - 6.3 “Shared” or “blended” value projects that provide quantifiable benefits to the community and the entity
- 7 The entity may quantify its community risks by calculating the aggregate estimated value at risk to its capital expenditure projects as the difference in value between a project free from country, regional, and/or community risks (hereafter, country risk) and the value of a project adjusted for these risks.

- 7.1 This calculation may be conducted using an appropriate valuation model; variations of the Capital Asset Pricing Model (CAPM) are commonly used to assess country risk.
- 7.1.1 Value at risk can be calculated by applying an additional discount rate premium when calculating the net present value of a project using discounted cash flow (DCF) analysis.
- 7.1.2 Value at risk can be expressed as a reduction in the expected cash flows of a project due to country risk when calculating the net present value of a project using DCF.
- 7.1.3 If a project is insured for country risks, the value at risk can be expressed as a reduction in the cash flows of a project due to the cost of insurance when calculating the net present value of a project using DCF analysis.
- 7.2 Country, regional, and/or community risks include, but are not limited to: corruption, business legal structure, political stability, regulation, resource nationalism, ethnic conflict, stability of the local market, labor force (skills) availability, resettlement and access to land, quality of access to infrastructure (e.g., ports, roads, shipping channels), and/or general license to operate.
- 7.2.1 These risks are likely to manifest differently at the country (national), regional (state), community (local) levels, and project levels.
- 7.2.2 This risk differs from sovereign risk, which is defined as the potential for a central bank or government-backed entity to willingly or unwillingly default on debt obligations, or significantly alter key economic variables such as currency exchange rates, import ratios, and money supply.
- 7.3 The entity should identify and describe country risks specific to its projects and unique operating context.
- 7.3.1 This may include the identification of country, regional, and community risks and/or the discussion of specific projects.
- 7.3.2 This may include discussion of how the entity has mitigated these risks (e.g., through community engagement partnerships, and blended value projects); the entity shall quantify this reduction in risk according to the methods described above.
- 7.3.3 Discussion should be in addition to broad country risk classification [e.g., Organisation for Economic Co-operation and Development (OECD) Prevailing Country Risk classification, Standard & Poor's Country Risk ratings, and the World Economic Forum Global Competitiveness Index].
- 7.4 The entity may describe the model or approach used to value capital expenditure projects such as adjusted discount rate, expected cash flow, or other methods.



## **EM-EP-210b.2. Number and duration of non-technical delays**

- 1 The entity shall disclose the total number and aggregate duration, in days, of site shutdowns or project delays due to non-technical factors.
- 2 The scope includes shutdowns and project delays including, but not limited to, those resulting from pending regulatory permits or other political delays, community or stakeholder resistance or protest, and armed conflict.
- 3 The entity may discuss specific delays including associated costs, root cause and corrective actions for resolved delay, and status of ongoing delays.

# Workforce Health & Safety

## Topic Summary

Workers involved in exploration and production (E&P) activities face significant health and safety risks due to the harsh working environments and the hazards of handling oil and gas. In addition to acute impacts resulting from accidents, workers may develop chronic health conditions, including those caused by silica or dust inhalation, as well as mental health problems. A significant proportion of the workforce at oil and gas drilling sites consists of temporary workers and employees of Oil and Gas Services companies. Therefore, health impacts on, and the safety performance of, such workers also have impacts on E&P companies. Additional health and safety protocols may be needed to protect women and minorities, particularly when they operate in regions where they continue to face discrimination.

## Accounting Metrics

### **EM-EP-320a.1. (1) Total recordable incident rate (TRIR), (2) fatality rate, (3) near miss frequency rate (NMFR), and (4) average hours of health, safety, and emergency response training for (a) full-time employees, (b) contract employees, and (c) short-service employees**

