
Chevron's GHG Reporting Protocol

CTC HSE

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1 INTRODUCTION TO CHEVRON'S GHG REPORTING PROTOCOL

1.1 Purpose and Background

The purpose of Chevron's (the "Company") Greenhouse Gas (GHG) Reporting Protocol (Protocol) is to establish Chevron's internal standards for corporate GHG reporting as required by Chevron's [Operational Excellence Data Reporting Standard \(OEDRS\)](#).

The standards set out in this Protocol take into consideration key elements of industry standards and best practices, including:

- the International Organization for Standardization's (ISO) "ISO 14064-1, Greenhouse gases – Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals – Second edition" (2018);
- IPIECA's "Petroleum industry guidelines for reporting greenhouse gas emissions – Second edition" (2011);
- the World Business Council for Sustainable Development's (WBCSD)/World Resources Institute's (WRI) "The Greenhouse Gas Protocol, A corporate accounting and reporting standard - Revised edition" (2004);
- WRI's "GHG Protocol Scope 2 Guidance, An amendment to the GHG Protocol corporate standard" (2015);
- IPIECA's/API's "Estimating petroleum industry value chain (scope 3) greenhouse gas emissions" (2016); and,
- IPIECA's/API's "Addressing uncertainty in oil and natural gas industry greenhouse gas inventories, Technical considerations and calculation methodologies" (2015).

1.2 Structure

A summary of Chevron's corporate GHG reporting policy and an overview of the GHG reporting roles and responsibilities within Chevron are given in Sections 2 and 3 of this Protocol, respectively. The principles with which Chevron must adhere in accounting for and reporting its GHG emissions are outlined in Section 4, while Section 5 provides details on how Chevron accounts for its GHG emissions on both an equity share and operational control approach and what GHGs and emissions source types are included in Chevron's GHG emissions inventory.

Section 6 provides guidance on how to identify and calculate GHG emissions. Section 7 details Chevron's GHG data quality management guidelines, with specific reference to Standard Operating Procedures (SOPs), and the tracking and accounting for changes in GHG emissions over time, while Section 8 sets out Chevron's requirements regarding the restatement of emissions. Lastly, guidance on how to prepare for third-party verifications is provided in Section 9.

1.3 Terminology

This Protocol uses precise language to indicate accounting and reporting requirements, and recommendations.

- The term "shall" is used throughout this document to indicate what is required.
- The term "should" is used to indicate a recommendation, but not a requirement.

It should also be noted that the term "facility" is used throughout the Protocol, and that the definition of "facility" will vary depending on a business unit's operations. The term is used in this Protocol to describe the level of granularity at which business unit reporting and signoff of GHG data occurs (e.g., by individual facility, for a group of facilities within a business unit, or at the business unit level).

1.4 Version Control

Version	Release Date	Principal Amendments	Owner
0	8 Dec 2004	Established emissions inventory guidelines for ChevronTexaco.	A. Lee
1.0	1 Dec 2009	Developed Chevron's GHG Reporting Protocol based on ISO's "ISO 14064-1" (2006) and WBCSD's/WRI's "The Greenhouse Gas Protocol" (2004), taking into account DNV's 2007 assessment of original emissions inventory guidelines.	G. Heddle
2.0	31 Jan 2014	Updated protocol as follows: <ul style="list-style-type: none"> • Modified training requirement; • Included option to exclude emissions associated with construction and commissioning activities; • Clarified how production sharing agreements can be used to calculate equity share; • Added option to exclude emissions data for NOJVs in which Chevron has less than a 16 percent equity share; • Revised production reporting requirements to reflect data needed for new corporate energy metric; • Added an allowance to use standard operating procedure (SOP) or equivalent documents mandated by host governments to fulfill corporate SOP requirement; and, • Included guidance to address material findings from Chevron's corporate third-party verifiers. 	D. Shen
3.0	7 Sep 2017	Updated protocol as follows: <ul style="list-style-type: none"> • Made general streamlining and housekeeping edits (e.g., replaced CGERS with Sphera® Essential™, Corporate HES with Enterprise OE/HES); • Revised reporting frequencies and deadlines; • Removed sections on base year and non-base year revisions; and, • Revised training requirements. 	D. Shen
3.1	27 Aug 2020	Updated protocol as follows: <ul style="list-style-type: none"> • Revised quarterly reporting deadlines and organization names; • Removed third-party time-chartered vessels from captive emissions scope; • Added fugitive methane estimation method guidance; • Reinforced importance of regular reviews to ensure completeness; and, • Updated WRI references including scope 2 market-based methodology. 	D. Shen
4.0	8 Mar 2021	Updated protocol as follows: <ul style="list-style-type: none"> • Revised reporting roles and responsibilities to reflect Chevron's post-Transformation organizational structure; • Deleted materiality or de minimis thresholds for emissions reporting, and reporting exemption for non-operated joint venture facilities in which Chevron has a 16 percent or less equity share to reflect new carbon disclosure requirements; • Provided additional clarification regarding equity share approach and its application to emissions from operations on land leased by Chevron to a third-party, in which it has no equity interest but receives royalty payments; • Clarified what emissions sources fall under scope 2, and updated section on scope 3 emissions; • Added a new section on application of reporting boundaries to carbon intensity metrics; • Removed requirement for business units to report production data via Sphera® Essential™; • Provided clarification regarding GWP values currently used in inventory; • Added a new section on emissions recalculation and restatement; and, • Made general streamlining and housekeeping edits. 	G. Heddle & L. Kurt

5.0	5 Oct 2021	<p>Updated protocol as part of Phase 1 of the 2021-22 GHG Data Action Plan, with the following significant changes/additions:</p> <ul style="list-style-type: none"> • Added guidance on meeting early reporting deadlines and estimating / restating emissions; • Made some clarifications with regards to roles and responsibilities; • Provided guidance on emissions sources that can be excluded from a business unit's inventory; • Defined and provided reporting guidance for small emissions sources; • Provided guidance allowing entities with consistently smaller GHG emissions (e.g., Fuels & Lubricants) to use production-based emission factors for estimating emissions from low-emitting operations (e.g., retail stations, terminals); • Provided clarification on equity share and operational control approaches, and expanded the list of example scenarios; • Clarified Chevron's treatment of emissions associated with the export of electricity and steam; • Added requirement for the business unit-level SOP to be reviewed / updated and submitted to CTC HSE every year by June 30; • Streamlined and/or clarified other expectations related to GHG data quality management; • Added a new section on Chevron's GHG Peer Assist Program, with reference to the GHG Peer Assist SOP; and, • Set expectation that findings from a third-party verification should be closed within 30 days, unless an exception has been granted. 	ERM, G. Heddle & D. Shen
5.1	25 Oct 2021	<p>Updated protocol as part of Phase 1 of the 2021-22 GHG Data Action Plan, with the following significant changes/additions to provide additional clarity:</p> <ul style="list-style-type: none"> • Clarified reporting expectations with respect to one-time or non-routine activities, non-routine emissions from routine operations, and emissions associated with liquid loss of containment; and, • Detailed additional inclusions and exclusions, specifically related to emissions associated with drilling and completions, owned or "captive" marine, aviation and wastewater treatment services, decommissioning and commissioning activities, and construction/MCP activities. 	ERM, G. Heddle & D. Shen
6.0	21 Apr 2022	<p>Updated protocol as part of Phase 2 of the 2021-22 GHG Data Action Plan, with the following significant changes/additions to provide additional clarity, and strengthen process controls and documentation:</p> <ul style="list-style-type: none"> • Added a new terminology section to provide clarity on the meaning of "shall" and "should" as used throughout the document; • Added Chevron's reporting policy for non-operated joint ventures (NOJVs); • Updated and clarified Chevron's training requirements; • Detailed Chevron's requirements and approach for assessing uncertainty; • Provided guidance regarding block flow diagrams (BFDs), process flow diagrams (PFDs), and piping & instrumentation diagrams (P&IDs); • Set out expectations with regards sampling and meter management plans; and, • Updated Chevron's approach to corporate-level GHG data restatements. 	G. Heddle, D. Shen & ERM

7.0	22 Nov 2022	<p>Updated protocol as follows:</p> <ul style="list-style-type: none"> • Added clarification in the terminology section to the use and intended interpretation of “facility”, as used throughout the document; • Updated and clarified Chevron’s OEDRS as the source to be referenced for Chevron’s quarterly GHG emissions reporting deadlines; • Updated and clarified roles and responsibilities; • Clarified Chevron’s expectation with regards to reporting of non-routine emissions from routine operations; • Clarified inventory boundaries, and definition and treatment of “captive” sources under equity share and operational control accounting; • Added nitrogen trifluoride (NF₃) reporting requirement for reporting year (RY) 2022 onwards; • Documented 2021 API Compendium as updated reference for all methods and emissions factors within Sphera Essential for RY 2022 onwards; and, • Clarified that an audit finding (for prior year subject to audit only), and a recording error in equity share percentage or operational control status in a prior year’s or prior years’ reporting are qualifying reasons for restatement. 	G. Heddle & M. Wang
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2 CHEVRON'S REPORTING POLICY

2.1 Policy on GHG Emissions Reporting

2.1.1 Corporate GHG Reporting Requirements

All Chevron business units are required to report monthly GHG data on a quarterly basis, by the quarterly deadline specified in Chevron's [OEDRS](#).

Early quarterly reporting deadlines specified for GHG data in Chevron's OEDRS may necessitate some data estimates for the last month in the quarter, if data actuals are not available by the reporting deadline. The estimated emissions shall be restated in the following period based on actual data for all quarters except for Q4 / end-of-year reporting. Chevron's Q4 reported figures are verified and used in external reporting; therefore, the December emissions estimates are not restated.

Chevron's early Q4 / end-of-year reporting deadline will mean that the emissions reported for December by some business units for some sources may be estimates, where data are not available by the reporting deadline. In this case, and only where necessary, the December emissions estimates for these sources should be based on the average of January – November data, taking into account any significant disruptions to operations. Monthly emission accruals which are skewed due to significant disruptions to operations may be omitted from the January – November average, with documentation as to why and the impact on the average. As a result, corporate and regulatory GHG reported emissions for some business units for the month of December may also differ; where this is the case, this should be clearly stated in the business unit's SOP.

Business units under Chevron's operational control are required to submit data into Sphera® Essential™ that meet the minimum reporting standards described in this Protocol. Note that, where a business unit uses Sphera® Essential™ for mandatory as well as corporate GHG reporting, Sphera® Essential™ can be used to calculate actual December emissions where an estimate was previously for corporate reporting, but these December actuals will not be reflected in Chevron's corporate GHG inventory.

In the case of non-operated facilities, the use of Sphera® Essential™ is encouraged but not required.

2.1.2 Compliance with Mandatory GHG Reporting Programs

Chevron entities will comply with all mandatory GHG reporting programs, as required by law or regulation.

Each business unit is responsible for all applicable compliance requirements in the regions in which it operates. This may include, but is not limited to, reporting of emissions to regulatory agencies, organizing for emissions to be verified by a third party, and being responsible for verification and compliance costs.

Chevron business units are required to identify and implement processes and equipment to meet any regulatory requirements that exceed the requirements of this Protocol. Costs will be borne by the operating company or business unit. Assistance in interpreting regulations can be requested from the Chevron Technical Center, Health, Safety & Environment (CTC HSE) organization.

Business units should also document differences between this Protocol and regulatory reporting requirements as part of their SOP, in accordance with Quality Information Management Guidance in Section 7, and shall ensure that requirements of this Protocol are met where they exceed regulatory requirements.

2.1.3 Non-Operated Joint Venture (NOJV) Reporting Policy

In addition to reporting emissions from facilities that are wholly owned or operated by Chevron, Chevron reports emissions from NOJVs, in which the Company has an equity share. This Protocol designates three tiers of NOJV partners and, for each of these tiers, describes the actions Chevron takes to obtain GHG data from these partners. The requirements set out in this section are subject to limitations imposed by law or regulation on the inter-company sharing of data and, in some cases, the governing NOJV contractual agreements. Where laws, regulations, or contractual agreements are in conflict with the mandatory requirements in this section, the Chevron business unit responsible for managing the relationship with the NOJV partner shall bring the specific conflict to CTC HSE's attention, and then CTC HSE shall document the conflict and any alternative actions Chevron will take in gathering and reporting GHG data for that NOJV.

Tier 1: NOJV Partners with Existing Third-Party GHG Verification at a Level of Reasonable Assurance

For NOJV partners that are subject to annual, mandatory third-party GHG verification at a level of reasonable assurance ("NOJV partners with mandatory assurance"), CTC HSE shall work with the Chevron representative(s) responsible for managing the NOJV relationship in following the instructions/guidelines set out below.

