Regulations and other Acts

Gouvernement du Québec

O.C. 1104-2017, 15 November 2017

Education Act (chapter I-13.3)

Student transportation —Amendment

Regulation to amend the Regulation respecting student transportation

WHEREAS, under section 453 of the Education Act (chapter I-13.3), the Government may regulate student transportation, namely, to establish standards in respect of the duration of contracts for the transportation of students;

WHEREAS, in accordance with sections 10 and 11 of the Regulations Act (chapter R-18.1), a draft Regulation to amend the Regulation respecting student transportation was published in Part 2 of the *Gazette officielle du Québec* of 5 July 2017 with a notice that it could be made by the Government on the expiry of 45 days following that publication;

WHEREAS it is expedient to make the Regulation without amendment;

IT IS ORDERED, therefore, on the recommendation of the Minister of Education, Recreation and Sports:

THAT the Regulation to amend the Regulation respecting student transportation, attached to this Order in Council, be made.

JUAN ROBERTO IGLESIAS, Clerk of the Conseil exécutif

Regulation to amend the Regulation respecting student transportation

Education Act (chapter I-13.3, ss. 453)

L. The Regulation respecting student transportation (chapter I-13.3, r. 12) is amended in section 33 by replacing "5 school years" in the second paragraph by "8 school years".

2. This Regulation comes into force on the fifteenth day following the date of its publication in the *Gazette* officielle du Québec.

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Gouvernement du Québec

O.C. 1125-2017, 22 November 2017

Environment Quality Act (chapter Q-2)

Cap-and-trade system for greenhouse gas emission allowances — Amendment

Regulation to amend the Regulation respecting a cap-and-trade system for greenhouse gas emission allowances

WHEREAS, under subparagraphs b, c, d, e.1, h, h.1 and l of the first paragraph of section 31, sections 46.1, 46.5, 46.6, 46.8 to 46.15, 115.27 and 115.34 of the Environment Quality Act (chapter Q-2), the Government may make regulations on the matters set forth therein;

WHEREAS the Government made the Regulation respecting a cap-and-trade system for greenhouse gas emission allowances (chapter Q-2, r. 46.1);

WHEREAS, under sections 10, 12 and 13 of the Regulations Act (chapter R-18.1) and section 124 of the Environment Quality Act (chapter Q-2), a draft Regulation to amend the Regulation respecting a cap-and-trade system for greenhouse gas emission allowances was published in Part 2 of the *Gazette officielle du Québec* of 31 August 2017 with a notice that it could be made by the Government on the expiry of 45 days following that publication;

WHEREAS, under the first paragraph of section 18 of the Regulations Act (chapter R-18.1), a regulation may come into force on the date of its publication in the *Gazette officielle du Québec*, in particular where the authority that is making it is of the opinion that the urgency of the situation requires it;

WHEREAS, under the second paragraph of section 18 of that Act, the reason justifying such coming into force is to be published with the regulation;

WHEREAS, in the opinion of the Government, the urgency due to the following circumstances warrants that the Regulation to amend the Regulation respecting a cap-and-trade system for greenhouse gas emission allowances, attached to this Order in Council, come into force on the date of its publication in the *Gazette officielle du Québec*:

—a first three-party auction is possibly planned for February 2018. The amendments made by the draft Regulation must be in force before the publication of the notice of auction, which must be published 60 days before the date scheduled for the auction under section 45 of the Regulation;

—since the alignment of the Ontario carbon market with that of Québec and California could occur in the coming months, the amendments made by the draft Regulation allowing such alignment must be in force at that time;

WHEREAS it is expedient to make the Regulation with amendments;

IT IS ORDERED, therefore, on the recommendation of the Minister of Sustainable Development, the Environment and the Fight Against Climate Change:

THAT the Regulation to amend the Regulation respecting a cap-and-trade system for greenhouse gas emission allowances be made.

