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**Standard for Completing Greenhouse Gas
Compliance and Forecasting Reports
Carbon Competitiveness Incentive Regulation**

Version 2.4
November 2019



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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 compliance 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

		<ul style="list-style-type: none"> • 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

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Alberta Climate Change Office Related Publications

- *Climate Change and Emissions Management Act*
- Carbon Competitiveness Incentive Regulation
- Specified Gas Reporting Regulation
- Standard for Greenhouse Gas Emission Offset Project Developers
- Standard for Establishing and Assigning Benchmarks
- Technical Guidance for Landfill Operators
- Standard for Validation, Verification and Audit
- Quantification Methodologies for the Carbon Competitiveness Incentive Regulation and the Specified Gas Reporting Program
- Directive for the Quantification of Area Fugitive Emissions at Oil Sands Mines Consolidated Reporting Form
- Landfill With Partial Gas Collection Workbook

INTRODUCTION

Part 1 of the Standard for Completing Greenhouse Gas Compliance and Forecasting Reports is adopted by the Carbon Competitiveness Incentive Regulation (the “Regulation”), under the authority of section 61 of the *Climate Change and Emissions Management 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.

Any changes to this Standard from version 1.0 are effective as of the date of publication.

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 this standard.
- (2) In this standard,
 - (a) “auditor” means an auditor who provides an audit required under the Regulation;
 - (b) “formation carbon dioxide” are direct emissions of CO₂ that are recovered or are recoverable from raw gas in an underground reservoir;
 - (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 carbon black in the production of carbon black and 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) “Regulation” means the Carbon Competitiveness Incentive Regulation, as amended;
 - (h) “this standard” means the Standard for Completing Greenhouse Gas Compliance and Forecasting Reports, including the Introduction, Part 1, and Part 2.
 - (i) “Quantification Methodologies” means Quantification Methodologies for the Carbon Competitiveness Incentive Regulation and the Specified Gas Reporting Regulation published by the Department, as amended or replaced from time to time;

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 the compliance report required under section 12 of the Regulation, the person responsible for a facility must
 - (a) complete Compliance Reporting Form published by the Department, as amended from time to time;
 - (b) complete the compliance report prior to verification by the third party assurance provider; and
 - (c) sign the Statement of Certification for the compliance report.
- (2) If the person responsible for a facility modifies or changes the 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 the compliance report submitted under section 12 of the Regulation, the person responsible for a facility must include at least each of the following:
 - (a) a process flow diagram that indicates in schematic detail;
 - (i) the processes that produce direct emissions at the facility, and
 - (ii) each source of direct emissions that, in the reporting period, produces over 1,000 tonnes of carbon dioxide equivalent and including any of the following:
 - (A) imported carbon dioxide,
 - (B) exported carbon dioxide, and
 - (C) carbon dioxide used as feedstock for the production of urea;
 - (b) a third party verified Compliance Reporting Form;
 - (c) a third party verification report, completed in accordance with the Standard for Validation, Verification and Audit, as amended or replaced from time to time;
 - (d) a Statement of Certification signed by the person responsible; and
 - (e) a quantification methodology document.

Emissions reduction plan report

- 5(1) In preparing the emissions reduction plan report required under the Regulation, the person responsible for a facility must
 - (a) complete the emissions reduction plan report form published by the Department, as amended from time to time;

- (b) complete the emissions reduction plan report prior to verification by the third party assurance provider;
 - (c) complete the financial statement prior to audit by the auditor; and
 - (d) sign the Statement of Certification for the emissions reduction plan report.
- (2) If the person responsible for a facility modifies or changes the emissions reduction plan 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 emissions reduction plan report to the director,
- (a) provide the modified or changed emissions reduction plan report to the third party assurance provider;
 - (b) obtain a verification of the modified or changed emissions reduction plan report from the third party assurance provider;
 - (c) submit to the director the modified or changed emissions reduction plan report, as verified by the third party assurance provider;
 - (d) provide the modified or changed financial statement to the auditor;
 - (e) obtain an audit of the modified or changed financial statement from the auditor; and
 - (f) submit to the director the modified or changed financial statement, as audited by the auditor.

Interim compliance report

- 6(1) In preparing the interim compliance report required under section 13 of the Regulation, the person responsible for a facility must
- (a) complete the Interim Compliance Reporting Form published by the Department, as amended or replaced from time to time;
 - (b) complete the interim compliance report prior to verification by the third party assurance provider, if a third party verification is requested by the director; and
 - (c) sign the Statement of Certification for the interim compliance report.
- (2) If the person responsible for a facility modifies or changes the interim 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 interim compliance report to director,
- (a) provide the modified or changed interim compliance report to the third party assurance provider;
 - (b) obtain verification of the modified or changed interim compliance report from the third party assurance provider; and
 - (c) submit to the director the modified or changed interim compliance report, as verified by the third party assurance provider.

Interim compliance report supporting documents

- 7 In the interim compliance report submitted under section 13 of the Regulation, the person responsible for a facility must include at least each of the following:
- (a) a process flow diagram that indicates in schematic detail;
 - (i) the processes that produce direct emissions at the facility, and
 - (ii) each source of direct emissions that, in the reporting period, produces over 1,000 tonnes of carbon dioxide equivalent and including any of the following:
 - (A) imported carbon dioxide,
 - (B) exported carbon dioxide, and

- (C) carbon dioxide used as feedstock for the production of urea;
- (b) Interim Compliance Reporting Form;
- (c) if requested by the director, a third party verification report completed in accordance with the Standard for Validation, Verification and Audit, as amended and replace from time to time;
- (d) a Statement of Certification signed by the person responsible; and
- (e) a quantification methodology document.

Quantification methodology for compliance report and interim compliance report

8(1) In completing a compliance report or an interim compliance report for a reporting period in 2018 or later, the person responsible for a facility must use the applicable quantification methodology set out in Quantification Methodologies for each of the following emissions sources or parameters:

- (a) imports;
- (b) industrial process emissions;
- (c) production; and
- (d) stationary fuel combustion.

(2) Subsection (1) does not apply to an interim compliance report for reporting period one of 2018.

(3) In completing a compliance report or an interim compliance report for a reporting period in 2019 or later, the person responsible for a facility must use the applicable quantification methodology set out in Quantification Methodologies for each of the following emissions sources or parameters:

- (a) on-site transportation;
- (b) carbon dioxide from combustion of biomass; and
- (c) venting.

(4) Subsections (3)(a) and (c) do not apply to an interim compliance report for reporting period one and reporting period two of 2019.

(5) In determining the applicable quantification methodology for an emissions source listed in (1)(b), (d), or (3)(a) to (c), the person responsible for a facility must use the applicable tier for that emissions source set out in Table 2 of Part 2 of this standard.

9 In calculating area fugitive emissions at oil sands mines, the person responsible for a facility producing oil sands mining bitumen must use the Department’s Directive for Quantification of Area Fugitive Emissions at Oil Sands Mines.