- Reporting: Chevron shall request (or obtain via publicly available information) annual GHG reports and assurance statements submitted by the NOJV to comply with local regulations. Chevron should also request the NOJV to submit emissions data on a quarterly basis, consistent with the schedule in Section 2.1.1, where this data consists of estimates of emissions for: (i) each Kyoto GHG (i.e., carbon dioxide [CO₂], methane [CH₄], nitrous oxide [N₂O], sulfur hexafluoride [SF₆], perfluorocarbons [PFCs] and hydrofluorocarbons [HFCs]) and nitrogen trifluoride [NF₃]; (ii) each emissions type (e.g., direct, indirect); and, (iii) each emissions source type (e.g., combustion, flaring, venting, fugitive).
- Completeness: Consistent with Section 4.3, Chevron should request a list of (or use publicly available GHG reports to identify) all GHG emissions sources owned, operated or captive to the NOJV that are outside the boundary of their third-party assurance, and estimates for these emissions for: (i) each Kyoto GHG (i.e., CO₂, CH₄, N₂O, SF₆, PFCs and HFCs) and NF₃; (ii) each emissions type (e.g., direct, indirect); and, (iii) each emissions source type (e.g., combustion, flaring, venting, fugitive). These emissions estimates should be submitted to CTC HSE as part of the quarterly data submission. Where the NOJV indicates that emissions estimates are not reasonably available, Chevron should document the exclusion and the reason for excluding it.
- Accuracy: For purposes of complying with Section 4.6, Chevron may rely on the publicly available annual GHG report or assurance statement as evidence of the NOJV partner's compliance with the GHG data accuracy requirements of their local regulation. Chevron may request additional information from the NOJV to demonstrate the accuracy and completeness of the emissions estimates provided to CTC HSE for those emissions sources outside the boundary of third-party assurance.
- Restatement: For purposes of implementing Chevron's GHG data restatement policy (see Section 8.1), Chevron shall request, or otherwise obtain via publicly available information, any resubmitted or restated GHG emissions for a prior year/s for the NOJV.
- Uncertainty Assessment: Chevron shall request (or obtain via publicly available information) any quantitative and/or qualitative uncertainty assessments developed by or on behalf of the NOJV. Where uncertainty assessments are not publicly available or provided by the NOJV, CTC HSE shall complete a qualitative uncertainty assessment for the NOJV, based on best available information.

Tier 2: Large NOJV Partners without Mandatory Third-Party GHG Verification

For NOJV partners without annual, mandatory third-party GHG verification and with annual GHG emissions on a Chevron equity share basis, within a single Chevron business unit, equal to or greater than 500,000 metric tons CO_{2e}

("large NOJV partners"), CTC HSE shall work with the Chevron representative(s) responsible for managing the NOJV relationship in following the instructions/guidelines set out below.

- Reporting: Chevron shall request the NOJV to submit emissions data on a quarterly basis, consistent with the schedule in Section 2.1.1, where this data consists of estimates of emissions for: (i) each Kyoto GHG (i.e., CO₂, CH₄, N₂O, SF₆, PFCs and HFCs) and NF₃; (ii) each emissions type (e.g., direct, indirect); and, (iii) each emissions source type (e.g., combustion, flaring, venting, fugitive).
- Completeness: Consistent with Section 4.3, Chevron shall request that the NOJV provide data that accounts for all GHG emissions sources owned, operated or captive to the NOJV. Where the NOJV indicates that emissions estimates are not reasonably available, Chevron should document the exclusion and the reason for excluding it.
- Accuracy: For purposes of complying with Section 4.6, Chevron may request additional information from the NOJV to demonstrate the accuracy and completeness of the emissions estimates provided to CTC HSE.
- Restatement: For purposes of implementing Chevron's GHG data restatement policy (see Section 8.1), Chevron shall request that the NOJV provide any GHG emissions resubmitted or restated to comply with local regulation. Where resubmission or restatement is not required by local regulation, Chevron shall request that the NOJV resubmit GHG emissions for a prior year/s to remain consistent with Chevron's facility-level restatement criteria.
- Uncertainty Assessment: Chevron should request that large NOJV partners complete an annual qualitative uncertainty assessment in accordance with Section 6.3, and provide the results to CTC HSE. Where these NOJV partners do not complete an uncertainty assessment, CTC HSE shall complete an uncertainty assessment for the NOJV, based on best available information.

Tier 3: Small NOJV Partners

For NOJV partners with annual GHG emissions on a Chevron equity share basis, within a single Chevron business unit, less than 500,000 metric tons CO_{2e} ("small NOJV partners"), the Chevron business unit under which the NOJV falls or CTC HSE shall follow the instructions/guidelines set out below.

- Reporting: Chevron shall request the NOJV to provide quarterly estimates of Kyoto GHG emissions (i.e., CO₂, CH₄, N₂O, SF₆, PFCs and HFCs) and NF₃, and submit these by Chevron's deadline for quarterly reporting (see Section 2.1).
- Completeness: Consistent with Section 4.3, Chevron should request that the NOJV provide emissions data that accounts for all sources of GHG emissions owned, operated or captive to the NOJV. Where the NOJV indicates that emissions estimates are not reasonably available, Chevron should document the exclusion and the reason for excluding it.
- Accuracy: For purposes of complying with Section 4.6, Chevron may request additional information from the NOJV to demonstrate the accuracy and completeness of the emissions estimates provided to CTC HSE. Where high-level estimates are used in the absence of actuals, the governing Chevron business unit or CTC HSE should continue to look for opportunities to get actual emissions data for the NOJV.
- Restatement: For purposes of implementing Chevron's GHG data restatement policy (see Section 8.1), Chevron shall request that the NOJV provide any GHG emissions resubmitted or restated to comply with local regulation. Where resubmission or restatement is not required by local regulation, Chevron shall request that the NOJV resubmit GHG emissions for a prior year/s to remain consistent with Chevron's facility-level restatement criteria.
- Uncertainty Assessment: Small NOJV partners are not expected to complete an annual qualitative uncertainty assessment. The facility/ies of these NOJV partners shall be included in the uncertainty assessment of the Chevron business unit under which the facility/ies fall, where similarity of emissions sources and calculation methodologies or complimentary nature of operations allow, or CTC HSE shall complete an uncertainty assessment for the NOJV, based on best available information.

2.2 Criteria Pollutant and Volatile Organic Compounds Emissions Reporting

Chevron business units can calculate both GHG and criteria pollutant (CP)/volatile organic compound (VOC) emissions in Sphera® Essential™. For details on CP/VOC emissions reporting for the corporate inventory, please refer to the Air Emissions Reporting Protocol.

3 GHG REPORTING ROLES AND RESPONSIBILITIES

3.1 Roles and Responsibilities

Business units should explicitly document in their SOP which positions or job titles fulfill the roles and responsibilities applicable at the business unit level that are described below. This may be accomplished in a tabular matrix of staff names, job titles, competency/credentials, and roles/responsibilities with reference to the applicable functions below. Where a business unit has established other competency processes that include the requirements of this Protocol, it is acceptable to cross reference this in the SOP.

3.1.1 Corporate Strategy & Sustainability (CSS)

The Lead, Strategic Energy Transition Initiatives within Chevron Strategy & Sustainability (CSS) is responsible for the following (with respect to GHG reporting only):

- Setting enterprise carbon management strategy, including carbon intensity metrics and associated targets;
- Articulating GHG data and methodology needs to support this strategy (e.g., product carbon intensities, level of assurance); and,
- Overseeing all external GHG data reporting via voluntary carbon disclosures, including corporate sustainability reports, and proxy statements.

3.1.2 CTC HSE

The Manager, Air & GHG within CTC HSE, with Air & GHG Team members support, is responsible for the following:

- Providing guidance to business units on compliance with GHG regulations, as appropriate;
- Stewarding use of and updates to this Protocol to enable Chevron to account for and report GHG emissions in alignment with industry best practice;
- Overseeing Chevron's corporate GHG inventory adherence to the GHG reporting principles of relevance, completeness, consistency, transparency and accuracy;
- Leading Chevron's participation in various industry groups (i.e., Global Benchmarking Group, OGCI Reporting Task Force) focused on driving consistency in definitions and scopes for GHG data reporting, and advising CSS on industry standards for external reporting;
- Providing consolidated, reviewed and third-party verified GHG data to CSS for publication in Chevron's voluntary carbon disclosures, and to the business units and the corporation to support decision analysis, including via GHG dashboards;
- Forecasting GHG emissions and carbon intensities to provide CSS with information needed to set carbon intensity targets and track performance against these targets;
- Coordinating independent third-party verifications of the corporate GHG inventory, including facilitating onsite visits and working in partnership with business units to ensure timely closeout of any findings by the verifier;
- Conducting GHG peer assists with select business units, on a periodic basis, to promote alignment with this Protocol;
- Providing training to GHG Data Reporters and GHG Data Managers, in accordance with Section 3.2 of this Protocol, on GHG emissions accounting, and the corporate GHG inventory system (currently Sphera® Essential™) and associated tools, if applicable;
- Assisting GHG Data Reporters with reporting, and enabling and ensuring timely data submissions; and,
- Ensuring continued integrity and functioning of the corporate GHG inventory system, and detailing corporate requirements for any update of the GHG inventory system and/or associated tools.

3.1.3 Upstream Regional HSE Advisors and HSE Manager, Downstream & Chemicals and Midstream

The Upstream Regional HSE Advisors and HSE Manager, Downstream & Chemicals and Midstream, provide a coordinating role across the business units within their organization through:

- Ensuring that all business units and/or facilities within their organization have a GHG Data Manager, and at least one active GHG Data Reporter;
- Working with GHG Data Managers and GHG Data Reporters to ensure timely, quality and consistent data; and,
- Ensuring that all sources of emissions for their organization, particularly in cases of an acquisition/divestiture, are covered by their business units' GHG reports.

3.1.4 Business Unit

The business unit is responsible for complying with local, regional, and/or national GHG regulations, and this Protocol. This includes, but is not limited to, reporting of emissions to regulatory agencies, organizing for emissions to be verified by a third party, and being responsible for verification and compliance costs. Further, the business unit is responsible for developing and implementing procedures to ensure compliance.

3.1.5 GHG Data Manager

For each facility to which they are assigned, the GHG Data Manager is responsible for:

- Reviewing and approving the reported GHG emissions data, prior to submission to CTC HSE, to ensure that it meets the requirements of this Protocol;
- Reviewing the annual update of the SOP and uncertainty survey prior to submittal to CTC HSE;
- Ensuring that the GHG Data Reporter(s) for the facility receive/s the requisite training on GHG reporting and Sphera® Essential™, and has/have a comprehensive understanding of the facility's operations and available data and, preferably, a background in engineering or environmental science;
- Ensuring that the GHG emissions reports and data are prepared in accordance with the quality specifications of Section 7; and,
- Partnering with CTC HSE on GHG data assurance and emissions forecasting, as applicable.

The position title of the designated GHG Data Manager may vary by facility but, preferably, the role should be assigned to a HSE Manager/Senior HSE Specialist for the facility or a member of the facility's leadership team.

3.1.6 GHG Data Reporter

For each facility to which they are assigned, the GHG Data Reporter is responsible for:

- Ensuring that the reported GHG emissions data adhere to the GHG reporting principles of relevance, completeness, consistency, transparency and accuracy, per Section 4;
- Regularly assessing the facility to keep an accurate inventory of all sources of emissions that fall within the organizational and operational boundaries as defined in this Protocol, per Section 5;
- Determining the appropriate approaches/methodologies for measuring or calculating the GHG emissions from all emissions sources to meet the requirements of this Protocol, or local regulation;
- Using Sphera® Essential™ to report the activity data for, and to calculate and report the GHG emissions from all emissions sources, including sources required by this Protocol but not required by local regulation;
- Coordinating with Finance and Legal to track changes in ownership (i.e., equity percentage) and operational control for each emissions source in Sphera® Essential™ to enable GHG emissions to be calculated and reported on an equity share and operational control basis (where all activity data is entered on a 100 percent basis);

- Communicating changes in ownership (i.e., equity percentage) and operational control for facilities/sources to CTC HSE;
- Tracking the addition and decommissioning of operations and/or equipment at the facility level relevant to the calculation of GHG emissions, and making appropriate updates to the SOP and the configuration of the facility within Sphera® Essential™;
- Preparing the GHG emissions data for the facility for submission to CTC HSE via Sphera® Essential™;
- Completing an initial uncertainty survey to cover the facility, in accordance with Section 6.3;
- Developing and maintaining documented SOPs to cover the facility, in accordance with Section 7;
- Detailing how analytical samples are collected and processed via a sampling plan in accordance with Section 7.1.1.2.g, where applicable;
- Developing and maintaining a meter management plan in accordance with Section 7.1.1.2.h, where applicable;
- Completing an annual review and update of the SOP and uncertainty survey for submission to CTC HSE by June 30; and,
- Partnering with CTC HSE on GHG data assurance and emissions forecasting, as applicable.

