



Standard for completing greenhouse gas compliance and forecasting reports

Technology Innovation and Emissions Reduction Regulation
Version 3.3

Standard for Completing Greenhouse Gas Compliance and Forecasting Reports (Version 3.3) | Environment and Protected Areas
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Summary of Revisions

Version	Date	Summary of Revisions
1.0	December 2017	<ul style="list-style-type: none"> First version of this standard to accompany the Carbon Competitiveness Incentive Regulation
1.1	May 2018	<ul style="list-style-type: none"> Part 1 site visit – third party verifier must only conduct a site visit after August 31 of the year being verified Part 1 definition – industrial processes definition revised to include unavoidable combustion of carbon black and ethylene Part 1 quantification methodology – first interim report in 2018 not subject to quantification methodology mandatory tier specification Errata: Part 1 verification – changed ‘offset project developer’ to ‘person responsible’ Facilities that import a product from another facility should make sure that the quantities are matched between the importer and the exporter Renewable electricity certificates must be transferred to retirement prior to submitting annual compliance report for verification Table 2: Tier assignment for regulated facilities activity types revised to match those in the draft Quantification Methodologies for the CCIR and SGRR Levied fuel should not be reported as emissions subject to compliance to avoid double pricing Confidentiality for forecasting reports may be requested prior to submission
2.0	May 2018	<ul style="list-style-type: none"> Part 1: emissions reduction plan report submission as part of annual compliance reporting for facilities with cost containment designation Facilities are subject to compliance in the 3rd year of commercial operation; the director can designate year of commercial operation if appropriate Output-based allocation can include cost containment allocation benchmarks if facility meets criteria CO₂ sent off site that is contained in the acid gas stream is not counted as an emission
2.1	December 2018	<ul style="list-style-type: none"> Updated in accordance with regulation amendments to address: <ul style="list-style-type: none"> Clear fuel, acid gas injection Opt-in deadline for 2019 changed to December 31, 2018 Mandatory quantification emissions categories Added formation CO₂ definition and revised industrial process emissions definition Updates to the regulation amendments which do not appear in this standard are: <ul style="list-style-type: none"> Cost containment application deadline for 2018 and 2019 changed to December 31, 2018 New benchmarks for hardwood, softwood, ethylene glycol, and high value chemicals QMD – Sample calculation workbook could be provided for transparency and verification efficiency, when a database is used to conduct the GHG emission calculations
2.2	January 2019	<ul style="list-style-type: none"> Minor typographical edits
2.3	March 2019	<ul style="list-style-type: none"> Quantification requirements of certain emission categories are optional for reporting periods one and two of 2019 for forecasting facilities Reminder: report all negligible emissions as they count towards the Total Regulated Emissions Minor typographical edits
2.4	November 2019	<ul style="list-style-type: none"> Mandatory quantification requirements for flaring and fugitives emission categories are removed for reporting in 2019

Version	Date	Summary of Revisions
3.0	July 2020	<ul style="list-style-type: none"> First version of this standard to accompany the Technology Innovation and Emissions Reduction Regulation
3.1	October 2020	<ul style="list-style-type: none"> For aggregate facilities, updated level classifications are provided for quantification methodology requirements
3.2	November 2021	<ul style="list-style-type: none"> Formation CO₂ has been removed as a separate emissions category for compliance reporting. CO₂ entrained in fuels and feeds combusted, flared, or vented are included in the emissions reported in these individual source categories EPC issuance options for renewable generators Reporting compliance cost containment allocation benchmark data discrepancies Errata: Updated forecasting report for March 31
3.3	January 2023	<ul style="list-style-type: none"> New quantification methodology requirements for large emitters and opted-in facilities in section 5 of Part 1 to require flaring emissions to be quantified according to quantification methodologies outlined in Chapter 2: Flaring for the 2022 reporting period and onwards New quantification methodology requirements for aggregate facilities in section 5 of Part 1 to require flaring emissions to be quantified according to quantification methodologies outlined in Chapter 15: Aggregate Facilities for the 2023 reporting period and onwards. Note that flaring emissions prior to the 2023 reporting period are not to be reported for aggregate facilities Removed Table 5 with the level assignments for quantification methodologies used by aggregate facilities. Aggregate facilities are required to use methodologies prescribed in Chapter 15, which do not have level assignments Updated Global Warming Potentials (GWPs) in section 8 of Part 1 to reflect updated GWPs for the 2023 reporting year and onwards Updated section 5 of Part 2 to provide additional guidance and clarifications to compliance options used by regulated facilities to meet annual true-up obligations Updates to reflect the amended Technology Innovation and Emissions Reduction Regulation, including sequestration credits and capture recognition tonnes and the updated definition of a large emitter facility

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Alberta Environment and Protected Areas Related Publications

- *Emissions Management and Climate Resilience Act*
- Technology Innovation and Emissions Reduction Regulation
- Specified Gas Reporting Regulation
- Standard for Greenhouse Gas Emission Offset Project Developers
- Standard for Developing Benchmarks
- Standard for Validation, Verification and Audit
- Alberta Greenhouse Gas Quantification Methodologies
- Directive for the Quantification of Area Fugitive Emissions at Oil Sands Mines
- Compliance Reporting Form

Introduction

Part 1 of the Standard for Completing Greenhouse Gas Compliance and Forecasting Reports is adopted by the Technology Innovation and Emissions Reduction Regulation (the “Regulation”), under the authority of section 61 of the *Emissions Management and Climate Resilience Act* (the “Act”).

Part 1 of the Standard is enforceable as law.

In addition to the legal requirements in Part 1 of this Standard, a person responsible must comply with the Act, the Regulation, and all other applicable laws.

Part 2 of the Standard for Completing Greenhouse Gas Compliance and Forecasting Reports sets out additional requirements for a person responsible.

Part 1 – Regulatory Details

Division 1

Interpretation and Application

Definitions

- 1(1) Terms that are defined in the Act and Regulation are incorporated into and become part of this standard.
- (2) In this standard,
 - (a) “Act” means the *Emissions Management and Climate Resilience Act*;
 - (b) “Alberta Greenhouse Gas Quantification Methodologies” means Alberta Greenhouse Gas Quantification Methodologies published by the department, as amended or replaced from time to time;
 - (c) “industrial process emissions” means direct emissions from an industrial process involving chemical or physical reactions other than combustion, and where the primary purpose of the industrial process is not energy production; also included are the direct emissions from the unavoidable combustion of ethylene in the production of ethylene oxide; industrial process emissions do not include emissions of specified gases from landfills, tailings ponds or mine faces;
 - (d) “Introduction” means the portion of this standard identified by the subtitle “Introduction”;
 - (e) “Part 1” means the portion of this standard identified by the subtitle “Part 1 – Regulatory Details”;
 - (f) “Part 2” means the portion of this standard identified by the subtitle “Part 2 – Compliance Reporting and Forecasting Requirements for Persons Responsible”;
 - (g) “quantification methodology” means an approved quantification methodology set out in Alberta Greenhouse Gas Quantification Methodologies;
 - (h) “Regulation” means the Technology Innovation and Emissions Reduction Regulation;
 - (i) “this standard” means the Standard for Completing Greenhouse Gas Compliance and Forecasting Reports, including the Introduction, Part 1, and Part 2.

In the event of a conflict

- 2(1) If there is any conflict between this standard and the Act or the Regulation, the Act or the Regulation prevails over this standard.
- (2) If there is any conflict between Part 1 and Part 2 of this standard, Part 1 prevails.

Compliance report

- 3(1) In preparing a compliance report required under section 15 of the Regulation, the person responsible for a regulated facility must:
 - (a) complete the Compliance Reporting Form published by the department, as amended from time to time; and
 - (b) sign the Statement of Certification for the compliance report.
- (2) If the person responsible for a regulated facility modifies or changes a compliance report after it has been verified and before it is submitted to the director, the person responsible must, prior to submitting the modified or changed compliance report to the director:
 - (a) provide the modified or changed compliance report to the third party assurance provider;
 - (b) obtain verification of the modified or changed compliance report from the third party assurance provider; and
 - (c) submit to the director the modified or changed compliance report, as verified by the third party assurance provider.

Compliance report supporting documents

- 4 In a compliance report submitted under section 15 of the Regulation, the person responsible for a regulated facility must include at least each of the following:
 - (a) a third party verified Compliance Reporting Form;

- (b) a third party verification report, completed in accordance with the Standard for Validation, Verification and Audit, as amended or replaced from time to time;
- (c) a Statement of Certification signed by the person responsible;
- (d) a Quantification Methodology Document as set out in section 6.2.3 of part 2 of this standard if the regulated facility is a large emitter or opted-in facility; and
- (e) in the case of a large emitter or opted-in facility in respect of which a compliance cost containment designation has been issued, a completed Compliance Cost Containment First Year Reporting Form published by the department, as amended from time to time, for the first year in which the compliance cost containment designation is in effect.

