

Technology Innovation  
and Emissions Reduction  
Regulation

Standard for  
Completing  
Greenhouse Gas  
Compliance and  
Forecasting Reports

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Version 3.0

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Standard for Completing Greenhouse Gas Compliance and Forecasting Reports Version 3.0

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## Summary of Revisions

Version	Date	Summary of Revisions
1.0	December 2017	<ul style="list-style-type: none"> <li>• First version of this standard to accompany the Carbon Competitiveness Incentive Regulation</li> </ul>
1.1	May 2018	<ul style="list-style-type: none"> <li>• Part 1 site visit – third party verifier must only conduct a site visit after August 31 of the year being verified</li> <li>• Part 1 definition – industrial processes definition revised to include unavoidable combustion of carbon black and ethylene</li> <li>• Part 1 quantification methodology – first interim report in 2018 not subject to quantification methodology mandatory tier specification</li> <li>• Errata: Part 1 verification – changed ‘offset project developer’ to ‘person responsible’</li> <li>• Facilities that import a product from another facility should make sure that the quantities are matched between the importer and the exporter</li> <li>• Renewable electricity certificates must be transferred to retirement prior to submitting annual compliance report for verification</li> <li>• Table 2: Tier assignment for regulated facilities activity types revised to match those in the draft Quantification Methodologies for the CCIR and SGRR</li> <li>• Levied fuel should not be reported as emissions subject to compliance to avoid double pricing</li> <li>• Confidentiality for forecasting reports may be requested prior to submission</li> </ul>
2.0	May 2018	<ul style="list-style-type: none"> <li>• Part 1: emissions reduction plan report submission as part of annual compliance reporting for facilities with cost containment designation</li> <li>• Facilities are subject to compliance in the 3rd year of commercial operation; the director can designate year of commercial operation if appropriate</li> <li>• Output-based allocation can include cost containment allocation benchmarks if facility meets criteria</li> <li>• CO<sub>2</sub> sent off site that is contained in the acid gas stream is not counted as an emission</li> </ul>

2.1	December 2018	<ul style="list-style-type: none"> <li>• Updated in accordance with regulation amendments to address: <ul style="list-style-type: none"> <li>○ Clear fuel, acid gas injection</li> <li>○ Opt-in deadline for 2019 changed to December 31, 2018</li> </ul> </li> <li>• Mandatory quantification emissions categories</li> <li>• Added formation CO<sub>2</sub> definition and revised industrial process emissions definition</li> <li>• Updates to the regulation amendments which do not appear in this standard are: <ul style="list-style-type: none"> <li>○ Cost containment application deadline for 2018 and 2019 changed to December 31, 2018</li> <li>○ New benchmarks for hardwood, softwood, ethylene glycol, and high value chemicals</li> </ul> </li> <li>• QMD – Sample calculation workbook could be provided for transparency and verification efficiency, when a database is used to conduct the GHG emission calculations</li> </ul>
2.2	January 2019	<ul style="list-style-type: none"> <li>• Minor typographical edits</li> </ul>
2.3	March 2019	<ul style="list-style-type: none"> <li>• Quantification requirements of certain emission categories are optional for reporting periods one and two of 2019 for forecasting facilities</li> <li>• Reminder: report all negligible emissions as they count towards the Total Regulated Emissions</li> <li>• Minor typographical edits</li> </ul>
2.4	November 2019	<ul style="list-style-type: none"> <li>• Mandatory quantification requirements for flaring and fugitives emission categories are removed for reporting in 2019</li> </ul>
3.0	July 2020	<ul style="list-style-type: none"> <li>• First version of this standard to accompany the Technology Innovation and Emissions Reduction Regulation</li> </ul>

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## Alberta Climate Change Office Related Publications

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



# Introduction

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

Part 1 of the Standard is enforceable as law.

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

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

## Part 1 – Regulatory Details

### Division 1

### Interpretation and Application

#### Definitions

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

## **In the event of a conflict**

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

## **Compliance report**

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

## **Compliance report supporting documents**

- 4 In a compliance report submitted under section 15 of the Regulation, the person responsible for a regulated facility must include at least each of the following:
  - (a) a third party verified Compliance Reporting Form;
  - (b) a third party verification report, completed in accordance with the Standard for Validation, Verification and Audit, as amended or replaced from time to time;
  - (c) a Statement of Certification signed by the person responsible;
  - (d) a Quantification Methodology Document as set out in section 6.2.3 of part 2 of this standard if the regulated facility is a large emitter or opted-in facility; and
  - (e) in the case of a large emitter or opted-in facility in respect of which a compliance cost containment designation has been issued, a completed Compliance Cost Containment First Year Reporting Form published by the department, as amended from time to time, for the first year in which the compliance cost containment designation is in effect.