10 In calculating equivalent carbon dioxide emissions, the person responsible must use the following global warming potentials set out in Table A to calculate an equivalent carbon dioxide emission for each of specified gases listed in Schedule 1 of the Regulation:

Table A: Global Warming Potential for Specified Gases

Specified Gas	Chemical Formula	Global Warming Potentials
Carbon dioxide	CO ₂	1
Methane	CH ₄	25
Nitrous oxide	N ₂ O	298
Sulphur hexafluoride	SF ₆	22800

HFC-23	CHF ₃	14800
HFC-32	CH ₂ F ₂	675
HFC-41	CH ₃ F	92
HFC-43-10mee	C ₅ H ₂ F ₁₀	1640
HFC-125	C ₂ HF ₅	3500
HFC-134	C ₂ H ₂ F ₄	1100
HFC-134a	CH ₂ FCF ₃	1430
HFC-143	C ₂ H ₃ F ₃	353
HFC-143a	C ₂ H ₃ F ₃	4470
HFC-152	CH ₂ FCH ₂ F	53
HFC-152a	C ₂ H ₄ F ₂	124
HFC-161	CH ₃ CH ₂ F	12
HFC-227ea	C ₃ HF ₇	3220
HFC-236cb	CH ₂ FCF ₂ CF ₃	1340
HFC-236ea	CHF ₂ CHF ₂ CF ₃	1370
HFC-236fa	C ₃ H ₂ F ₆	9810
HFC-245ca	C ₃ H ₃ F ₅	693
HFC-245fa	CHF ₂ CH ₂ CF ₃	1030
HFC-365mfc	CH ₃ CF ₂ CH ₂ CF ₃	794
Perfluoromethane	CF ₄	7390
Perfluoroethane	C ₂ F ₆	12200
Perfluorocyclopropane	c-C ₃ F ₆	17340
Perfluoropropane	C ₃ F ₈	8830
Perfluorobutane	C ₄ F ₁₀	8860
Perfluorocyclobutane	c-C ₄ F ₈	10300
Perfluoropentane	C ₅ F ₁₂	9160
Perfluorohexane	C ₆ F ₁₄	9300
Perfluorodecalin	C ₁₀ F ₁₈	7500

Annual forecasting report

- 11** In preparing the annual forecasting report required under section 14 of the Regulation, the person responsible for a 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.

Site access and visit

- 12** The person responsible for a facility must provide to each third party assurance provider who is verifying reports under this standard, all of the following:
- (a) access to all records; and
 - (b) access to all personnel
- as requested by the third party assurance provider.
- 13** The person responsible must ensure that the third party assurance provider, in performing a verification for reporting period four or emissions reduction plan report, only conducts a site visit for a facility after August 31 of the year being verified.

Verification

- 14** Unless otherwise approved by the director, the person responsible for a facility must not hire a third party assurance provider to verify a compliance report for the facility for a year unless, within the six-year period immediately preceding that year, there were two consecutive years for which the third party assurance provider did not verify the compliance reports for that facility.

Effective date

- 15** This standard is effective January 1, 2018.

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 Carbon Competitiveness Incentive Regulation (CCIR or the Regulation) to complete annual compliance reports, interim compliance reports and annual forecasting reports. This document also provides facilities with total regulated emissions greater than their output-based allocations with information about available compliance options.

A facility's annual Total Regulated Emissions (TRE) is compared with the facility's Output-Based Allocation (OBA) in order to assess the facility's true-up obligation. Facilities are required to meet their true-up obligation by using one or more compliance options, which include submitting serialized Emission Offsets (EO) on the Alberta Emissions Offset Registry, submitting serialized Emission Performance Credits (EPCs) generated at a regulated facility, or obtaining Fund Credits (FC) through contributions to the Climate Change and Emissions Management Fund.

2. Overview of the Regulatory Program

In 2003, Alberta passed the *Climate Change and Emissions Management Act*, signalling its commitment to manage the impacts of climate change and Greenhouse Gas (GHG) emissions in the province. In 2004, Alberta passed the Specified Gas Reporting Regulation (SGRR), currently requiring all facilities emitting over a specified emission threshold annually to report their GHG emissions.

In 2007, Alberta passed the Specified Gas Emitters Regulation (SGER), reinforcing its commitment to regulate GHG emissions from large facilities. This regulation required all facilities in Alberta that have emitted more than 100,000 tonnes of CO₂e per year to reduce their annual emissions intensity. The Alberta government gave new facilities a graduated emissions intensity reduction obligation, starting in their fourth year of commercial operation.

In 2015, Alberta announced more stringent intensity reduction requirements and increased prices for fund credits. The Climate Leadership Plan was also announced in 2015, and is a made-in-Alberta strategy to reduce carbon emissions while diversifying our economy and creating jobs, based on recommendations put forward by the Climate Change Advisory Panel. Key aspects of the plan include implementing a carbon price on GHG emissions; ending pollution from coal-generated electricity by 2030; developing more renewable energy; capping oil sands emissions to 100 megatonnes (Mt) per year; and reducing methane emissions by 45 percent by 2025.

In 2018, the SGER was replaced by the CCIR, modernizing the carbon pricing system for those facilities that have emitted more than 100,000 tonnes of CO₂e in a year since 2003. Under the Regulation, an opt-in opportunity is available to facilities below this threshold that are competitively impacted or emissions intensive and trade exposed. The Regulation reduces carbon costs for these industries when compared to the carbon levy, while maintaining a strong price signal to reduce emissions and ensuring that top performing facilities are rewarded relative to their industry peers. The Regulation also supports comparability with international jurisdictions, and is intended to help maintain industry competitiveness in Alberta while driving improved emissions performance.

2.1. Thresholds

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 total regulated emissions. Facilities that exceed this threshold in any single calendar year on or after 2003 are regulated facilities under the CCIR. All regulated facilities must submit annual compliance reports. If a facility exceeds one megatonne of annual emissions, they must also submit an annual forecasting report and quarterly interim compliance reports.

Facilities that do not exceed the 100,000 tonnes of CO₂e per year of total regulated emissions can apply to opt into the Regulation if they meet the following criteria:

- The facility competes directly with a facility covered under the Regulation, or
- The facility has or is likely to have in its third year of operation total regulated emissions of 50,000 tonnes or more of emissions of CO₂e per year and belongs to an Emission Intensive Trade Exposed sector as defined in section 4 of the CCIR.

Facilities that have opted into the Regulation may apply to the director to have their opt-in status revoked if they can demonstrate that the facility's emissions coverage will be equivalent under the carbon levy or a comparable regulatory system. Facilities are required to complete an application form to have their opt-in status revoked. More information regarding the opt-in and revocation of opt-in criteria is provided in the Standard for Establishing and Assigning Benchmarks.

2.2. Greenhouse Gas Reporting Program

The GHG reporting program, operated in accordance with the SGRR, is a complementary program that requires all facilities emitting over a specified emission threshold in a calendar year to report their annual GHG emissions. CCIR regulated facilities that do not exceed the emission threshold for the SGRR must report their GHG emissions through the program. More information regarding this program is available on the Department's GHG reporting website at <https://www.alberta.ca/specified-gas-reporting-regulation.aspx>

2.3. Compliance Options

A facility's emissions allowance, or output-based allocation, is calculated based on the applicable benchmarks (established or assigned) for the products it produces. The output-based allocation for a facility is determined in section 5 of the CCIR. Facilities unable to lower their total regulated emissions below the level of their OBA through emissions performance improvements (e.g., technology improvements, changes in maintenance and/or operations, etc.) may use Emission Performance Credits, Emission Offsets, or Fund Credits in order to comply. More information about these compliance options is available in Part 2, section 5.

Facilities must submit sufficient credits such that the net emissions do not exceed the OBA for each reporting period.

Facilities with total regulated emissions below their OBA are eligible to receive EPCs, which can be banked for future use at the facility or traded/sold to other Alberta 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 exceed one megatonne of annual total regulated emissions, must also submit forecasting and interim compliance reports. Facilities that undergo decommissioning or significant changes to operations such that they no longer fit the definition of a "facility" prescribed in the CCIR may be removed from the Regulation upon receipt of written notice from the director. Decommissioning is discussed in more detail in Part 2, section 3.6.3.

3.1. New Entrant to the Regulation

All facilities that have a TRE of 100,000 tonnes of CO₂e or more in any given year after or including 2003 are automatically regulated under the CCIR.