Quantification requirements for compliance report

- 5 (1)** Subject to subsection (5), in completing a compliance report for 2022 or later, the person responsible for a large emitter or opted-in facility must use the applicable quantification methodologies set out in the Alberta Greenhouse Gas Quantification Methodologies, as amended from time to time, for each of the following emissions sources or parameters:
- (a) Chapter 1 Stationary Fuel Combustion
 - (b) Chapter 2 Flaring
 - (c) Chapter 4 Venting
 - (d) Chapter 5 On-Site Transportation
 - (e) Chapter 8 Industrial Processes
 - (f) Chapter 12 Imports
 - (g) Chapter 13 Production
 - (h) Chapter 14 Carbon Dioxide from Combustion of Biomass
- (2) Subject to subsection (5), the person responsible for an aggregate facility must use the applicable quantification methodologies for emission sources and parameters set out in the:
- (a) Alberta Greenhouse Gas Quantification Methodologies, version 2.2, at Chapter 15 for 2022; or
 - (b) Alberta Greenhouse Gas Quantification Methodologies, version 2.3, at Chapter 15 and as updated, for 2023 or later.
- (3) In determining the applicable quantification methodologies for emission sources listed in 5(1)(a), (b), (c), (d), (e) and (h) the person responsible for a large emitter or opted-in facility must use the applicable quantification methodology level for that emissions source set out in Table 4 of Part 2 of this standard.
- (4) The person responsible for a regulated facility may, prior to submitting a compliance report under section 15 of the Regulation, apply in writing to the director for permission to deviate from one or more applicable quantification methodologies set out in the Alberta Greenhouse Gas Quantification Methodologies for the regulated facility.
- (5) The director may grant or refuse to grant a permission requested under subsection (4).
- (6) Where the director grants permission to deviate from one or more applicable quantification methodologies under subsection (5), the director may impose on the person responsible any terms and conditions that the director considers appropriate with respect to the permission.
- (7) The person responsible for a regulated facility shall comply with any terms and conditions imposed under subsection (6).

Annual forecasting report

- 6** In preparing an annual forecasting report required under section 16 of the Regulation, the person responsible for a regulated facility must
- (a) complete the Annual Forecasting Reporting Form published by the Department, as amended and replaced from time to time; and
 - (b) sign the Statement of Certification for the annual forecasting report.

Emissions reduction plan report

- 7 In an emissions reduction plan report submitted under section 17 of the Regulation, the person responsible for a large emitter or opted-in facility must include a completed emissions reduction plan report form, as published by the Department and amended from time to time.

Global Warming Potentials

- 8 For the purposes of section 1(3) of the Regulation, a specified gas listed in Table A has the respective global warming potential listed in Table A.

TABLE A: GLOBAL WARMING POTENTIAL FOR SPECIFIED GASES

Specified Gas	Chemical Formula	Global Warming Potentials (for 2020 through 2022)	Global Warming Potentials (for 2023 or later)
Carbon dioxide	CO ₂	1	1
Methane	CH ₄	25	28
Nitrous oxide	N ₂ O	298	265
Sulphur hexafluoride	SF ₆	22800	23500
HFC-23	CHF ₃	14800	12400
HFC-32	CH ₂ F ₂	675	677
HFC-41	CH ₃ F	92	116
HFC-43-10mee	C ₅ H ₂ F ₁₀	1640	1650
HFC-125	C ₂ HF ₅	3500	3170
HFC-134	C ₂ H ₂ F ₄	1100	1120
HFC-134a	CH ₂ FCF ₃	1430	1300
HFC-143	C ₂ H ₃ F ₃	353	328
HFC-143a	C ₂ H ₃ F ₃	4470	4800
HFC-152	CH ₂ FCH ₂ F	53	16
HFC-152a	C ₂ H ₄ F ₂	124	138
HFC-161	CH ₃ CH ₂ F	12	4
HFC-227ea	C ₃ HF ₇	3220	3350
HFC-236cb	CH ₂ FCF ₂ CF ₃	1340	1210
HFC-236ea	CHF ₂ CHFCF ₃	1370	1330
HFC-236fa	C ₃ H ₂ F ₆	9810	8060
HFC-245ca	C ₃ H ₃ F ₅	693	716
HFC-245fa	CHF ₂ CH ₂ CF ₃	1030	858
HFC-365mfc	CH ₃ CF ₂ CH ₂ CF ₃	794	804
Perfluoromethane	CF ₄	7390	6630

Specified Gas	Chemical Formula	Global Warming Potentials (for 2020 through 2022)	Global Warming Potentials (for 2023 or later)
Perfluoroethane	C ₂ F ₆	12200	11100
Perfluorocyclopropane	c-C ₃ F ₆	17340	9200
Perfluoropropane	C ₃ F ₈	8830	8900
Perfluorobutane	C ₄ F ₁₀	8860	9200
Perfluorocyclobutane	c-C ₄ F ₈	10300	9540
Perfluoropentane	C ₅ F ₁₂	9160	8550
Perfluorohexane	C ₆ F ₁₄	9300	7910
Perfluorodecalin	C ₁₀ F ₁₈	7500	7190
Nitrogen Trifluoride	NF ₃	17200	16100

Effective date

9 This standard is effective January 1, 2023.

Part 2 – Compliance Reporting And Forecasting Requirements For Persons Responsible

1. Purpose of this Document

The purpose of this document is to assist facilities regulated under the Technology Innovation and Emissions Reduction Regulation (TIER or the Regulation) to complete annual compliance reports and annual forecasting reports. This document also provides regulated facilities with total regulated emissions greater than their allowable emissions with information about available compliance options.

2. Overview of the Regulatory Program

The Regulation reduces carbon costs for these industries when compared to the federal fuel charge and rewards top performers with emissions performance credits for low emissions intensity. The Regulation also supports comparability with carbon pricing in other jurisdictions. These aspects are intended to help to maintain industry competitiveness in Alberta.

2.1. Thresholds and Application

The threshold for determining if a facility is automatically subject to the Regulation has been set at 100,000 tonnes of CO₂e per year of direct emissions. Facilities that exceed this threshold in any single calendar year on or after 2016 are large emitter facilities under TIER the year after meeting or exceeding 100,000 tonnes of CO₂e. Facilities that import more than 10,000 tonnes of hydrogen annually are also subject to the Regulation.

Facilities that do not exceed the 100,000 tonnes of CO₂e per year of direct emissions can apply to opt into the Regulation.

A person responsible for two or more conventional oil and gas facilities may apply to the director for a combination of any two or more of the conventional oil and gas facilities to be designated as an aggregate facility.

2.2. Compliance Options

Facilities unable to lower their total regulated emissions below the level of their allowable emissions through emissions performance improvements (e.g., technology improvements, changes in maintenance and/or operations, etc.) may use emission performance credits (EPCs), emission offsets, sequestration credits, or fund credits in order to comply. More information about these compliance options is available in Part 2, section 5.

Facilities with total regulated emissions below their allowable emissions are eligible to receive EPCs, which can be banked for future use at the facility or traded/sold for use at other regulated facilities. See Part 2, section 5.2 of this standard for more information about EPCs.

3. Compliance Information

All regulated facilities must submit annual compliance reports. Facilities that meet or exceed one megatonne of annual total regulated emissions may also have requirements under TIER to submit forecasting reports. Regulated facilities that undergo decommissioning or significant changes to operations such that they no longer fit the definition of a “facility” prescribed in TIER may be removed from the Regulation upon receipt of written notice from the director. Decommissioning is discussed in more detail in Part 2, section 3.4.2.

3.1. New Entrant to the Regulation

Additional information is provided for facilities that enter TIER from 2020 onward through one of the following means:

- i) By meeting the criteria as large emitter;
- ii) By virtue of becoming an opted-in facility; or
- iii) By virtue of becoming an aggregate facility.

Table 1 provides some distinctions between large emitters, opted-in facilities, and aggregate facilities. Persons responsible must refer to the Regulation, as the table is not exhaustive.

TABLE 1: DISTINCTIONS BETWEEN LARGE EMITTERS, OPTED-IN FACILITIES, AND AGGREGATE FACILITIES

Item	Large Emitter	Opted-In Facility	Aggregate Facility
Entry into TIER	<ul style="list-style-type: none"> Direct Emissions (DE) are greater than or equal to 100,000 tonnes CO₂e in 2016 or after. TIER does not apply to the facility until the year after the year this criteria is met. Importing 10,000 tonnes or more of hydrogen in 2023 or after. TIER does not apply to the facility until year after the year this criteria is met. 	<ul style="list-style-type: none"> Accepted to opt-in through the application process. 	<ul style="list-style-type: none"> Designated as an aggregate facility through the application process.
First Compliance Report	<ul style="list-style-type: none"> Year after the year that the DE is greater than or equal to 100,000 tonnes CO₂e and dependant on the year of commercial operation (Table 2). Year after the year that a facility is importing 10,000 tonnes or more of hydrogen in a year and dependent on year of commercial operation (Table 2). 	<ul style="list-style-type: none"> Year first designated as an opt-in facility and dependent on year of commercial operation (Table 2). 	<ul style="list-style-type: none"> Year first designated as an aggregate facility.
Conditions of Entry	<ul style="list-style-type: none"> Meets the criteria as a large emitter and to be a facility. 	<ul style="list-style-type: none"> Meets emissions intensive and trade exposed (EITE) criteria, DE are greater than or equal to 2,000 tonnes CO₂e; or Competes directly with a regulated facility (i.e., produces a product that is produced by another regulated facility). 	<ul style="list-style-type: none"> Two or more conventional oil and gas facilities having the same person responsible. Cannot include large emitter or opted-in facilities.
Person Responsible*	<ul style="list-style-type: none"> On the last day of the year. 	<ul style="list-style-type: none"> On the last day of the year. 	<ul style="list-style-type: none"> Person who signed the application to be designated as an aggregate facility in the first year. Person Responsible on the first day of the year excluding the first year.
Emissions Coverage	<ul style="list-style-type: none"> All direct emissions. Imported electricity, heat, hydrogen. Imported and exported CO₂, CO₂ utilized as feedstock for urea production. 	<ul style="list-style-type: none"> All direct emissions. Imported electricity, heat, hydrogen Imported and exported CO₂, CO₂ utilized as feedstock for urea production. 	<ul style="list-style-type: none"> Emissions and exported CO₂ from: <ul style="list-style-type: none"> stationary fuel combustion emissions only for 2022. stationary fuel combustion and flaring emissions for 2023 and after.

*Refer to section 1(2.1) of TIER for details on Person Responsible under certain circumstances such as receivership, insolvency, or bankruptcy.