3.2 Training Requirements

All GHG Data Reporters shall attend at least two data reporter training courses each year, at least one of which must be a “multi-day” course. GHG Data Managers are encouraged to attend one “refresher” training annually. Completion of the training requirement by the GHG Data Reporter/s shall be documented in the facility SOP, with reference as to where proof-of-completion (e.g., notification of training completion) records are stored. In the case that a GHG Data Reporter is unable to attend a scheduled session/s to meet the annual training requirement, a six-month extension may be granted, subject to CTC HSE discretion, or the GHG Data Reporter may, subject to CTC HSE availability, attend a one-on-one training with CTC HSE to meet the annual training requirement.

All trainings will be led by the CTC HSE Air & GHG Team, and cover the basics of GHG accounting and reporting, the key requirements of this Protocol, and how to submit GHG data on a quarterly basis via Sphera® Essential™. CTC HSE will offer both the “multi-day” and “refresher” trainings at least twice a year, with the “multi-day” trainings generally held in the first and third quarters, and the “refresher” trainings in the second and fourth quarters. While the “refresher” trainings will be held virtually, the “multi-day” trainings will be available to both in-person and virtual participants. After each training, CTC HSE will provide participants with a copy of the training materials and attendance records, as well as a recording of the session.

In the case of a change in personnel in the role of GHG Data Reporter, the new GHG Data Reporter is required to attend a “multi-day” training, or schedule and complete a one-on-one training with a CTC HSE Air & GHG Team member, within six months of starting in their new role. Further, wherever possible, the new GHG Data Reporter should work with their predecessor to jointly prepare and submit at least one quarterly GHG report.

4 GHG REPORTING PRINCIPLES

4.1 Introduction to Principles

Chevron requires that GHG accounting and reporting be carried out in accordance with the principles detailed below. These principles are designed to help provide a true and fair representation of the GHG emissions of the Company, and are aligned with industry best practice.

4.2 Relevance

Chevron's GHG inventory should properly reflect the GHG emissions of the Company, and serve the decision-making needs of those receiving the data, whether internal or external to the Company.

This principle requires the following:

- In selecting the reporting boundaries of a facility for the purposes of the GHG inventory, the GHG Data Reporter shall ensure that combustion devices, process units and/or other emissions sources that are integral to the facility's operations are included, in accordance with Section 5.
- In preparing GHG data reports for both those internal and external to the Company, CTC HSE should ensure that the GHG data is appropriate for the context in which it is presented.
- Timely reporting of GHG emissions to both internal and external users of the data, ensuring that relevant (and not outdated) data is being used to inform decision-making.

4.3 Completeness

Chevron's GHG inventory should account for the GHG emissions from sources and activities that fall within scope and within the Company's organizational boundary (defined here as those facilities which Chevron wholly/partially owns or operates, or which are 'captive' to Chevron's operations, per Section 5).

This principle requires the following:

- The GHG Data Reporter shall annually review a facility's inventory to verify that all sources of GHG emissions are captured both within Sphera® Essential™ and their SOP, **noting that Chevron's prior materiality or de minimis reporting thresholds no longer apply.**
- Sources which may be excluded from the inventory for combustion, venting and/or fugitives include: grounds maintenance equipment (e.g., lawn mowers, leaf blowers), fire-fighting training, lab equipment calibrations/maintenance, window unit air conditioners, and propane space heaters. If the business unit elects to define additional sources to exclude from their inventory, the GHG Data Reporter shall document this in the facility SOP and inform CTC HSE of the exclusion/s.
- "Small sources" are those defined as GHG emissions sources that are in aggregate less than three percent of a facility's total GHG emissions and whose quantification on a quarterly basis would not be technically feasible or cost effective. The business unit shall report these "small sources", but may do so on the basis of engineering estimates or calculations. Such estimates should be recorded as part of the facility SOP and reviewed at least every three years.
- GHG emissions from one-time or non-routine activities (e.g., turn-around activities, or other planned/anticipated events) should be assessed for inclusion in the inventory.
- Non-routine GHG emissions from routine operations (e.g., process upsets or other unplanned events such as equipment failures) shall be included in the emissions inventory, based on best available information.
- GHG emissions associated with liquid loss of containment can be excluded from a facility's inventory.
- Another important aspect of completeness is for CTC HSE and GHG Data Reporters to ensure the inventory accounts for acquisitions and divestitures, as well as the adding of new, and retiring of existing, equipment.

Emissions sources should be included in or excluded from the inventory as of the effective date of their acquisition/addition or divestiture/retirement, respectively.

4.4 Consistency

Chevron's GHG inventory should allow for meaningful comparisons of GHG emissions, whether at the facility, business unit, organizational or enterprise level, over time (e.g., year-to-year).¹

This principle requires the following:

- For facilities that are wholly owned and/or operated by Chevron, the business unit should use Sphera® Essential™ to calculate and report their GHG emissions, with those facilities that are partially owned or not operated by Chevron also encouraged to use the tool.
- The GHG Data Reporter should aim for consistency, year over year, with regards to a facility's inventory boundary and the calculation methodologies applied to emissions sources. In the case that there are changes to the facility's boundary or to the calculation methodologies used over time, the GHG Data Reporter should transparently document and justify these changes in the facility SOP, and also update the facility Sphera® Essential™ configuration accordingly.
- CTC HSE is responsible for compiling the GHG information from all facilities across the organizational boundary with the goal of providing aggregate information that is internally consistent and comparable over time.

4.5 Transparency

Chevron's GHG inventory should be capable of replication by a third party through provision of sufficient information, and a clear audit trail from reported GHG figures back to the source of the activity data.

This principle requires the following:

- The GHG Data Reporter shall clearly document, in the facility SOP, the chosen inventory boundary, all data sources, the calculation methodologies used, any specific exclusions and justification for excluding them, any relevant assumptions made, and changes in any of these over time in accordance with Section 8; and,
- CTC HSE should review a sample set of SOPs periodically for the purpose of verifying that changes to inventory boundaries over time are appropriately disclosed.

4.6 Accuracy

Chevron's GHG inventory should be sufficiently accurate to enable intended users, whether internal or external to the Company, to make decisions with reasonable confidence that the reported information is credible.

This principle requires the following:

- The GHG Data Reporter should continuously look for opportunities to improve the accuracy of the a facility's inventory through implementing a more accurate emissions calculation methodology for each of the facility's emissions point sources. For instance, where general emission factors are currently used to calculate the emissions from gaseous fuel combustion in an engine, the GHG Data Reporter should look for opportunities to use the measured composition of the fuel instead.
- To right size the effort associated with estimating emissions for "small sources" (refer to Section 4.3), the GHG Data Reporter is allowed to make, and clearly document, an emissions estimate for the affected source. This estimate should be reviewed every three years to confirm that the estimate is reasonable. If

¹ Refer to Section 2.1.1 for clarification of estimated emissions due to early reporting deadlines.

there is a significant change in the use of any source for which an estimate is used, the estimate should be revisited at the time of change.

- For facilities with consistently smaller GHG emissions, business units can use production-based emission factors for estimating emissions for low-emitting operations, such as terminals, retail stations, etc., where this helps to significantly streamline quarterly reporting.

5 REPORTING BOUNDARIES

5.1 Organizational Boundaries

Chevron accounts for and reports its GHG emissions using two different approaches: both an equity share and operational control-based approach. Using information required to be provided by each GHG Data Reporter on Chevron's economic interest in and operational control over their facility/ies, Sphera® Essential™ will compute facility-level (as well as enterprise-wide) GHG emissions according to both approaches.

5.1.1 Equity Share Approach

For the purpose of the equity share approach, Chevron accounts for GHG emissions from its operations according to its share of equity in the business. According to the 2011 IPIECA Petroleum Industry Guidelines, Second Edition, the equity share "reflects economic interest, which is the extent of rights a company has to the risks and benefits flowing from assets. Typically, the share of the risks and benefits in an asset is aligned with the company's percentage ownership of that asset, and equity share will normally be the same as the ownership percentage. Where this is not the case, the economic substance of the relationship the company has with the reporting unit should typically override the legal ownership to ensure that equity share reflects the percentage of economic interest."

In practice, this means that Chevron's equity share should be determined in a manner consistent with financial accounting approaches. The equity share values to be applied to a given asset for the purpose of GHG reporting should be obtained from, or confirmed with, Chevron's financial departments, and should be recorded (or referenced) by each business unit as part of its SOP.

"Captive" operations are those third party-owned and operated units (e.g., hydrogen plants) that are "captive" to Chevron's operations because the owner/operator does not sell the unit's product(s) (e.g., hydrogen) to any other parties besides Chevron. Similarly, third-party owned and operated services (e.g., well drilling activities) are "captive" to Chevron's operations when services are conducted exclusively for Chevron. Under equity share accounting, Chevron's equity share in emissions from "captive" operations shall be taken as equal to its equity share in the operations benefiting from the product or service.

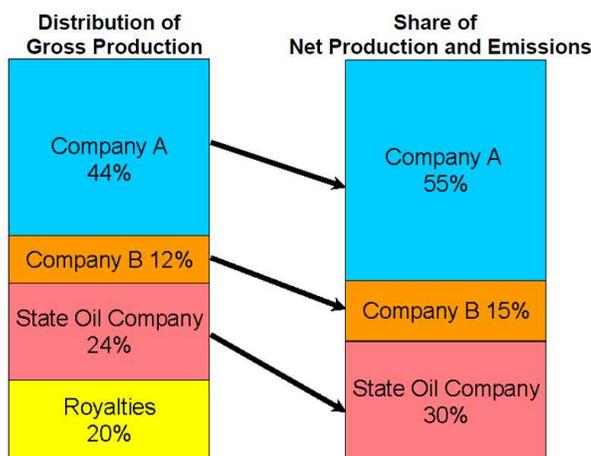
There are a few exceptions or special applications of equity share, as indicated below.

Contractual Agreements Specifying Emission Allocations: In cases where there are specific contractual arrangements that either indicate how GHG emissions are to be allocated to the partners, or alter the normal practice of allocating costs and benefits in proportion to the equity interest, these contractual agreements set the applicable equity share percentage. The GHG Data Reporter should reference any such contractual agreements in their SOP.

Production Sharing Agreements/Contracts: One type of arrangement that alters the normal practice of allocating benefits in proportion to equity is the Production Sharing Agreement/Contract (PSA/PSC), which is commonly used in upstream petroleum operations. A PSA/PSC is an agreement between one or more oil companies and a government entity or state company in which the participating oil companies provide financing and bear the risk of exploration and production activities in exchange for a share of the production remaining after royalties are paid to the government, including taxes and other levies paid in kind (i.e., with oil rather than money). Chevron's share of this remaining production (i.e., net share of production) – commonly referred to as the company's entitlement share of net production – should be used as the basis for allocating emissions. The company's share of net production volumes

relevant to GHG equity share reporting can be obtained directly from company financial departments.² The GHG Data Reporter should reference any such PSA/PSC in their SOP.

As shown in Figure 1, emissions quantified under an equity share approach are allocated to all of the parties receiving a share of net production³, whether they be state-owned or private companies. No emissions are allocated to the royalties paid to the government.



Note: Royalties include taxes and other levies paid in kind (with oil rather than money).

Figure 1. Allocation of emissions from PSAs for equity share accounting.⁴

Division of Interest Agreement/Contract: Another type of arrangement that alters the normal practice of allocating benefits in proportion to equity, similar to a PSA/PSC, is the Division of Interest Agreement/Contract (DOI), which is commonly used in upstream petroleum operations within the United States. A DOI sets forth the proportional ownership in produced hydrocarbons where there is a mineral rights owner. As for a PSA/PSC, Chevron's share of the production remaining after royalties have been paid should be the basis for allocating emissions, with no emissions allocated to the mineral rights owner. The GHG Data Reporter should reference any such DOI in their SOP.

Land Leased by Chevron: In alignment with no emissions being allocated to royalties or mineral rights under a PSA/PSC or DOI, respectively, Chevron's GHG inventory excludes emissions from production on land leased by Chevron to a third party, in which Chevron has zero percent interest but receives royalty payments.

Global Marketing Operations Operated by Others: An exception to the requirement for GHG emissions to be reported by facilities in which Chevron has an equity share exists for those operations within Global Marketing that are company owned but operated by others. Those Global Marketing facilities that are specifically excluded from GHG reporting include: Company Owned and Retail Operated (COROs) gas stations; Company Owned and Franchise Operated (COFOs) gas stations; and other commercial and industrial operations that may not be company operated.

² The net share of production used for allocating emissions from PSAs is the production reported in financial accounts or statements prepared according to the requirements of UK Generally Accepted Accounting Principles (GAAP), US GAAP, and the US Securities Exchange Commission (SEC).

³ Net production excludes royalties.

⁴ IPIECA, 2011. <https://www.ipieca.org/resources/good-practice/petroleum-industry-guidelines-for-reporting-greenhouse-gas-emissions-2nd-edition/>

CEMREC Leased Assets: For equity share reporting, when CEMREC is a lessee, CEMREC shall only account for emissions from leased assets that are treated as wholly owned assets in financial accounting and are recorded as such on the balance sheet (i.e., finance or capital leases).