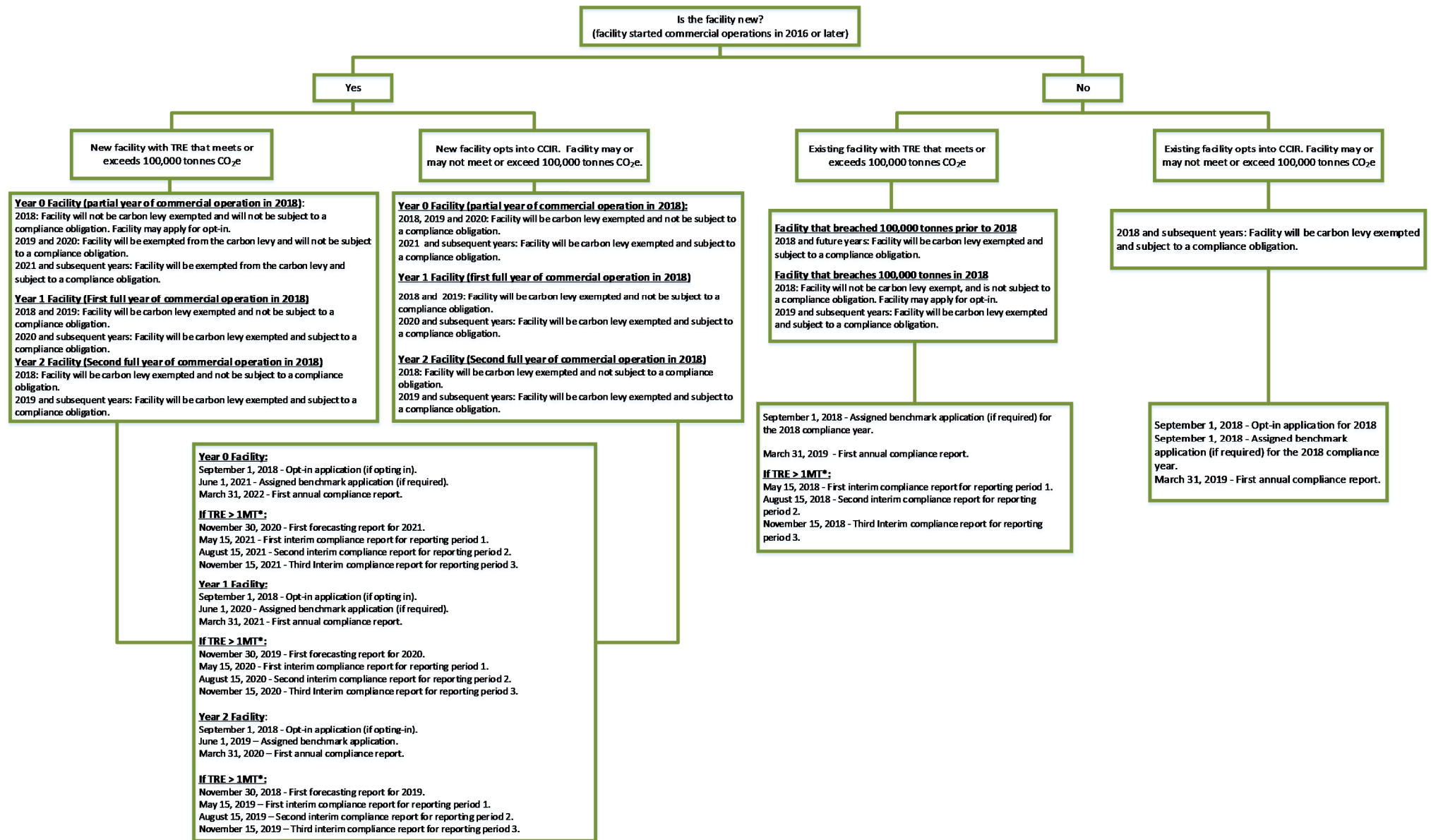
Additional information is provided for facilities that enter the CCIR from 2018 onward through one of the following means:

- By virtue of becoming an opted-in facility,
- By meeting or exceeding the TRE threshold of 100,000 tonnes CO₂e per year.

Figure 1 and Figure 2 provide the regulatory pathways for facilities entering the CCIR for 2018 or 2019 and subsequent years, respectively. In these figures, the first partial year of commercial operations is considered to be "Year 0," 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.

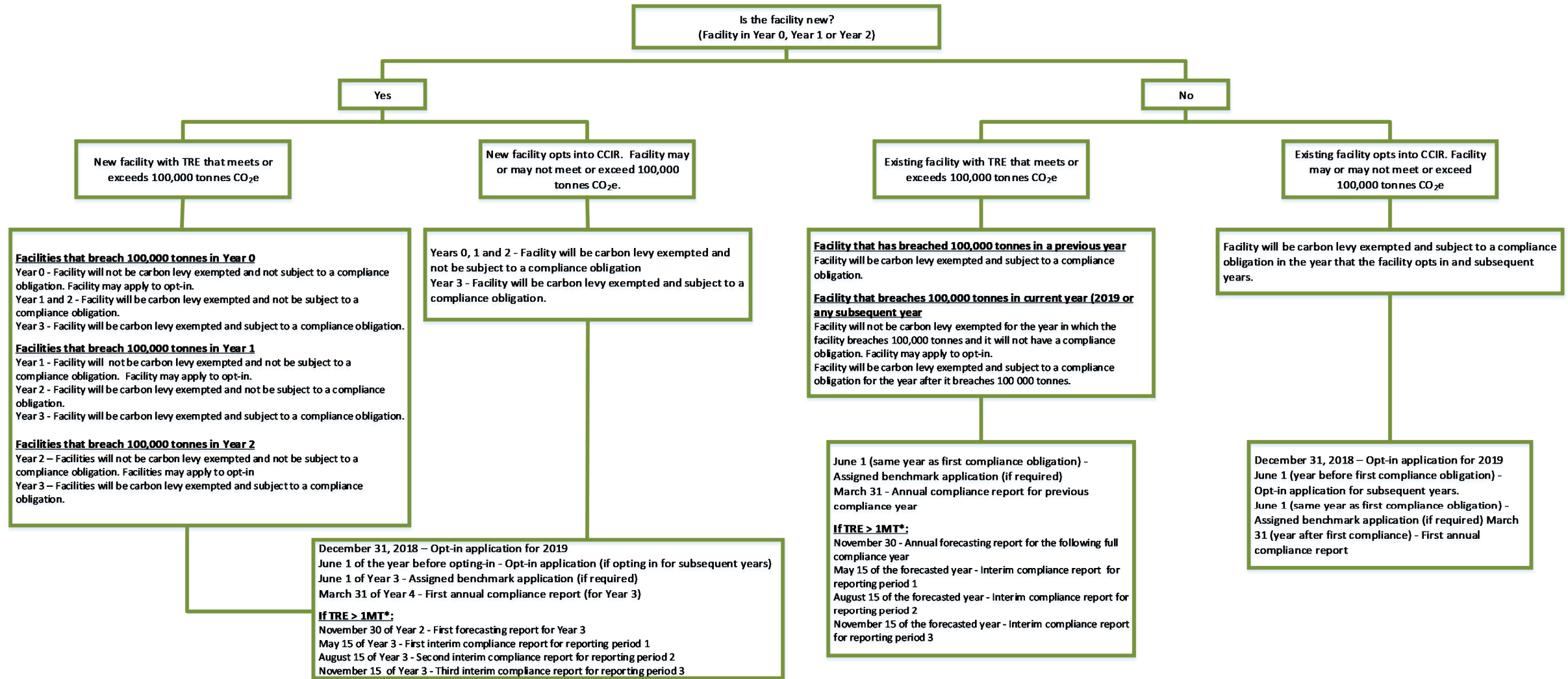
Most regulatory pathways for facilities entering the CCIR are outlined in these figures. Facilities that are in circumstances not covered should contact the director for further guidance.

Figure 1: New entrant regulatory pathway for 2018



* Forecasting deadlines only apply the year after a facility breaches 1MT.

Figure 2: New entrant regulatory pathway for 2019 and subsequent years



* Forecasting deadlines only apply the year after a facility breaches 1MT.

3.2. Submission Deadline

For a facility that is in its third or a subsequent year of commercial operation, the submission deadline for annual compliance reports is March 31 of the year following the year the emissions occurred. For quarterly submissions, refer to the submission schedule in Part 2, section 7.2. For guidance on other submission deadlines such as opt-in applications and assigned benchmark applications, refer to Figure 1 and Figure 2.