## **Quantification requirements for compliance report**

- 5 (1) Subject to subsection (6), in completing a compliance report for 2020 or later, the person responsible for a large emitter or opted-in facility must use the applicable quantification methodologies set out in the Alberta Greenhouse Gas Quantification Methodologies for each of the following emissions sources or parameters:
  - (a) imports;
  - (b) industrial process emissions;
  - (c) production;
  - (d) stationary fuel combustion;
  - (e) carbon dioxide from combustion of biomass;

- (f) venting; and
  - (g) on-site transportation.
- (2) Subject to subsection (6), in completing a compliance report for 2020 or later, the person responsible for an aggregate facility must use the applicable quantification methodologies set out in the Alberta Greenhouse Gas Quantification Methodologies for stationary fuel combustion emissions.
  - (3) In determining the applicable quantification methodologies for an emission sources listed in (1)(b), (d), (e), (f), (g), and (h), the person responsible for a large emitter or opted-in facility must use the applicable quantification methodology level for that emissions source set out in Table 4 of Part 2 of this standard.
  - (4) In determining the applicable quantification methodologies for stationary fuel combustion emissions, the person responsible for an aggregate facility must use the applicable quantification methodology level for that emission source set out in Table 5 of Part 2 of this standard.
  - (5) The person responsible for a regulated facility may, prior to submitting a compliance report under section 15 of the Regulation, apply in writing to the director for permission to deviate from one or more applicable quantification methodologies set out in the Alberta Greenhouse Gas Quantification Methodologies for the regulated facility.
  - (6) The director may grant or refuse to grant a permission requested under subsection (5).
  - (7) Where the director grants permission to deviate from one or more applicable quantification methodologies under subsection (6), the director may impose on the person responsible any terms and conditions that the director considers appropriate with respect to the permission.
  - (8) The person responsible for a regulated facility shall comply with any terms and conditions imposed under subsection (7).

### Annual forecasting report

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

### Emissions reduction plan report

- 7 In an emissions reduction plan report submitted under section 17 of the Regulation, the person responsible for a large emitter or opted-in facility must include a completed emissions reduction plan report form, as published by the Department.
- 
- 8 For the purposes of section 1(3) of the Regulation, a specified gas listed in Table A has the respective global warming potential listed in Table A.

**Table A: Global Warming Potential for Specified Gases**

Specified Gas	Chemical Formula	Global Warming Potentials
Carbon dioxide	CO <sub>2</sub>	1
Methane	CH <sub>4</sub>	25
Nitrous oxide	N <sub>2</sub> O	298
Sulphur hexafluoride	SF <sub>6</sub>	22800
HFC-23	CHF <sub>3</sub>	14800

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

Perfluorodecalin	C <sub>10</sub> F <sub>18</sub>	7500
Nitrogen Trifluoride	NF <sub>3</sub>	17200

### Effective date

9 This standard is effective January 1, 2020.

# Part 2 – Compliance Reporting and Forecasting Requirements for Persons Responsible

## 1. Purpose of this Document

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

## 2. Overview of the Regulatory Program

The TIER Regulation replaces the Carbon Competitiveness Incentive Regulation for the year starting on January 1, 2020.

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

### 2.1. Thresholds

The threshold for determining if a facility is automatically subject to the Regulation has been set at 100,000 tonnes of CO<sub>2e</sub> per year of direct emissions. Facilities that exceed this threshold in any single calendar year on or after 2016 are large emitter facilities under the TIER the year after meeting or exceeding 100,000 tonnes CO<sub>2e</sub>.

Facilities that do not exceed the 100,000 tonnes of CO<sub>2e</sub> per year of direct emissions can apply to opt into the Regulation.

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

### 2.2. Compliance Options

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

Facilities with total regulated emissions below their allowable emissions are eligible to receive EPCs, which can be banked for future use at the facility or traded/sold for use at other 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 meet or exceed one megatonne of annual total regulated emissions must also submit forecasting reports. Regulated facilities that undergo decommissioning or significant changes to operations such that they no longer fit the definition of a “facility”

prescribed in TIER may be removed from the Regulation upon receipt of written notice from the director. Decommissioning is discussed in more detail in Part 2, section 3.4.2.

### 3.1. New Entrant to the Regulation

All facilities that have direct emissions of 100,000 tonnes of CO<sub>2</sub>e or more in any given year after or including 2016 are automatically regulated under TIER as large emitters.