Table 2 further defines the status of a facility in terms of being regulated and/or subject to compliance in a year. The first partial year of commercial operations is considered the year a facility first produces a product, while the first full year of commercial operation is considered to be “Year 1,” the second full year of commercial operation is considered “Year 2” and so forth. This concept applies to electricity facilities for years prior to 2023. Starting in 2023, an electricity facility regulated under TIER is subject to compliance regardless of their year of commercial operation. Year of commercial operation also does not apply to aggregated facilities which are subject to compliance for each year they are designated an aggregated facility.

TABLE 2: COMPLIANCE BASED ON YEAR OF COMMERCIAL OPERATION

Year of Commercial Operation*	Large Emitter	Opted-In Facility	Electricity Facility if regulated (before 2023)	Electricity Facility if regulated (2023 or later)
1 st partial year - year facility first produces a product	Not regulated*		No compliance	
Year 1 - first full year that the facility produces a product	Regulated, no compliance			
Year 2 - second full year the that facility produces a product				
Year 3 and later	Regulated, compliance required			

*Facility may apply to opt into the regulation and/or apply to change the year of commercial operation.

3.2. Signatures

The department will accept and prefers electronic signatures for the purposes of compliance under the Regulation but reserves the right to request signed originals where the electronic signature is ambiguous or cannot be verified. The forms under TIER include electronic signature blocks to be signed by the certifying official. We would encourage the certifying official to ensure that they have a digital certificate in place to provide their electronic signature.

3.3. Submission Process

Compliance reports must be submitted electronically to AEP.GHG@gov.ab.ca. For administrative purposes, separate e-mail submissions must be made for each regulated facility.

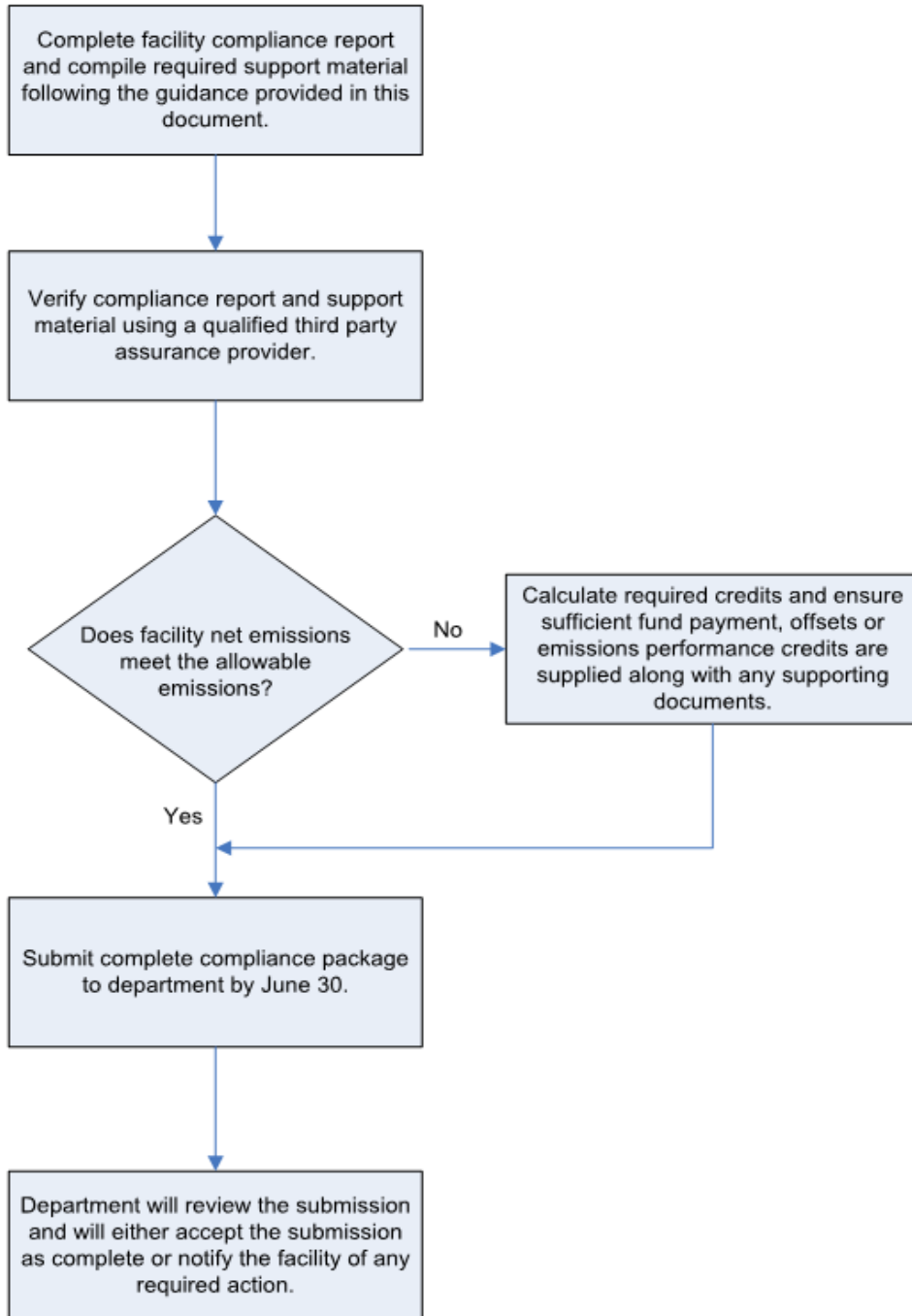
A confirmation of receipt will be sent from AEP.GHG@gov.ab.ca. The department will review each compliance report. In accordance with section 23(1) of the Regulation, the department may request additional information or materials to support the review.

After the department completes the review, the director will notify the regulated facility in writing that either:

- i) the compliance report submission has been reviewed and accepted as administratively complete or
- ii) corrective action is required for the facility to meet compliance reporting requirements.

A schematic overview of the compliance report submission process is provided in Figure 1.

FIGURE 1: COMPLIANCE REPORT SUBMISSION REVIEW AND DECISION TREE



3.4. Special Circumstances

3.4.1. Methodology Unavailability

If a quantification methodology is not provided in the Alberta Greenhouse Gas Quantification Methodologies for a certain emission source or parameter, a facility may use a site-specific methodology. Site specific methodologies should be documented in the facility's Quantification Methodology Document (QMD).

If a facility is unable to follow section 5 of part 1 of this standard, the facility should submit a request for a time limited deviation from any quantification methodology applicable to the facility.

3.4.2. Decommissioning

The person responsible for a regulated facility that is no longer conducting activities listed under *Environmental Protection and Enhancement Act* (EPEA) Schedule of Activities or has been issued a decommissioning approval under EPEA should notify the director.

3.5. Compliance Report Errors

3.5.1. Detection and Correction of Errors

Errors detected in a facility's annual compliance report after submission must be reported to the director. Errors may be detected by facilities, third party assurance providers, the department, or through the department's third party re-verification process.

Errors detected prior to the reporting deadline by the facility or verifier are required to be addressed prior to submitting the compliance report to the Department. This includes updates to calculations and reported data such as Petrinex volumes that facilities rely on for production and fuel consumption quantities.

When errors are identified, the department will work with the affected facility to establish the most appropriate corrective action. It will determine whether reconciliation of past true-up obligations is required (i.e. adjustment of true-up required or EPCs granted). The required corrective action will depend on the nature and the magnitude of the error. Typically, **immaterial** errors are corrected on a go-forward basis and **material** errors require both retroactive and go-forward correction. If the department suspects the *Emissions Management and Climate Resilience Act* or the Regulation has been contravened, it may conduct a formal investigation.

Refer to Table 3 for materiality threshold levels and to the Standard for Validation, Verification and Audit for detailed error calculation methodologies.

TABLE 3: MATERIALITY THRESHOLD LEVELS FOR COMPLIANCE REPORT SUBMISSIONS

Total Regulated Emissions	Allowable Emissions	Materiality Threshold
< 500 kt CO ₂ e and	< 500 kt CO ₂ e	5 per cent
≥ 500 kt CO ₂ e or	≥ 500 kt CO ₂ e	2 per cent

The Standard for Validation, Verification and Audit describes the materiality threshold applied for the audit of the financial statement in the application for cost containment designation or in the emissions reduction plan report.

In cases where errors have a material effect on a regulated facility's compliance reporting, retroactive reconciliation of the true-up obligation is required. Retroactive adjustment of true-up obligations will typically be made up to a maximum of three years preceding the most recent submission deadline. For example, after June 30, 2023, adjustment of previous true-up obligations will only be considered for 2022, 2021, and 2020.

Where retroactive correction of errors is not required, facilities may submit data corrections. In such cases, the department may require third party verification of the correction, depending on the extent of the changes.

Adjustment to past true-up obligations may not be made in situations where facilities update or move to improved quantification methodologies.

The above error correction policies do not apply where corrections are required as the result of an investigation or offence under the *Emissions Management and Climate Resilience Act*. In such cases, the extent of the required correction, reconciliation or penalties will be determined based on the specific situation.

3.5.2. Compliance Adjustments

Additional true-up obligations resulting from error corrections may be made through payment into the Technology Innovation and Emissions Reduction Fund at the fund price applicable to that year or by the retirement of emission offsets, sequestration credits, or emission performance credits that were held by the person responsible at the compliance deadline.

In cases where error correction results in over-compliance (i.e., the corrected net emissions, with previously submitted true-up, is less than the facility's allowable emissions), reconciliation will occur as follows:

- i) If the facility purchased fund credits, they will be refunded at the value that was originally paid, up to a maximum of the number of fund credits submitted for the facility. At the discretion of the department, the overpayment may be carried forward to obtain fund credits in the next year.
- ii) If emission offsets, sequestration credits, or EPCs were submitted for true-up, and an error correction was made during the department's review, the department will only confirm retirement of the credits required to meet true-up obligation. Additional credits will be returned to an active state on the registry under that facility's name and will be available for use in future years.
- iii) If emission offsets, sequestration credits, or EPCs were submitted for true-up, and error correction is made after the facility's compliance report was reviewed, accepted as complete and the credits were retired, the status of retired credits will be reversed.
- iv) If EPCs were requested or generated by the facility, the number of EPCs will be adjusted to reflect the corrected compliance report. If the total number of EPCs increases, additional credits will be issued. If the total number of EPCs decreases and serial numbers have already been issued, some of the previously issued credits will be revoked, and will go through a similar correction process to that outlined for emission offsets in Part 2, section 5.3.2.

