



**AMERICAN
EXPLORATION
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COUNCIL**

AXPC ESG Metrics Framework

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The American Exploration and Production Council (AXPC) is a national trade association representing the largest independent oil and natural gas exploration and production companies in the United States.

AXPC's Environmental, Social and Governance (ESG) Committee (Committee) serves to support member company commitments to environmental, social responsibility, governance, sustainability and other relevant issues. The Committee provides a forum for facilitation and collaboration for AXPC member companies, and also serves as a resource for the Board and staff. The Committee monitors and assesses developments relating to, and improving AXPC's understanding of ESG issues, and where needed, makes recommendations to the Board.

Common Metric Initiative

Oil and gas companies have routinely reported on ESG performance, demonstrating their accountability for addressing challenges and risks affecting our industry. Over the last several years, interest in ESG from a broad range of stakeholders has increased, particularly from the investment community. And while robust reporting guidance is important, the number of frameworks and lack of uniformity in metric calculation methodologies, naming conventions and definitions has led to inconsistency in both what, and how data is reported.

In 2020, the Committee launched an effort to create a common set of metrics that AXPC members can use that are relevant, consistent and comparable. This AXPC ESG Metrics Framework (Framework) is the culmination of that effort, and was informed by leading standard agencies including GRI, SASB, IPIECA, IOGP and API. It is our belief that this Framework provides helpful clarification relevant to our industry sector complementary to these frameworks. This Framework includes metrics and methodologies in five key metrics groupings. For each metric grouping, this Framework details what metrics were selected, and methodologies for calculating each metric.

Participation in this effort is voluntary, and AXPC member companies are not required to report under these metrics. Companies are provided with this Framework as an option to assist with more consistency across independent oil and gas exploration companies on the key metrics identified. Most AXPC members already have robust ESG reporting practices, and these are intended to supplement, not supplant any individual company's efforts.

AXPC sought to achieve complete consensus within our membership for each aspect of the metrics and methodologies detailed within this Framework. However, where we could not completely align, or for companies who may not be able to do so fully, the AXPC Metrics Template (Template) attached to this Framework as an Appendix offers an opportunity for companies to explain if or how disclosed metrics may diverge from this Framework.

Metrics Overview

This Framework centers around five key metrics groupings that AXPC members believe were essential to capture in promoting more consistent reporting across its members companies – Greenhouse Gas (GHG) Emissions, Flaring, Spills, Water Use, and Safety.

It is important to note that this Framework only contemplates reporting on metrics relating to domestic, onshore activities for operated assets only for the calendar year preceding the publication of data responsive to this Framework unless otherwise noted. Further, this Framework will be reviewed periodically for continued relevancy.

The following provides a high-level overview of each of these metrics' groupings.

Metric 1: Greenhouse Gas Emissions

This Framework is intended to provide a common methodology for calculating and reporting GHG emissions related metrics. This Framework covers both Scope 1 and Scope 2 emissions.

Metric 2: Flaring

The Flaring metrics focus on an operator's flaring activity per unit of production and is intended to capture high-pressure flaring of wellhead gas from the primary separator. Flaring intensity is expressed as volume of flared gas compared to both natural gas production and barrels of oil equivalent production. Separate component reporting will also allow stakeholders to calculate customized intensity metrics.

Metric 3: Spills

This Framework has established a single spill intensity metric that encompasses all produced liquids spilled outside of impermeable secondary containment greater than one barrel.

Metric 4: Water Use

The water use metric grouping includes three metrics: Fresh Water Intensity, Produced Water Recycle Rate, and Water Stress Assessment. Fresh Water Intensity provides data relating to fresh water used in down hole operations as compared to Gross Annual Production. The Water Stress Assessment provides information about whether companies use specifically identified tools to identify areas prone to water stress. The Produced Water Recycle Rate provides a percentage calculation of a company's recycled water as compared with total water used in down hole operations.