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

- i) By virtue of becoming an opted-in facility,
- ii) By virtue of becoming an aggregate facility,
- iii) By meeting or exceeding the direct emissions threshold of 100,000 tonnes CO<sub>2</sub>e per year as a large emitter.

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

**Table 1: Distinctions between large emitters, opted-in facilities, and aggregate facilities**

Item	Large Emitter	Opted-In Facility	Aggregate Facility
Entry	DE >= 100,000 tonnes CO <sub>2</sub> e	Accepted opt-in application	Designation after application
Applicability	Year after meeting or exceeding 100,000 tonnes CO <sub>2</sub> e, subject to year of commercial operation	Year first designated as an opt-in facility, subject to year of commercial operation	Year first designated
Conditions of Entry	None	- Meets EITE test, >=10,000 tonnes CO <sub>2</sub> e OR - Competes directly with regulated facility	- Two or more conventional oil and gas facilities with one person responsible - Cannot include large emitter or opted-in facility
Person Responsible	- On the last day of the year	- On the last day of the year	- Who applied then on the first day of the year
Emissions Coverage	- All emissions - Imported electricity, heat, hydrogen - Imported and exported CO <sub>2</sub> , CO <sub>2</sub> utilized as feedstock for urea production	- All emissions - Imported electricity, heat, hydrogen - Imported and exported CO <sub>2</sub> , CO <sub>2</sub> utilized as feedstock for urea production	- Stationary fuel combustion emissions - Exported CO <sub>2</sub> from stationary fuel combustion

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

**Table 2: Compliance obligations until 2023**

Year of Commercial Operation	Large Emitter	Opted-In Facility
1 <sup>st</sup> partial year - year facility first produces a product	not regulated*	
Year 1 - first full year after facility first produces a product		regulated, no compliance
Year 2 - second full year after facility first produces a product		
Year 3 and later	regulated, compliance required	

\*facility may apply to opt in

### 3.2. Signatures

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

### 3.3. Submission Process

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

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

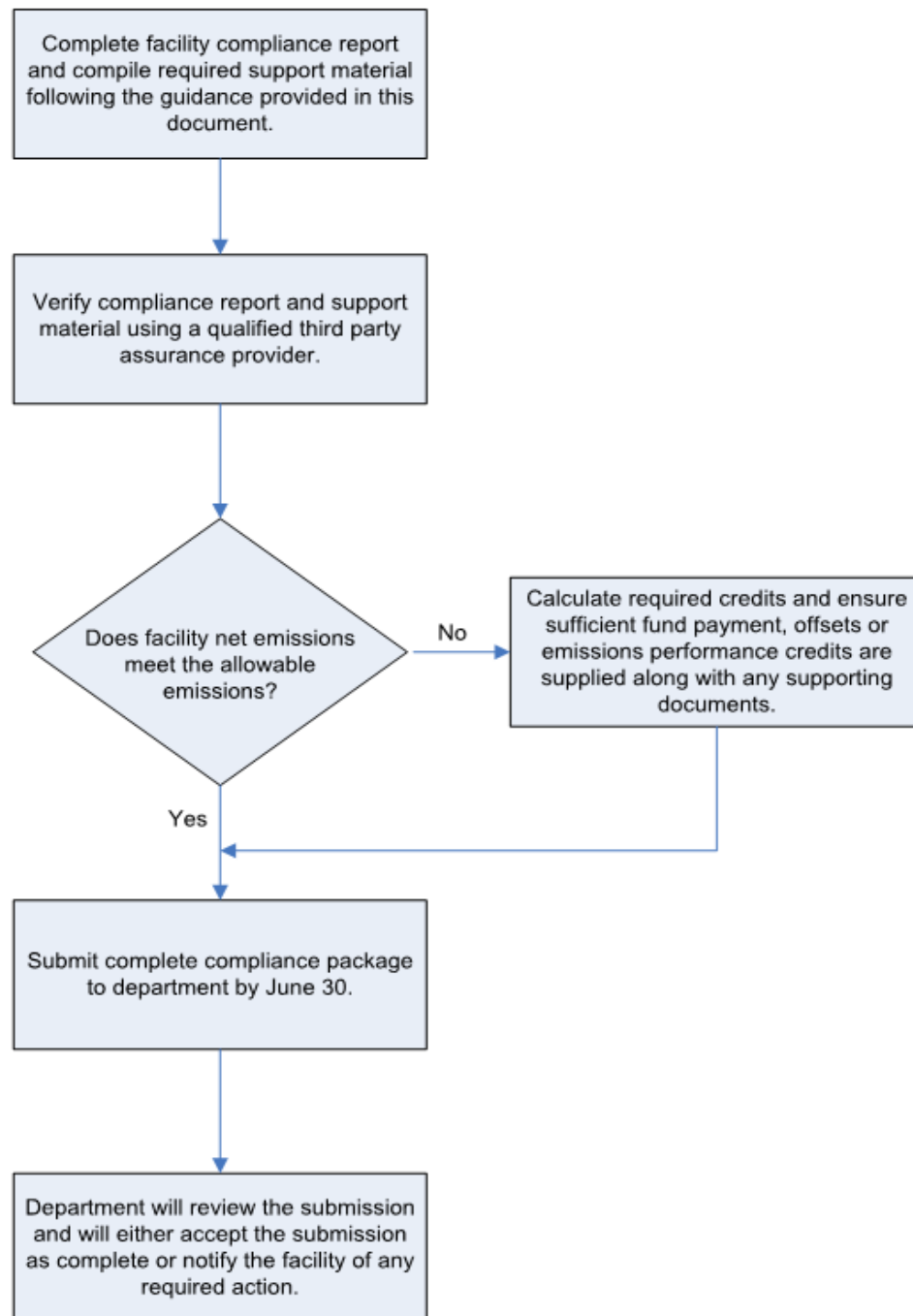
After the department completes the review, the director will notify the regulated facility in writing that either:

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

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



**Figure 1: Compliance report submission review and decision tree**



## 3.4. Special Circumstances

### 3.4.1. Methodology Unavailability

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

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

### 3.4.2. Decommissioning

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

## 3.5. Compliance Report Errors

### 3.5.1. Detection and Correction of Errors

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

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 *Emissions Management and Climate Resilience Act* or the Regulation has been contravened, it may conduct a formal investigation.

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

**Table 3: Materiality threshold levels for compliance report submissions**

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

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

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

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

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

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

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### 3.5.2. Compliance Adjustments

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

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

If the facility purchased fund credits, they will be refunded at the value that was originally paid, up to a maximum of the number of fund credits submitted for the facility. At the discretion of the Department, the overpayment may be carried forward to obtain fund credits in the next year.

If emission offsets or EPCs were submitted for true-up, and an error correction was made during the department's review, the department will only confirm retirement of the credits required to meet true-up obligation. Additional credits will be returned to an active state on the registry under that facility's name and will be available for use in future years.

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.

## 4. TIER Regulation Compliance Requirements

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

### 4.1. Net Emissions and True-Up Obligation

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

### 4.2. Total Regulated Emissions

The TRE is calculated in accordance with section 13 of the TIER. The TRE is the sum of the direct emissions for the large emitter and opted-in facility, the CO<sub>2</sub> exported from the facility and the CO<sub>2</sub> used by the regulated

facility as feedstock for the production of urea in the year less the CO<sub>2</sub> imported on site from another regulated facility in the year.

The direct emissions do not include the CO<sub>2</sub> from biomass combustion, fermentation, or decomposition. The imported and exported quantities of CO<sub>2</sub> do not include any carbon dioxide removed from raw gas and disposed of, as an acid gas stream, to an underground formation through a Class III well.

For the aggregate facility, the TRE is the sum of the stationary fuel combustion and the exported CO<sub>2</sub> from stationary fuel combustion, in accordance with section 13 of the Regulation.

### **4.3. Allowable Emissions**

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

#### **4.3.1.High-Performance Benchmarks**

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

Where a facility-specific benchmark emissions intensity is lower (more stringent) than the historic best-performing facility within a sector of two or more facilities, a 'high-performance' benchmark would be applied. Applying the high-performance benchmark ensures that no benchmark is more stringent than the emissions performance of the best performing facility producing the product.

#### **4.3.2.Facility-Specific Benchmarks**

Where the director has not assigned a benchmark for a product, the person responsible for the facility subject to TIER may apply for a facility-specific benchmark. For facility-specific benchmarks, an emissions intensity reduction target will be applied, starting at approximately 10% below the facility-specific emissions intensity. Section 7 of the TIER provides the requirements for facility-specific benchmark applications and The Standard for Developing 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 high-performance benchmarks for some products and facility-specific benchmarks for others to calculate its allowable emissions.

#### **4.3.3.Imported Quantities**

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

#### **4.3.4.Cost Containment Allocation Benchmarks**

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

## 5. Compliance Options

### 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.

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 methodologies for fugitive emissions must be sufficiently accurate to support GHG emissions reduction claims.