- 1 The entity shall disclose its total recordable incident rate (TRIR) for work-related injuries and illnesses.
  - 1.1 An injury or illness is considered a recordable incident if it results in any of the following: death, days away from work, restricted work or transfer to another job, medical treatment beyond first aid, or loss of consciousness. Additionally, a significant injury or illness diagnosed by a physician or other licensed health care professional is considered a recordable incident, even if it does not result in death, days away from work, restricted work or job transfer, medical treatment beyond first aid, or loss of consciousness. This definition is derived from U.S. 29 CFR 1904.7.
  - 1.2 The U.S. Occupational Safety and Health Administration (OSHA) provides additional resources for determining if injuries or illnesses are considered recordable incidents in its guidance for [OSHA Forms 300, 300A, and 301](#).
- 2 The entity shall disclose its fatality rate for work-related fatalities.
- 3 The entity shall disclose its near miss frequency rate (NMFR) for work-related near misses.
  - 3.1 A near miss is defined as an unplanned or uncontrolled event or chain of events that has not resulted in a recordable injury, illness, or physical damage or environmental damage, but had the potential to do so in other circumstances.
  - 3.2 The U.S. National Safety Council (NSC) provides guidance on implementing near miss reporting, including in, [“Near Miss Reporting Systems.”](#)

- 3.3 The entity may disclose its process for classifying, identifying, and reporting near misses.
- 4 The entity shall disclose the average number of training hours it provided to its workforce for health, safety, and emergency management training.
- 4.1 Training shall relate to topics listed under Regulation U.S. 29 CFR Part 1910 Occupational Health and Safety Standards
- 4.1.1 The entity may include training hours related to topics not listed under Regulation U.S. 29 CFR Part 1910 so long as: (1) the training relates to the health, safety, or emergency preparedness of employees with respect to occupational risks or hazards to which employees are reasonably likely to be exposed and (2) the entity discloses the subject of the training and the specific occupational risks or hazards the training is intended to address.
- 5 Rates shall be calculated as:  $(\text{statistic count} \times 200,000) / \text{hours worked}$
- 5.1 The U.S. Bureau of Labor Statistics (BLS) provides additional guidance for the calculation of rates in, "[How to Compute a Firm's Incidence Rate for Safety Management](#)" and "[Incidence Rate Calculator and Comparison Tool](#)."
- 6 The average number of hours of health, safety, and emergency response training shall be calculated as:  $(\text{total qualifying training hours provided by the entity}) / (\text{total number of employees})$ .
- 7 The scope of disclosure includes work-related incidents only.
- 7.1 OSHA guidance for Forms 300, 300A, and 301 provides guidance on determining whether an incident is work-related, as well as definitions for exemptions for incidents that occur in the work environment but are not work-related.
- 8 The entity shall disclose its TRIR, fatality rate, NMFR, and average hours of health, safety, and emergency response training per employee for each of the following categories of employee:
- 8.1 Direct, full-time employees, defined as a person legally contracted and paid directly by a company to undertake work associated with its business activities
- 8.2 Contract employees, defined as a person not employed directly by the company who performs services under contract for the company, especially at one of its worksites
- 8.3 Short-service employees (full-time and contract), defined as a newly placed full-time or temporary employee or subcontractor with less than six months' experience in the assigned job
- 9 The scope of disclosure includes all employees regardless of employee location.

## **EM-EP-320a.2. Discussion of management systems used to integrate a culture of safety throughout the exploration and production lifecycle**

- 1 The entity shall discuss its management systems used to integrate a culture of safety throughout the exploration and production lifecycle.
  - 1.1 The discussion shall include how the entity integrates a culture of safety throughout its value chain, such as through technology, training, corporate culture, regulatory compliance, monitoring and testing, and personal protective equipment.
  - 1.2 Disclosure may focus broadly on safety management systems, but shall specifically address the systems to maintain a safe working environment, including the prevention of incidents, fatalities, and illness.
- 2 The entity shall include a description of how workforce safety management is coordinated amongst business partners (e.g., contractors and sub-contractors).
- 3 The exploration and production lifecycle phases include, but are not limited to: geological and seismic surveys, site surveys, exploratory drilling, appraisal drilling, site development, production, and decommissioning.

# Reserves Valuation & Capital Expenditures

## Topic Summary

Estimates suggest that exploration and production (E&P) companies may be unable to extract a significant proportion of their proved and probable oil and gas reserves if greenhouse gas (GHG) emissions are to be controlled to limit global temperature increases to two degrees Celsius as per the Paris Agreement. Companies with more carbon-intensive reserves and production and higher capital costs are likely to face greater risks. Regulatory limits on GHG emissions, together with improved competitiveness of alternative energy technologies, could lower or reduce the growth in global demand, and therefore reduce prices for oil and gas products. Extraction costs could increase with regulations that put a price on GHG emissions. These factors could affect the economic viability to extract oil and gas reserves. Regulatory actions that are more abrupt than anticipated, or those focusing on industries with high emissions, could impair asset values over a short period of time. Stewardship of capital resources and production decisions that take into account near- and long-term trends related to climate change mitigation actions can help prevent current asset impairment and maintain profitability and creditworthiness.