Metric 5: Safety

Incidence rates can be used to show the relative level of injuries and illnesses among different industries, firms, or operations within a single firm. Because a common base and a specific period of time are involved, these rates can help determine both problem areas and progress in preventing work-related injuries and illnesses. The Total Reportable Incident Rate (TRIR) metrics grouping includes employee TRIR, contractor TRIR and a combined metric that includes both.

Metric 1: GREENHOUSE GAS EMISSIONS

Description of Metrics

The following key metrics will be used: GHG emissions, GHG intensity, methane emissions, and methane intensity.

Metric	Mathematical Description
Scope 1 GHG emissions	Metric tons CO ₂ e
Scope 1 GHG intensity	Metric tons CO ₂ e / Gross annual production (MBOE)
Scope 2 GHG emissions	Metric tons CO ₂ e
Scopes 1 and 2 GHG intensity	Metric tons CO ₂ e / Gross annual production (MBOE)
Scope 1 methane emissions	Metric tons CH ₄
Scope 1 methane intensity	Metric tons CH ₄ / Gross annual production (MBOE)

In addition, operators should separately report:

- Percent of both their Scope 1 GHG and Scope 1 methane emissions that are attributed to the Gathering and Boosting segment; and
- Oil/condensate (Bbl) and Natural Gas (MCF) Gross Annual Production.

Methodology for Calculating Metrics

GHG and methane emissions will be reported as total metric tons. GHG emissions will be reported in metric tons of CO₂e and methane emissions will be reported in metric tons of CH₄ (not CO₂e). GHG emissions will be reported under Scope 1 and Scope 2, and methane emissions will be reported under Scope 1.

Scope 1 GHG and Scope 1 methane intensity will be reported as total metric tons CO₂e divided by Gross Annual Production in MBOE, as further described in the following table.

Numerator	Denominator (Denominator is the same for both intensity metrics)
Scope 1 GHG emissions (metric tons CO ₂ e) as reported under the EPA Greenhouse Gas Reporting Program (Subpart W) for the onshore production and gathering and boosting segments only	Gross annual production in MBOE (include breakdown of oil/condensate and gas to total overall MBOE) as defined and reported under Subpart W. ¹ Gross annual production is based on information reported for Subpart W onshore production only. For example, additional volumes received at compressor stations or production associated with operations not reported under Subpart W should not be included in the denominator.
Scope 1 methane emissions (metric tons CH ₄) as reported under the EPA Greenhouse Gas Reporting Program (Subpart W) for the onshore production and gathering and boosting segments only	

Scopes 1 & 2 combined GHG intensity will be reported as total metric tons CO₂e divided by Gross Annual Production in MBOE, as further described in the following table.

Numerator	Denominator
<p>Scope 1 GHG emissions (metric tons CO₂e) as reported under the EPA Greenhouse Gas Reporting Program (Subpart W) for the onshore production and gathering and boosting segments only</p> <p><i>Plus</i></p> <p>Scope 2 GHG emissions (metric tons CO₂e) as calculated using the location- based method for calculating Scope 2 emissions, utilizing the most recent U.S. EPA eGRID state emission factors.</p>	Gross annual production in MBOE (include breakdown of oil/condensate and gas to total overall MBOE) as defined and reported under Subpart W. ¹ Gross annual production is based on information reported for Subpart W onshore production only. For example, additional volumes received at compressor stations or production associated with operations not reported under Subpart W should not be included in the denominator.

Calculation of Barrels of Oil Equivalent (BOE)

Barrels of oil equivalent shall include two streams: natural gas and oil/condensate. BOE is calculated using the following equation:

$$\text{BOE} = (\text{gross barrels of oil/condensate production}) + (\text{gross MCF of natural gas production})/6$$

$$\text{MBOE} = \text{BOE}/1000$$

¹ Gross annual production as reported under Subpart W may differ from gross production used in other ESG metrics due to the regulation’s ownership reporting requirements and minimum reporting thresholds.

Calculation of Carbon Dioxide Equivalent (CO₂e)

Carbon dioxide equivalent will take into account emissions of carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O) and is calculated using the following equation:

$$\text{CO}_2\text{e} = (\text{metric tons CO}_2) + (\text{metric tons CH}_4) * (\text{GWPC}_4) + (\text{metric tons N}_2\text{O}) * (\text{GWPN}_2\text{O})$$
 The Global

Warming Potential (GWP) for CH₄ and N₂O will be taken from Table A-1 of 40 CFR 98 Subpart A and are to be based on a 100-year time horizon.