Marine Assets: For equity share reporting, Chevron Shipping Company (CSC) shall account for emissions from vessels which are either owned or bareboat chartered by a Chevron entity and for which the Safety Management Certificate (SMC)/Document of Compliance (DOC) is held in the name of a Chevron entity.

Similarly, outside of CSC and under equity share reporting, business units shall quantify and report GHG emissions from owned or bareboat chartered marine vessels (e.g., supply vessels, dive support vessels, standby vessels, crew transfer boats, tugs). Business units should also report GHG emissions from “captive” marine services (i.e., services that are conducted solely for Chevron and not shared with other consumers).

Note that the prior reporting exemption for NOJV facilities in which Chevron has a 16 percent or less equity share no longer applies, with the expectation that all NOJVs (regardless of size) should be accounted for.

5.1.2 Operational Control Approach

Under the operational control approach, Chevron accounts for 100 percent of the GHG emissions from assets over which it has control in operational terms. It does not account for GHG emissions from operations in which it owns an interest but has no operational control.

According to the 2004 WBCSD/WRI The Greenhouse Gas Protocol, “a company has operational control over an operation if the former or one of its subsidiaries has full authority to introduce and implement its operating policies at the operation. This criterion is consistent with the current accounting and reporting practice of many companies that report on emissions from facilities, which they operate (i.e., for which they hold the operating license). It is expected that except in very rare circumstances, if the company or one of its subsidiaries is the operator of a facility, it will have full authority to introduce and implement its operating policies and thus has operational control.”

For the purpose of this Protocol, the test to be used by the GHG Data Reporter in determining whether Chevron has operational control over their facility (i.e., the facility is considered “operated”) is whether or not Chevron has the authority to introduce and implement its operational and Health, Safety and Environment (HSE) policies at the facility. The test should also be applied to “captive” sources (as defined previously under Section 5.1.1).

There are a couple of special applications of operational control, as indicated below.

CEMREC Leased Assets: Under operational control reporting, when CEMREC is a lessee, Chevron shall only account for emissions from leased assets that it operates.

Marine Assets: Under operational control reporting, in the context of Chevron’s marine assets under CSC, “operational control” over vessels shall be interpreted to be limited to vessels which are either owned or bareboat chartered by a Chevron entity and for which the Safety Management Certificate (SMC)/Document of Compliance (DOC) is held in the name of a Chevron entity.

Similarly, outside of CSC and under operational control reporting, business units shall quantify and report GHG emissions from owned or bareboat chartered marine vessels (e.g., supply vessels, dive support vessels, standby vessels, crew transfer boats, tugs), but only include, under operational control, “captive” marine services (i.e., services that are conducted solely for Chevron and not shared with other consumers) for which Chevron has the authority to implement its HSE policies.

5.1.3 Specific Reporting Inclusions/Exclusions for Both Equity Share and Operational Control Approaches

There are several specific inclusions/exclusions to reporting that apply to both equity share and operational control reporting, as indicated below. Where reporting is required by regulation, any exclusions noted below shall not apply (e.g., facility expansion for ABU, portable equipment requirements under Subpart W). Chevron’s basis for the exclusions is that the described operations are typically owned by third parties or contractors, and hence are scope 3 category 1 emissions for Chevron.

Aviation: GHG emissions from any owned aviation vessels or those aviation services whose activities are “captive” to Chevron (e.g., transportation of executive personnel, surveying services) shall be quantified and reported by the business unit. However, business units who employ aviation vessels (e.g., helicopters, planes) as a contract service which is generally shared with other consumers (e.g., to taxi other companies’ personnel and Chevron personnel at the same time) may exclude the associated emissions from their inventory.

Wastewater Treatment (WWT): GHG emissions from any owned WWT or those WWT services whose activities are “captive” to Chevron (e.g., WWT equipment that is owned by a third-party/contractor but exclusively servicing Chevron) shall be quantified and reported by the business unit. However, GHG emissions from WWT services or operations that service Chevron and other consumers (i.e., non-Chevron owned/operated wastewater) may be excluded from the associated Chevron business unit’s inventory (e.g., emissions from a public drinking water plant servicing the township in which a Chevron asset is located and whose product is consumed by Chevron and others, emissions from a municipal sewerage plant servicing the township in which a Chevron asset is located and to whom Chevron and others supply raw sewerage for treatment).

Exploration Activities: GHG emissions associated with exploration activities may be excluded from a business unit’s inventory, except where required by regulation.

Construction: GHG emissions associated with capital projects or construction prior to startup or commencement of production or operations shall be excluded from a business unit’s emissions inventory (e.g., in the case of a new facility or new operations at an existing facility [platforms, LNG trains etc.], construction of a new ship). GHG emissions from capital projects that occur after the startup of a parent facility shall also be excluded, except where required by regulation (e.g., under NGER for ABU).

Commissioning and Decommissioning Activities: Chevron business units are not required to quantify or report emissions associated with commissioning or decommissioning activities. “Commissioning emissions” are those that follow construction or installation of equipment, and precede startup or commencement of production or operations, while “decommissioning emissions” are those that occur after permanent shutdown of production or operations.

5.1.4 Example Scenarios to Illustrate Equity Share and Operational Control Approaches

Table 1 provides guidance on how to determine Chevron’s GHG emissions for different types of facilities/investments.

Table 1 – Example Scenarios to Illustrate Equity Share and Operational Control Approaches

Scenario #	Type of facility/investment (example scenarios)	Equity Share: Percent of emissions to report under equity share approach	Operational Control: Percent of emissions to report under operational control approach
1	Wholly-owned facility/subsidiary which is operated by Chevron	100%	100%

Scenario #	Type of facility/investment (example scenarios)	Equity Share: Percent of emissions to report under equity share approach	Operational Control: Percent of emissions to report under operational control approach
2	Wholly-owned facility/subsidiary which is not operated by Chevron	100%	0%
3	Non-wholly owned (as in a joint venture between several oil companies), operated facility, in which Chevron has a 40% interest	Typically 40%, but depends on whether JV is a legal entity or not.	100%
4	Non-wholly owned (as in a joint venture between several oil companies), non-operated facility, in which Chevron has a 40% interest	Typically 40%, but depends on whether JV is a legal entity or not.	0%
5	NOJV among a state-owned oil company and several foreign oil companies, as part of a production sharing agreement/contract (PSA/PSC).	Entitlement share of net production	0%
6	Same scenario as above in #5, but Chevron is entitled to 20% of oil production and 80% of gas production under a PSA/PSC.	Entitlement share of net production based on total BOE.	0%
7	Chevron operated joint venture among a state-owned oil company and several foreign oil companies, as part of a PSA/PSC.	Entitlement share of net production	100%
8	Production on land leased by Chevron to a third party, in which Chevron has a 0% interest but receives royalty payments	0%	0%
9	Operated facility, in which Chevron has a 0% interest	0%	100%
10	Non-owned/non-operated unit (and where we don't have authority to implement HSE policies) that is "captive" to Chevron's operations (i.e., owner/operator of unit does not sell product/services to other parties besides Chevron)	Same equity percentage as the operations benefiting from the product or service	0%
11	Non-owned/non-operated unit that is "captive" to a NOJV in which Chevron has a 40% interest.	40%	0%
12	Non-owned/non-operated unit which primarily exists to support your company's operations but also sells products to other customers (e.g., excess electricity to the grid or less than 50% of H2 to other customers).	0%	0%
13	Stock ownership in a publicly traded corporation, over which Chevron has significant influence (typically defined as greater than 20% interest), but not operational control.	Ownership share in the corporation	0%
14	Stock ownership in a publicly traded corporation, over which Chevron has limited influence (typically defined as less than 20% interest)	0%	0%
15	Marketing operations that are company owned but operated by others (e.g., COROs, COFOs)	0%	0%
16	Non office-related assets / equipment leased by Chevron for > 12 months from a 3rd party (Chevron is a lessee)	Same equity percentage as for the operation which leased the assets/equipment.	100%

Scenario #	Type of facility/investment (example scenarios)	Equity Share: Percent of emissions to report under equity share approach	Operational Control: Percent of emissions to report under operational control approach
17	Non office-related assets / equipment leased by Chevron for > 12 months to a 3rd party (Chevron is a lessor)	0%	0%
18	Chevron has an equity interest in an LNG liquefaction facility that is operated by a 3rd party, and a contract to offtake some percentage of production.	Our ownership percentage of the gas as it is being processed in the liquefaction facility.	0%
19	Chevron has a tolling agreement with a 3rd-party company to process our gas. Chevron has no equity in the 3rd-party plant, but continues to own gas that the 3rd party processes for us.	Percentage ownership of the gas.	0%
20	Chevron has a tolling agreement with a 3rd party company to process our gas. Chevron has no equity in this 3rd party plant, and sold gas to this 3rd party company before this gas enters their plant.	0%	0%

5.2 Operational Boundaries

Chevron accounts for and reports its emissions of all six Kyoto GHGs (i.e., carbon dioxide [CO₂], methane [CH₄], nitrous oxide [N₂O], sulfur hexafluoride [SF₆], perfluorocarbons [PFCs], and hydrofluorocarbons [HFCs]) and nitrogen trifluoride [NF₃] from all direct sources of emissions. The Company also accounts for and reports its indirect emissions of CO₂, CH₄ and N₂O from the import/purchase of electricity, heat and steam, while also tracking for internal GHG performance management purposes the emissions of these gases associated with the export/sale of electricity, heat and steam.⁵ In addition to direct and indirect emissions, the Company estimates and reports the CO₂, CH₄ and N₂O emissions that would result from the use (combustion) of its sold products (scope 3 category 11 emissions). Where certain emissions sources are confirmed as not present in operations, this shall be documented in the facility SOP.

5.2.1 Direct (Scope 1) Emissions

Chevron quantifies the emissions of all six Kyoto GHGs and NF₃ from all direct emissions sources at facilities that fall within its organizational boundaries (i.e., those facilities which are wholly or partially owned by Chevron or operated by Chevron, or 'captive' to Chevron's operations (see Section 5.1)). A facility's direct emissions can generally be considered as those from sources that fall within the 'fence line' of the facility (i.e., are under the operational control of the operator of the facility), and "captive" sources. Direct emissions, also referred to as scope 1 emissions, include emissions from stationary combustion, mobile combustion, flaring, vented sources (e.g., process unit venting), and fugitive sources. Section 6 lists potential sources of a facility's direct emissions.

It is important to note that the emissions associated with exported/sold electricity, heat, and steam should not be deducted from a facility's direct/scope 1 emissions. Emissions associated with the export/sale of electricity and steam

⁵ Emissions from exports of electricity and steam from Chevron's operations are tracked and reported separately. Chevron reports the emissions from all scope 1 (i.e., including the emissions associated with generation of all energy used on site and exported) and all scope 2 emissions from imported energy. In addition, as a separate line item, Chevron reports the emissions associated with exported energy.

are, however, tracked and reported separately by Chevron for internal GHG performance management purposes by Sphera® Essential™.

5.2.2 Indirect (Scope 2) Emissions

In accordance with industry best practice and the requirements of ISO 14064-1, Chevron accounts for and reports GHG emissions associated with the generation of its imported/purchased electricity, heat, and steam, also known as scope 2 emissions. Section 6 lists potential sources of a facility's indirect emissions.

Chevron's scope 2 emissions accounting takes into consideration key elements of the 2015 WRI GHG Protocol Scope 2 Guidance's market-based approach. In accordance with this guidance, preference is given to emissions factors available from contractual instruments (e.g., energy attribute certificates, direct contracts, supplier/utility-specific emissions rates) when available. If not available, regional or national grid-average emissions factors similar to those utilized by the location-based approach may be used. Chevron's preference with regards to the source of emissions factors, in decreasing order of preference based on a decreasing level of precision, is as follows:

1. Energy attribute certificates (e.g., Renewable Energy Certificates, Guarantees of Origin)
2. Direct contracts (e.g., power purchase agreements, renewable energy contracts)
3. Supplier/utility-specific emissions rates
4. Residual mix emissions factors (either regional or national, where available)
5. Regional grid-average emissions factors
6. National grid-average emissions factors

Based on current industry best practice, GHG emissions associated with imported/purchased hydrogen (from operations that are not 'captive' to Chevron) are not included as scope 2 emissions. Rather, these emissions are included within scope 3, category 1, "Purchased Goods and Services" emissions by the 2016 IPIECA Scope 3 Guidance. Chevron does not currently account for scope 3, category 1 emissions within its corporate GHG inventory.

5.2.3 Exported Emissions

In addition to quantifying its scope 2 emissions, the Company also separately tracks its GHG emissions associated with exported/sold electricity, heat and steam. Note that the emissions from exported/sold electricity, heat, and/or steam are not netted from Scope 2 emissions.