## Accounting Metrics

### **EM-EP-420a.1. Sensitivity of hydrocarbon reserve levels to future price projection scenarios that account for a price on carbon emissions**

- 1 The entity shall perform a sensitivity analysis of its reserves to determine how several future scenarios may affect its determination of whether the reserves are proved or probable.
- 2 The entity shall analyze the sensitivity of its current proven and probable reserves using the price trajectories published by the International Energy Agency (IEA) in its [World Energy Outlook \(WEO\) publication](#), including:
  - 2.1 Current Policies Scenario, which assumes no changes in policies from the mid-point of the year of publication of the WEO.
  - 2.2 New Policies Scenario, which assumes that broad policy commitments and plans that have been announced by countries (including national pledges to reduce greenhouse gas emissions and plans to phase out fossil-energy subsidies), occur even if the measures to implement these commitments have yet to be identified or announced. This broadly serves as the IEA baseline scenario.
  - 2.3 Sustainable Development Scenario, which assumes that an energy pathway occurs that is consistent with the goal of limiting the global increase in temperature to 2°C by limiting concentration of greenhouse gases in the atmosphere to around 450 parts per million of CO<sub>2</sub>-e.
- 3 The entity shall consider the WEO scenarios as a normative reference, thus any updates to the WEO made year-on-year shall be considered updates to this guidance.

- 4 The entity shall follow guidance published by the U.S. Securities and Exchange Commission (SEC) in its [Oil and Gas Reporting Modernization](#) (Regulation S-X Section §210.4-10 and §229.1202 [Item 1202] Disclosure of Reserves) for the following:
  - 4.1 Classifying of reserves as proved and probable
  - 4.2 Conducting a reserves sensitivity analysis
  - 4.3 Current (or base) case of reserve levels
- 5 The entity may use the following table format to summarize its findings:

**Table 3. Sensitivity of Reserves to Prices by Principal Product Type and Price Scenario**

PRICE CASE (Scenario)	PROVED RESERVES			PROBABLE RESERVES		
	Oil (MMbbls)	Gas (MMscf)	Product:A (measure)	Oil (MMbbls)	Gas (MMscf)	Product:A (measure)
Current Policies Scenario (base)						
New Policies Scenario						
Sustainable Development Scenario						

- 6 The entity may disclose the sensitivity of its reserve levels in other price and demand scenarios in addition to those described above, particularly if these scenarios differ depending on the type of hydrocarbon reserves, regulatory environment in the countries or regions where exploration occurs, end-use of the entity's products, or other factors.
- 7 For additional sensitivity analyses, the entity should consider disclosing the following, per the Task Force on Climate-Related Financial Disclosures (TCFD) Recommendations Report Figure 8 as well as the Implementing the Recommendations of the TCFD Report, Section E:
  - 7.1 The alternative scenarios used, including other 2°C or lower scenarios
  - 7.2 Critical input parameters, assumptions, and analytical choices for the climate-related scenarios used, particularly as they relate to key areas such as policy assumptions, energy deployment pathways, technology pathways, and related timing assumptions
  - 7.3 Time frames used for scenarios, including short-, medium-, and long-term milestones (e.g., how organizations consider timing of potential future implications under the scenarios used)