4. TIER Regulation Compliance Requirements

When filling out the compliance reporting form, many of the relevant parameters in determining the net emissions and true-up obligations are explained below.

4.1. Net Emissions and True-Up Obligation

The net emissions (NE) for a regulated facility is calculated in accordance with section 13 of TIER as the regulated facility's TRE minus the emission offsets, emission performance credits, and fund credits that are used by the regulated facility to meet their true-up obligation. The regulated facility is required to compare its TRE with its allowable emissions to determine the quantity of emission offsets, sequestration credits, emission performance credits, and fund credits required to meet its true-up obligation. The regulated facility can earn EPCs if its total regulated emissions is less than the allowable emissions.

4.2. Total Regulated Emissions

The TRE is calculated in accordance with section 13 of TIER. The TRE is the sum of the direct emissions for the large emitter and opted-in facility, the CO₂ exported from the facility and the CO₂ used by the regulated facility as feedstock for the production of urea in the year less the CO₂ imported on site from another regulated facility and less the quantity of CO₂ from capture recognition tonnes used in the year.

The direct emissions do not include the CO₂ from biomass combustion, fermentation, decomposition or other chemical process. The imported and exported quantities of CO₂ do not include any carbon dioxide removed from raw gas and disposed of, as an acid gas stream, to an underground formation through a Class III well.

For the aggregate facility, the TRE is the sum of the stationary fuel combustion emissions, flaring emissions (starting for the 2023 compliance year), and the exported CO₂ from stationary fuel combustion, in accordance with section 13 of the Regulation.

4.3. Allowable Emissions

The large emitter and opted-in facility's allowable emissions is calculated in accordance with section 9(1) of TIER, which is the sum of: the facility's product(s) multiplied by the corresponding allocation rate less emissions assigned to imported quantities of electricity, heat, and hydrogen. The aggregate facility's allowable emissions is calculated in accordance with section 10(1) of TIER and does not include imported quantities of electricity, heat, and hydrogen. If a large emitter or opted-in facility receives a cost containment designation, the above calculation may include a cost containment allocation benchmark in years the large emitter or opted-in facility is designated, provided the facility meets the criteria in section 14(2) of the Regulation and has been assigned a cost containment allocation benchmark.

4.3.1. High-Performance Benchmarks

High-performance benchmarks are provided in Schedule 2 of TIER or by Ministerial order. More information on the development of high-performance benchmarks is available in the Standard for Developing Benchmarks.

4.3.2. Facility-Specific Benchmarks

Where the director has not assigned a benchmark for a product, the person responsible for the facility subject to TIER may apply for a facility-specific benchmark. Section 7 of TIER provides the requirements for facility-specific benchmark applications and the Standard for Developing Benchmarks provides further information including reduction targets, application procedures, benchmark methodologies, and other requirements.

A facility may produce more than one product and therefore, the facility may use both high-performance benchmarks for some products and facility-specific benchmarks for others to calculate its allowable emissions.

4.3.3. Imported Quantities

A large emitter and opted-in facility is required to calculate the adjustment to allowable emissions associated with the facility's imported quantities. Imported electricity, heat, and hydrogen are scaled by the associated high performance benchmarks and are subtracted from the product allocations.

4.3.4. Cost Containment Allocation Benchmarks

Regulated facilities with a cost containment designation may be assigned a compliance cost containment allocation benchmark (BCCA) by the director if the value of compliance flexibility plus any benefits from the Government of Alberta or its agencies which originates from the Fund is not sufficient to alleviate economic hardship. Refer to the Standard for Developing Benchmarks for the method of calculating economic hardship and cost containment allocation benchmarks.

5. Compliance Options

Regulated facilities that are subject to compliance are required to meet their annual true-up obligation by the compliance reporting deadline per section 15 of TIER. The following section provides information on how the facility can meet their true-up obligation ahead of the reporting deadline, including the following options: :

- i) Emissions reductions achieved at the facility or use of capture recognition tonnes
- ii) Submission of emission performance credits
- iii) Submission of emission offset credits
- iv) Submission of sequestration credits
- v) Submission of fund credits

5.1. Emissions Reductions Through Facility Improvements

Facilities are encouraged to implement operational improvements to reduce GHG emissions. Decreases in annual emissions intensity will help facilities to meet their obligations under the Regulation.

Examples of facility improvements include:

Example 1: Technology Improvements

Technology improvements can include adding new technologies that increase energy efficiency, retrofitting existing equipment, and adapting practices that are more efficient. Increasing energy efficiency will often reduce emissions intensity, and can improve competitiveness and productivity over the long-term.

Technology improvements can also reduce the total quantity of GHG emissions released into the atmosphere.

Implementation of carbon capture at a facility may be recognized through generation of emission offsets at the point of sequestration or storage through enhanced oil recovery. Alternatively those offsets may be converted to sequestration credits and transferred back to the facility by converting them to capture recognition tonnes, which will be directly deducted from the facility's total regulated emissions in the year of use.

Example 2: Maintenance

Maintenance procedures can reduce GHG emissions. For example, fugitive emissions represent a significant portion of total facility emissions for some industrial operations. Regular maintenance including leak detection and repair programs, and

equipment replacement, can often help reduce fugitive emissions without sacrificing production and also improve emissions intensity. Note that quantification methodologies for fugitive emissions must be sufficiently accurate to support GHG emissions reduction claims.

Example 3: Fuel Switching

The type of fuel used in combustion activities at a facility has a significant effect on GHG emissions. Switching to a fuel that releases a smaller quantity of emissions per unit of energy produced can help to reduce annual emissions intensity.

For example, displacing natural gas combustion with biomass derived fuels could reduce emissions intensity.

5.2. Emission Performance Credits (EPCs)

5.2.1. Submitting EPCs for Compliance

A regulated facility may submit EPCs to meet their true-up obligation provided that the limitation on credit usage are met, which are specified in section 13 of TIER.

All serialized EPCs remain active until they are submitted for compliance, voluntarily retired, expired, or cancelled by the director.

EPCs must be owned by the person responsible for the facility and held on the registry in the facility account against which they are to be retired at the time when EPCs are used for compliance. In other words, the person responsible must own the EPCs prior to the reporting deadline to be used to meet the facility's true-up obligation. A facility may not purchase EPCs to meet past true-up obligations.

EPCs that are used to meet true-up obligation must be put into "pending retirement" status on the registry on or before the compliance report deadline as specified in section 15 of TIER.

The serial ranges of the EPCs used for compliance is required to be provided in compliance report submitted to the Department.

5.2.2. Generating EPCs

The person responsible for a regulated facility that has total regulated emissions less than the allowable emissions for the facility for a year may include a request for EPCs in the facility's compliance report.

The department reviews requests for EPCs and the director issues serial numbers for the credits generated, if approved. Once serialized, these credits may be banked for use in future years, transferred to another regulated facility, or sold.

Regulated facilities eligible to generate EPCs must include an EPC request form with their compliance report and must describe the actions taken resulting in EPCs. The department reviews all emission performance credit requests and associated compliance reports and may require resubmission of a compliance report where material errors are detected. EPCs may also be revoked at any time if it is later determined that compliance reporting included material errors.

For renewable electricity generators that elect to submit complete compliance reports to the department by March 31st, covering the prior calendar year compliance period, the department will aim to review and serialize requested EPCs by June 1st of that year.

5.2.3. EPC Serialization and Tracking

The director approves, issues and tracks EPCs using the following process:

- (1) Eligible regulated facilities must submit an EPC request form to the department with their compliance report submission.
- (2) The department reviews each EPC request as part of the compliance report review process.
- (3) Once the compliance report review process is complete, the department makes a decision on the EPC request and notifies the facility in writing.
- (4) The director issues unique serial numbers to approved quantity of EPCs on the Alberta Emission Performance Credit Registry (http://www.csaregistries.ca/albertacarbonregistries/epc_user.cfm). The registry provides notification of serial numbers to facilities.
- (5) Credit transactions occur as bilateral agreements between buyers and sellers and are required to be tracked on the registry. All documentation associated with the transaction of credits should be kept available.

- (6) Regulated facilities using EPCs to meet true-up obligation must transfer the credits to the facility using them. They must also place the units in pending retirement status on the registry. Complete serial numbers must be listed in the compliance form.
- (7) The department will accept retirement of the submitted EPCs after full review of the facility's compliance report.

In order to recover the cost of providing the registry, fees are associated with certain transactions. The registry processing fee schedule approved by Environment and Protected Areas is posted on the registry.

The director issues EPCs to the regulated facility demonstrating the reductions and does not track joint venture ownership or other contractual obligations that may affect ownership of credits. It is each facility's responsibility, once EPCs have been issued, to transfer the ownership of credits to appropriate parties.

5.3. Emission Offsets

The aim of the Alberta Emission Offset System is to encourage voluntary emissions reductions that would not otherwise have occurred and are not otherwise priced.