The rationale for Chevron tracking its GHG emissions from exported/sold, in addition to imported/purchased, electricity, heat, and steam is that it enables the Company to better internally measure its GHG performance. Specifically, it enables Chevron facilities that export/sell electricity, heat, and steam to receive full credit internally for improving their energy efficiency (e.g., through cogeneration) for, and/or reducing their GHG emissions (e.g., through cogeneration, low-carbon energy technologies such as geothermal) from, onsite electricity, heat, and steam generation.

Exported emissions should be accounted for utilizing same market-based approach as described for scope 2 emissions in Section 5.2.2.

5.2.4 Product (Scope 3) Emissions

In addition to direct and indirect emissions, Chevron estimates and reports the GHG emissions that would result from the use of its sold products. These product emissions are another type of indirect GHG emission, also referred to as a scope 3 category 11 emission. Specifically, CTC HSE quantifies the CO₂, CH₄ and N₂O emissions that would result from the combustion of its sold products, such as crude, natural gas, and refined fuels such as jet fuel and gasoline.

CTC HSE calculates scope 3 emissions in alignment with the three methods specified in category 11, “Use of Sold Products”, in the 2016 IPIECA Scope 3 Guidance. The three methods in category 11 are the production method, the throughput method, and the sales method. These methods differ in what products are included and how product volumes are estimated. The product volume for each method is determined as follows:

- Product volume for the production method is calculated using production volumes of crude, natural gas, and natural gas liquids from upstream operations. Note that this method excludes produced oil and gas that was subsequently reinjected, used for Chevron’s own energy generation, or flared or vented.
- Product volume for the throughput method is calculated using refinery inputs (e.g., crude, imported intermediates) and upstream production volumes of natural gas and natural gas liquids.
- Product volume for the sales method is calculated using sales volumes of refined products, intermediate products, blendstocks, natural gas, and natural gas liquids.

CTC HSE uses Company records including audited financial records to determine product volumes on an equity basis for each of the three methods, and on an operated basis for the production and throughput methods only. The method finally selected for calculation for each product is based on the availability of data.

CTC HSE calculates scope 3 emissions for each category 11 method using the corresponding category 11 product volume, fuel-specific higher heating values, and the CO₂, CH₄ and N₂O combustion emissions factors for each fuel type. Fuel-specific higher heating values and combustion emission factors are sourced from Tables 3-8, 4-3, 4-4, and 4-6 of the 2021 API Compendium.

Note that the sales method should include the CH₄ and N₂O emissions, but not the CO₂ emissions which are biogenic (i.e., from natural sources), that would result from the third-party use (combustion) of biofuel products. Chevron does not currently separate out biofuels from other refined product sales in its audited financial records and so applies petroleum product CO₂, CH₄ and N₂O emissions factors to all refined products, including biofuels.

5.3 Application to Carbon Intensity Metrics

Chevron reports carbon (GHG) intensity metrics on an equity share basis. Consistent with the equity share approach, reported emissions include equity share emissions from both operated and NOJV assets, and may include emissions sources outside of the traditional equity share scope, including captive emissions from processes like drilling and completions, and tolling agreements up to the point of third-party custody transfer of the oil or gas product.

Emissions utilized for these carbon intensity metrics comprise direct (scope 1) and indirect (scope 2) emissions, as defined above, minus the emissions associated with exported/sold electricity and steam. The calculations account for the six Kyoto GHGs and NF₃ for direct sources of emissions, and only CO₂, CH₄ and N₂O for the indirect emissions sources.

For upstream carbon intensity metrics, production is aligned with net production values reported in the Chevron’s Supplement to the Annual Report, which represent the Company’s equity share of total production after deducting both royalties paid to landowners and a government’s agreed-upon share of production under a PSA/PSC. Similarly, Chevron’s equity share emissions are reported in accordance with IPIECA guidance, which allocates emissions based on Chevron’s share of net production (refer to Section 5.1.1).

Upstream oil and gas carbon intensities use liquids production and natural gas production (the latter including LNG and GTL), respectively, with emissions allocated between oil and gas based on fraction of total production represented by liquids or gas. Flaring and methane intensities use the total of liquids and gas production (again inclusive of LNG and GTL).

6 GHG EMISSIONS QUANTIFICATION

6.1 Chevron's Requirements for GHG Emissions Quantification

All Chevron operated business units are required to submit monthly accounts of their GHG emissions from all emissions sources through Sphera® Essential™. Further, it is required that the business units use Sphera® Essential™ to report their activity data, and calculate their GHG emissions using the appropriate calculation methodologies built into the tool. Only in the case of non-operated reporting entities, or where prior agreement has been reached with CTC HSE and noted by the GHG Data Reporter in their SOP, may pre-calculated, aggregate GHG emissions figures be reported through Sphera® Essential™.

For those reporting entities submitting their GHG emissions to a local regulator, the same set of GHG figures for the set of emissions sources covered by the regulation may be submitted to CTC HSE for purposes of the enterprise-wide GHG inventory as an efficiency measure. These reporting entities are also required to report GHG emissions data for all sources of emissions regardless of local regulatory thresholds or permit levels, as well as any activity data required by this Protocol that is not required by local requirements.

Revisions to prior reporting years' data should be first discussed with CTC HSE and then made in accordance with Section 8 to ensure that CTC HSE is able to maintain the integrity of the corporate systems of record.

6.2 GHG Emissions Calculation Methods Built into Sphera® Essential™

Sphera® Essential™ incorporates the GHG emission factors and calculation methodologies detailed within the American Petroleum Institute (2021) "Compendium of Greenhouse Gas Methodologies for the Oil and Natural Gas Industry" (referred to as the "API Compendium"). The selection of methodology to be applied to a given source should be based on data availability and the significance of the source to the facility total emissions (i.e., emissions from significant emission sources should be based on the most accurate methodologies possible, based on available data). The API Compendium provides decision tree diagrams that guide the user to select the most accurate methodology based on data available. Also incorporated within Sphera® Essential™ are the GHG emission factors and calculation methodologies required to be used for compliance by business units that use Sphera® Essential™ for regulatory compliance.

To assist the GHG Data Reporter in determining potential sources of GHG emissions, Table 2 provides an illustrative list (not exhaustive) for the upstream production and refining sectors of operations and devices that would need to be assessed for their GHG emissions, and also includes an indication of whether each source is likely to emit CO₂, CH₄, N₂O, SF₆, HFCs, PFCs and/or NF₃. GHG Data Reporters can refer to Section 2 of the API Compendium for a comprehensive list of potential GHG emission sources of CO₂, CH₄, and N₂O by industry segment and asset class.

For all business units (with the exception of ABU), Chevron utilizes the 100-year time horizon global warming potential (GWP) values, relative to CO₂, from the Intergovernmental Panel on Climate Change's (IPCC) Fourth Assessment Report (AR4) (e.g., 25 for CH₄, 298 for N₂O). ABU utilizes the GWP values from IPCC's Fifth Assessment Report (AR5) in accordance with local regulatory requirements (e.g., 28 for CH₄, 265 for N₂O).

Table 2 – Potential Sources of Direct and Indirect GHG Emissions

Emissions Type	Emissions Source Category	Operations and Devices with Potential to Emit GHGs	Upstream Production	Refining
DIRECT (SCOPE 1)	Combustion – Stationary Sources	Boilers/Steam Generators	CO ₂ , CH ₄ , N ₂ O	CO ₂ , CH ₄ , N ₂ O
		Process Heaters/Treaters	CO ₂ , CH ₄ , N ₂ O	CO ₂ , CH ₄ , N ₂ O
		IC Engine Generators	CO ₂ , CH ₄ , N ₂ O	CO ₂ , CH ₄ , N ₂ O
		Fire Pumps	CO ₂ , CH ₄ , N ₂ O	CO ₂ , CH ₄ , N ₂ O
		Compressors	CO ₂ , CH ₄ , N ₂ O	CO ₂ , CH ₄ , N ₂ O
		Turbine Electric Generators	CO ₂ , CH ₄ , N ₂ O	CO ₂ , CH ₄ , N ₂ O
		Flares ⁶	CO ₂ , CH ₄ , N ₂ O	CO ₂ , CH ₄ , N ₂ O
		Catalyst and Thermal Oxidizers	CO ₂ , CH ₄ , N ₂ O	CO ₂ , CH ₄ , N ₂ O
		Incinerators	CO ₂ , CH ₄ , N ₂ O	CO ₂ , CH ₄ , N ₂ O
	Catalytic Cracking	n/a	CO ₂	
	Combustion – Mobile Sources	Company Vehicles	CO ₂ , CH ₄ , N ₂ O	CO ₂ , CH ₄ , N ₂ O
		Planes/Helicopters	CO ₂ , CH ₄ , N ₂ O	n/a
		Supply Boats/Barges	CO ₂ , CH ₄ , N ₂ O	n/a
	Venting – Process Vents	Glycol Dehydrators	CO ₂ , CH ₄	n/a
		Acid Gas Removal	CO ₂ , CH ₄	CO ₂ , CH ₄
		Catalytic Reforming	n/a	CO ₂
		Catalyst Regeneration	n/a	CO ₂
		Hydrogen Plants	n/a	CO ₂
		Asphalt Blowing	n/a	CO ₂ , CH ₄
		Venting – Other Vents	Storage Tanks	CO ₂ , CH ₄
	Water Tanks	CO ₂ , CH ₄	n/a	
	Pneumatic Devices	CO ₂ , CH ₄	CO ₂ , CH ₄	
	Chemical Injection Pumps	CO ₂ , CH ₄	CO ₂ , CH ₄	
	Venting – Maintenance/ Turnarounds	Casing Gas Vents	CO ₂ , CH ₄	n/a
		Mud Degassing	CO ₂ , CH ₄	n/a
		Well Unloading	CO ₂ , CH ₄	n/a
		Well Workovers	CO ₂ , CH ₄	n/a
		Well Completions	CO ₂ , CH ₄	n/a
		Compressor Starts	CO ₂ , CH ₄	CO ₂ , CH ₄
		Equipment/Process Blowdowns	CO ₂ , CH ₄	CO ₂ , CH ₄
	Venting – Non-routine Activities	Pressure Relief Valves	CO ₂ , CH ₄	CO ₂ , CH ₄
		Well Blowouts	CO ₂ , CH ₄	n/a
		Fire Suppression	HFCs, PFCs	HFCs, PFCs
Fugitive	Equipment Component Leaks	CO ₂ , CH ₄	CO ₂ , CH ₄	
	Wastewater Treatment	CO ₂ , CH ₄	CO ₂ , CH ₄	
	Refrigeration	HFCs, PFCs	HFCs, PFCs	
	Electrical Insulation	n/a	SF ₆	
INDIRECT (SCOPE 2)	Imported Energy	Purchased Electricity ⁷	CO ₂ , CH ₄ , N ₂ O	CO ₂ , CH ₄ , N ₂ O
		Purchased Steam	CO ₂ , CH ₄ , N ₂ O	CO ₂ , CH ₄ , N ₂ O
EXPORTED	Exported Energy	Exported Electricity	CO ₂ , CH ₄ , N ₂ O	CO ₂ , CH ₄ , N ₂ O
		Exported Steam	CO ₂ , CH ₄ , N ₂ O	CO ₂ , CH ₄ , N ₂ O
	Cogeneration	Exported Cogen Electricity	CO ₂ , CH ₄ , N ₂ O	CO ₂ , CH ₄ , N ₂ O
		Exported Cogen Steam	CO ₂ , CH ₄ , N ₂ O	CO ₂ , CH ₄ , N ₂ O

⁶ The 2021 API Compendium states that “information continues to become more available for N₂O emissions from petroleum industry flares, but these emissions are considered negligible compared to CO₂ emissions from flares”. In accordance with this guidance, many Chevron business units consider these emissions insignificant and do not report N₂O emissions for this emissions source type.

6.3 Chevron's Requirements for Assessment of Uncertainty

Chevron assesses uncertainty associated with its corporate GHG inventory in alignment with key elements of ISO 14064-1 (2018), WBCSD's/WRI's "The Greenhouse Gas Protocol" (2004) and IPIECA's/API's "Addressing uncertainty in oil and natural gas greenhouse gas inventories" (2015), with the aim of reducing uncertainty over time.

Chevron has adopted a qualitative approach to uncertainty (see Section 6.3.1), facilitated by an uncertainty survey. Where a facility is subject to regulatory requirements for uncertainty evaluation, CTC HSE shall work with the business unit or NOJV to complete the uncertainty survey to ensure no duplication of effort, but still allow Chevron to implement an overall consistent approach.

The business unit GHG Data Reporter should review and update the uncertainty survey on an annual basis, and provide the updated uncertainty analysis to the CTC HSE Air and GHG Team by June 30. The updated uncertainty survey should be approved by the business unit GHG Data Manager.