## EM-EP-420a.2. Estimated carbon dioxide emissions embedded in proved hydrocarbon reserves

- 1 The entity shall calculate and disclose an estimate of the carbon dioxide emissions embedded in its proved hydrocarbon reserves.
  - 1.1 Nota bene — this estimate applies a factor for potential CO<sub>2</sub> only and does not include an estimate for all potential greenhouse gas emissions, as these are dependent on downstream use (e.g., utility electricity generation, industrial heating and electricity generation, residential heating and cooling, transportation, or use in petrochemicals, agrochemicals, asphalt, and lubricants).
- 2 Estimated potential carbon dioxide emissions from proved hydrocarbon reserves shall be calculated according to the following formula, derived from [Meinshausen et al.](#):
  - 2.1  $E = R \times V \times C$ , where:
    - 2.1.1 E are the potential emissions in kilograms of carbon dioxide (kg CO<sub>2</sub>);
    - 2.1.2 R are the proved reserves in gigagrams (Gg);
    - 2.1.3 V is the net calorific value in terajoules per gigagram (TJ/Gg); and
    - 2.1.4 C is the effective carbon dioxide emission factor in kilograms CO<sub>2</sub> per terajoule (kg/TJ).
- 3 In the absence of data specific to the entity's hydrocarbon reserves, carbon content shall be calculated using default data for each major hydrocarbon resource published by the Intergovernmental Panel on Climate Change (IPCC) in its 2006 IPCC Guidelines for National Greenhouse Gas Inventories.
  - 3.1 The entity shall use default carbon content values per unit of energy that is listed in IPCC Table 1.3 Default Values of Carbon Content, Volume 2: Energy, Chapter 1.
  - 3.2 The entity shall use calorific values per weight of hydrocarbon contained in IPCC Table 1.2 Default Net Calorific Values (NCVs) and Lower and Upper Limit of the 95% Confidence Intervals, Volume 2: Energy, Chapter 1.
- 4 The entity shall use engineering estimates to determine the weight of its hydrocarbons reserves in gigagrams, such as the type of hydrocarbon reserves and its API gravity as published by the American Petroleum Institute.
- 5 For other assumptions required to estimate the carbon content of hydrocarbon reserves, the entity shall rely on guidance from the IPCC, Greenhouse Gas Protocol, U.S. Energy Information Agency (EIA), or the International Energy Agency (IEA).

### **EM-EP-420a.3. Amount invested in renewable energy, revenue generated by renewable energy sales**

- 1 The entity shall disclose the total amount spent, including capital and research and development expenditures, on renewable or alternative energy sources.
  - 1.1 Such disclosure generally corresponds to the renewable energy technology areas per C-OG 9.6 of the CDP Climate Change Questionnaire.
- 2 The entity shall disclose the sales generated from renewable energy sources.
  - 2.1 Such disclosure generally corresponds to the renewable energy strategic development areas Section C4.5a of the CDP Climate Change Questionnaire
- 3 Renewable energy is defined as energy from sources that are capable of being replenished in a short time through ecological cycles, such as geothermal, wind, solar, hydro, and biomass.
  - 3.1 For the purposes of this disclosure, the scope of renewable energy from hydro and biomass sources are limited to the following:
    - 3.1.1 Energy from hydro sources that are certified by the Low Impact Hydropower Institute or that are eligible for a state Renewable Portfolio Standard.
    - 3.1.2 Energy from biomass sources is limited to materials certified to a third-party standard (e.g., Forest Stewardship Council, Sustainable Forest Initiative, Programme for the Endorsement of Forest Certification, or American Tree Farm System), materials considered “eligible renewables” according to the Green-e Energy National Standard.
    - 3.1.3 Version 3.1 (2017), and materials that are eligible for a state Renewable Portfolio Standard.
    - 3.1.4 The entity shall consider the Green-e Energy National Standard as a normative reference, thus any updates to the Standard made year-on-year shall be considered updates to this guidance.
- 4 The entity shall consider the CDP Climate Change Questionnaire a normative reference, thus any updates made year-on-year shall be considered updates to the guidance.

### **EM-EP-420a.4. Discussion of how price and demand for hydrocarbons and/or climate regulation influence the capital expenditure strategy for exploration, acquisition, and development of assets**

- 1 The entity shall discuss how projections for price and demand for hydrocarbon products and the path of climate regulation influence the entity's capital expenditure (CAPEX) strategy.