JUAN ROBERTO IGLESIAS, Clerk of the Conseil exécutif

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Regulation to amend the Regulation respecting a cap-and-trade system for greenhouse gas emission allowances

Environment Quality Act

(chapter Q-2, s. 31, 1st par., subpars. *b*, *c*, *d*, *e*.1, *h*, h.1 and *l*, s. 46.1, s. 46.5, s. 46.6, ss. 46.8 to 46.15, s. 115.27 and s. 115.34)

1. The Regulation respecting a cap-and-trade system for greenhouse gas emission allowances (chapter Q-2, r. 46.1) is amended in section 2

(1) by replacing "aviation fuel and fuel oil for ships" in subparagraph 1 of the third paragraph by "fuel used in air or water navigation";

(2) by inserting "or in section 2.1" after "2" in subparagraph 4 of the third paragraph and by adding "for the emitter referred to in section 2 and under section 19.0.1 for the emitter referred to in section 2.1" at the end of the paragraph.

2. The following is added after section 2:

"2.1. For the purposes of this Regulation, a person or municipality operating an enterprise in a sector of activity referred to in Appendix A that is not an emitter within the meaning of section 2, reporting for an establishment, in accordance with paragraph 1 of section 6.1 of the Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere (chapter Q-2, r. 15), annual greenhouse gas emissions in a quantity equal to or greater than 10,000 metric tonnes CO_2 equivalent and that registers for the system for one of its establishments covered by the reporting without being required to do so, is also an emitter.".

3. Section 3 is amended

(1) by inserting "or in section 2.1" after "section 2" and by replacing "that section" by "section 2," in paragraph 9;

(2) by replacing "25,000" in subparagraph i of subparagraph a of paragraph 11 by "10,000" and by adding "per year" at the end.

4. Section 4 is amended

(1) by inserting the following after the third paragraph:

"Documents and information relating to an application for access to the electronic system pursuant to section 10 must be kept for the entire period during which a natural person has access to the electronic system and for a minimum period of 7 years following the date on which that person no longer has access to the system.";

(2) by replacing "10" in the fourth paragraph by "11".

5. Section 5 is amended by inserting "or templates" after "forms" in the first paragraph.

6. Section 6 is amended by replacing "offset credits withdrawn" in paragraph 6 by "emission allowances withdrawn".

7. Section 7 is amended

(1) by replacing "to which this Regulation applies" in the part preceding subparagraph 1 of the first paragraph by "referred to in section 2";

(2) in the first paragraph

(a) by replacing subparagraph 2 by the following:

"(2) a list of its directors and officers, with their position within the enterprise and, at the Minister's request, their work addresses;";

(b) by striking out subparagraph 5;

(c) by replacing subparagraph 6 by the following:

"(6) a list of the subsidiaries, parent legal persons and persons having control of the emitter within the meaning of the second paragraph of section 9, with the control percentage between each entity, which information may also be provided in the form of a diagram;";

(*d*) by replacing "the chief officer" in subparagraph 9 by "a director or any other officer,".

8. The following is inserted after section 7:

"7.1. Before a person or municipality referred to in section 2.1 registers for the system, a written notice must be sent to the Minister, not later than May 1 of the year during which the person or municipality intends to register, stating its intention.

7.2. Any person or municipality referred to in section 2.1 must, at the time of registering for the system, provide the Minister with the information and documents referred to in subparagraphs 1 to 3, subparagraphs *b* and *c* of subparagraph 4 and subparagraphs 6 to 9 of the first paragraph of section 7.

The person or municipality must also, at the same time, provide to the Minister, for each covered establishment carrying on an activity referred to in Table A of Part I of Appendix C, the emissions reports for the 3 consecutive years immediately preceding the year during which it registers, if available, as well as a verification report of its emissions report of the year preceding the year in which the person or municipality registers. If not all the reports are available, the person or municipality must at least send the report for the year preceding the year during which the person or municipality registers.".