If a due date lies on a weekend or statutory holiday, facilities will have until the following business day at 4:30 pm Alberta time to submit their documents to the Department.

3.3. Compliance Report Content

The annual compliance report must include the following:

- Third party verified Compliance Reporting form
- Third party verification report, completed in accordance with the Standard for Validation, Verification and Audit
- Signed Conflict-of-Interest Checklist
- Signed Statement of Qualification form
- Signed Statement of Verification form
- Simplified process flow diagram
- Quantification Methodology Document (QMD)
- Signed Statement of Certification form signed by a certifying official who has the authority to bind the company
- Third party verified emissions reduction plan report with audited financial statements (if under cost containment designation)
- Signed Confidentiality request letter and supporting documentation (if requesting confidentiality).

3.4. Signatures

The Department will accept 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. Electronic signatures must be sufficiently legible to identify the person signing and must be consistent with the purpose of the document or record being signed.

3.5. 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 facility.

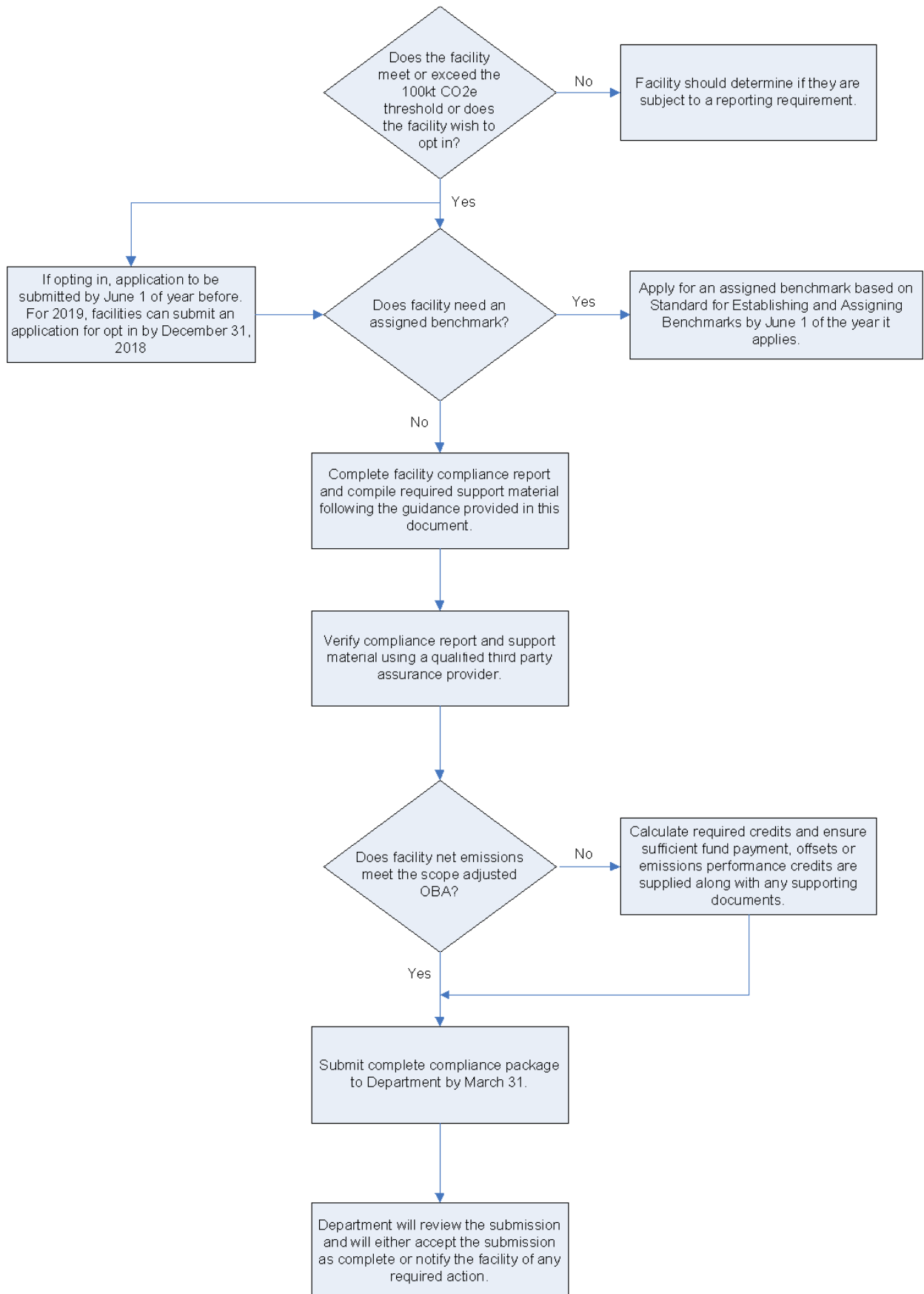
The Department will send an e-mail confirming receipt of each compliance report or interim compliance report to the facility reporter once the submission has been received. The Department will review each compliance report. In accordance with section 22(1) of the Regulation, the Department may request additional information or materials to support the review.

After the Department completes the review, the director will notify the 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 3.

Figure 3: Compliance report submission review and decision tree



3.6. Special Circumstances

3.6.1. Designation of Commercial Operation

The director may designate a facility's year of commercial operation under the following circumstances:

- i) A significant disruption during commissioning resulting in the facility having significantly lower production than anticipated for an extended period of time, or
- ii) A significant expansion or change.

3.6.2. Methodology Unavailability

Situations may occur where the calculation methodology is not available for use in compliance reports or deviates from the quantification requirements in Part 2, section 6.2. In such cases, facilities should contact the Department to request a deviation from the emissions estimation methodologies provided in the Quantification Methodologies for the Carbon Competitiveness Incentive Regulation and the Specified Gas Reporting Program guidance document.

3.6.3. Decommissioning

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

3.7. Compliance Report Errors

3.7.1. Detection and Correction of Errors

Errors detected in a facility's annual or interim compliance report after submission must be immediately 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.

When errors are identified, the Department will work with the affected facility to establish the most appropriate corrective action. It will determine whether or not 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 *Climate Change Emissions Management Act* or the Regulation has been contravened, it may conduct a formal investigation.

Refer to Table 1 for materiality threshold levels and to the Standard for Validation, Verification and Audit for detailed error calculation methods.

Table 1: Materiality threshold levels for compliance report submissions

Total Regulated Emissions	Materiality Threshold
< 500 kt CO ₂ e	5 per cent
≥ 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 significant effect on a facility's compliance reporting, retroactive reconciliation of the true-up obligation is required. Retroactive adjustment of true-up obligations may

be made up to a maximum of three annual compliance periods preceding the most recent submission deadline. For example, after March 31, 2021, adjustment of previous true-up obligations will only be considered for the 2020, 2019, and 2018 compliance periods.

Where retroactive correction of errors is not required, facilities may also propose voluntary 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 will not be made in situations where facilities update or move to improved calculation methodologies.

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

3.7.2. Compliance Adjustments

Reconciliation of past true-up obligations will typically be made through payment into the Climate Change and Emissions Management Fund at the fund price applicable to that compliance period.

In cases where adjustment of a facility's past true-up obligation results in over-compliance (i.e., the corrected net emissions, with previously submitted true-up, is less than the facility's output-based allocation), reconciliation will occur as follows:

If the facility purchased fund credits for the original true-up, 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 compliance period.

If emission offsets or EPCs were submitted for true-up, and an error correction was made during the facility's compliance review, the Department will only confirm retirement of the total tonnes of credits required to achieve compliance. Additional credits will remain active on the registry under that facility's name and will be available for use in future compliance periods.

If emission offsets 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.

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.