- 1.1 This discussion should include the entity's projections and assumptions about future hydrocarbon prices and the likelihood that certain price and demand scenarios occur.
- 2 The entity shall discuss the implications of how price and demand scenario planning (i.e., EM-EP-420a.1) may affect decisions to explore, acquire, and develop new reserves.
- 3 The entity may discuss factors that materially influence its CAPEX decision making, including, but not limited to:
  - 3.1 How the scope of climate change regulation—such as which countries, regions, and/or industries are likely to be impacted—may influence the type of hydrocarbon on which the entity focuses its exploration and development
  - 3.2 Its view of the alignment between the time horizon over which price and demand for hydrocarbons may be affected by climate regulation and time horizons for returns on capital expenditures on reserves
  - 3.3 How the structure of climate regulation—i.e., a carbon tax versus cap-and-trade—may differently affect price and demand, and thus the entity's capital expenditure decision making
- 4 The entity may discuss how these trends affect decision-making in the context of different types of reserve expenditures, including development of assets, acquisition of properties with proved reserves, acquisition of properties with unproved reserves, and exploration activities.
  - 4.1 The entity shall discuss capital expenditures, regardless of the accounting method it uses (i.e., full cost or successful efforts).

# Business Ethics & Transparency

## Topic Summary

Managing business ethics and maintaining an appropriate level of transparency in payments to governments or individuals are significant issues for the exploration and production (E&P) companies. This is due to the importance of government relations to companies' ability to conduct business in this industry and to gain access to oil and gas reserves. The emergence of several anti-corruption, anti-bribery, and payments-transparency laws and initiatives globally create regulatory mechanisms to reduce certain risks. Violations of these could lead to significant one-time costs or higher ongoing compliance costs, whereas successful compliance with such regulations could provide risk mitigation opportunities and avoid adverse outcomes. Enforcement of these laws could lead to significant one-time costs or higher ongoing compliance costs and even affect a company's social license to operate. Companies with significant reserves or operations in corruption-prone countries could face heightened risks. Companies are under pressure to ensure that their governance structures and business practices can address corruption and willful or unintentional participation in illegal or unethical payments or gifts to government officials or private persons.

## Accounting Metrics

### **EM-EP-510a.1. Percentage of (1) proved and (2) probable reserves in countries that have the 20 lowest rankings in Transparency International's Corruption Perception Index**

- 1 The entity shall disclose the percentage of its net proved reserves located in the countries with the 20 lowest rankings in Transparency International's [Corruption Perception Index](#) (CPI).
  - 1.1 The percentage of proved reserves shall be calculated as the amount of proved reserves located in countries that have the lowest 20 rankings in Transparency International's CPI divided by the total amount of proved reserves.
- 2 The entity shall disclose the percentage of its net probable reserves located in the countries with the 20 lowest rankings in Transparency International's [CPI](#).
  - 2.1 The percentage of probable reserves shall be calculated as the amount of probable reserves located in countries that have the lowest 20 rankings in Transparency International's CPI divided by the total amount of probable reserves.
- 3 The 20 lowest numerical ranks shall be used to generate the scope of countries; therefore, due to the fact that multiple countries share many ranks, the scope may include more than 20 countries.
- 4 The entity shall use the most current version of the CPI.

- 5 The entity may discuss operations that are located in countries with low rankings in the index but present low business ethics risks; the entity may provide similar discussion for operations located in countries that do not have one of the 20 lowest rankings in the index but which present unique or high business ethics risks.
- 6 The entity shall follow guidance published by the U.S. Securities and Exchange Commission (SEC) in its [Oil and Gas Reporting Modernization](#) (Regulation S-X Section §210.4-10) for the classifying of reserves as proved and probable.
  - 6.1 Reserves of oil products shall be calculated in millions of barrels.
  - 6.2 Reserves of natural gas products shall be calculated in millions of standard cubic feet.

### **EM-EP-510a.2. Description of the management system for prevention of corruption and bribery throughout the value chain**

- 1 The entity shall describe its management system and due diligence procedures for assessing and managing corruption and bribery risks internally and associated with business partners in its value chain.
  - 1.1 Business partners include, but are not limited to customers, suppliers, contractors, subcontractors, and joint venture (JV) partners
  - 1.2 Relevant aspects of a management system include, where relevant:
    - 1.2.1 Employee awareness programs
    - 1.2.2 Internal mechanisms for reporting and following up on suspected violations
    - 1.2.3 Anti-corruption policies
    - 1.2.4 Application of the Extractive Industry Transparency Initiative (EITI) Standard, including, but not limited to, provisions related to beneficial ownership and politically-exposed persons, licenses and contracts, social expenditures, project-level payments, subnational payments, data accessibility, and multi-stakeholder engagement
- 2 The entity may discuss the implementation of one or more of the following:
  - 2.1 Key Organization for Economic Co-operation and Development (OECD) [guidelines](#)
  - 2.2 International Chamber of Commerce (ICC): Rules of Conduct against Extortion and Bribery
  - 2.3 Transparency International: Business Principles for Countering Bribery
  - 2.4 United Nations Global Compact: 10th Principle
  - 2.5 World Economic Forum (WEF): Partnering Against Corruption Initiative (PACI)