9. Section 8 is amended in the first paragraph

(1) by striking out "and having previously obtained an identifier in accordance with section 10" in the part preceding subparagraph 1;

(2) by inserting the following after subparagraph 2 of the first paragraph:

"(2.1) in the case of a natural person, a list of the entities the person owns or controls with the control percentage between each entity, the name and contact information for the business corporations in which the person controls over 10% of the voting rights attached to all the outstanding voting securities of the business corporation, and the name and contact information of all partnerships in which the person is a partner, general partner or special partner, and in which the person provided over 10% of the common stock;";

(3) by replacing "natural person" in subparagraph 3 by "mandatary";

(4) by replacing "the chief officer" in subparagraph 4 by "a director or any other officer,".

10. Section 8.1 is amended by replacing "or as an emitter, participant" by "or as an emitter".

11. Section 9 is amended

(1) by replacing "Every person submitting an application for registration to the Minister under sections 7 and 8 must also disclose" in the part preceding subparagraph 1 of the first paragraph by "Every person or municipality referred to in section 7, 7.2 or 8 must also, when registering for the system, disclose to the Minister" and by inserting "or subject to" after "registered for";

(2) by striking out "and contact information" in subparagraph 1 of the first paragraph and by adding "and, upon request, their contact information" at the end;

(3) by replacing "along with a brief description of the business relationship" in subparagraph 2 of the first paragraph by "along with any explanation allowing the business relationship to be understood";

(4) by striking out ", the name and contact information of its primary account representative" and "and the date and place of its constitution" in subparagraph 2.1 of the first paragraph;

(5) by replacing "up to" in subparagraph b of subparagraph 1 of the second paragraph by "more than".

12. The following is inserted after section 9:

"9.1. A person referred to in section 9 that retains the services of an advisor for the application of this Regulation must send to the Minister the name and professional contact information of the advisor, and, where applicable, the name of the advisor's employer.

A person referred to in section 9 who advises another person for the application of this Regulation must send to the Minister a list of all the persons provided with advisory services for the same purpose.".

13. Section 10 is amended

(1) by replacing the part preceding paragraph 1 by the following:

"**10.** To register for the system, an emitter, participant or clearing house or, if they are not natural persons, their account representatives, must first obtain access to the electronic system by providing the Minister with the following information and documents:";

(2) by replacing "an account" in paragraph 5 by "a deposit account" and by striking out "and that an identity check was carried out" at the end of that paragraph;

(3) by adding the following paragraph at the end:

"A natural person authorized to act as an account viewing agent pursuant to section 12 must also obtain access to the electronic system in accordance with the first paragraph if the person has not already obtained access to the electronic system of a partner entity.

The account viewing agent designated by the emitter or the participant, under section 11, after they register for the system, must also obtain access to the electronic system in accordance with the first paragraph.

The emitter referred to in section 2.1, the participant, the clearing house or the account viewing agent or, if they are not natural persons, their account representatives, that requests access to the electronic system under this section must, in order for the request to be admissible, send the documents listed in the first paragraph in the 12 months following the date of the request.

A person who, under this section, must obtain access to the electronic system but already has one, obtained from a partner entity, is considered to have met the obligation under this Regulation and may not obtain new access from the Minister. The person must provide the Minister with the information referred to in subparagraphs 1, 2, 4, 6 and 7 of the first paragraph. If the access has not been obtained in accordance with sections 95834(a)(b) and (d) of the California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms or in accordance with paragraph 2 of section 45 of O.Reg. 144/16: The Cap and Trade Program, the person must also provide the information referred to in subparagraph 3 of the first paragraph."

14. Section 11 is amended

(1) by striking out "having previously obtained an identifier in accordance with section 10" and "At least 1 of the representatives must be domiciled in Québec." in the first paragraph;

(2) by striking out ", among the account representatives domiciled in Québec," in the second paragraph;

(3) in the third paragraph

(a) by striking out "and of its chief officer or chief financial officer" in subparagraph 1;

(b) by adding the following after subparagraph 1:

"(1.1) in the case of an emitter or participant that is not a natural person and is not constituted in Québec, the name and contact information of its attorney designated under section 26 of the Act respecting the legal publicity of enterprises (chapter P-44.1);";

(c) by replacing subparagraph 3 by the following:

"(3) a declaration signed by a director or by any other officer, or a resolution of the board of directors of the emitter or participant attesting that the account representatives have been duly designated to act on behalf of the emitter or participant for the purposes of this Regulation;";

(4) by adding the following after the third paragraph:

"The attestation referred to in subparagraph 4 of the third paragraph must be sent to the Minister within 3 months after the date of the attestation.";

(5) by striking out ", at least one of whom is domiciled in Québec" in the fourth paragraph;

(6) by adding the following paragraph at the end:

"At the written request of an emitter or participant, the Minister may, before a request for revocation of mandate is sent to the Minister by the emitter or participant under the seventh paragraph, where the urgency of the situation warrants it, withdraw access to the electronic system from one of its account representatives.".

15. Section 12 is amended

(1) by striking out "have previously obtained an identifier in accordance with section 10 or with the corresponding rules and regulations of a partner entity" in the first paragraph;

(2) by replacing "by the chief officer or chief financial officer" in subparagraph 3 of the second paragraph by "signed by a director or any other officer,".

16. Section 13 is amended by replacing "a United States court" in the fourth paragraph by "any foreign court".

17. Section 14 is amended by inserting "that apply to it" after "7 to 13" in the part preceding paragraph 1.

18. Section 14.1 is amended by replacing "sections 7, 8 and 9" by "sections 7, 7.2, 8, 9 and 9.1".

19. Section 14.2 is amended

(1) by replacing "of the participant's chief officer or chief financial officer" in paragraph 3 by "of one of the participant's account representatives, of a director or any other officer,";

(2) by adding the following paragraph at the end:

"When the Minister notes, in the enterprise register, that a participant's registration has been cancelled for at least 3 years, the Minister notifies the participant that, after 30 days, the Minister may close the participant's account and terminate the participant's registration if the participant provides no valid reason for maintaining the account. When the account is closed, if it still contains emission allowances, the Minister may, as the case may be, recover them

(1) by transferring the emission units in the account to the auction account;

(2) by transferring the offset credits and early reduction credits to the retirement account; and

(3) by transferring the reserve units to the reserve account.".

20. Section 15 is amended

(1) by replacing the part of the first paragraph preceding subparagraph 1 by the following:

"**15.** The Minister may close an emitter's compliance account and transfer the emission allowances recorded in it to the emitter's general account";

(2) by replacing "for over 5 years" in subparagraph 1 of the first paragraph, by "or, as the case may be, section 19.1, the emitter has met all the requirements of Chapter III, and the offset credits placed in the account by a partner entity and used by the emitter to cover its GHG emissions can no longer be cancelled;";

(3) by replacing subparagraph 3 of the first paragraph by the following:

"(3) if the emitter is closing a covered establishment, operates no other covered establishments, meets the conditions of section 18, has met all the requirements of Chapter III, and the offset credits placed in the account by a partner entity and used by the emitter to cover its GHG emissions can no longer be cancelled.".

21. Section 16 is amended

(1) by striking out "and contains no emission allowances";

(2) by adding the following paragraph at the end:

"When the participant's general account still contains emission allowances, the Minister may, when closing the account, as the case may be, recover the allowances

(1) by transferring the emission units in the account to the auction account;

(2) by transferring the offset credits and early reduction credits to the retirement account; and

(3) by transferring the reserve units to the reserve account.".

22. Section 17 is amended by adding the following at the end:

"The new operator is required, in place of the former operator, to meet all the requirements that applied to the former operator pursuant to this Regulation.".

23. Section 18.1 is amended by replacing "the chief officer" in paragraph 5 by "a director or any other officer,".

24. Section 19 is amended

(1) in the first paragraph

(a) by replacing "to which this Regulation applies" by "referred to in section 2";

(*b*) by replacing "referred to in section 2" by "referred to in the same section";

(2) by adding the following paragraph after the first:

"As for emitters referred to in subparagraph 2 of the second paragraph of section 2, they are bound by the obligation provided for in the first paragraph until 31 December of the first year covered by an enterprise's verified emissions report, sent to the Minister, in which the enterprise's GHG emissions are equal to zero.";