Detailed requirements for Alberta emission offsets can be found at <https://www.alberta.ca/alberta-emission-offset-system.aspx>

5.3.1. Submitting Emission Offsets for Compliance

Regulated facilities submit emission offset credits to meet their true-up obligation provided that the limitation on credit usage are met, which are specified in section 13 of TIER. The Alberta Emissions Offset Registry is the public web platform that lists and tracks emission offset projects with associated emission offsets as they are registered. Transactions occur bilaterally between parties, but the registry must be updated for any transfers of ownership or intention to use emission offset for compliance purposes. Regulated facilities choosing to purchase and submit emission offsets for compliance with the Regulation must ensure the credits are held on the registry by the person responsible for the facility. They must also request the registry place into pending retirement status the serial ranges that are being submitted. The registry will confirm the initiation of retirement and the company must confirm the status on the public listing in the registry. The emission offsets submitted for compliance must be listed as pending retirement on the registry by the compliance deadline. The department will confirm final retirement of the emission offsets as part of the regulated facility's compliance review.

The Registry processes all requests for transfers/retirement in the order that they are received. Emission offset project developers and regulated facilities are encouraged to submit all project documentation, including requests for retirement, to allow sufficient time to process the requests. Registry processing times can take up to 10 business days for processing; however, project developers may experience longer processing times during busy periods or if incomplete information is submitted or does not follow reporting criteria.

The department recommends transactions that are required prior to the compliance deadline of June 30 be submitted by June 1 of each year. Submissions received after June 1 cannot be guaranteed to be processed by compliance deadline. Emission offsets that have not been serialized or have not been listed as pending retirement will not be accepted for compliance.

5.3.2. Emission Offset Error Correction

The emission offset error correction process is outlined in the Standard for Greenhouse Gas Emission Offset Project Developers. A facility that has used emission offset credits that are subsequently cancelled will have to provide alternative compliance.

If the emission offsets that a facility submitted for compliance are removed or cancelled from the registry, the facility will be required to pay into the Technology Innovation and Emissions Reduction Fund at the fund price applicable to the compliance year for which the emission offsets were submitted.

The process for removing or cancelling emission offsets is defined in the Standard for Greenhouse Gas Emission Offset Project Developers. When emission offsets, which have been removed or cancelled, have already been used for compliance the following process will apply:

- Cancellation/removal will be attributed to the serial number range(s) in which the problem occurred. Emission offsets are cancelled or removed proportionally across the vintage years, unless finer serial number division is available.
- Cancellation/removal will first be attributed to emission offsets held by the project developer.
- If the project developer does not hold sufficient emission offsets to account for the entire cancellation/removal, remaining cancellation/removal will be attributed proportionally to each party holding emission offsets in the affected serial range(s).

- Cancellation/removal from each party that holds offsets will first be attributed to emission offsets that have not yet been submitted for compliance (unretired).
- If the party does not hold sufficient unretired or active emission offsets to account for the entire cancellation/removal, remaining cancellation/removal will be attributed proportionally to each facility for each compliance year that the emission offsets were submitted.

Any corrective actions between the buyers and sellers of emission offsets to address invalid emission offsets are beyond the scope of the government regulatory system.

If the department becomes aware of fraudulent behavior, including but not limited to double counting or deliberate misrepresentation of GHG emissions reductions, appropriate action will be taken, and may include, without limitation, cancelling all emission offsets associated with a project.

5.4. Sequestration Credits

Emission offsets for geologic sequestration occurring in 2022 or later can be converted by the emissions offset project proponent to sequestration credits. Once converted on the registry the rules that would normally apply to the use or correction of emission offsets also apply to the use sequestration credits.

5.5. Fund Credits

A regulated facility may purchase and submit fund credits at the fund credit price established by the Minister for a particular compliance year. A Fund Credit Purchase Form supplied as part of the regulated facility compliance form must accompany fund credit payments. For each purchase, the dollar value stated on this form must match the dollar value paid to the Government of Alberta.

Companies may purchase fund credits for one or more regulated facilities owned by that same company at the same time by submitting payment for the total number of fund credits required. The company is required to complete a Fund Credit Purchase Form for the entire fund credit purchase amount that corresponds with the total payment. This form must allocate all purchased fund credits to the regulated facilities using them for compliance. The submitted Fund Credit Purchase Form will be stamped with a fund credit receipt number once the payment is confirmed by our finance team. Regulated facilities must purchase and submit fund credits to meet their true-up obligation on or before the compliance report deadline as specified in section 15 of TIER.

Regulated facilities wishing to obtain fund credits should:

- (1) Calculate number of whole tonnes of CO₂e required to achieve compliance, and the portion that will be achieved through fund credits;
- (2) Calculate the total value of the fund credits being purchased using the fund credit purchase form, available in the consolidated compliance report form;
- (3) Provide each regulated facility corresponding Facility ID and the amount of fund credit used for compliance;
- (4) Include the Fund Credit Purchase Form with each regulated facility's compliance report submission if fund credit was used for compliance; and
- (5) Submit a cheque made payable to "Government of Alberta" along with the fund credit purchase form to:

Government of Alberta
 Finance and Administration Branch
 Alberta Environment and Protected Areas
 6th floor, South Petroleum Plaza
 9915 108 Street NW
 Edmonton, Alberta
 T5K 2G8

Payments can also be submitted by electronic fund transfer using the following details. Provide the fund credit purchase form at least three business days in advance of the electronic funds transfer.

Account Name	PA Technology Innovation & Emission
Bank Name	CIBC
Bank Address	10102 Jasper Avenue Edmonton
Institution Number	0010
Transit Number	00059
Account Number	92-74219
Ministry/Department	Alberta Environment and Protected Areas, Finance and Administration Branch
E-mail	AEP.revenue@gov.ab.ca
Phone Number	780-422-7072

After payment has been submitted, the following will occur:

- The Finance and Administration Branch will stamp the fund credit purchase form with a receipt number when received; and
- The stamped fund credit purchase form will be provided to the facility as a fund credit purchase receipt. A copy of the purchase receipt will be forwarded internally to the Climate Regulation and Carbon Markets Branch and added to the facility's compliance report.

6. Estimation and Reporting of Production and Emissions

6.1. Production

The facility is required to report the quantity of products for which they have applicable high performance or facility-specific benchmarks, and follow the methods prescribed in the Quantification Methodology. A few production items of note are described below.

Electricity generated by a regulated facility, including those that have integrated cogeneration plants, that is entirely used by the facility (i.e. the electricity is not exported outside the facility boundary), is not considered a product and is referred to as "self-use electricity." As such, the regulated facility will not be provided an allocation for self-use electricity.

If the facility produces self-use electricity but no other product for which it would be eligible for a benchmark, please contact the department.

Renewable electricity facilities subject to TIER must register generating units and have production reported on the Western Renewable Energy Generation Information System for all megawatt hours that will be claimed as production under the regulation. WREGIS is a "going forward" system, so the registrations will need to be completed prior to the period for which certificates will be required. Renewable electricity certificates associated with claimed production for the year must be retired according to instructions provided separately.

Certificates are generally available 90 days following the end of the generation month. Additional information on working with the Western Renewable Energy Generation Information System is available at <https://www.wecc.org/WREGIS/Pages/Default.aspx>

As WREGIS is a "going forward" system, any facility that is not already registered should do so upon being accepted for opt-in.

Sites that report production in Alberta complexity-weighted barrel units will report useful hydrogen produced on-site as a product. Refer to the Standard for Developing Benchmarks for details on scope adjustments related to hydrogen.

Industrial heat is defined in the Regulation and includes heat exported to certain types of emissions offset projects, a large emitter, or an opt-in facility for an industrial purpose. For example, heat that is exported for district heating purposes would not be considered industrial heat and, as such, not be provided any allocation. Schedule 2 of TIER provides the benchmark for imported heat and industrial heat that is exported. If a regulated facility reports industrial heat exported to an offset project, the offset project must report the associated emissions, equal to the allocation, in its project condition for that year.

Large emitter and opt-in facilities that import heat, hydrogen or electricity directly from another regulated facility must make sure that the reported quantities are matched between the importer and the exporter.

6.2. Quantification Methodology Requirements

A regulated facility is required to follow quantification methodologies that are applicable to their facility to quantify emissions, production and other reported values in their compliance reports and applications submitted under the Regulation. These quantification methodologies are presented in the Alberta Greenhouse Gas Quantification Methodologies. Section 6.2.1 provides guidance to facilities in determining which methodologies are applicable to their facilities.

Large emitters and opted-in facilities are also required to prepare a QMD. A QMD is a facility-specific document that outlines details about the facility's process operations, greenhouse gas emission sources, production, and quantification methodologies that the facility uses. The requirements of a QMD are presented in section 6.2.3.

In lieu of a QMD, an aggregate facility is required to complete and submit a TIER Aggregate Compliance Reporting Form. This form requires specific information and inputs that relate to an aggregate facility. This form is available on the TIER Conventional Oil and Gas website.

6.2.1. Alberta Greenhouse Gas Quantification Methodologies

The Alberta Greenhouse Gas Quantification Methodologies presents quantification methodologies for various emission sources, products, and other reported parameters (i.e. imports). These methodologies are used for the Specified Gas Reporting Regulation (SGRR) and TIER. Section 5 of Part 1 requires facilities to use quantification methodologies prescribed in the Alberta Greenhouse Gas Quantification Methodologies for certain emission sources and parameters (i.e. stationary fuel combustion, industrial process emissions, etc.). A facility may use site-specific methodologies for emission sources or parameters that are not mandatory in section 5 of Part 1.

Quantification methodologies are assigned levels according to the accuracy and complexity of the methodology. Lower level methodologies such as levels 0 or 1 are generally acceptable for use for facilities regulated under SGRR only; while higher level methodologies such as levels 2 and 3 are typically required for large emitters and opted-in facilities under TIER.

Under Part 1 of this standard, a regulated facility is required to use a methodology that meets the minimum level classification prescribed for each emissions source or parameter and specified gas. A regulated facility may use a methodology with a higher level classification. Table 4 provides the minimum level classifications for large emitters or opted-in facilities.