EPA Greenhouse Gas Reporting Program Thresholds

AXPC members should report Scope 1 greenhouse gas and methane emissions for all onshore production and gathering and boosting facilities reported to the EPA under the Greenhouse Gas Reporting Program.

Metric 2: FLARING

Description of Metrics

Flaring intensity data provides an objective measurement of an operator's flaring activity per unit of production.²

Flaring intensity is expressed as the following:

- Gross annual Volume of Flared Gas (Mcf) / Gross annual natural gas produced (Mcf)
- Gross annual Volume of Flared Gas (Mcf) / Gross annual production in BOE

Recognizing that flaring intensity can be expressed multiple ways, operators should also report the following components separately to allow stakeholders to calculate a flaring intensity metric independently:

- Gross annual Volume of Flared Gas (Mcf)
- Gross annual natural gas produced at the wellhead (Mcf)
- Gross annual oil/condensate produced (Bbl)
- Gross annual oil/condensate and natural gas production (BOE)

Methodology for Calculating Metrics

Flaring intensity will be reported as both a percentage of natural gas produced as well as the volume of gas flared per barrel of oil equivalent produced.

Metric	Numerator	Denominator
Percentage of gas flared per Mcf of gas produced	Gross Annual Volume of Flared Gas (Mcf)	Gross Annual Natural Gas Produced at the wellhead (Mcf)
Volume of gas flared per barrel of oil equivalent produced	Gross Annual Volume of Flared Gas (Mcf)	Gross Annual Production in (BOE)

Other Commentary

This metric applies to the flaring of wellhead gas from the primary separator at operated assets. It does not include combustion of low-pressure gas volumes from crude oil/condensate and produced water storage vessels or other low-pressure separators for the purpose of controlling emissions. It does not include flaring from drilling and/or well completions.

² Note production for this metric is not limited to only Subpart W reported production

Metric 3: SPILLS

Description of Metric

All produced liquids (crude oil, produced water and condensate) greater than 1 barrel which escape impermeable secondary containment should be reported as part of this metric.

Calculation:

$$\frac{\text{Produced Liquid Spilled (Bbls)}}{\text{Total Produced Liquid (1000 Bbls)}}$$

- Produced Liquid Spilled (Bbls): crude oil, condensate and/or produced water spills > 1 Bbl which are not confined to impermeable secondary containment
- Total Produced Liquid (1,000 Bbls): crude oil, condensate and produced water generated from exploration and production activities (does not include gas)

Methodology for Calculating Metric

There are several methodologies currently in use throughout industry to calculate spill performance. The interpretative and operational differences between companies have previously made it difficult to gain alignment on a single metric.

Many of the different methodologies used for spill metrics throughout industry diverge when determining the definition of a spill. This option would incorporate part of the SASB Oil & Gas – Exploration & Production Sustainability Accounting Standard, EM-EP-160.2 along with the IOGP spill definition. IOGP defines their spill metric as all spills greater than one barrel outside of secondary containment. SASB defines a spill as a volume greater than one barrel that reached the environment and excludes spills that were contained within impermeable secondary containment. In general, for the purpose of this metric, secondary containment that is sufficiently impervious is to be defined consistent with 40 CFR 112, also known as EPA’s Spill Prevention Control and Countermeasure (SPCC) requirements.³ The decision to use the chosen calculations is an attempt to simplify the metric and eliminate points of confusion.

Other Commentary

The spill intensity metric does not include releases of refined petroleum products and other chemicals that are commonly used in exploration and production activities. It should also be expressly noted that that member companies engaged in recycling/reuse of produced water could be disadvantaged in the spill rate calculation, due to the inclusion of spills of this fluid in the numerator, but not in the denominator. Therefore, companies so penalized should provide a note to this effect on the Template in the provided space.