#### Example 3: Fuel Switching

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

For example, displacing on-site coal combustion with natural gas combustion could reduce emissions intensity.

### 5.2. Emission Performance Credits (EPCs)

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

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

#### 5.2.1. Generating EPCs

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

#### 5.2.2. EPC Serialization and Tracking

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

- (1) Eligible regulated facilities must submit an EPC request form to the department with their compliance report submission.
- (2) The department reviews each EPC request as part of the compliance report review process.
- (3) Once the compliance report review process is complete, the department makes a decision on the EPC request and notifies the facility in writing.
- (4) The director issues unique serial numbers to approved quantity of EPCs on the Alberta Emission Performance Credit Registry ([http://www.csaregistries.ca/albertacarbonregistries/epc\\_user.cfm](http://www.csaregistries.ca/albertacarbonregistries/epc_user.cfm)). The registry provides notification of serial numbers to facilities.

- (5) Credit transactions occur as bilateral agreements between buyers and sellers and are required to be tracked on the registry. All documentation associated with the transaction of credits should be kept available.
- (6) Regulated facilities using EPCs to meet true-up obligation must transfer the credits to the **facility** using them. They must also place the units in pending retirement status on the registry. Complete serial numbers must be listed in the compliance form.
- (7) The department will accept retirement of the submitted EPCs after full review of the facility's compliance report.

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

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

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### 5.2.3. Submitting EPCs for Compliance

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

When used for compliance, EPCs must be held under the facility by the person responsible on the Registry.

## 5.3. Emission Offsets

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

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

### 5.3.1. Submitting Emission Offsets for Compliance

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

The Registry processes all requests for transfers/retirement in the order that they are received. Emission offset project developers and regulated facilities are encouraged to submit all project documentation, including requests for retirement, to allow sufficient time to process the requests. Registry processing times can take up to 10 business days for processing; however, project developers may experience longer processing times during busy periods or if incomplete information is submitted or does not follow reporting criteria. The department recommends transactions that are required prior to the compliance deadline of June 30 be submitted by June 1 of each year. Submissions received after June 1 cannot be guaranteed to be processed by compliance deadline. Emission offsets that have not been serialized or have not been listed as pending retirement will not be accepted for compliance.

### 5.3.2. Emission Offset Error Correction

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

## 5.4. Fund Credits

A fund credit purchase form supplied as part of the regulated facility compliance form must accompany fund credit payments. For each purchase, the dollar value stated on this form must match the dollar value paid to the Government of Alberta.

Regulated facilities wishing to obtain fund credits should:

- (1) calculate number of whole tonnes of CO<sub>2</sub>e 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  
6<sup>th</sup> 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.

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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	Meimei Zhu
E-mail	<a href="mailto:AEP.revenue@gov.ab.ca">AEP.revenue@gov.ab.ca</a>
Phone Number	780-422-7072

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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 Climate Implementation 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 regulated 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 regulated facilities included in the payment.

## 6. Estimation and Reporting of Production and Emissions

### 6.1. Production

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

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

Renewable electricity facilities subject to TIER 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. Available renewable electricity certificates associated with claimed production for the year must be transferred to a retirement sub-account named "Alberta TIER EPC" prior to submitting your annual compliance report for verification, as described below.

- WREGIS users must select the "Alberta Climate Compliance" under the "State/Provincial/Voluntary Program Access Selection", which is accessed through the "Account Holder Reports" module.
- When the "Alberta TIER EPC" retirement sub-account is created, the "Display On Sub-Account Module" option must be changed to "Yes".
- When retiring RECs to the "Alberta TIER EPC" retirement sub-account, select "Other" for "Retirement Type" and under "Additional Details", add "Alberta TIER EPC".

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.

Sites which report production in Alberta complexity-weighted barrel units will report hydrogen produced and used on-site as a product. No adjustment is made to the product allocations for imported hydrogen.

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



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

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 Requirements**

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

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

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

### **6.2.1. Alberta Greenhouse Gas Quantification Methodologies**

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

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

Under Part 1 of this standard, a regulated facility is required to use a methodology that meets the minimum level classification prescribed for each emission or process source and specified gas. A regulated facility may use a methodology with a higher level classification. Table 4 and Table 5 provide the minimum level classifications for large emitters or opted-in facilities, and aggregate facilities, respectively.