For forecasting facilities that have over-complied for reporting period four if the facility submitted emission offsets or EPCs for true-up, the amount of fund credits will be refunded and credits carried forward at the same fund/credit ratio as used in the annual compliance report. If the facility prefers to receive a refund only they may request this along with their reporting period four compliance report submission.

4. CCIR Compliance Requirements

Each facility is required to submit a compliance report to the Department demonstrating that their true-up obligation is met for the year corresponding to reporting period four. At the end of period four, the person responsible for a facility must ensure the net emissions do not exceed the OBA for the facility, as required in section 7 of the CCIR. For a facility that exceeds 1 Mt of TRE, the facility must submit an annual forecasting report as well as interim reports for periods one, two and three demonstrating that the true-up obligation is met.

4.1. Net Emissions and True-Up Obligation

The net emissions (NE) for a facility is calculated in accordance with section 7(1) of the CCIR as the facility's TRE minus the emission offsets, emission performance credits, and fund credits that are used by the facility to meet their true-up obligation. The facility is required to compare its TRE with its OBA to determine the quantity of EOs, EPCs, and FCs required to meet its true-up obligation. The facility can earn EPCs if its TRE is less than the facility's OBA.

4.2. Total Regulated Emissions

The TRE is calculated in accordance with section 7(2) of the CCIR. The TRE is the sum of the direct emissions for the facility, the CO₂ exported from the facility and the CO₂ used by the facility as feedstock for the production of urea in the reporting period, less the amount of CO_{2e} released from the combustion of clear fuel, and less the CO₂ imported on site from another regulated facility in the reporting period.

The direct emissions do not include the CO₂ from biomass combustion or decomposition. 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.

4.3. Output-Based Allocation

The facility's OBA for 2018 and 2019 is calculated in accordance with section 5(1) of the CCIR, which is the sum of: the facility's products multiplied by the corresponding established or assigned benchmarks; the scope adjustment for imported quantities such as electricity, heat, and hydrogen; and the transition allocation benchmarks for products of the facility. In 2020 and subsequent years the OBA is calculated in accordance with section 5 of the CCIR, and does not include transition allocation benchmarks. If a facility receives a cost containment designation, the above calculation may include a cost containment allocation benchmark in years the facility is designated until 2022, provided the facility meets the criteria in section 34.6(3) of the Regulation and has been assigned a cost containment allocation benchmark.

4.3.1. Established Benchmarks

Established benchmarks are provided in Schedule 2 of the CCIR. A facility is required to use these benchmarks to calculate their OBA if the facility produces a product that is set out in the Schedule. More information on the development of established benchmarks is available in the Standard for Establishing and Assigning Benchmarks.

4.3.2. Assigned Benchmarks

Where an established benchmark is not available for a product that is produced by a facility and the director has not assigned a benchmark for the product, the person responsible for the facility entering the CCIR may apply for an assigned benchmark. Section 9 of the CCIR provides the requirements for assigned benchmark applications and The Standard for Establishing and Assigning Benchmarks provides further information on the application procedures and requirements.

A facility may produce more than one product and therefore, the facility may use both established and assigned benchmarks to calculate its OBA.

4.3.3. Imported Quantities

A facility is required to calculate the scope adjustment associated with the facility's imports. Imported electricity, heat, and hydrogen are scaled by the associated established benchmarks and are subtracted from the allocations from the products.

4.3.4. Regulation Phase-in/Transition Allocation Benchmarks

Facility true-up obligations under the CCIR will be phased-in over three years for all sectors except electricity and industrial heat. Transition allocation benchmarks are facility and product specific; the director will assign transition allocation benchmarks to facilities. Refer to the Standard for Establishing and Assigning Benchmarks for the method of calculating transition allocation benchmarks.

4.3.5. Cost Containment Allocation Benchmarks

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 Climate Change and Emissions Management Fund or the carbon levy is not sufficient to alleviate economic hardship. Refer to the Standard for Establishing and Assigning Benchmarks for the method of calculating economic hardship and cost containment allocation benchmarks.

4.3.6. Alberta Gas Processing Index

Benchmark values for the natural gas processing sector have been developed using a modular approach for compliance reporting under CCIR. The methodology for quantification of the Alberta Gas Processing Index will be described in this Standard and Quantification Methodologies for the Carbon Competitiveness Incentive Regulation and the Specified Gas Reporting Program (Quantification Methodologies). The person responsible for the facility must ensure they are using the most up to date version of the Quantification Methodologies.

5. Compliance Options

5.1. 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. Facilities that reduce their TRE below their OBA are eligible to generate EPCs. More information about EPCs is provided in Part 2, section 5.2.

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.

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 improving emissions intensity. Note that quantification methods 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 on-site coal combustion with natural gas combustion could reduce emissions intensity.

5.2. EPCs

EPCs may be requested for each tonne of CO₂e that the TRE is less than the OBA for the compliance year.

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

5.2.1. Generating EPCs

EPCs result from TRE levels below the OBA for the facility.

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 requests, and may reject a request, in part or whole, if it is determined the compliance report fails to meet the requirements of the Regulation. EPCs may also be revoked at any time if it is later determined that they do not meet these requirements.

5.2.2. EPC Serialization and Tracking

The Department approves, serializes and tracks EPCs using the following process:

- (1) Eligible 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 Department creates and assigns serial numbers to approved EPCs on the EPC registry (http://www.csaregistries.ca/albertacarbonregistries/epc_user.cfm). It provides notification of serial numbers to facilities.
- (5) Credit transactions occur as bilateral agreements between buyers and sellers and are tracked on the registry. All documentation associated with the transaction of credits should be kept available.
- (6) Facilities wishing to submit EPCs as a compliance mechanism must transfer the credits to the facility using them. They must also place the units in pending retirement on the registry for that facility and should include the serial numbers in their compliance form.
- (7) The Department retires the submitted EPCs after it reviews the submitting facility's compliance report.

The Department has developed a registry for serialization and tracking of EPCs, using a similar platform to the current offset registry.

In order to recover the cost of providing the registry, fees are associated with certain transactions. Registry processing fees and schedule approved by Environment and Parks are posted on the registry.

The Department issues EPCs to the 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 serialized, to transfer the ownership of credits to appropriate parties.

5.2.3. Submitting EPCs for Compliance

EPCs can only be used once for compliance purposes and must be serialized before use. All serialized EPCs remain valid until they are submitted for compliance, are voluntarily retired, expire, or are revoked by the Department.

Please consult the Regulation for details on credit expiry. Once a credit has expired it may not be used for compliance purposes in Alberta.

Ownership and use of EPCs must be negotiated through contractual agreements between the parties involved. EPCs must be owned by one of the companies with controlling interest of, and must be transferred to, the facility submitting them for compliance.

5.3. Emission Offsets

Emission offsets are generated through reductions, sequestrations, or capture of specified gases resulting from activities not covered by the Regulation or otherwise required by law. The aim of the Alberta Emission Offset System is to encourage voluntary emissions reductions that would not otherwise have occurred. Emission offsets cannot be generated from reductions, sequestrations or capture that occur at regulated facilities as part of their calculation of total regulated emissions.

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

5.3.1. Submitting Emission Offsets for Compliance

Companies submitting emission offsets for compliance with the Regulation must request retirement for the serial ranges that are submitted. The registry will confirm the initiation of retirement via a letter to the company. The emission offsets submitted for compliance must be listed as pending retirement on the offset registry as of the compliance deadline. The Department will confirm final retirement of the emission offsets as part of the facility's compliance review.

The Alberta Emissions Offset Registry processes all requests for retirement in the order that they are received. Project developers and regulated facilities are encouraged to submit all project documentation, including requests for retirement, to allow sufficient time to process the request. Alberta Emissions Offset Registry processing times are generally 10 business days; however, project developers can expect longer processing times during busy periods or if the Alberta Emissions Offset Registry receives incomplete information. The Department recommends transactions that are required prior to March 31st be submitted by March 1st of each year. Emission offsets that have not been serialized or have not been initiated for 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. If errors have been identified with an emission offset project and an error correction is applicable to a facility, the government will notify the facility in writing.