³ *Incorporation of 40 CFR 112 extends only to the definition and related guidance for determining “sufficiently impervious secondary containment” and is irrespective of SPCC applicability requirements.*

Metric 4: WATER USE

Description of Metrics

The Water Use metrics grouping consists of three distinct metrics including Fresh Water Intensity, Produced Water Recycle Rate, and Water Stress Assessment.

Fresh Water Intensity:

$$\text{Fresh Water Intensity (Bbl/BOE)} = \frac{\text{Fresh Water Used (Bbl)}}{\text{Gross Annual Production (BOE)}}$$

Methodology for Calculating Fresh Water Intensity Metric:

There are a number of metrics and methodologies that provide information that is intended to show removal of fresh water from the hydrologic cycle. This Framework considered a number of accepted calculation methodologies, including IPIECA, SASB, GRI, and USGS. This Framework adopts the U.S. Geological Survey definition of “Fresh Water”, which includes all water that is 1000 parts per million Total Dissolved Solids, or less. For the purpose of this metric, fresh water is considered “used” when it is utilized in down hole operations. Gross Annual Production is defined further in our “definitions” section below.

Produced Water Recycle Rate:

$$\text{Produced Water Recycle Rate (\%)} = \frac{\text{Recycled Water (Bbl)}}{\text{Total Water Used (Bbl)}}$$

Methodology for Calculating Produced Water Recycle Rate:

Recycled Water includes water that was produced in the oil field and reused in the oil field (whether or not it was purchased from a 3rd party).

Total Water Used includes all water sources utilized in down hole operations including Fresh Water, Brackish Water, Recycled Water, and alternative water sources (including grey water, etc.)

Water Stress Assessment:

The Water Stress Assessment metric consists of a question that companies can answer with a “yes” or “no” that is designed to provide information on whether companies use one of an enumerated list of water stress tools identified below or otherwise identify water stressed areas in their portfolios.

Water Stress Assessment	Does your company use WRI Aqueduct, GEMI, Water Risk Filter (WWF), Water Risk Monetizer, or other comparable tool or methodology to determine the potential for water stressed areas in your portfolio?	Yes/No
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Metric 5: SAFETY

Description of Metrics

While there are a number of safety metrics available, this Framework recommends reporting TRIR as defined by the Occupational Safety and Health Act as further described below.

In a typical exploration and production company, there are a mix of company employees (salaried and hourly) and hired contractors and therefore this Framework establishes TRIR metrics for these groups individually and a combined workforce metric of company employees and hired contractors.

In order to properly capture all categories of onsite workers, we recommend 3 variants of TRIR – Employees, Contractors, Employees AND Contractors. The metrics selected are as follows:

EMPLOYEE TRIR	CONTRACTOR TRIR	COMBINED TRIR (EMPLOYEE + CONTRACTOR)
(Total # of employee OSHA recordable cases X 200,000) ÷	(Total # of contractor OSHA recordable cases X 200,000) ÷	(Total # of employee AND contractor OSHA recordable cases X 200,000) ÷
Number of employee workhours worked in a year	Number of contractor workhours worked in a year	Number of employee AND contractor workhours worked in a year

Methodology for Calculating Metric

The methodology used to determine an OSHA recordable case, and all associated definitions, can be found at OSHA's 29 CFR 1904 Subpart C Injury and Illness Reporting. www.osha.gov/recordkeeping/

The methodology used to determine workhours can vary, especially as it relates to employees and contractors, but using actual workhours as opposed to estimated workhours could lead to a more accurate TRIR.

Hourly and Salaried- Non-Exempt Employees

- Time cards/payroll data should be used to accurately reflect total workhours, including overtime.
- All domestic employees should be included, regardless of office location or nature of work, when determining the company-wide TRIR.

Salaried-Exempt Employees

- Determining the actual number of workhours can be achieved through HR data if actual hours worked are documented.
- All domestic employees should be included, regardless of office location or nature of work, when determining the company-wide TRIR.