(3) by replacing subparagraph 3 of the second paragraph by the following:

"(3) in the case where an emitter's verified emissions are equal to or greater than the emissions threshold during a year after the year mentioned in subparagraph 1, beginning on 1 January of the year following the year in which the first report for emissions equal to or greater than the threshold, and for the years that follow 2020, beginning on 1 January of the year in which an emitter's verified emissions are equal to or exceed the threshold;"

(4) by replacing "on 1 January of the year following the year in which the first report of verified emissions for an establishment, including a new facility, is submitted and includes the GHG emissions from the new facility" in subparagraph 4 of the second paragraph by "in the year in which it becomes operational";

(5) by inserting ", in place of the former operator," after "is required" in the third paragraph.

25. The following is added after section 19:

"**19.0.1.** An emitter referred to in section 2.1 is bound, in accordance with the terms and conditions in this Chapter, to cover each tonne CO_2 equivalent of the verified emissions of an establishment referred to in that section, as the case may be,

(1) until 31 December of the last year of the compliance period during which the emitter informs the Minister, not later than 1 September of that last year, of its intent to request that the Minister cancel its registration in the system;

(2) until 31 December of the year following the year during which GHG emissions are equal to or exceed the emissions threshold;

(3) until 31 December following the third consecutive emissions reporting for which the emissions of that establishment are below the reporting threshold referred to in section 6.1 of the Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere (chapter Q-2, r. 15).

The emitter is bound by the obligation provided for in the first paragraph as of the following dates:

(1) where the emitter's registration in the system is done on or before 1 September of a given year, as of 1 January following that date;

(2) where the emitter's registration in the system is done after 1 September of a given year, as of 1 January of the second year following the year of registration in the system.".

26. Section 25 is amended by adding "or is a bundled transfer" at the end of the second paragraph.

27. Section 27 is replaced by the following:

"27. Every emitter who wishes to transfer emission allowances from the emitter's general account to the emitter's compliance account, or every emitter or participant who wishes to retire from the system emission allowances recorded in the emitter's general account must send to the Minister a request including

(1) the emitter's or participant's general, and where applicable, compliance account number;

(2) the quantity, type and, where applicable, vintage of the emission allowances to be transferred or retired.

An emitter or a participant may retire no more than 10,000 emission units per year.".

28. Section 32 is amended

(1) by inserting "business" after "5" in the sixth paragraph;

(2) by replacing "and pays them into the Minister's auction account for sale at a later date." in the sixth paragraph by the following:

"in the following order:

(1) the emission units from the Minister's reserve account;

(2) the early reduction credits;

(3) the other emission units, chronologically, from the least recent to the most recent, according to their vintage.";

(3) by adding the following paragraph at the end:

"The units referred to in subparagraphs 1 and 3 of the sixth paragraph are transferred to the Minister's auction account and the early reduction credits are transferred to the Minister's retirement account."

29. Section 40 is amended

(1) by replacing the second paragraph by the following:

"The estimated total quantity is calculated in accordance with Part II of Appendix C using, depending on the year concerned, equation 1-1 or 7-1, and replacing

(1) the factors "P_{Ri}", "P_{Ri}", "P_{R cu}", "P_{R RSM i} and "P_{R cath}" in equations 2-1, 2-9, 3-1, 3-10, 4-1, 4-8, 4-9, 4-15, 4-25, 4-31, 5-1, 5-2, 5-3, 6-2, 6-7, 6-8, 6-9, 6-10.1, 6-10.2, 6-10.5, 6-10.9, 6-12 to 6-16, 8-1, 9-1, 10-1, 11-1, 13-1 and 14-1 by the factors "P_{Ri j} -2", "P_{Ri-2}", "P_{R cu} +2", "P_{R RSM i-2}" and "P_{R cath} -2" which correspond to the total quantity of reference units produced or used in the year 2 years before the allocation year;