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 Climate Change and Emissions Management 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. Credit Usage and Expiry

An emission trading system was implemented under the SGER. The current Regulation is similar but adds a limit to the use of credits (emission offsets and EPCs) for compliance purpose, and adds expiry periods on credit vintages. Refer to the Regulation for usage limit and expiry of new and old credits.

Expiry of credits ensures their timely flow through the regulatory program from creation through use improving the ability to access appropriate supporting records at time of use.

5.5. Fund Credits

Fund credits are obtained by contributing money to the Climate Change and Emissions Management Fund administered by the Government of Alberta, Finance and Administration Branch, Alberta Environment and Parks. A fund credit purchase form supplied as part of the 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.

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; and
- (3) 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 Parks
6th floor, South Petroleum Plaza
9915 108 Street NW
Edmonton, Alberta
T5K 2G8

Or, submit payment by electronic fund transfer using the following details, and provide the fund credit purchase form at least three business days in advance of the electronic funds transfer.

Account Name	Climate Change and Emissions Management
Bank Name	CIBC
Bank Address	10102 Jasper Avenue Edmonton
Institution Number	0010
Transit Number	00059
Account Number	92-74219
Ministry/Department	Alberta Environment and Parks, Finance and Administration Branch
Department Contact	Sandra Moore
E-mail	AEP.revenue@gov.ab.ca
Phone Number	780-427-9110

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 sent to the facility as a purchase receipt within 10 working days. A copy of the purchase receipt will be forwarded to the Regulatory and Compliance Branch and added to the facility's compliance report.

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. One completed purchase form for the entire purchase must be included with the payment. This form must allocate all purchased fund credits to the facilities submitting them for compliance. The submitted fund credit purchase form will be stamped with a fund credit receipt number and will function as a purchase receipt for all facilities included in the payment.

6. Estimation and Reporting of Production and Emissions

6.1. Production

A facility's OBAs for a reporting period is determined by calculating the sum of the allocations from individual products less emissions associated with imported indirect products including imported heat, electricity, and hydrogen. Schedule 2 of the CCIR provides the product definitions and corresponding established benchmarks used to establish the facility OBA. If a product does not have an established benchmark, the director may assign a benchmark or the facility may apply for its assignment.

Electricity generated by a 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 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 the Carbon Competitiveness Incentive Regulation 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 of the vintage year being reported associated with claimed production and which are available to the facility must be transferred to a retirement sub-account named “Alberta CCIR EPC” prior to submitting your annual compliance report (reporting period four) for verification. Renewable electricity certificates which have not yet been issued at time of compliance reporting but are associated with claimed production should be transferred to a retirement sub-account named “Alberta CCIR EPC” as soon as they are made available. 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 here:

<https://www.wecc.biz/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. For 2018 certificates should be generated for the latter portion of the year after the facility has opted in if it was not previously registered at the start of 2018.

The scope adjustment for hydrogen import does not apply to facilities whose production is expressed in complexity-weighted barrels (CWB). Production of hydrogen at CWB facilities will be subject to calculations for CWB as outlined in the Standard for Establishing and Assigning Benchmarks. The hydrogen product benchmark as provided in Schedule 2 of the CCIR is for facilities other than CWB facilities that produce and/or import hydrogen.

Industrial heat is defined in the Regulation and includes heat exported to an emissions offset project, a regulated or carbon levy exempted 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 the CCIR provides the benchmark for imported heat and industrial heat that is exported. Waste heat sent to an offset project does not need to be reported as industrial heat production. If a facility reports industrial heat exported to an offset project, the offset project must report the associated emissions in its project condition for that year.

Facilities that import heat, hydrogen or electricity directly from another facility should make sure that the reported quantities are matched between the importer and the exporter.

For ammonia produced by a fertilizer plant, the product is the gross production from the ammonia plant. The production includes all ammonia produced, whether it is sold as ammonia or used as feedstock in downstream urea plants.

6.2. Quantification Methodology

A facility is required to apply the mandatory quantification methodologies that are applicable to their facility to quantify their emissions, production and other reported values in their compliance reports and/or applications submitted under the Regulation. The Quantification Methodologies for the Carbon Competitiveness Incentive Regulation and the Specified Gas Reporting Regulation (Quantification Methodologies), which is a separate document from this standard, provides the methodologies for various emission sources and process operations. As this document is used by facilities reporting under the Specified Gas Reporting Regulation (SGRR) and the CCIR, it is necessary to provide direction on which methodologies are acceptable to be used for each of the respective regulations. To achieve this objective, the methodologies prescribed in the Quantification Methodologies are tiered according to the accuracy and complexity level of the method. Lower tiered methodologies such as tier 1 are generally acceptable for use under SGRR; while higher tiered methodologies such as tiers 2 and 3 are required for reporters under CCIR. In some cases, there may only be one method prescribed for an emission or process source type, as such this methodology may be acceptable for use under any tier classification. For unique emissions and process scenarios, further guidance is provided in the Quantification Methodologies on the appropriate methodologies to be used.

Under CCIR, a facility is required to use a methodology that meets the minimum tier classification prescribed for each emissions or process source and specified gas in Table 2. The facility may choose to use a methodology with a higher tier classification. Once the facility determines which tier is applicable, the facility is then required to apply the methodologies at the required tier level as outlined in the Quantification Methodologies. For example, if a facility generates stationary fuel combustion emissions, based on Table 2

the facility would be required to use a methodology that is classified as tier 3 (at minimum) for carbon dioxide, and tier 2 (at minimum) for methane and nitrous oxide for stationary fuel combustion.

Part 1 of this standard prescribes the dates in which certain chapters of the Quantification Methodologies become mandatory for facilities reporting under the CCIR. If a methodology for a particular emissions or process source is not included in a mandatory chapter, the facility may use a site-specific method. All methods, whether site-specific or based on mandatory requirements, must be documented in the facility's Quantification Methodologies Document (QMD) and are subject to review by the Department. It is also expected that third-party assurance providers review the quantification methodologies used by the facility to ensure that the required methodologies are followed and site-specific methods are reasonable for the facility's operations. The requirements of the QMD are outlined in section 6.2.2.

For other reported values including production, imported and exported electricity, industrial heat, and hydrogen, imported and exported CO₂, and CO₂ consumed in an urea process, there are no tiers assigned to methods; however, facilities must use the prescribed methods as outlined in the Quantification Methodologies.

6.2.1. Deviation Request

For facilities that are unable to meet mandatory quantification methodology requirements, the facility may submit to the director a request to deviate from a specific requirement. Using the prescribed Deviation Request Form, available on the CCIR 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 and the target timeline to address the deviated requirement;
- A proposal for an alternative quantification methodology(ies) until the deviation is addressed. The proposed alternative method must represent a conservative approach in comparison with the required method; 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 deviations requests; however, the department encourages facilities to submit a request as soon as possible if deviations are identified in order for the facility to maintain compliance with the Regulation.

Table 2: Tier assignment for regulated facilities

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

(-) Not applicable.

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.

²Releases of specified gases from facility operations and processes that are not covered in the categories provided such as refrigerant and chemical usage.

6.2.2. Quantification Methodology Document

Facilities are required to use the following outline for the quantification methodology document. Additional sections may be included at the end of the document.