For example, using Table 4, if a large emitter or opted-in facility generates stationary fuel combustion emissions, the facility would be required to use a methodology that is classified as level 3 (at minimum) for carbon dioxide, and level 2 (at minimum) for methane and nitrous oxide for stationary fuel combustion.

Aggregate facilities are required to quantify emissions from stationary fuel combustion emissions (for 2020 and onwards), flaring emissions (for 2023 and onwards) and exported CO₂.

For cases where only one methodology is prescribed for an emission source or parameter, this methodology would be acceptable for use under any level classification. For example, for production, imported and exported quantities of electricity, industrial heat, and hydrogen, imported and exported CO₂, and CO₂ consumed in urea production, a single methodology for each of these parameters is presented in the Alberta Greenhouse Gas Quantification Methodologies; however, there are no level assignments for these methodologies.

Regulated facilities are required to use the quantification methodologies prescribed at the time of their benchmark setting and compliance reporting. The department recognizes there are inconsistencies in quantification methodologies applied in benchmarking and compliance reporting. Where an inconsistency is identified that results in a significant difference, the department may require an update to the facility's benchmark or compliance report.

6.2.2. Deviation Request

For regulated facilities that are unable to meet mandatory quantification methodology requirements, the facility must submit to the director a request to deviate from a specific requirement. Using the prescribed Deviation Request Form, available on the TIER website, the facility is required to provide the following information:

- Descriptions of the mandatory requirement(s) that the facility is seeking a deviation(s) for including a reference to a specific chapter, section, or table;
- Reason for the deviation request for each item;
- A proposal to address the deviation(s) and the target timeline to address the deviated requirement(s);
- A proposal for an alternative quantification methodology(ies) until the deviation is addressed. The proposed alternative methodology must represent a conservative approach in comparison with the required methodology. Conservativeness for

compliance reporting would represent a higher emissions intensity; while for benchmarking, conservativeness would represent a lower emissions intensity; and

- A signed Statement of Certification.

Deviations are granted on a time-limited basis of up to a year. Therefore, the facility is required to submit at minimum an annual deviation request if the facility is unable to address the deviation within the timeframe that the deviation is granted for.

There are no specific deadlines for submitting deviation requests. The department encourages facilities to submit deviation requests prior to the submission of a compliance report or application in order for the facility to maintain compliance with the Regulation.

TABLE 4: MINIMUM LEVEL ASSIGNMENT FOR LARGE EMITTERS AND OPTED-IN FACILITIES

	Specified Gases					
	Carbon Dioxide	Methane	Nitrous Oxide	HFCs / PFCs ¹	Sulphur Hexafluoride (SF ₆)	Nitrogen Trifluoride (NF ₃)
Emission Sources:						
Stationary Fuel Combustion ²	3	2	2	-	-	-
Biomass Combustion	1	2	2	-	-	-
Industrial Process ³	3	-	2	-	-	-
Flaring ²	3	3	2	-	-	-
Venting ²	3	2	-	-	-	-
Fugitives	-	-	-	-	-	-
On-Site Transportation	3	2	2	-	-	-
Solid Waste	-	-	-	-	-	-
Wastewater and Digestion	-	-	-	-	-	-
Other releases from facility ⁴	-	-	-	-	-	-

(-) Not applicable or does not currently have a level assignment.

¹Represents any of the following specified gases: HFC-23, HFC-32, HFC-41, HFC-43-10mee, HFC-125, HFC-134, HFC-134a, HFC-152, HFC-152a, HFC-161, HFC-236cb, HFC-236ea, HFC-227ea, HFC-236fa, HFC-227ea, HFC-236fa, HFC-245ca, HFC-245ca, HFC-245fa, HFC-365mfc, perfluoromethane, perfluoroethane, perfluorocyclopropane, perfluoropropane, perfluorobutane, perfluorocyclobutane, perfluoropentane, perfluorohexane, or perfluorodecalin, as per Schedule 1 of the Regulation.

²CO₂ entrained in fuel that is combusted, flared, or vented is included in the emissions reported for these individual source categories.

³CO₂ entrained in feedstock used in industrial processes that is released is reported as venting emissions.

⁴Releases of specified gases from facility operations and processes that are not covered in the categories provided such as refrigerant and chemical usage.

6.2.3. Quantification Methodology Document Requirements

Large emitters and opted-in facilities are required to prepare and submit a Quantification Methodologies Document (QMD) to document facility specific details such as facility process operations, production, and quantification methodologies used during the reporting period.

Third-party assurance providers are required to review the facility's QMD to ensure that mandatory quantification methodologies are followed and site-specific methodologies are reasonable for the facility's operations. Table 5 provides a checklist with the content requirements for the QMD.

TABLE 5: QUANTIFICATION METHODOLOGY DOCUMENT CHECKLIST

Sections	Content
1. Facility Overview	<ul style="list-style-type: none"> a. Facility name, as it appears in section A1 of the compliance report. b. High performance benchmark(s) applicable for product(s) of the facility. c. Facility boundary description including the EPEA approval number, Alberta Energy Regulator number, and any changes to the facility boundary from previous year. d. General overview of facility processes that are included in the compliance report and justification of any excluded processes. e. General overview of facility emission sources. f. Description of changes in process operations and emission sources. Identify any changes that result in 10 percent or more in the facilities emissions or production.
2. Simplified Process Flow Diagram(s)	<ul style="list-style-type: none"> a. An overview of the facility operations, material flows, energy and fuel flows, emission sources by source category, measurement points (i.e. fuel flow, composition, etc.). A separate fuel flow diagram should be included where the fuel system has multiple points of measurement or includes multiple fuel types.
3. Emission Source Categories	<ul style="list-style-type: none"> a. List and description of facility emission source categories (i.e. stationary fuel combustion, industrial process, flaring, etc.). b. List of fuel and energy sources corresponding with the emission source categories (i.e. natural gas - stationary fuel combustion, purge gas - flaring, etc.). c. List of fuel, energy or imported quantities (i.e. electricity, industrial heat, and hydrogen) received, used, and quantified (i.e. metered through custody metering, third party metering/invoicing, etc.). d. List of methodologies used to quantify the emissions for each source category including sampling frequencies, procedures and analytical methods for fuel compositions. If the methodology is outlined in the Alberta Greenhouse Gas Quantification Methodologies, a reference for the section can be provided. If a site-specific methodology is used, provide description of the methodology including emission factors used, parameters required, references, and any other pertinent information. e. For non-combustion sources (such as industrial process or waste and wastewater emissions), provide descriptions of all parameters used in the calculations and how these were quantified. f. List of assumptions in the calculations (e.g., combustion efficiency, control efficiency, thermal efficiency, etc.) and rationale for the assumptions. g. Provide explanation on the averaging method used to determine the fuel or feed composition and confirm that it aligns with the requirements of the Alberta Greenhouse Gas Quantification Methodologies. h. Provide a list of deviations requested and approved by the director for the reporting period.

Sections	Content
4. Meter calibration procedure and schedule	<ul style="list-style-type: none"> a. List of key measurement devices used for compliance reporting (i.e. flow meters for. fuels, throughputs, products, energy meters, gas analyzers, weightometers, scales, etc.) including the calibration and maintenance schedule and meter tags (if appropriate). For gas analyzers, include the sampling frequencies. Indicate whether meters are calibrated in accordance with the Alberta Greenhouse Gas Quantification Methodologies. b. If tank level measurements are conducted, provide the schedule of measurements taken. c. If fuel is trucked to the site, provide the method of tracking fuel consumption at the facility.
5. Production	<ul style="list-style-type: none"> a. List the facility's products and quantification methodologies used for quantifying production. b. If the methodology is outlined in the Alberta Greenhouse Gas Quantification Methodologies, a reference for the section can be provided. If a site-specific methodology is used, provide description of the methodology including parameters required, references, and any other pertinent information. c. Include assumptions and other details that affect the quantification of AB-CWB or ABGPI. For these products, Include the description of the units as well all the instances affecting the reported product (i.e. off-site and non-energy utilities and non-crude input barrels under AB-CWB) d. Where heat is a product describe how flows and enthalpies are determined. e. Where hydrogen is a product describe how hydrogen generation, wasted from the generation, imported and wasted from the imported is determined.
6. Negligible emission sources	<ul style="list-style-type: none"> a. List of the facility's negligible emissions and methodologies used to quantify these emissions. "Negligible emission sources" are sources with combined carbon dioxide equivalent (CO₂e) emissions that represent less than 1% of a facility's total regulated emissions (TRE) or allowable emissions (AE) and do not exceed 10,000 tonnes of CO₂e for a facility under TIER. b. Alternative methodologies may be used to quantify and assess the negligibility of these emissions. c. Negligible emissions count towards the Total Regulated Emissions.
7. Data management system	<ul style="list-style-type: none"> a. Provide description of the facility's data management system that is used to collect and manage data that is used for the facility's compliance report. b. How fuel consumption is tracked, reconciled, and allocated to different emission sources? c. How are fuel, feed stocks, and production reconciled between on-site metering and third party invoices, if applicable. d. Flow of data from original source of data (i.e. metering or scale) to the data collection system to final use of data by the reporter in the calculations. Flow diagrams are useful to illustrate data flow. e. Quality assurance and quality control procedures applied to data collection and management system. f. If calculations are embedded in the facility's data management system, these calculations should be provided in the QMD for transparency. g. Provide meter tags and IDs as appropriate for relevant meters used for data collection and management.

Sections	Content
8. Sample Calculation Workbook	<p>a. Facilities that uses a data management system to calculate the GHG emissions and other reported parameters should provide a sample calculation workbook for 1 month or more.</p> <p>b. The workbook should show the formulas used, emission factors used for each fuel type or activity, compositional data, and other parameters used in the calculations.</p> <p>c. This will provide both the department and verifier transparency in the calculations used for compliance reporting.</p>
9. Other supporting documentation	a. Any further information to support the facility's compliance report and calculations used for reporting GHG emissions, production, imported quantities, etc.