- 3 The entity may discuss laws or regulations related to payments transparency that it is subject to, including, but not limited to:
  - 3.1 European Union Accounting Directive Chapter 10
  - 3.2 European Union Transparency Directive Article 6
  - 3.3 Norway Forskrift om land-for-land-rapportering
  - 3.4 Canada Extractive Sector Transparency Measures Act

# Management of the Legal & Regulatory Environment

## Topic Summary

The Oil & Gas – Exploration & Production industry is subject to numerous sustainability-related regulations and an often rapidly changing regulatory environment. Changes to the legal and regulatory environment may result in material impacts on shareholder value. Companies in the industry regularly participate in the regulatory and legislative process on a wide variety of environmental and societal issues, and may do so directly or through representation by an industry association. Such engagement can result from companies seeking to ensure industry views are represented in the development of regulations impacting the industry as well as to represent shareholder interests. At the same time, such engagement to influence environmental laws and regulations may adversely affect companies' reputations with stakeholders and ultimately impact the company's social license to operate. Companies that are able to balance these viewpoints may be better positioned to respond to medium- to long-term regulatory developments.

## Accounting Metrics

### **EM-EP-530a.1. Discussion of corporate positions related to government regulations and/or policy proposals that address environmental and social factors affecting the industry**

- 1 The entity shall identify risks and opportunities it faces related to legislation, regulation, and/or rulemaking, (hereafter referred to collectively as "legal and regulatory environment") related to environmental and social factors which are relevant to the entity's business.
  - 1.1 The scope shall include existing, emerging, and known future risks and opportunities
  - 1.2 The scope shall include risks and opportunities that may exist domestically and internationally at the local, state, and national level
  - 1.3 The regulatory environment related to relevant environmental and social factors includes, but is not limited to, those related to greenhouse gas emissions, other air emissions, water withdrawals and effluents, biodiversity impacts, community impacts, employee health and safety, business ethics and payments transparency, and natural resource governance
- 2 Relevant risks include, but are not limited to, risk of increased compliance costs, risk of policy reversal (e.g., risks associated with changes to the U.S. Clean Air Act, EU Emissions Trading Scheme, or the California Global Warming Solutions Act), risk of loss of financial incentives (e.g., reduction or elimination of tax deductions associated with oil and gas exploration and production), risk to reputation due to entity's stance and actions related to the legal and

regulatory environment, risk that the legal and regulatory environment may not be aligned with long-term strategy, and risk of misalignment with the expectations of customers, investors, and other stakeholders.

- 3 Relevant opportunities include, but are not limited to, improved financial conditions (e.g., through policies which incentivize oil and gas exploration and production activities), improved community relations due to the entity's stance and actions related to the legal and regulatory environment, and other benefits due to alignment of the legal and regulatory environment with the entity's long-term strategy.
- 4 The entity shall discuss its efforts to manage risks and opportunities associated with each aspect of the legal and regulatory environment associated with the topics included in the SASB Oil & Gas – Exploration & Production Standard that are relevant to the entity's business.
- 5 The entity shall discuss its overall strategy to manage risks and opportunities associated with each aspect of the legal and regulatory environment it has identified, which may include, but is not limited to:
  - 5.1 Any changes it has made or plans to make to its business structure or model
  - 5.2 The development of new technologies or services
  - 5.3 Any changes it has made or plans to make to its operational process, control, or organizational structures
  - 5.4 Influencing the regulatory or legislative process and outcomes, including but not limited to, interactions with regulators, regulatory agencies, legislators, policymakers, and any others involved in the regulatory or legislative process
- 6 The entity may describe whether its stance may align with or differ from the official stance of its industry organization(s) and discuss any relevant reasons for alignment or divergence.