- **Facility overview:**
 - Facility name, as it appears in section A1 of the compliance report.
 - Established or assigned benchmarks applicable for the facility, including date of approval for assigned benchmarks (if applicable).
 - Facility boundary description – include the EPEA approval number, Alberta Energy Regulator (formerly Energy Utility Board or Energy Resource Conservation Board) number, a description of which operations are included in the compliance report, justification for all excluded operations, and a description of any changes to the facility boundary from previous year.
 - Description of site processes and a complete list of emission sources. The description may refer to the process flow diagram described below.
 - Changes in operations that effect quantification – describe any changes that affect the quantification of reported emissions, production, imports of electricity, heat and hydrogen by 10 per cent or more. These changes must also be reported in the compliance report.
- **Simplified process flow diagram(s)** that provides an overview of the facility operations, shows the major material flows, products, major process elements, major energy and fuel flows, emission sources labelled by source category as well as identifying important measurement points feeding into the quantification including measurement of fuel consumption and composition.
- **Emission source categories** – For each fuel/energy source, provide:
 - A list of equipment units for major GHG emissions sources using that fuel, including the unit name and number that is used in the data management system.
 - An explanation of how the fuel/energy is received on site, where it is used and how the final use is determined (i.e., directly measured, allocated, invoiced, etc.). Provide supporting information such as:
 - A simplified fuel flow diagram showing applicable key meters, gauges, product analyzers, sampling points, and fuel/production receipt and disposition points. This diagram is useful to facilities, third party assurance providers, and the Department, and facilities are encouraged to develop and include it.
 - The sampling procedure and frequency when fuel analysis is used for the quantification of fuel use emissions.
 - The emission calculation equations used, including a listing of activity data, emissions factors including an example calculation and a list of the approved reference sources for the calculation and factors, and reference to the Quantification Methodologies.
 - Any assumptions used during the calculation (e.g., combustion efficiency, control efficiency, thermal efficiency, etc.), including an explanation, and any deviation from the Quantification Methodologies. Deviations must be approved by the director.
- **Meter calibration procedure and schedule** – list key measurement device(s), provide documentation showing maximum uncertainty of key measurement devices. For each measurement device used for compliance reporting purposes, describe the operating procedures for:
 - Calibration and Proving – outline the frequency and method of calibration, checking, or proving, and the last time calibrated. Calibration should be at a frequency equal to or greater than suggested by the meter manufacturer.

- Gauging – outline the method of gauging tanks/storage ponds/vessels and the frequency of calibrating applicable gauging devices, if applicable.
- Trucking – outline the method(s) of measuring, sampling, and recording production moved by truck to or from the sites associated with the facility, if applicable.
- **For non-combustion emissions categories describe the emission calculation equations used**, including a listing of activity data, frequency of any measurements, method of averaging or annual roll up, emissions factors including an example calculation and a list of the approved reference sources for the calculation and factors, and reference to the Quantification Methodologies:
 - For industrial process emissions sources, provide a diagram showing where the inputs, outputs, recycle and measurement points including those of the hydrogen production process.
- **Explain averaging method** where multiple raw data sources are rolled up prior to quantification of emissions. Weighted averages should be used based on the finest grained data available. Highlight and explain any exceptions.
- **Data management system** – include a brief explanation of how raw data moves through the system, into the compliance report, and what controls are used. Additionally, provide a brief description of how each fuel/energy source (purchased or produced) is tracked, reconciled and allocated to the final emission source and rolled up to the source category (e.g., onsite transportation, stationary fuel combustion, etc.) and if these volumes are reconciled back or checked against the invoice and production meters. Facilities are encouraged to use a data flow diagram to display the logic of the data sources and how data flows from raw sources through calculation logic and quality assurance systems:
 - Include important meter tag identification numbers, with a brief description on where they are used.
 - Virtual tag expressions (list the formulas that are embedded within the Information Management System for automated calculations) are optional in the quantification methodology document, but will likely be required by the third party assurance provider.
 - A description of data and information controls used by the organization, as well as quality assurance and quality control activities used in the preparation of the compliance report is recommended to assist third party assurance providers.
- **Production** – list the facility’s individual products and explain how they are quantified in reference to the Quantification Methodologies, including any deviations to be approved by the director. Also, include any production accounting performed to account for changes in inventory.
- **Negligible emission sources** – are sources that represent less than 1% of a facility’s total regulated emissions (TRE) or output-based allocation (OBA) CO₂ equivalent emissions (CO₂e) and are not to exceed 5,000 tonnes of CO₂e for a facility regulated under CCIR. Include the calculation used to estimate the magnitude of each negligible emission source. Report all negligible emissions as they count towards the Total Regulated Emissions. Alternative methods may be used to quantify and assess the negligibility of these emissions.
- **Conversions Page** – show any calculations or conversions used that are not listed in the Quantification Methodologies.
- **Other** – any further information that assists in explaining the GHG, production, energy imports calculations for the facility (e.g., a list of facility specific acronyms).
- **Sample Calculation Workbook** – facilities that use their data management system to conduct the GHG emission calculations could prepare a sample calculation workbook (for 1 month or more) to improve transparency of the calculation logic of the database and efficiency of the verification. It could show the formulas and the emission factors used for each fuel type. The compositional data and activity data for the one month would be updated annually. This gives a verifier a transparent view on the key equations and how the calculations work.

6.3. Fuels Consumed

Reporting of fossil fuels consumption is required to support estimates of emissions and feedstock quantities. Classification of types of fuel should distinguish between fuel and feedstock. The fuel and feedstock values reported as part of the compliance submission will be subject to the same verification review as the rest of the submission. Refer to the Quantification Methodologies for the Carbon Competitiveness Incentive Regulation and the Specified Gas Reporting Program guidance document for estimation of fuel quantities and metering requirement. Fuels to be reported are those that contribute to emission reported on site and/or are used as feedstock in production.

Emissions from levied fuels, such as clear diesel, must be reported and will be excluded from the calculation of TRE. As levies are applied to these fuels, the same fuels should not be subject to further compliance obligation.

6.4. CO₂ Entrained in Acid Gas Streams

Carbon dioxide sent off site that is contained in an acid gas stream and permanently disposed of in a Class III well, is not counted as an emission, or included in the ECO₂ term. However, carbon dioxide 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 gas processing facility. Similarly, projects that receive CO₂ contained in an acid gas stream disposed of in a Class III well cannot include that CO₂ in the ICO₂ term.

Releases of formation CO₂ at a facility shall be reported as formation CO₂ regardless of the emission point from which it is released. Any formation CO₂ removed from raw gas and disposed of, as an acid gas stream, to an underground formation shall be excluded from reporting as Exported CO₂, Imported CO₂, and the Formation CO₂ source category.

6.5. Emissions Reduction Plan Report

The person responsible for a facility that must submit an annual emissions reduction plan report per section 34.4(1) of the Regulation must include each of the following in the emissions reduction plan report:

- The contact information for the person responsible.
- The contact information for the facility.
- The location of the facility.
- A completed Baseline Obligation Form;
- In the financial statements for the facility required under section 34.2(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 under the baseline cost scenario represented by the Baseline Obligation form; and
 - Calculated royalties under the CCIR if no cost containment benefits had been realized.
- Δ tax for the actual compliance obligation and under the CCIR if no cost containment benefits had been realized, calculated in accordance with the Standard for Establishing and Assigning 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 34.2(1) of the Regulation.
- Evaluation of the economic hardship tests considering actual incremental compliance costs [note: tests should not fail]
 - Tests are applied as outlined in the Standard for Establishing and Assigning Benchmarks.
- Evaluation of the economic hardship tests of CCIR (with no relief mechanism) [note: tests should fail]
 - Tests are applied as outlined in the Standard for Establishing and Assigning 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, that may alleviate the cost of compliance under the Carbon Competitiveness Incentive Regulation in respect of the facility.
- Information on the timeframe for facility permanent closure, temporary closure, or intentional operation at reduced capacity, where applicable.
- Where the person responsible is requesting confidentiality for any of the information included in the report, a completed Confidentiality Request and supporting documentation according to section 8 of this standard, and
- Any other information required by the director.

An emissions reduction plan report may include an updated emissions reduction plan that meets the requirements of section 34.2(2)(c) of the Regulation.