6.3.1 Chevron's Approach to Qualifying Uncertainty

Chevron uses an uncertainty survey to assess the uncertainty of each facility's scope 1 and scope 2 GHG emissions through grouping emissions by "source types" (see Table 3), and then assigning an uncertainty tier to both the activity data and emissions factor used to calculate these emissions. There are four defined tiers of uncertainty utilized by the survey, with Tier 1 corresponding to the highest level of uncertainty and Tier 4 the lowest level. To provide an assessment of what total percentage of a facility's emissions fall within each of the tiers, a business unit may conservatively assume that the lowest tier of uncertainty assigned to the activity data or emissions factor for a particular "source type" applies to all of the emissions within that grouping, or, alternatively, a majority-based approach may be taken (e.g., if 80% of emissions fall within Tier 3 and 20% within Tier 2, assume Tier 3).

For purposes of an enterprise assessment, CTC HSE is responsible for aggregating the results of the facility-level qualitative uncertainty assessments to show the distribution of Chevron's total emissions across the four tiers.

Table 3 – Source Types Utilized within Chevron's Uncertainty Assessment

Emissions Source Category	Source Type
Combustion	Mobile Combustion - Gas
	Stationary Combustion - Gas
	Mobile Combustion – Liquid Fuels
	Stationary Combustion – Liquid Fuels
Flaring	Flaring
	Purge and Pilot
Process Venting	Hydrogen Plants
	Catalyst Regeneration
	Cold Process Vents
	Other Refinery Vents (e.g., cokers, asphalt, blowing)
	Acid Gas Removal
	Glycol Dehydrators
	Storage Tank Emissions (of unweathered crude)
	Natural Gas-drive Pneumatic Devices (e.g., controllers, pumps)
	Loading and Ballasting
	Drilling (Mud Degassing)
Fugitive	Equipment Leaks
	Water Treatment
	SF ₆ and Refrigerants

7 QUALITY INFORMATION MANAGEMENT GUIDANCE

7.1 Facility-level GHG Data Quality Management Guidelines

The quality of facility-level data can best be managed by developing and abiding by a standard operating procedure (SOP), and by accounting for changes in facility-level emissions each reporting period. Section 7.1.1 lists the key components of a facility-level SOP; documents required by host governments that are similar in scope may suffice. The factors that can lead to changes in facility-level emissions and the steps that must be taken to report these changes are outlined in Section 7.1.2. The SOP documentation shall be kept and maintained by the business unit.

The business unit GHG Data Reporter should review and update the SOP on an annual basis, and provide the updated SOP to the CTC HSE Air and GHG Team by June 30. The updated SOP should be reviewed by the business unit GHG Data Manager prior to providing to CTC.

7.1.1 Facility-level Standard Operating Procedures

The business unit shall develop, maintain and abide by a SOP for quality GHG information management at its facility(ies). The SOP should align with the OE process and Chevron's GHG Reporting Protocol, and contain the following sections:

- Purpose, scope and objectives;
- Procedures;
- Resources, roles and responsibilities; and,
- Continual improvement.

7.1.1.1 *Purpose, Scope and Objectives*

The GHG data management and reporting process is designed to help ensure that Chevron's GHG inventory is accurate and verifiable. The process requires that roles and responsibilities, as well as the procedures for maintaining data quality be documented.

The business unit should identify the scope of GHG reporting for each facility. Information will include:

- Organizational and operational boundaries; and,
- Identification of GHG emission sources and sinks.

7.1.1.2 *Procedures*

Information and procedures pertaining to the following should be defined in the SOP:

- a. Data gathering, input and handling activities;
- b. Emissions calculation methods;
- c. Data quality assurance;
- d. Change management;
- e. Data documentation;
- f. Block flow diagrams, process flow diagrams, and piping & instrumentation diagrams;
- g. Facility-level GHG sampling plans; and,
- h. Facility-level GHG meter management plans.

a. Data Gathering, Input and Handling Activities

The business unit shall have a procedure that describes the data gathering process from data source to GHG report submission for each facility. The procedure should include:

- Information on data systems of record/sources/references (e.g., SAP, Energy Component) for both the activity data and emissions factor/data and any other calculation factors for each emissions source;
- Information on contact person/position in charge of providing data for each emissions source;
- Information on how and where data is stored (e.g., in hard or electronic format);
- Information on change management;
- Information on GHG Data Manager review and signoff process; and,
- Schedule for Sphera® Essential™ data reporting.

b. Emissions Calculations Methods

The business unit shall document how emissions are calculated for each emission source for each facility. Information should include:

- Emissions calculation methodology;
- Resources or citations used for calculation methodology;
- Data requirements for calculation; and,
- Data measurement requirements with information on measurement technique, sampling frequency, analysis method and calibration program, where all sampling, measurement and analysis methods should conform to recognized international standards.

c. Data Quality Assurance

The business unit should have a procedure for routine and consistent checks to ensure accuracy and completeness of the GHG inventory for each facility. The procedure should be documented in the SOP and should include the following:

- Peer review of data to check for errors and/or omissions;
- Data check and comparison with previous reporting periods;
- Documentation of data variation, causes for identified variations and evidence of any corrections to data;
- GHG Data Manager review and signoff;
- Annual emissions source review; and,
- Periodic peer assists by HSE CTC.

The business unit should annually review:

- GHG inventory reporting parameters such as organizational and operational boundaries, GHG emission sources and sinks, and emissions calculation methodologies to ensure completeness of reported data; and,
- Opportunities for improvement within the information management process.

d. Change Management

Each facility should have a change management program in place so that changes in equipment, processes, equity share and operational control can be systematically identified and appropriately documented.

The business unit should document for each facility a procedure for:

- Training, and transferring knowledge to, new GHG Data Reporters;
- Annual review of the reporting scope (e.g., have emissions sources or sinks been added or removed from the facility's reporting boundary?); and,
- Identifying and reporting changes in facility-level emissions (see Section 7.1.2 for more details).

Business units should ensure that their GHG inventory is aligned with MOC processes for process diagrams, such as block flow diagrams (BFDs), process flow diagrams (PFDs), and piping and instrumentation diagrams (P&IDs).

e. Data Documentation

The business unit shall maintain documentation that supports the data reported, and procedures for documentation retention and record keeping. It should include:

- An inventory of all emissions sources included in the GHG emissions inventory;
- A list of any insignificant emissions sources excluded per Section 4.3;
- Methods used for calculating emissions, references for emissions factors and/or fuel properties used, and any changes to methodologies, including written records of the calculation methodology or rationale for any emissions sources that are based on estimates or assumptions;
- Organizational changes such as facility name change, change in equity share, and change in operator status;
- Internal audit results and corrective actions taken as follow up to an audit; and,
- Quarterly Sphera® Essential™ submissions (monthly data reported) with information relating to significant data changes when compared with previous quarters.

The business unit should retain documentation (in hard or electronic format) in accordance with Chevron records retention policies, or as required by local regulation, whichever is longer.

f. Block Flow Diagrams, Process Flow Diagrams, and Piping & Instrumentation Diagrams

As part of each facility SOP, business units should have drawings such as block flow diagrams (BFDs) that provide a general understanding of operations, and units with significant GHG emissions sources.

For facilities with significant emissions sources (defined as greater than 10,000 metric tons CO_{2e} per year), business units should be able to reference existing process flow diagrams (PFDs) and/or piping and instrumentation diagrams (P&IDs) that can be used to identify these emissions sources. These diagrams should be able to show where GHG emissions emanate from, and where and how they are measured (e.g., sampling points, flowmeters), and be able to be used to confirm the completeness of a GHG inventory. Such information should also be able to be traced back to a facility's GHG inventory.

When referencing diagrams, SOPs should include:

- title and nature of referenced plans/systems (e.g., Documentum);
- name of team with responsibility for maintaining plans or systems; and,
- how management of change related to GHG emissions is handled within referenced plans or systems.

If emissions sources are not covered in current diagrams, new ones should be developed while maintaining alignment with a business unit's management of change processes.

Business units that already have mandatory third-party verification at a level of reasonable assurance are exempt from the requirements of this section. Similarly, this expectation is waived for business units where operations are not consolidated, linear infrastructure is in place over large distances, or comprehensive diagrams are otherwise not practicable.

g. Facility-level GHG Sampling Plans

To facilitate consistency, transparency and accuracy in GHG data, business units that utilize fuel samples for GHG emissions quantification should document how these samples are collected and processed via a GHG Sampling Plan. Depending on the complexity/magnitude of sampled sources, business units may have a stand-alone GHG Sampling Plan, or incorporate it into the facility SOP. Where required by regulation, equivalent documents may be referenced in the SOP.

The GHG Sampling Plan should describe:

- Sampling personnel roles and responsibilities;
- Personnel training and qualifications, where applicable;
- Source streams which are sampled for GHG emissions quantification;
- Sampling methodology (e.g., frequency, policies, procedures, instrumentation, collection apparatus);
- Sample handling, storage and transport;
- Sample analysis (e.g., laboratory method (ASTM or ISO specification), laboratory credentials, any post-measurement computational methods); and,
- Required sample reporting, where applicable (e.g., for regulatory reporting).

Business units that already have mandatory third-party verification at a level of reasonable assurance are exempt from the requirements of this section.

h. Facility-level GHG Meter Management Plans

To facilitate consistency, transparency and accuracy in GHG data, business units that collect activity data from metered instrumentation (e.g., manual or automated meters, sensors) for GHG emissions quantification should develop and maintain a GHG Meter Management Plan. Depending on the complexity/magnitude of metered sources, business units may have a stand-alone GHG Meter Management Plan, or incorporate it into the facility SOP. Where required by regulation, equivalent documents may be referenced in the SOP.

The GHG Meter Management Plan should describe:

- Meter management personnel roles and responsibilities;
- Personnel training and qualifications, where applicable;
- Meter maintenance, calibration, and repair work flow, including frequency and the basis for the maintenance and calibration process (such as per manufacturer's recommendation);
- Source streams which are metered for GHG emissions quantification;
- In-place meters (e.g., meter identification, PI tag) with performance range and uncertainty specifications; and,
- Records of meter maintenance status or maintenance logs for tracking.

Business units that already have mandatory third-party verification at a level of reasonable assurance are exempt from the requirements of this section.

7.1.1.3 *Resources, Roles and Responsibilities*

The business unit should:

- Describe the roles and responsibilities of staff gathering data from the field, GHG Data Reporters, GHG Data Managers, and other personnel involved in the GHG reporting and data management process;
- Outline technical competency requirements for GHG Data Reporters, including the desired experience and skills of personnel involved in the data quality assurance process; and,

- Outline training requirements for GHG Data Reporters and GHG Data Managers.

New users of Sphera® Essential™ should receive formal training and turnover from previous users, and should work with the new user to jointly prepare and submit at least one quarterly GHG report.

7.1.1.4 *Continual Improvement*

The SOP should be reviewed on an annual basis to identify areas for improvement and made available to third-party verifiers.

7.1.2 Accounting for Changes in Facility-level Emissions

A critical step in GHG reporting is to assess the changes in GHG emissions from a facility over time and to document the causes of the changes. It is important to determine the reasons for the changes because it allows Chevron to make a fair comparison of its GHG emissions from one reporting period to the next and to realize if, and where, real sustainable GHG reductions have been made.

As a means of facilitating a fair comparison and checking a facility's data for accuracy, the GHG Data Reporter for each facility must account for the changes by location. The GHG Data Reporter should compare the CO₂ equivalent (CO_{2e}) emissions from the current year-to-date (YTD) emissions with the previous year's emissions for the same period.

If a significant increase or decrease in GHG emissions (in metric tons CO_{2e}) has occurred, then the GHG Data Reporter must first determine if the change has resulted from an error or omission. "Significant" is defined as if the variance exceeds:

- greater than +/- 10 percent of the reporting entity's prior year emissions and greater than 10,000 metric tons CO_{2e}, or
- greater than +/- 50 percent of the reporting entity's prior year emissions.

If the GHG Data Reporter determines that an error or omission has occurred, then the issue must be addressed before completion of the data submission action item in Sphera® Essential™. In the case that the change in emissions is not due to an error or omission, then an explanation for the change needs to be recorded and communicated in Sphera® Essential™. The GHG Data Reporter can refer to the GHG Dashboard, which performs the threshold calculations, to see whether a significant variance has occurred and where, if not due to an error or omission, a variance comment is required to be entered.

The factors that can result in changes to facility emission estimates are detailed below.

Changes due to Acquisition/Divestment/Merger

Facilities are often acquired or divested and these transactions must be clearly communicated to CTC HSE so that the GHG emissions from these entities may be properly accounted for in the inventory. In each case, the date on which ownership of the facility changed hands must be documented together with the percent interest that was acquired or divested.

Changes due to Revision of Estimation Methodology

It is expected, and encouraged, that improvements to a facility's emissions calculations will be made over time. Examples of improvements include the use of a more accurate emission factor or the addition to the inventory of

emissions sources that had previously been considered insignificant. When such improvements are made, the reason for the resulting change in emissions must be documented and communicated to CTC HSE. Documentation should include details of the new emissions calculation methods used and/or new emissions sources added, any assumptions made, and those parties involved in the decision to make the change.