6.3. Fuels Consumed

Reporting of fossils fuels consumption is required to support estimates of emissions and feedstock quantities. Classification of types of fuel should distinguish between fuel and feedstock. Refer to the Alberta Greenhouse Gas Quantification Methodologies for methodologies to quantify fuel quantities consumed and metering requirements. Fuels to be reported are those that contribute to emissions reported on site and/or are used as feedstock in production.

Emissions from fuels that have already been subject to a federal fuel charge while the facility held a valid federal exemption certificate will not be included in the calculation of TRE. If a fuel is levied, the emissions associated with these fuels are not subject to further compliance obligation under TIER.

6.4. CO₂ Entrained in Acid Gas Streams, Fuels and Feedstocks

Carbon dioxide removed from a raw gas stream and sent off site as an acid gas stream and permanently disposed of in a Class III well is not counted as an emission for the facility, or included as exported CO₂. Therefore, these emissions are not reported as exported CO₂ in the facility's compliance report. Similarly, facilities that receive CO₂ contained in an acid gas stream disposed of in a Class III well cannot include that CO₂ as imported CO₂ (i.e. this CO₂ cannot be deducted from the facility's TRE). However, CO₂ contained in an acid gas stream sent offsite to a sulphur recovery unit is counted as exported, as the CO₂ is then vented at a downstream gas processing facility.

Aggregate facilities are regulated for stationary fuel combustion emissions (2020 and onwards), flaring emissions (2023 and onwards), and exported CO₂. Reported exported CO₂ can only include CO₂ from stationary fuel combustion.

CO₂ entrained (or formation CO₂) in fuels that are combusted, vented, or flared is included in the reported emissions for these individual source categories. CO₂ entrained in feedstocks used for industrial processes that are released is reported in the venting category. The release of CO₂ entrained in fuels or feedstocks is no longer reported in a separate emissions category (i.e. formation CO₂) for compliance reporting.

For example, if a gas processing facility is venting fuel gas, both the methane and CO₂ would be reported as venting emissions. Similarly, if a facility is combusting or flaring fuels with entrained CO₂, this CO₂ would be reported in the stationary fuel combustion or flaring emissions category, respectively.

6.5. Reporting Compliance Cost Containment Allocation Benchmark Data Discrepancies

As per section 8(2) and 8(3) of TIER, a compliance cost containment program designated facility may apply to receive a compliance cost containment allocation benchmark by March 31 of the calendar year following any year in which the facility is designated under the program.

As outlined in the Standard for Developing Benchmarks, this application may utilize data that has not yet been verified by a certified third-party verifier but must be certified by the certifying official for the firm. If the director makes a determination to grant and assign a compliance cost containment allocation benchmark on the basis of an application, section 8(5) of the Regulation grants the director the authority to assign a new compliance cost containment allocation benchmark if there is a discrepancy between the data on which the application was based and the verified data reported in the facility compliance report for the year.

For the purposes of identifying and reporting potential discrepancies between the application data and verified data reported in the facility compliance report for that year, as well as implications discrepancies may have for program eligibility and support, **Standard for Completing Greenhouse Gas Compliance and Forecasting Reports** | Technology Innovation and Emissions Reduction Regulation

the Compliance Cost Containment First Year Reporting Form is required to be submitted with the annual compliance report for a designated facility's first year designated under the program (outlined in section 6.6 of this Standard).

For subsequent years for which a facility is applying for a compliance cost containment allocation benchmark, such discrepancies and implications are reported within the designated facility's Emissions Reduction Plan Report outlined in Part 2, section 6.7 of this standard. As per section 17(1) of TIER, an Emissions Reduction Plan Report is not required to be submitted in a facility's first year designated under the program.

6.6. Compliance Cost Containment First Year Reporting Form

The Compliance Cost Containment First Year Reporting Form required under section 4(e) of Part 1 must include:

An assessment of whether values reported in the facility compliance report for the first year in which a cost containment designation is in effect are equal to values reported in the Application for cost containment designation, for each of the following:

- i) total regulated emissions,
- ii) true-up obligation,
- iii) net electricity import or export,
- iv) net heat import or export,
- v) net hydrogen import or export,

and where there are any number of discrepancies, an explanation for each discrepancy and an explanation of the implications of each discrepancy for:

- i) the degree to which the facility experiences economic hardship as per Part 2 section 6 of the Standard for Developing Benchmarks, and
- ii) Compliance Cost Containment Program support a facility may be eligible to receive (including a compliance cost containment allocation benchmark that has been assigned to a facility by the director, if applicable).

If a discrepancy reported would result in a material change to an assigned compliance cost containment allocation benchmark for the facility, the compliance cost containment allocation benchmark must be recalculated and submitted as part of the compliance cost containment first year reporting form.

6.7. Emissions Reduction Plan Report

An emissions reduction plan report submitted pursuant to section 17 of TIER must include each of the following:

- The contact information for the person responsible.
- The contact information for the facility.
- The location of the facility.
- In the financial statements for the facility required under section 14(2)(b) of the Regulation, the person responsible for the facility must include at a minimum each of the following:
 - The total quantity of each product produced by the facility and sold, based on sales transactions;
 - If applicable, confirmation that the quantity of each product produced by the facility and sold, as reported above, is equal to the quantity of product produced by the facility and sold as reported under the *Mines and Minerals Act*, and where there is a discrepancy, an explanation for the discrepancy;
 - The weighted mean sales price for each product produced by the facility and sold, based on the actual sales price of transactions for the product sold from the facility;
 - If applicable, confirmation that the weighted-mean sales price for each product produced by the facility and sold, as reported above, is equal to any sales price as reported under the *Mines and Minerals Act*, and where there is a discrepancy, an explanation for the discrepancy;
 - If applicable, the amount of royalties paid in respect of the facility to the Government of Alberta under the *Mines and Minerals Act*;
 - The reporting of cost containment relief mechanisms:
 - compliance flexibility of credit usage limit
 - Industrial Energy Efficiency (IEE) grants
 - usage of any cost containment allocation benchmark;

- Calculated royalties owed if no cost containment benefits had been realized under TIER.
- The amount of royalties that would be paid in respect of the facility to the Government of Alberta, under the *Mines and Minerals Act*, if TIER Regulation were not in force and there was no price on direct emissions at the facility,
- Δ tax for the difference between corporate taxes owed or paid by the facility considering actual compliance obligation under TIER if no cost containment benefits had been realized and under a scenario in which the facility was not subject to a compliance obligation under TIER, calculated in accordance with the Standard for Developing Benchmarks.
- Evidence demonstrating that the facility is complying with the emissions reduction plan submitted as part of its application for designation as a cost containment facility and its terms and conditions under section 14(6)(d) of the Regulation.
- Evaluation of the economic hardship tests considering actual compliance costs [note: tests should not fail].
 - Tests are applied as outlined in the Standard for Developing Benchmarks.
- Evaluation of the economic hardship tests of TIER (with no relief mechanism) [note: tests should fail].
 - Tests are applied as outlined in the Standard for Developing Benchmarks.
 - If facility passes the profit and sales tests, it is required to submit an updated forecast in order to evaluate future eligibility.
- Information on any benefit that has been or is being provided in respect of the facility under an initiative of the Government of Alberta, or an agency of the Government of Alberta.
- Information on the timeframe for facility permanent closure, temporary closure, or intentional operation at reduced capacity, where applicable, and
- Any other information required by the director.

If the director has assigned a Compliance Cost Containment Allocation Benchmark for the year in which the Emissions Reduction Plan Report is being prepared and submitted, the Emissions Reduction Plan Report must also include:

An assessment of whether values reported in the facility compliance report for the year in which the compliance cost containment allocation benchmark has been assigned are equal to values reported in the Compliance Cost Containment Allocation Benchmark Application, for each of the following:

- i) total regulated emissions,
- ii) true-up obligation,
- iii) net electricity import or export,
- iv) net heat import or export,
- v) net hydrogen import or export,

and where there are any number of discrepancies, an explanation for each discrepancy and an explanation of the implications of each discrepancy for:

- i) the degree to which the facility experiences economic hardship as per Part 2 section 6 of the Standard for Developing Benchmarks, and
- ii) Compliance Cost Containment Program support a facility may be eligible to receive (including a compliance cost containment allocation benchmark that has been assigned to a facility by the director, if applicable).

If a discrepancy reported would result in a material change to an assigned compliance cost containment allocation benchmark for the facility, the compliance cost containment allocation benchmark must be recalculated and submitted as part of the Emissions Reduction Plan Report.

7. Annual Forecasting

7.1. Introduction

For forecasting facilities, the Regulation requires annual forecasting of emissions, production, true-up obligation and credit usage. Visibility into industrial performance and compliance choice allows improved provincial emissions forecasting for the current year and the next fiscal year, as well as improved fund revenue forecasting.