(2) the factors "EC_{TOTAL} I", "GHG_{FP} I" and "GHG_O I" in equations 4-21, 4-37, 5-3, 6-10.1, 6-14, 6-15, 11-5 and 14-5 by the factors "EC_{TOTAL} i-2", "GHG_{FP} i-2", "GHG_{FP} cu i-2" and "GHG_O i-2", which correspond respectively to the energy consumption, fixed process emissions and other emissions in the year 2 years before the allocation year;

(3) the factors "EC_{NF TOTAL I}", "GHG_{NF FP I}" and "GHG_{NF O I}" in equations 6-10.3 and 6-10.4 by the factors "EC_{NF TOTAL i-2}", "GHG_{NF FP i-2}" and "GHG_{NF O i-2}", which correspond respectively to the energy consumption, fixed process emissions and other emissions at the new facility in the year 2 years before the allocation year;

(4) the factor " $H_{2, I}$ " of equation 6-10.2 by factor " $H_{2,I-2}$ ", which corresponds to the hydrogen consumption in the year 2 years before the allocation year;

(5) the factor " $A_{recycl,i}$ " in equations 6-12, 6-13 and 6-14 by the factor " $A_{recycl,i-2}$ ", which corresponds to GHG emissions attributable to the carbon content of recycled secondary materials introduced into the process materials in the year 2 years before the allocation year.";

(2) by adding the following paragraph after the fourth paragraph:

"When the operator of a covered establishment changes before 14 January of a given year, the emission units referred to in the fourth paragraph are allocated to the new operator if, not later than the business day immediately before that date, the former operator notified the Minister of the change pursuant to the first paragraph de section 17.".

30. Section 41 is amended

(1) by replacing "of the vintage of the units allocated under the fourth paragraph of section 40 or of a prior vintage" in the fourth paragraph by "of the vintage of the year for which the allocation referred to in the fourth paragraph of section 40 was made or of a prior vintage";

(2) by adding the following paragraph at the end:

"When the operator of a covered establishment changes before 14 September of a given year, the new operator receives the allocation provided for in the third paragraph or, where applicable, meets the requirements of the fourth paragraph, if, not later than the business day immediately preceding that date, the former operator has notified the Minister of the change pursuant to the first paragraph of section 17.".

31. Section 44 is struck out.

32. Section 46 is amended

(1) by inserting "in which the emitter or participant wishes to take part" after "units" in the part of the second paragraph preceding subparagraph 1;

(2) by striking out the third paragraph;

(3) by inserting "or 7.2" after "7" in subparagraph 1 of the fourth paragraph.

33. Section 49 is amended

(1) by replacing "tel qu'illustré par la formule" in the French text of subparagraph 2 of the third paragraph by "conformément à l'équation";

(2) by replacing subparagraph 2 of the fourth paragraph by the following:

"(2) the joint minimum price of the emission units is the higher, on the day of the auction, of the price set under the third paragraph and the price set by the partner entity, at the daily average exchange rate published on the website of the Bank of Canada on the day prior to the sale.".

34. Section 51 is amended by replacing the second paragraph by the following:

"In addition, a bidder that retains the services of an advisor to develop its bidding strategy must ensure that the advisor does not disclose any of the information listed in the first paragraph and does not coordinate the bidding strategy of any other bidder.".

35. Section 58 is replaced by the following:

"58. Until 31 December 2020, the emission units placed in the reserve account are divided equally into 3 categories and are sold at the following prices, increased annually by 5% since 2014 and adjusted from that date in the manner provided for in section 83.3 of the Financial Administration Act (chapter A-6.001):

(1) for reserve emission units in Category A, \$40 per emission unit;

(2) for reserve emission units in Category B, \$45 per emission unit;

(3) for reserve emission units in Category C, \$50 per emission unit.

As of 1 January 2021, the emission units referred to in the first paragraph form a single category and for the year 2021, their price is calculated as per the equation below:

$$PR_{2021} = PM_{2021} + M_{2021}$$

Where:

 PR_{2021} = Price of the emission units of the reserve for 2021;

 PM_{2021} = Minimum price of the emission units that are auctioned for the year 2021;

 M_{2021} = Fixed amount for the year 2021, calculated according to the equation in the third paragraph.