For cases where only one methodology is prescribed for an emission or process source type, this methodology would be acceptable for use under any level classification. For example, for production, imported and exported quantities of electricity, industrial heat, and hydrogen, imported and exported CO<sub>2</sub>, and CO<sub>2</sub> consumed in an urea production, a single methodology for each of these parameters is presented in the Alberta Greenhouse Gas Quantification Methodologies; however, there are no level assignments for these methodologies.

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

Aggregate facilities are required to quantify emissions from stationary fuel combustion only. Table 5 provides the minimum level classifications for aggregate facilities.

### **6.2.2. Deviation Request**

For regulated facilities that are unable to meet mandatory quantification methodology requirements, the facility must submit to the director a request to deviate from a specific requirement. Using the

prescribed Deviation Request Form, available on the TIER website, the facility is required to provide the following information:

- Descriptions of the mandatory requirement(s) that the facility is seeking a deviation(s) for including a reference to a specific chapter, section, or table;
- Reason for the deviation request for each item;
- A proposal to address the deviation 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 methodology must represent a conservative approach in comparison with the required methodology; 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 deviation requests. The department encourages facilities to submit deviation requests prior to the submission of a compliance report or application in order for the facility to maintain compliance with the Regulation.

**Table 4: Minimum level assignment for large emitters and opted-in facilities**

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

(-) Not applicable.

<sup>1</sup>Represents 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.

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

**Table 5: Minimum level assignment for aggregate facilities**

		Specified Gases					
	Conventional Oil and Gas Facility Emissions	Carbon Dioxide	Methane	Nitrous Oxide	HFCs / PFCs	Sulphur Hexafluoride (SF <sub>6</sub> )	Nitrogen Trifluoride (NF <sub>3</sub> )
<b>Emission Sources:</b>							
Stationary Fuel Combustion	< 10,000 tonnes CO <sub>2e</sub>	0	0	0	-	-	-
	=> 10,000 tonnes CO <sub>2e</sub>	1	0	0	-	-	-
Biomass Combustion	Emissions do not require reporting.						
Industrial Process							
Flaring							
Venting							
Fugitives							
On-Site Transportation							
Waste, Wastewater, and Digestion							
Formation CO <sub>2</sub>							
Other releases from facility							

### 6.2.3. Quantification Methodology Document

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

Third-party assurance providers are required to review the facility's QMD to ensure that mandatory quantification methodologies are followed and site-specific methodologies are reasonable for the facility's operations. Table 6 provides a checklist with the content requirements for the QMD.

**Table 6: Quantification Methodology Document checklist**

Sections		Content
<b>1 Facility Overview</b>	a.	Facility name, as it appears in section A1 of the compliance report.
	b.	High performance and/or facility-specific benchmarks applicable for the facility, including date of approval for facility-specific benchmarks (if applicable).
	c.	Facility boundary description including the EPEA approval number, Alberta Energy Regulator number, and any changes to the facility boundary from previous year.
	d.	General overview of facility processes that are included in the compliance report and justification of any excluded processes.
	e.	General overview of facility emission sources.
	f.	Description of changes in process operations and emission sources. Identify any changes that result in 10 percent or more in the facilities emissions or production.
<b>2 Simplified Process Flow Diagram(s)</b>	a.	An overview of the facility operations, material flows, energy and fuel flows, emission sources by source category, measurement points (i.e. fuel flow, composition, etc.)
<b>3 Emission Source Categories</b>	a.	List and description of facility emission source categories (i.e. stationary fuel combustion, industrial process, flaring, etc.)
	b.	List of fuel and energy sources corresponding with the emission source categories (i.e. natural gas - stationary fuel combustion, purge gas - flaring, etc.)
	c.	List of fuel, energy or imported quantities (i.e. electricity, industrial heat, and hydrogen) received, used, and quantified (i.e. metered through custody metering, third party metering/invoicing, etc.)
	d.	List of methodologies used to quantify the emissions for each source category including sampling frequencies, procedures and analytical methods for fuel compositions.  If the methodology is outlined in the Alberta Greenhouse Gas Quantification Methodologies, a reference for the section can be provided. If a site-specific methodology is used, provide description of the methodology including emission factors used, parameters required, references, and any other pertinent information.
	e.	For non-combustion sources (such as industrial process, formation CO <sub>2</sub> or waste and wastewater emissions), provide descriptions of all parameters used in the calculations and how these were quantified.