Changes due to Change in Production Level

GHG emissions are dependent upon production. Thus, changes in production levels from one reporting period to the next can significantly affect GHG emissions estimates. When a change in production leads to a greater than 10 percent increase or decrease in GHG emissions (in metric tons CO_{2e}), then this change should be documented and communicated to CTC HSE. It should also be noted as to whether the change in production is expected to be temporary or permanent.

Changes due to Real Sustainable Reduction

Facilities may make changes to their operations that reduce energy use and/or GHG emissions. Examples of such energy use and/or GHG emissions reduction measures include the switch to cleaner fuels, reductions in flaring/venting, adoption of carbon capture and storage (CCS), and installation of cogeneration and/or more efficient hydrogen plants. These measures to reduce energy use and/or GHG emissions are highly encouraged, and should be documented and communicated to CTC HSE.

Changes due to Other Causes

“Other” causes for changes in GHG emissions are often changes to operations and are not due to changes in production, and may include the following: new or more intensive processing at refineries to produce cleaner fuels; facility shutdowns; increased use of gas/water injection for production; pollution abatement controls; and, fuel switching.

Some “other” changes are caused by non-operational differences from one reporting period to another such as a change in the weather (e.g., more or less heating oil required for heating buildings), a change in the percent equity or the operator status, and/or the addition of new locations within an entity. Furthermore, the amount of electricity or steam purchased or sold could change, or utilities that were outsourced could become insourced or vice versa. All of these changes should be documented and communicated to CTC HSE.

7.2 CTC HSE Data Quality Management Guidelines

CTC HSE can best manage data quality by developing and abiding by a SOP, and by accounting for changes in enterprise-level GHG emissions each reporting period. Section 7.2.1 provides guidance for developing an SOP for CTC HSE, while Section 7.2.2 outlines the steps that CTC HSE should take to identify significant changes in enterprise-level emissions.

7.2.1 CTC HSE Standard Operating Procedures

CTC HSE shall have a SOP for quality GHG information management. The SOP should contain the following information:

- Roles and Responsibilities
- Supporting Documentation
- Change Management
- Record Retention

The remainder of this section describes the information that should be included in CTC HSE's SOP as well as procedural requirements for maintaining data quality.

Roles and Responsibilities

The following should be described in CTC HSE's SOP:

- Roles of the CTC HSE staff who aggregate and quality control the corporate GHG inventory data;
- CTC HSE responsibility to plan and facilitate training for the GHG Data Reporters and GHG Data Managers on this Protocol, GHG emissions accounting and the use of Sphera® Essential™;
- CTC HSE responsibility to maintain a portal for use by Chevron employees which contains past and present information on Chevron's GHG emissions; and,
- Roles and responsibilities of IT staff who manage the servers where the GHG data is stored.

Supporting Documentation

The following documents, which support the GHG Inventory system, should be maintained by CTC HSE:

- List of reporting entities under equity share and operational control reporting boundaries - Develop/update documentation to include acquisition and divestitures, and to clearly identify Chevron reporting entities included in scope of the GHG Inventory for each relevant year; and,
- List of reporting contacts – Develop/update a list of the staff responsible at each facility for the completion of the GHG emission estimates.

CTC HSE's SOP should outline guidance on frequency with which these documents should be reviewed and revised.

Change Management

CTC HSE should have a change management program in place so that Chevron's GHG emissions may be collected and reported each year in a consistent manner, and so that changes in enterprise-wide emissions may be rigorously tracked.

CTC HSE should document a procedure for:

- Training, and transferring knowledge to, new GHG Inventory Specialists within the Air & GHG Team;
- Identifying changes in the scope of reporting (e.g., have acquisitions or divestitures occurred?) and other changes reported by the facilities; and,
- Identifying and reporting changes in enterprise-level emissions (see Section 7.2.2 for more details).

Record Retention

CTC HSE shall develop and follow procedures for documentation retention and record keeping in accordance with Chevron's records retention policies.

7.2.2 Accounting for Changes in Corporate-level Emissions

CTC HSE shall review the GHG data submitted by each reporting facility and undertake the following quality assurance and quality control activities:

- Check completeness of the GHG inventory (i.e., has data been received from each of the reporting entities?) and address any omissions based on the facility-level SOPs;
- Compare the emissions for the current year-to-date (YTD) emissions against those for the same period of the previous year; and,
- Aggregate explanations provided by facilities for significant increases or decreases in emissions.

When completing the annual GHG emission report, CTC HSE shall:

- Check completeness of the GHG inventory (i.e., has data been received from each of the reporting facilities?) and address any omissions;
- Compare the emissions for the current period's year-to-date emissions against those of the previous period;
- Prepare a summary of the leading cause/s for any increase or decrease in the corporate GHG emissions estimate for the current year as compared to previous years; and,
- Assess the need for, and if necessary undertake, re-statement of prior years' corporate GHG emissions in accordance with Section 8.

CTC HSE should also document the reasons for any changes to the GHG emissions calculation methods and/or default emission factors. Further, CTC HSE should annually review opportunities to improve the information management process.

7.3 GHG Peer Assist Program

One other mechanism for improving GHG data quality is through Chevron's GHG Peer Assist Program. Through the GHG peer assist, Chevron conducts an in-depth technical review of data sources, data flow, process configuration, GHG inventory boundaries, and GHG emission sources and associated emissions estimation methodologies with the aim of improving business unit-level GHG data quality. For the scope, frequency, work structure and other details of the program, please refer to the "GHG Peer Assist Standard Operating Procedure (SOP)".

8 GHG DATA RESTATEMENT

8.1 Chevron's Policy on GHG Data Restatement

Chevron's approach to corporate GHG data restatement is aligned with Finance's approach to restatement and informed by GHG best practice guidance. Aligned with Finance, Chevron's focus with regards GHG data reporting is to make sure that reported data are materially correct, and to avoid restatement. At the corporate level, Chevron has adopted a +/- five percent materiality threshold for GHG data which is consistent with the 2004 WBCSD/WRI GHG Protocol guidance that "an error is considered to be materially misleading if its value exceeds 5% of the total inventory". This five percent materiality threshold is considered in combination with qualitative factors (e.g., the practical impact of a potential material misstatement on the baseline or target year results for each of Chevron's carbon intensity metrics) by an executive governance body, the GHG Restatement Committee, to determine whether a restatement is warranted.

At the facility level, Chevron has adopted a policy of restating prior year's emissions if there is a greater than or equal to a +/- 10 percent change in net GHG emissions due to the discovery of an error or omission, or if restatement is required by local regulation. Facility restatements are added to a "Summary of Unadjusted Differences" for the relevant prior year/s, but do not automatically result in restatement of corporate GHG data. Instead, only a greater than or equal to +/- five percent impact from a given year's "Unadjusted Differences" on one or more of five key corporate GHG line item/s for that year triggers the need for the GHG Restatement Committee to consider a potential material misstatement.

Any changes to Chevron's GHG data restatement policy shall be approved by the GHG Restatement Committee.

8.2 Annual GHG Data Restatement Process

The annual GHG data restatement process is shown in Diagram 1, and provides details of the timeline and responsibilities of the GHG Data Reporter, the CTC HSE Air & GHG Team, and the GHG Restatement Committee. The GHG Restatement Committee is an executive governance body comprising: the General Manager, Sustainability, CSS; Vice President, CTC HSE; Assistant Comptroller; and the appropriate legal representatives.

This process applies to all prior years' data, back to and including 2016, with the exception of the most recent year. For the most recent year's data, data are able to be re-submitted through January 31st, where approved by CTC HSE's Air & GHG Team. After January 31st, however, the same process as for earlier years applies.

Where a potential need for corporate-level restatement is identified, the memo prepared by the CTC HSE Air & GHG Team for the GHG Restatement Committee shall provide a recommendation for the committee's consideration, and, if appropriate, should be developed in consultation with Chevron's current third-party GHG assurance provider.

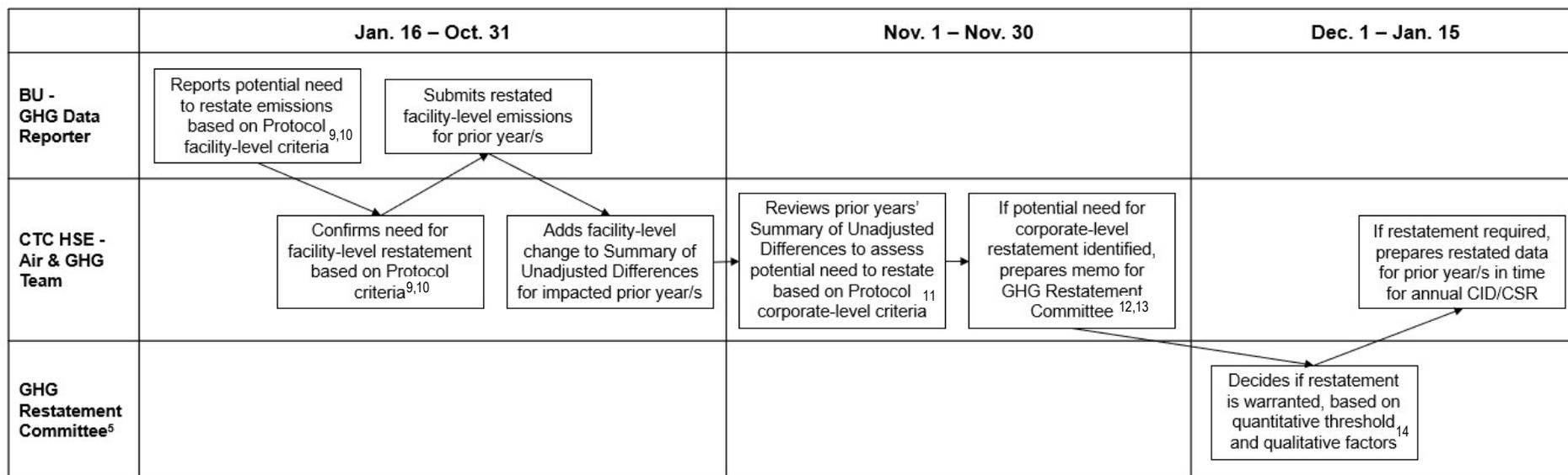
8.3 GHG Data Restatement Criteria

To ensure consistency and transparency in GHG data restatement across facilities, and at the corporate level, the ultimate decision-maker and clear criteria are identified for both facility and corporate-level restatements.

8.3.1 Facility-level Restatement Criteria

The decision-maker and criteria for restatement at the facility level are detailed in Table 4. For purposes of GHG data restatement, "facility" is as defined/listed in Section 1.3 of this Protocol.

Diagram 1 – Annual GHG Data Restatement Process⁸



⁸ This process applies to prior years' data, excluding the most recent year. For most recent year's data, data are only able to be re-submitted through Jan. 31; after Jan. 31, the above process applies.

⁹ Facility-level criteria: ≥ 10% increase or decrease in net GHG emissions due to an error/s and/or an omission/s only, for a specific year, or where required by local regulation.

¹⁰ Facility is as defined/listed in Section 1.3.

¹¹ Corporate-level criteria: ≥ 5% increase or decrease in emissions for 5 key line items within CSR data table, for a specific year, due to an error/s and/or an omission/s only.

¹² GHG Restatement Committee will comprise: General Manager, Sustainability, CSS; Vice President, CTC HSE; Assistant Comptroller; and the appropriate legal representatives.

¹³ If appropriate, the CTC HSE Air & GHG Team will consult with Chevron's third-party GHG assurance provider on recommendation.

¹⁴ Qualitative factors include the practical impact of the "Unadjusted Differences" on baseline or target year results for each of Chevron's carbon intensity metrics (i.e., UCIs, RCI, PCI and Enabled Reduction).

A prior reporting year's GHG data for a facility shall be restated to account for the discovery of an error or omission, or a number of cumulative errors or omissions, that would have a greater than or equal to +/- 10 percent impact on the facility's net GHG emissions for that reporting year. The only exception is where a restatement is required by local regulation or to address an audit finding (for prior year subject to audit only), in which case the business unit shall restate a facility's prior year's GHG data even where the percent change in net emissions does not meet Chevron's +/- 10 percent facility-level threshold.

It is important to note that a facility's GHG data for a prior reporting year shall not be restated for: (1) any structural changes to the organization, where these include mergers, acquisitions and divestments, and the outsourcing and insourcing of GHG-emitting activities; (2) organic growth or decline, defined as increases or decreases in production output, changes in product mix, and closures and openings of operating units that are owned or controlled by the Company; or, (3) improvements to a facility's GHG inventory, brought about as a result of continual improvement efforts, that would result in a change in a facility's GHG data for a prior reporting year/s, including from the use of site-specific/measured data in the place of default emissions factors, efforts to further align Chevron's equity share or operational control reporting with industry best practice or financial accounting, and/or the identification of a new emissions source/s that may occur as a result of remote methane detection programs. Note, however, that a recording error in the historical reporting of a facility's equity share or operational control status is a qualifying reason for restatement.