The fixed amount referred to in the equation in the second paragraph is calculated according to the following equation:

$$M_{2021} = (PR_{c, 2020} - PM_{2020}) \times (1 + T_{i2021})$$

Where:

M₂₀₂₁ = Fixed amount for the year 2021;

 $PR_{c, 2020}$ = Price of the emission units in the category C reserve, for the year 2020;

 PM_{2020} = Minimum price of the emission units auctioned for the year 2020;

 T_{i2021} = Annual adjustment rate for the year 2021, calculated in the manner set out in section 83.3 of the Financial Administration Act (chapter A-6.001).

As of 1 January of the year 2022, the price of emission units in the reserve is calculated according to the following equation:

$$PR_t = PM_t + M_{t-1} \times (1+T_i)$$

Where:

PRt = Price of the emission units in the reserve for the year t;

t = Current year;

PMt = Minimum price of the emission units auctioned for the year t;

 M_{t-1} = Fixed amount of the year preceding year *t*, calculated using the equation provided for in the fifth paragraph;

 T_i = Annual adjustment rate for the current year, calculated in the manner set out in section 83.3 of the Financial Administration Act (chapter A-6.001).

The fixed amount referred to in the equation provided for in the fourth paragraph is calculated using the following equation:

$$M_{t-1} = (PR_{t-1} - PM_{t-1}) \times (1 + T_i)$$

Where:

 M_{t-1} = Fixed amount for the year preceding year *t*;

T = Current year;

 PR_{t-1} = Price of the emission units in the reserve for the year *t*-1;

 PM_{t-1} = Price of the emission units auctioned for the year *t*-1;

 T_i = Annual adjustment rate for the current year, calculated in the manner set out in section 83.3 of the Financial Administration Act (chapter A-6.001).

Despite the second and fourth paragraphs, beginning on 1 January 2021, the emission units are not necessarily sold at the price calculated pursuant to those paragraphs, but at the higher of the price set by partner entities and the price calculated pursuant to those paragraphs, according to the daily average exchange rate of the Bank of Canada published on its website, in force on the fifth business day preceding the date of publication of that price on the Department's website. That publication is done yearly on the first business day of December.".

36. Section 59 is amended

(1) by striking out the second paragraph;

(2) by inserting "or 7.2" after "7" in subparagraph 1 of the third paragraph.

37. Section 70.2 of the Regulation is amended by replacing the second paragraph by the following:

"Only projects implemented in Québec are eligible for the issue of offset credits under the first paragraph, except if otherwise provided for in a protocol.

Subject to any specific period provided for in a protocol, an offset credit project must be conducted during a period of not more than 10 consecutive years. The period constitutes, for the purposes of this Chapter, a crediting period for the issue of offset credits, also called a "crediting period", during which the project remains eligible until the expiry of the period.".

38. Section 70.5 is amended

(1) by replacing "second" in the part preceding subparagraph 1 of the first paragraph by "third";

(2) by inserting the following after the subparagraph 9 of the first paragraph:

"In the case of a project to reduce GHG emissions that began before a protocol applicable to that type of project was included in Appendix D, the promoter must send an application for registration to the Minister in the 3 years following the date of coming into force of such a protocol.";

(3) by replacing "reporting period" in the second paragraph by "year";

(4) by replacing the third paragraph by the following:

"In the case of a promoter referred to in the second paragraph, the first project report under the third paragraph must be sent to the Minister within 6 months from the date of registration and must cover the whole period that began on or after 1 January 2007 and ended on the date of registration.".

39. Section 70.6 is struck out.

40. Section 70.7 is amended by replacing "second" in subparagraph 1 of the second paragraph by "third".

41. Section 70.8 is amended by replacing "documents referred to in the second paragraph of section 70.5" in the first paragraph by "documents referred to in the third paragraph of section 70.5".

42. Section 70.12 is amended by replacing "second" in the second paragraph by "third".

43. Section 70.13 is amended by replacing "second" in subparagraph 1 of the first paragraph by "first".

44. The following is inserted after section 70.13:

"**70.13.1.** Every promoter must, when forwarding the first project report provided for in the third paragraph of section 70.5, send the first issuance request for offset credits to the Minister.