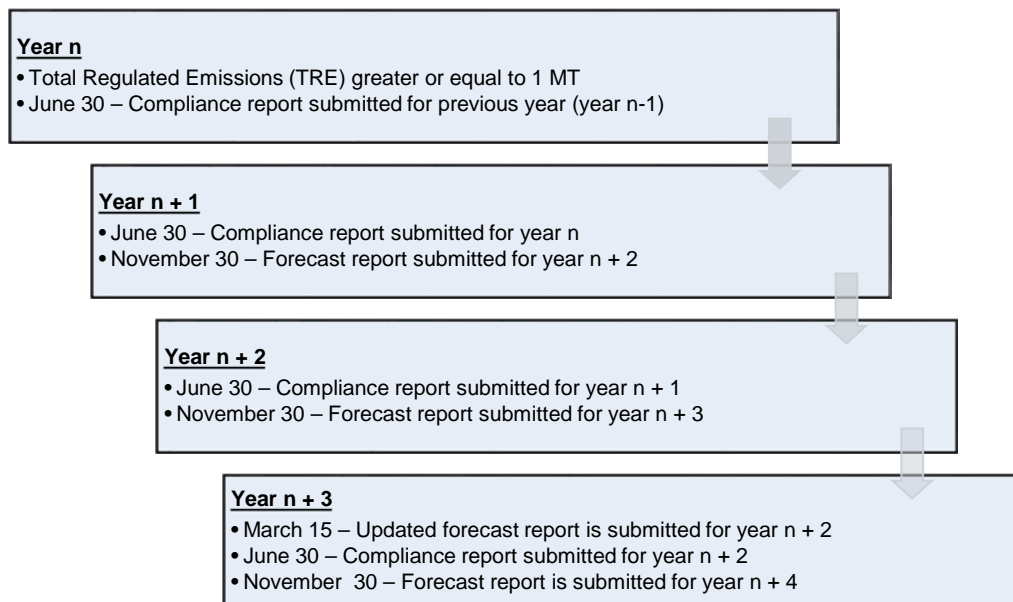
7.2. Reporting and Forecasting requirements

The forecast and reporting timeline is illustrated in Figure 2.

Facilities whose annual emissions newly meet or exceed 1 Mt CO₂e are required to submit a forecasting report by November 30 of the following year. For example, a facility that meets or exceeds 1 Mt CO₂e in 2020 is required to submit a forecasting report by November 30, 2021 for the 2022 year.

A facility is required to submit an update by March 15 of the forecast submitted the previous year. This update allows the department to receive the current data before the June 30 compliance deadline.

FIGURES 2: FORECASTING TIMELINES



7.2.1. Signatures

The department will accept and prefers electronic signatures for the purposes of compliance under the Regulation but reserves the right to request physically signed originals where the electronic signature is ambiguous or cannot be verified. The forms under TIER include electronic signature blocks to be signed by the certifying official. The certifying official should ensure they have a digital certificate in place to support providing their electronic signature.

7.2.2. Submission Process

Forecasting reports must be submitted electronically to AEP.GHG@gov.ab.ca. For administrative purposes, separate e-mail submissions must be made for each facility.

7.3. Forecast requirements

7.3.1. Forecast

The department expects that the annual forecast will be completed with due diligence and the best available information regarding the next year of operation of the facility. Any scheduled expansion or turnaround should be anticipated in the forecast.

While it is possible that upsets or other unexpected events can occur during the forecast year, facilities must explain the discrepancies encountered in the compliance reports. Also, planned facility improvements that will result in reduction in emission intensities should be reasonably anticipated in the forecast. After submitting the initial forecast, the facility is required to update the forecast for the year to incorporate potential changes.

An official of the reporting facility must certify forecasts.

8. Data Confidentiality and Access to Information

The Regulation includes provisions for granting confidentiality on submitted information as well as dealing with access to information contained in applications, forecasting reports and compliance reports. Confidentiality for forecasting reports may be requested in advance of submitting the forecasting reports. Be sure to familiarize yourself with these provisions.

9. Third Party Verification

All annual facility compliance reports must be verified before they are submitted to the director. This requirement for third party verification is consistent with international standards requiring independent, third party verification for GHG assertions.

The department has released a detailed standard for third party assurance providers conducting GHG verifications in Alberta. It is available on the department's website as the Standard for Validation, Verification and Audit. Facilities should familiarize themselves with this standard.

The third party assurance provider is required to assess the facility's assertion, which includes all reported values in a facility's compliance report such as the emissions reported for each source category, production data, imported and exported quantities (i.e. electricity, industrial heat, and hydrogen), total regulated emissions and allowable emissions. If the facility received cost containment designation, their compliance cost containment first year report and emissions reduction plan report would also be required to be verified before submission. Verifiers are required to provide an opinion on whether the assertions of the compliance report are materially correct at a reasonable level of assurance.

The third party assurance provider must describe discrepancies related to the reported information, identify areas where interpretation of data differs from guidance provided by the department and flag unresolved discrepancies, omissions, misstatements, and material errors.

The facility must make every effort to resolve issues identified during verification before it finalizes the verification report and submits the compliance report and related submission documents to the department.

All verification reports must meet the requirements outlined in the Standard for Validation, Verification and Audit. Verification reports that do not meet these requirements may be considered incomplete, and could result in the facility being deemed out of compliance with the Regulation. The actions of the third party assurance provider may also be subject to offence provisions, as per the Regulation.

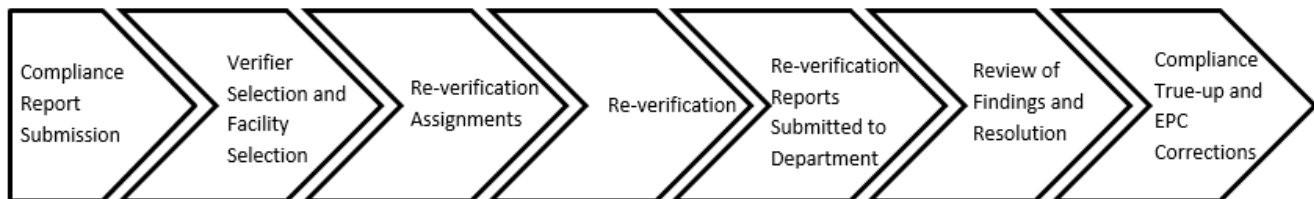
10. Government Re-verification

The department re-verifies up to 5 per cent of regulated facility compliance reports annually to assess conformance with program criteria and to confirm the conclusions of the initial verification. Regulated facilities selected for re-verification will receive written notification and an approximate schedule for the re-verification. The third party assurance provider is hired by the department during the re-verification. The third party assurance provider must be provided access to all records and personnel necessary to complete the re-verification.

The department also uses information collected during the re-verifications to assess program performance and identify areas for improvement. This process is outlined in Figure 3.

The Standard for Validation, Verification and Audit describes the re-audit or review of financial statements for facilities with cost containment designation.

FIGURE 3: TYPICAL DEPARTMENT COMPLIANCE REPORT RE-VERIFICATION PROCESS



10.1. Materiality for Department Re-verifications

Government re-verifications use the same materiality threshold as verifications. Third party assurance providers must assess both quantitative and qualitative errors or discrepancies in a compliance report to reach a reasonable level of assurance on the GHG and compliance assertion. Third party assurance providers are required to identify all material and immaterial findings discovered during the re-verification in the final report. The department will work with the facility to follow up on the re-verification results and determine appropriate, corrective actions, if needed.

10.2. Termination of a Re-verification

If the third party assurance provider identifies significant issues such as incomplete records, missing records, records in unverifiable formats, records that cannot be replicated such that the third party assurance provider can conduct the re-verification, or significant reluctance on the part of the facility to provide records or access during the site visit, the third party assurance provider, in consultation with the department, may issue notice to the department to terminate the re-verification.

Terminated re-verifications are considered as failed or the same as an adverse opinion. The facility will adhere to the error correction policy for material verification findings.

10.3. Error Correction

The procedures for correction of errors or discrepancies identified in the department re-verifications is the same as that for errors identified by the department or the facility, and is described in Part 2, section 3.5.

10.4. Three Party Contracting for Re-verifications

Facilities required to make corrections based on a government re-verification that then results in another re-verification may be required to use a verification team appointed by the department and paid for by the facility. The verification team will, in most cases, be the same team that identified the errors initially. If an alternate team is needed, the department will select the verification team consistent with its selection criteria.

The verification team and facility will be required to enter into a three party agreement with the facility to pay for the re-verification.

10.5. Confidentiality

Third party assurance providers are contracted by the department for re-verification. They are bound by Government of Alberta confidentiality requirements and must comply with all appropriate confidentiality regulations. Government contracts explicitly reference the confidentiality requirements under the *Freedom of Information and Protection of Privacy Act*.

Regulated facilities wishing to request further confidentiality on information collected during the re-verification must submit a written request to the Director that identifies the confidential material and provides justification for the request. More information about confidentiality can be found in Part 2, section 8.

10.6. Continuous Improvement

Additional information collected during the re-verification process is used to support program improvements and may be reflected in guidance changes, protocol reviews, or other changes as required and are part of a larger framework of ongoing program reviews and improvements.

11. Glossary of Terms

Terms that are defined in the Act, Regulation or Part 1 are not included here.

Assertion is the total regulated emissions, imported and exported CO₂, production quantities, import of heat, hydrogen, and electricity and resulting true-up obligation for large emitters and opt-in facilities. For aggregate facilities import of heat, hydrogen and electricity are not part of the assertion.

Biomass refers to material derived from living or recently dead organisms. Examples include, but are not limited to wood and wood products, charcoal, agricultural residue, landfill gas, and bio-alcohols.

Certifying official is a person designated by the person responsible for a facility that has signing authority for that facility and is authorized to bind the company.

GHGs are the atmospheric gases responsible for the GHG effect. The most common GHGs are carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O). Less prevalent, but very powerful GHGs include hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), nitrogen trifluoride (NF₃), and sulphur hexafluoride (SF₆).

Global warming potential measures a GHG's relative warming effect on the Earth's atmosphere compared with carbon dioxide and is often expressed as a 100-year average. The department currently utilizes the global warming potential value published in the International Panel on Climate Change Fourth Assessment Report for the gases regulated under the Regulation, consistent with the National Inventory Report prepared by Environment and Climate Change Canada.

Materiality refers to a measure of the magnitude of an error, omission, or misrepresentation that would affect the assertion.

Reporter is the person completes the facility's applications and compliance report forms.

12. References

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Any comments or questions regarding the content of this document may be directed to:

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January 30, 2023

Original signed by: John Storey-Bishoff, Executive Director

Date:

Climate Regulation and Carbon Markets

Alberta Environment and Protected Areas