Contractors

- The preferred approach is to establish a time card or reporting structure that allows for contractors to record the actual number of hours spent on the company's site or project (exposure hours).
- This number would not include the hours a contractor spends with other clients and generally does not include travel time to and from a site (unless specified by the hiring company).
- Contractors are responsible for collecting and reporting to the hiring company the workhours of subcontractors.
- If an actual reflection of contractor workhours is not reasonably achievable, the company should use an exposure hours calculation, such as those provided by the American Petroleum Institute (API) or the Canadian Association of Petroleum Producers (CAPP).
- If a calculation is used for all or part of the workhour determination, the calculation and source should be footnoted in public documentation.

DEFINITIONS

Annual Volume of Gross Flared Gas – the volume of flared gas as determined by each operator’s production accounting methods.

Barrels of Oil Equivalent (BOE) – Barrels of oil equivalent shall include two streams: wellhead natural gas and oil/condensate. BOE is calculated using the following equation:

BOE – (gross barrels of oil/condensate production) + (gross MCF of natural gas production)/6

Bbl – Barrels

Carbon Dioxide Equivalent (CO_{2e}) – the equivalent amount of CO₂ emitted by one metric ton of any greenhouse gas

Contractor – An entity or individual whose personnel performs work on or at the company’s worksites pursuant to a Master Service Agreement or other approved contractual agreement. This includes subcontractors, vendors, agents, consultants or other persons under each contractor at the worksite. This does not include the company’s employees.

Contractor Workhours – Exposure hours worked by a contractor. Only actual hours performing work on or at the company’s facility or worksite as a contractor or on behalf of a contractor are included. Workhours for contractors may not include time not spent on employer’s property/locations.

Employee – Personnel directly employed by the company (This does not include contractors, subcontractors, agents or other third parties providing goods or services to the company).

Employee (Salaried-Exempt) – Individual who is exempt from the overtime provisions of the Fair Labor Standards Act (FLSA) because he or she is classified as an executive, professional, administrative or outside sales employee, and meets the specific criteria for the exemption. Salaried-Exempt receive the same salary from week to week regardless of how many hours worked.

Employee (Salaried-Nonexempt) – Individual who is not exempt from the overtime provisions of the FLSA and is therefore entitled to overtime pay for all hours worked beyond 40 in a workweek (as well as any state overtime provisions).

Employee Workhours – Hours worked by an employee. Vacation hours and leave hours (i.e.-FMLA leave, military leave, bereavement leave, etc.) are not included in the workhour calculation. Only actual hours worked are included.

EPA Greenhouse Gas Reporting Program (GHGRP) – The mandatory greenhouse gas reporting required under 40 CFR 98. The reporting requirements for Petroleum and Natural Gas systems are found in Subpart W.

Greenhouse Gas – Any gas that absorbs infrared radiation in the atmosphere. For GHG reporting under this Framework, this includes carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O).

Gross Annual Production – The total well-stream volume of oil or natural gas (on a dry gas basis) for a Reporting Period. Includes any natural gas liquids and any nonhydrocarbon gases. Includes volumes used in field operations (i.e. lease fuel). Includes volumes associated with working interests, joint ventures, royalties, and fractional ownerships. **NOTE: This is defined slightly differently for the Greenhouse Gas Metrics, which is to instead to be in accordance with Subpart W production reporting.**

MBOE – thousand barrels of oil equivalent (BOE/1000)

MCF – thousand cubic feet at standard conditions

OSHA Recordable Case – Any work-related injury and/or illness that result in death or days away from work, restricted work activity, transfer to another job, or medical treatment beyond first aid, or loss of consciousness.

Reporting Period – The calendar year preceding any reporting under this Framework.

Scope 1 – Refers to emissions that are directly emitted by or controlled by the company. All emissions reported under Subpart W are considered to be Scope 1 emissions. Emissions from company owned or leased fleet vehicles are not included.

Scope 2 – Refers to emissions related to electricity purchased by the company, as calculated using the location-based method for calculating Scope 2 emissions, utilizing the most recent U.S. EPA eGRID state emission factors.

Subcontractor – An entity or individual whose personnel perform work on or at the company's facility or worksite on behalf of a contractor.