# Critical Incident Risk Management

## Topic Summary

The exploration and production (E&P) industry faces significant hazards associated with exploration, development, and production activities. Releases of hydrocarbons or other hazardous substances as a result of accidents can also have significant consequences for a company's workforce, as well as external social and environmental consequences. In addition to effective process safety management practices, companies frequently prioritize developing a culture of safety to reduce the probability that accidents and other health and safety incidents will occur. If accidents and other emergencies do occur, companies with a strong safety culture are often able to more effectively detect and respond to such incidents. A culture that engages and empowers employees and contractors to work with management to safeguard their own health, safety, and well-being and prevent accidents is likely to help companies reduce production downtime, mitigate costs, ensure workforce productivity, and maintain their license to operate.

## Accounting Metrics

### **EM-EP-540a.1. Process Safety Event (PSE) rates for Loss of Primary Containment (LOPC) of greater consequence (Tier 1)**

- 1 The entity shall disclose Tier 1 process safety events rates (PSE), as defined by the International Association of Oil & Gas Producers (OGP), for instances of loss of primary containment (LOPC) using terms and definitions from the OGP's Process Safety — Recommended Practice on Key Performance Indicators, Report No. 456.
- 2 A PSE is defined as a LOPC from a process that meets the Tier 1 definition below, is recordable, and for the purpose of recording a PSE:
  - 2.1 Drilling facilities are considered to be part of a process when operations are "in-hole."
  - 2.2 Land or marine vessels (trucks and ships) are considered to be part of a process when physically connected to a production facility.
- 3 A LOPC is defined as an unplanned or uncontrolled release of any material from primary containment, including non-toxic and non-flammable materials (e.g., steam, hot condensate, nitrogen, compressed CO<sub>2</sub> or compressed air). For drilling operations, any unplanned or uncontrolled release to the surface (seabed or ground level) should be included. LOPC is a type of event. An unplanned or uncontrolled release is an LOPC irrespective of whether the material is released into the environment, secondary containment, or into other primary containment not intended to contain the material released under normal operating conditions.
- 4 A Tier 1 PSE is defined as a LOPC as the greatest consequence, resulting in one or more of the following consequences:

- 4.1 An employee, contractor, or subcontractor experiencing a “days away from work” injury and/or fatality
  - 4.2 A hospital admission and/or fatality of a third party
  - 4.3 An officially declared community evacuation or community shelter-in-place
  - 4.4 A fire or explosion resulting in greater than, or equal to, \$25,000 of direct cost to the Company
  - 4.5 A pressure relief device (PRD) discharge to atmosphere, whether directly or via a downstream destructive device, that results in one or more of the following four consequences:
    - 4.5.1 liquid carryover
    - 4.5.2 discharge to a potentially unsafe location
    - 4.5.3 an onsite shelter-in-place
    - 4.5.4 public protective measures (e.g., road closure) and a PRD discharge quantity greater than the threshold quantities specified in Appendix B of the OGP Process Safety — Recommended Practice on Key Performance Indicators, Report No. 456 in any one-hour period
  - 4.6 A release of material greater than the threshold quantities specified in Appendix B of the OGP Process Safety — Recommended Practice on Key Performance Indicators, Report No. 456 in any one-hour period.
- 5 The Tier 1 PSE Rate shall be calculated as  $(\text{Total Tier 1 PSE Count} / \text{Total Hours Worked}) \times 200,000$ .
- 5.1 Total hours worked includes both employees and contractors

## **EM-EP-540a.2. Description of management systems used to identify and mitigate catastrophic and tail-end risks**

- 1 The entity shall describe its management systems used to identify and mitigate catastrophic and tail-end risks.
  - 1.1 The scope of catastrophic and tail-end risks shall include low-probability, high-impact accidents and emergencies that could have catastrophic effects on human health, local community, and environmental impacts.
  - 1.2 The scope of disclosure shall include how the entity integrates a culture of safety as well as management systems and technical controls to manage and mitigate catastrophic and tail-end risks.
  - 1.3 The description may include, but is not limited to, employee training, the use of operating procedures, hot work permitting, pre-start up safety reviews, mechanical integrity programs, management of change, incident investigation, emergency planning and response, audits, and other management systems.



- 2 The entity shall include a description of how critical risk management is coordinated amongst business partners (e.g., contractors and sub-contractors).
- 3 The scope of disclosure includes all exploration and production lifecycle phases, including, but not limited to: geological and seismic surveys, site surveys, exploratory drilling, appraisal drilling, site development, production, and decommissioning.

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