Sections	Content
	<p>f. List of assumptions in the calculations (e.g., combustion efficiency, control efficiency, thermal efficiency, etc.) and rationale for the assumptions.</p> <p>g. Provide explanation on the averaging method used to determine the fuel or feed composition and confirm that it aligns with the requirements of the Alberta Greenhouse Gas Quantification Methodologies.</p> <p>h. Provide a list of deviations requested and approved by the director for the reporting period.</p>
<p><b>4 Meter calibration procedure and schedule</b></p>	<p>a. List of key measurement devices used for compliance reporting (i.e. flow meters, gas analyzers, etc.) including the calibration and maintenance schedule and meter tags (if appropriate). For gas analyzers, include the sampling frequencies.</p> <p>b. If tank level measurements are conducted, provide the schedule of measurements taken.</p> <p>c. If fuel is trucked to the site, provide the method of tracking fuel consumption at the facility.</p>
<p><b>5 Production</b></p>	<p>a. List the facility's products and quantification methodologies used for quantifying production.</p> <p>If the methodology is outlined in the Alberta Greenhouse Gas Quantification Methodologies, a reference for the section can be provided. If a site-specific methodology is used, provide description of the methodology including parameters required, references, and any other pertinent information.</p>
<p><b>6 Negligible emission sources</b></p>	<p>List of the facility's negligible emissions and methodologies used to quantify these emissions.</p> <p>Negligible emission sources are sources that represent less than 1% of a facility's total regulated emissions (TRE) or allowable emissions (allowable emissions) CO<sub>2</sub> equivalent emissions (CO<sub>2</sub>e) and are not to exceed 5,000 tonne of CO<sub>2</sub>e for an aggregate facility with a TRE less than 1 million tonnes of CO<sub>2</sub>e or not to exceed 10,000 tonnes of CO<sub>2</sub>e for an aggregate facility with a TRE equal to or greater than 1 million tonnes of CO<sub>2</sub>e.</p> <p>Negligible emissions count towards the Total Regulated Emissions. Alternative methodologies may be used to quantify and assess the negligibility of these emissions.</p>
<p><b>7 Data management system</b></p>	<p>a. Provide description of the facility's data management system that is used to collect and manage data that is used for the facility's compliance report.</p> <p>b. How fuel consumption is tracked, reconciled, and allocated to different emission sources?</p> <p>c. How are fuel, feed stocks, and production reconciled between on-site metering and third party invoices, if applicable.</p> <p>d. Flow of data from original source of data (i.e. metering or scale) to the data collection system to final use of data by the reporter in the calculations. Flow diagrams are useful to illustrate data flow.</p>

Sections		Content
	e.	Quality assurance and quality control procedures applied to data collection and management system.
	f.	If calculations are embedded in the facility's data management system, these calculations should be provided in the QMD for transparency.
	g.	Provide meter tags and IDs as appropriate for relevant meters used for data collection and management.
<b>8</b>	<b>Sample Calculation Workbook</b>	<p>Facilities that uses a data management system to calculate the GHG emissions and other reported parameters should provide a sample calculation workbook for 1 month or more.</p> <p>The workbook should show the formulas used, emission factors used for each fuel type or activity, compositional data, and other parameters used in the calculations.</p> <p>This will provide both the department and verifier transparency in the calculations used for compliance reporting.</p>
<b>9</b>	<b>Other supporting documentation</b>	Any further information to support the facility's compliance report and calculations used for reporting GHG emissions, production, imported quantities, etc.

### 6.3. Fuels Consumed

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

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

### 6.4. CO<sub>2</sub> Entrained in Acid Gas Streams

Carbon dioxide removed from a raw gas stream and sent off site as an acid gas stream and permanently disposed of in a Class III well, is not counted as an emission for the facility, or included as exported CO<sub>2</sub>. Therefore, these emissions are not reported as formation CO<sub>2</sub> or exported CO<sub>2</sub> in the facility's compliance report. Similarly, facilities that receive CO<sub>2</sub> contained in an acid gas stream disposed of in a Class III well cannot include that CO<sub>2</sub> as imported CO<sub>2</sub> (i.e. this CO<sub>2</sub> cannot be deducted from the facility's TRE). However, carbon dioxide contained in an acid gas stream sent offsite to a sulphur recovery unit is counted as exported, as the CO<sub>2</sub> is then vented at a downstream gas processing facility.

Releases of formation CO<sub>2</sub> at a gas processing facility shall be reported as formation CO<sub>2</sub> if it is vented on site.

Aggregate facilities are regulated for stationary fuel combustion emissions only; therefore, any reported exported CO<sub>2</sub> from these facilities can only include CO<sub>2</sub> from stationary fuel combustion.