Table 4 – Facility-level Restatement Criteria

	Facility-level Criteria
Decision-maker	CTC HSE (w/ BU input)
Line item/s to which threshold applies	<ul style="list-style-type: none"> Net GHG emissions: direct emissions (scope 1) + indirect emissions (scope 2) – exported emissions (metric tons CO_{2e})
Reporting bases	Equity share, and operational control
Threshold	≥ 10% increase or decrease in net GHG emissions, for a specific year
Cause/s	Discovery of an error or omission, or a number of cumulative errors or omissions, that exceed facility-level threshold, for a specific year
Other considerations	Where required by local regulation or to address an audit finding (for prior year subject to audit only), BU will restate GHG emissions even where % change in net emissions does not meet Chevron's facility-level threshold

8.3.2 Corporate-level Restatement Criteria

The decision-maker and criteria for restatement at the corporate level, together with corporate line items in the Corporate Sustainability Report (CSR) to be restated in the case of a restatement, are detailed in Table 5.

The corporate GHG line items to which the five percent corporate-level threshold is applied is expected to evolve over time as Chevron expands the scope (e.g., to other scope 3 categories) and granularity of its reporting.

The qualitative factors to be considered, together with the five percent quantitative threshold, by the GHG Restatement Committee in its determination as to whether a restatement is warranted include the practical impact of the "Unadjusted Differences" on baseline or target year results for each of Chevron's carbon intensity metrics (i.e., its Upstream oil, gas, methane and flaring carbon intensities (UCIs), refining carbon intensity (RCI), portfolio carbon intensity (PCI), and Enabled Reduction).

Table 5 – Corporate-level Restatement Criteria

	Corporate-level Criteria
Decision-maker	GHG Restatement Committee
Line item/s to which threshold applies	<ul style="list-style-type: none"> Direct emissions (scope 1) – all GHGs (million metric tons CO_{2e})

	<ul style="list-style-type: none"> • Indirect emissions from imported electricity, heat, steam & cooling (scope 2) – all GHGS (million metric tons CO_{2e}) • Indirect GHG emissions from use of sold products (scope 3, category 11) – production method (million metric tons CO_{2e}) <ul style="list-style-type: none"> • Scope 1 – upstream CH₄ emissions (million metric tons CO_{2e}) • Scope 1 – upstream flaring emissions – all GHGs (million metric tons CO_{2e})
Reporting bases	Equity share, and operational control
Threshold	≥ 5% increase or decrease in net GHG emissions, for a specific year
Cause/s	Discovery of an error or omission, or a number of cumulative errors or omissions, that exceed corporate-level threshold, for a specific year
Other considerations	Regardless of whether corporate-level threshold is met or exceeded, GHG Restatement Committee will determine if restatement is warranted based on the quantitative threshold as well as qualitative factors
Restatement scope	<ul style="list-style-type: none"> • Scope 1 & 2: top line item plus another impacted “breakdowns” with the Corporate Social Responsibility (CSR) data table within that scope <ul style="list-style-type: none"> • Scope 3: scope 3 emissions calculated utilizing all methods • Upstream CH₄: top line item plus top line scope 1 item (if impacted) and any other impacted CH₄ emissions within scope 1 “breakdown” categories within the CSR data table • Upstream flaring – all GHGs: top line item plus top line scope 1 item (if impacted) and any other impacted “breakdowns” within the CSR data table

8.4 Data Restatement Records Management

GHG Data Reporters have the responsibility to estimate the magnitude of any emissions change resulting from an error/s and/or omission/s for a prior year/s outside of Sphera® Essential™, report the potential need to restate emissions to CTC HSE based on the facility-level restatement criteria, and then submit any CTC HSE approved restatements to the facility’s GHG inventory for the prior reporting year/s via Sphera® Essential™. In the case of a facility-level restatement, the GHG Data Reporter shall record the data source/s and the reason/s for the restatement.

CTC HSE has the responsibility of maintaining a “Summary of Unadjusted Differences” for all prior years back to and including 2016, to which the emissions changes resulting from CTC HSE-approved facility restatements are added, and recording the details associated with each line item added. As part of the annual review of prior years’ “Summary of Unadjusted Differences” to assess whether the +/-10 percent corporate-level threshold is triggered, CTC HSE will record the results of their analysis, and, where the quantitative threshold is triggered, document the recommendation to the GHG Restatement Committee as to whether a restatement is warranted in a memo. In the case that the GHG Restatement Committee decides that a restatement is warranted, CTC HSE shall document the reasons for the decision, update the corporate system of record for the impacted reporting year/s with details of the change/s, and prepare the restated data.

9 EMISSIONS VERIFICATION PLANNING GUIDANCE

9.1 Third-Party Verifications of Chevron's GHG Inventory

Chevron conducts annual on-site audits of the corporation's inventory. The primary purposes of Chevron's voluntary, independent verifications include:

- Identifying opportunities to improve Chevron's GHG inventory process;
- Preparing for anticipated future mandatory GHG inventory reviews; and,
- Obtaining independent opinion statements, suitable for public disclosure, regarding the quality of Chevron's GHG inventory.

In general, these GHG verifications consist of the following seven steps:

- 1) Preparation – The independent verifier reviews the GHG inventory (e.g., the Sphera® Essential™ model) for the facility. The verifier, CTC HSE and the GHG Data Reporter then discuss the objectives of the verification and agree on a schedule. The GHG Data Reporter assures that other key individuals are available to meet with the verifier.
- 2) Opening meeting – At the beginning of the verification visit, there is an opening meeting with facility management and/or other interested parties. The objective is to assure that the objectives of the verification are clearly communicated to all stakeholders.
- 3) Review of processes in place – The verifier checks the existence and sufficiency of the facility SOP for the GHG inventory process.
- 4) Review of emission sources and data flow – The GHG Data Reporter describes the GHG emission sources at the facility, and the data paths from raw data, such as fuel usage meter readings, through any intermediate spreadsheets or files, to Sphera® Essential™ inputs. The verifier assures that, assuming no transcription errors, meter inaccuracies etc., the data paths will correctly take the data from the original sources to the Sphera® Essential™ model. The verifier also checks for missing sources and the double counting of emissions.
- 5) Actual data checking – The verifier checks the accuracy of data for significant sources. Starting with a sample of the monthly Sphera® Essential™ inputs, the verifier traces data from the Sphera® Essential™ model back to original meter reading, checking the accuracy of data transfers, calculations, etc. along all intermediate spreadsheets or other data records. For example, this activity typically includes the following steps for any given entry in the Sphera® Essential™ model:
 - a. Ask the GHG Data Reporter who provided him/her with the number;
 - b. Speak with the source and check that the Sphera® Essential™ entry matches the data in the source's records; and,
 - c. Ask the source where he/she got the number, and repeat all the way back to the original meter reading.
- 6) Recommendations - The verifier develops conclusions/recommendations.
- 7) Communication of results - The verifier communicates those conclusions/recommendations through a closing meeting and a follow-up written report. The report summarizes all the findings and defines their degree of materiality such that appropriate actions can be taken.

9.2 Preparing for a Third-Party Verification

During a verification visit, the GHG verifier will review:

- Processes in place, and their implementation and documentation, to assure that the GHG inventory is accurate and complete;
- SOP for the facility (see Section 7 for details); and,
- GHG inventory itself.

The verifier will also review the actual GHG data, using the following key criteria:

- Completeness – Are all data sources within the defined boundary included in the final data set?
- Consistency – Have the data been collected and reported in a consistent way that allows comparison between business units and from one year to the next?
- Accuracy – Have the data been calculated correctly in accordance with the defined protocol?
- Transparency – Is documentation available to clearly demonstrate that the inventory accurately reflects the actual emissions from the facility?

As described above, the GHG verifier will want to trace the Sphera® Essential™ data entries back through any intermediate databases to the original meter readings (and/or invoices). Prior to the verification, the GHG Data Reporter should do this at least for the major GHG sources, and should make sure that the data transfers, calculations, etc. are correct. The data reporter should also be prepared to describe and provide evidence for the data pathways which flow into Sphera® Essential™. For example, if there is a line entry in the combustion module for “heaters–south,” the data reporter should be prepared to describe which heaters are included, which meters are used to record fuel usage, how the meter readings are taken (e.g., manually vs. electronically, continuously vs. hourly vs. daily), where the data is initially recorded, and how the data get from the initial recordings to the Sphera® Essential™ model (including any intermediate databases). It would also be helpful to develop a flow diagram, showing the emission sources and how the data get from those sources to Sphera® Essential™.

The GHG Data Reporter should also review this Protocol to assure that it and the reporting entity’s approach are consistent, and should assure that records related to GHG emissions are available. Further, the GHG Data Reporter should inform key field personnel who are responsible for GHG-related data about the verification, and make sure that they will be available to meet with the verifier if requested.

9.3 Follow Up to Findings of a Third-Party Verification

The GHG verifier will document findings and recommendations in a final report. Some of the recommendations may be simple changes that can be implemented quickly to correct errors. These changes should be made by the GHG Data Reporter within 30 days, unless an exception has been granted.

Other recommendations may be more costly or time-consuming to implement, or may deal with issues that are common to the Chevron GHG inventory process in general. The verifier may also identify issues that materially impact the corporate inventory. In these cases, CTC HSE will work with the GHG Data Reporter to determine the most appropriate path forward. When faced with an issue that has material impact, facilities should address it within 30 days, wherever possible, in order to preserve Chevron’s GHG data quality.

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WRI/WBCSD, 2015: "[GHG Protocol Scope 2 Guidance - An amendment to the GHG Protocol corporate standard](#)".

APPENDIX A

The table below is provided to show the entities for which Chevron currently calculates carbon intensities (CIs) and forecasts GHG emissions/CIs, where applicable. It is not a complete list of all the facilities covered by Chevron's corporate GHG inventory.

Segment	Region	Business Unit	Entities for Granular Reporting
UPSTREAM	Eurasia Pacific	Australasia	Gorgon
			WA Oil
			Wheatstone
			North West Shelf (NWS)
		Bangladesh	Bangladesh
		China	China NOJV
			Chuandongbei (CDB)
		Eurasia	Karachaganak
			Tengizchevroil (TCO)
		IndoAsia	Kalimantan
			Sumatra
		Thailand	Myanmar
			Thailand
		United Kingdom	Clair
	Middle East, Africa, South America	Eastern Mediterranean	EasternMed
		Emerging Countries	Kurdistan Region of Iraq (KRI)
		Latin America	Papa Terra
			Vaca Muerta – El Trapial
			Vaca Muerta – Loma Campana
			Vaca Muerta – Nambuena
			Venezuela – Boscan
		Venezuela - PetroPiar	Venezuela - PetroPiar
			EG
			Nigeria DW – Agbami
			Nigeria DW – Usan + Satellites
		Nigeria JV / EGTL & OML 88 and 86	
		Saudia Arabia/PZ	PZ
		Southern Africa	Angola LNG
			Block 0
			Block 14
			Congo – Moho Nord-Bilondo
			Congo - Nkossa
		North America	Canada
Atlantic Canada – Hibernia			
Kaybob Duvernay			
Oil Sands			
Gulf of Mexico	DW – Big Foot		
	DW – Blind Faith-Ballymore		
	DW – Jack St Malo		
	DW – NOJV		
	DW – Petronius		
DW - Tahiti			
Midcontinent	MCBU		
Rockies	DJ Basin + NBLX		
San Joaquin Valley	SJV		
DOWNSTREAM & CHEMICALS	-	Americas Fuels & Products	AFL Lubricant Plants
			AFL Retail
			AFL Terminal
		Chemicals	CP Chem - Admin Offices
			CP Chem - Chemical Manufacturing Facilities

Segment	Region	Business Unit	Entities for Granular Reporting
			CP Chem - Performance Pipe
			CP Chem - Research & Technology
			Oronite – Chennai, India
			Oronite – Gonfreville, France
			Oronite – Maua, Brazil
			Oronite – Oak Point, USA
			Oronite – Omaezaki, Japan
			Oronite – Rotterdam Technology, Netherlands
			Oronite - Singapore
		International Fuels & Products	IFL Lubricant Plants
			IFL Retail
			IFL Terminal
		Manufacturing	El Segundo Refinery
			Pasadena Refinery
			Pascagoula Refinery
			Richmond Refinery
			Salt Lake Refinery
			JV – Singapore Refinery
			JV – SPRC Refinery
JV – Yeosu Refinery			
Renewables	Brightmark RNG Holdings LLC (NOJV)		
	Calbio Gas LLC (NOJV)		
MIDSTREAM	-	Chevron Pipeline & Power	Chevron Power and Energy Management
			CPL
		Chevron Shipping Company	Shipping
CORPORATE DEPARTMENTS	-	Chevron Environmental Management & Real Estate Company	Environmental Management
			Real Estate
		Corporate Aviation	Corporate Aviation
TECHNOLOGY, PROJECTS & SERVICES	-	ITC	ITC