In preparing the emissions reduction plan report under section 34.4(1) of the Regulation, the person responsible for a facility must:

- Comply with the requirement that the Statement of Certification required in Part 1 section 5(1)(d) of this standard must only be signed by a certifying official with signing authority on behalf of the facility,
- Hire a third party assurance provider to
 - Validate an updated emissions reduction plan, if submitted, and
 - Verify the emissions reduction plan report per section 34.4(2)(d) of the Regulation,
 in accordance with the Standard for Validation, Verification and Audit, and
- Hire an auditor to perform the audit referred to in section 34.4(2)(d) of the Regulation. The auditor shall comply with the rules and other requirements set out in Part 1 of the Standard for Validation, Verification, and Audit.

7. Interim Compliance Reporting and Annual Forecasting

7.1. Introduction

For facilities whose total regulated emissions meet or exceed one million tonnes of CO₂e, the Carbon Competitiveness Incentive Regulation (CCIR) requires quarterly reporting and true-up, with a new requirement for annual forecasting of emissions, production, true-up obligation and credit usage. Quarterly 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 for budgeting purposes. Additionally, interim reporting allows rolling estimations to be revised each quarter so that the best available information is communicated to government as early as possible.

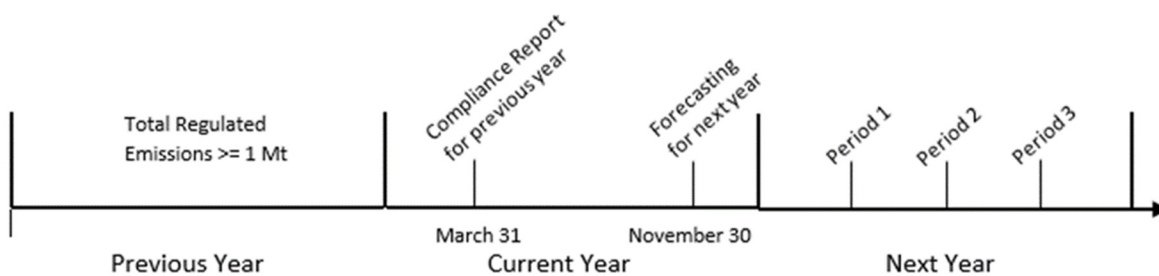
7.2. Reporting and Forecasting requirements

Facilities whose last reported full year total regulated emissions were at or above 1 Mt CO₂e must submit, by November 30, a forecast estimate of their coming year emissions, production and true-up obligation by reporting period as well as the proportion of any true-up obligation they intend to satisfy through fund credits for the year. The forecast and reporting timeline is illustrated in Figure 4.

The forecast can be revised at each quarter for the remainder of the year. Interim compliance reporting is also required quarterly covering each defined reporting period, as shown in Table 3. Interim compliance reports calculate the year to date true-up obligation and output-based allocations. Where year to date net emissions, which includes past payment or credit retirement, exceed output-based allocations additional credits are required to be submitted. The share of compliance met through fund credits for each reporting period must match what was indicated in the most recent forecast for the period. The final, verified compliance report is still required by March 31 of the following year with any remaining true-up for the compliance owed for the full year period. Annual verified compliance reports for forecasting facilities must include finalized emissions and production for all reporting periods. Interim compliance reporting must reflect year to date quantities and are expected to reasonably match the reporting period quantities provided in the verified annual compliance report.

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 2017 is required to submit forecasting by November 30, 2018 for the 2019 forecasting year and quarterly reports in 2019. An annual compliance report is due March 31, 2020.

Figure 4: Forecasting timeline



There may be circumstances where an assigned benchmark changes or its assignment occurs between the interim reporting intervals. Facilities must use the best available information at the time to submit the interim report, and reconciliation with the new benchmark can occur in the next interim compliance report.

Facilities that have difficulties obtaining complete data for the reporting period due to factors outside their control can indicate the impacted data in their interim compliance reporting. Reconciliation can occur in the next interim compliance report.

Facilities must enter the transition allocation benchmark and the calculated cost containment allocation benchmark in the interim compliance reporting form.

For quantities measured annually such as fugitive emissions, it may be acceptable to divide the prior year’s annual emissions amongst the four quarters, or other methods with justification provided.

Table 3: Interim reporting schedule

Submission	Determined By	Due Date
Annual Emissions and Production forecast (for following year)	Best estimation, certified	November 30 th of prior year
Period 1 Report and Compliance True-up	Compliance with actuals from January 1 to March 31	May 15 of the current year
Period 2 Report and Compliance True-up	Compliance with actuals from January 1 to June 30	August 15 of the current year
Period 3 Report and Compliance True-up	Compliance with actuals from January 1 to September 30	November 15 of the current year
Annual Final Verified Compliance Report and Compliance True-up	Compliance with verified year end results by period	March 31 of the following year

7.2.1. Signatures

The Department will accept 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. Electronic signatures must be sufficiently legible to identify the person signing and must be consistent with the purpose of the document or record being signed.

7.2.2. Submission Process

Interim compliance reports and forecasting report 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 and Verification 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 quarterly reports. On the other hand, planned facility improvements that will result in reduction in emission intensities should be reasonably anticipated in the forecast. At any quarterly reporting deadline, the facility may update the forecast for the remainder of the year.

An official of the reporting facility must certify forecasts.

7.3.2. Verification

Third party verification for the entire year, which comprises the interim reporting periods, is to be provided with the annual compliance report (due March 31st) for the prior year. The verification conducted for forecasting facilities includes the individual assertions for each reporting period.

Third party verification of quarterly reporting can also be required by the director through supplemental information request in situations such as an interim report that deviates significantly from the forecast. Third party verification of quarterly reporting could also be required in the subsequent year under these circumstances if the director deems it necessary.

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 specified gas compliance reports must be verified before they are submitted to the Department. 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 compliance report, including all reported emissions, production data and the facility's resulting output-based allocation, and other program criteria such as the emissions reduction plan report, and provide an opinion on whether the assertions of the compliance report are fairly presented at a reasonable level of assurance. The GHG assertion refers to the emissions, production, calculated output-based allocations (including scope adjustment), the true-up obligation as reported by the facility, and the emissions reduction plan report.

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 third party assurance provider may also be subject to penalty, as per the Regulation.

A third party verification report must include the following according to the Standard for Validation, Verification and Audit:

- (i) a Conflict-of-Interest checklist signed by the third party assurance provider;
- (ii) a Statement of Qualification form signed by the third party assurance provider; and
- (iii) a Statement of Verification form signed by the third party assurance provider;

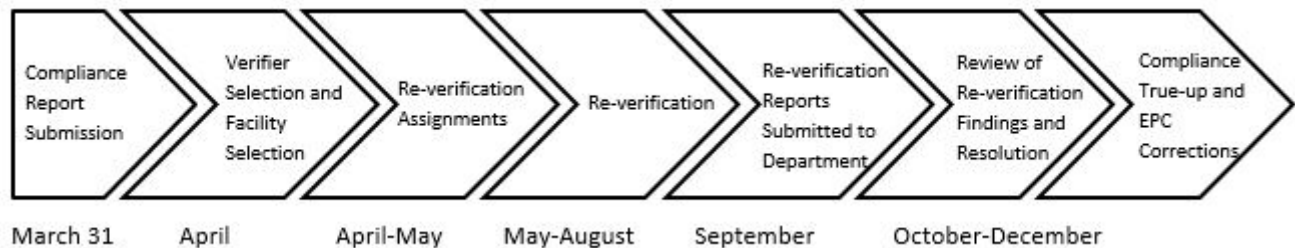
10. Government Re-verification

The Department re-verifies approximately 10 per cent of facility compliance reports annually to assess conformance with program criteria and to confirm the conclusions of the initial verification. 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 and should be treated as an agent of the government 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 5.

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

Figure 5: 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 3.7.

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 will 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. As an agent of the government, 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*.

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.

Activity data is a quantitative measure of operations on site that result in GHG emissions. For example, quantity of fuel consumed by specific equipment.

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.

Compliance assertion is the total regulated emissions, production quantities, import of heat, hydrogen and electricity and resulting true-up obligation.

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 compliance 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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