### 6.5. Compliance Cost Containment First Year Reporting Form

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

- a. An assessment of whether values reported in the facility compliance report for the first year in which a cost containment designation is in effect are equal to values reported in the Application for cost containment designation, for each of the following:
- i. total regulated emissions,
  - ii. true-up obligation,
  - iii. net electricity import or export,
  - iv. net heat import or export,
  - v. net hydrogen import or export,

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

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

If a discrepancy reported under 6.5(a) of this standard would result in a material change to an assigned compliance cost containment allocation benchmark for the facility, the compliance cost containment allocation benchmark must be recalculated and submitted as part of the compliance cost containment first year reporting form.

## 6.6. Emissions Reduction Plan Report

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

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



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

## 7. Annual Forecasting

### 7.1. Introduction

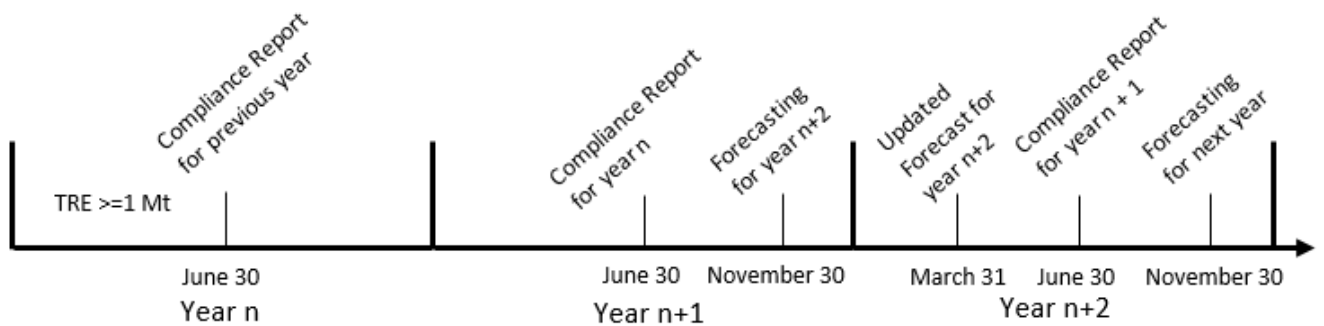
For forecasting facilities, the Regulation requires annual forecasting of emissions, production, true-up obligation and credit usage. Visibility into industrial performance and compliance choice allows improved provincial emissions forecasting for the current year and the next fiscal year, as well as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

### 7.2. Reporting and Forecasting requirements

The forecast and reporting timeline is illustrated in Figure 2.

Facilities whose annual emissions newly meet or exceed 1 Mt CO<sub>2</sub>e are required to submit a forecasting report by November 30 of the following year. For example, a facility that meets or exceeds 1 Mt CO<sub>2</sub>e in 2020 is required to submit a forecasting report by November 30, 2021 for the 2022 year. A facility is required to submit an updated forecast by March 31, 2022 for that year.

**Figure 2: Forecasting timeline**



### 7.2.1. Signatures

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

### 7.2.2. Submission Process

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

## 7.3. Forecast requirements

### 7.3.1. Forecast

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

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

An official of the reporting facility must certify forecasts.

## 8. Data Confidentiality and Access to Information

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

## 9. Third Party Verification

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

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

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

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

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

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

## 10. Government Re-verification

The department re-verifies approximately 5 to 10 per cent of regulated facility compliance reports annually to assess conformance with program criteria and to confirm the conclusions of the initial verification. Regulated facilities selected for re-verification will receive written notification and an approximate schedule for the re-verification. The third party assurance provider is hired by the department during the re-verification. The third party assurance provider must be provided access to all records and personnel necessary to complete the re-verification.

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

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

**Figure 3: Typical department compliance report re-verification process**



### 10.1. Materiality for Department Re-verifications

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

### 10.2. Termination of a Re-verification

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

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

### **10.3. Error Correction**

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

### **10.4. Three Party Contracting for Re-verifications**

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

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

### **10.5. Confidentiality**

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

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

### **10.6. Continuous Improvement**

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

## 11. Glossary of Terms

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

**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 for large emitters and opt-in facilities. For aggregate facilities import of heat, hydrogen and electricity are not part of the compliance assertion.

**GHGs** are the atmospheric gases responsible for the GHG effect. The most common GHGs are carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O). Less prevalent, but very powerful GHGs include hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), nitrogen trifluoride (NF<sub>3</sub>), and sulphur hexafluoride (SF<sub>6</sub>).

**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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**Original signed by: Justin Wheler**

**Date: July, 2020**

**Justin Wheler, Executive Director**

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**Policy Division**