The promoter may then ask the Minister to issue offset credits at any time during the crediting period. The promoter must, however, send the application not later than 6 months following the end of the issuance period concerned.

Every issuance request for offset credits must include all the information and documents required by the protocol applicable to the project. In addition, it must include a declaration from the promoter attesting

(1) that the promoter is the sole owner of the GHG emission reductions resulting from the project; if several parties are involved in the project, a copy of an agreement indicating that the parties have transferred their rights with respect to the reductions to the promoter must be included; and

(2) that the promoter has not applied for credits for the GHG emission reductions targeted by the project under another GHG emission reduction program, and will not make such an application once the project is registered.

The term "issuance period" means the period of time during a crediting period when the promoter may apply for the issue of offset credits for which such an application has not yet been made.".

45. Section 70.14 is amended

(1) by striking out the first paragraph;

(2) by replacing the part of the second paragraph preceding subparagraph 1 by the following:

"Every issuance request for offset credits must be submitted with a project report covering the most recent issuance period and include the following information and documents:";

(3) by inserting "issuance" after "during the" in subparagraph 3 of the second paragraph;

(4) by striking out the third, fourth and fifth paragraphs.

46. The following is inserted after section 70.15:

"70.15.1. In addition to the requirements of the standards ISO 14064-3 and ISO 14065 concerning conflicts of interest, the promoter must ensure that none of the following situations exists between the promoter, its officers, the verification organization and the members of the verification team:

(1) during the 3 years preceding the year of issue, one of the members of the verification team was employed by the promoter;

(2) a member of the verification team or a close relative of that member has personal ties with the promoter or one of its officers;

(3) during the 3 years preceding the year of issue, one of the members of the verification team or one of the subcontractors who took part in the verification provided the promoter with one of the following services:

(*a*) the design, development, commissioning or maintenance of a data inventory or data management system for GHG emissions from the establishment or facility of the promoter or, where applicable, for data on electricity or fuel transactions;

(*b*) the development of GHG emission factors or other data that were used for quantification or for the issuance request for offset credits under this Regulation;

(c) consultation concerning GHG emissions reductions, and in particular the design of an energy efficiency or renewable energy project and the assessment of assets relating to greenhouse gas sources;

(*d*) the preparation of manuals, guides or procedures connected with the promoter's GHG emissions reports under the Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere;

(e) consultation in connection with a greenhouse gas emission allowances market, including

i. brokerage, with or without registration, while acting as a promoter or subscriber on behalf of the promoter;

ii. advice concerning the suitability of a GHG emissions transaction;

iii. the holding, purchase, sale, negotiation or withdrawal of emission allowances referred to in the second paragraph of section 46.6 of the Environment Quality Act (chapter Q-2);

(*f*) a consultation in the field of health and safety and environmental management, including the consultation leading to ISO 14001 certification;

(g) actuarial consulting, bookkeeping or other consulting services relating to accounting documents or financial statements;

 (h) a service connected with the management systems of data related to an offset credit project covered by the GHG emissions verification process used in an offset credit project;

(i) an internal audit of GHG emissions;

(*j*) a service provided in connection with litigation or an inquiry into GHG emissions;

(*k*) a consultation for a GHG emissions reduction project in accordance with this Regulation, including any notice concerning the project's regulatory compliance;

(4) the person at the verification organization responsible for carrying out an internal review of the verification process, in accordance with the standards ISO 14065 and ISO 14064-3, has previously provided a verification or other service referred to in subparagraph 3 to the promoter during the issue year or the current year.

The existence of one of the situations described in the first paragraph is considered to be a conflict of interest that invalidates the verification report.

For the purposes of this section, a close relative of a member of the verification team is that person's spouse, child, spouse's child, mother or father, mother's or father's spouse, child's spouse or spouse's child's spouse.".

47. Section 70.16 is amended by inserting ", confirming the implementation of the project and the proper operation of the measurement and monitoring instruments," after "visit" in paragraph 2.

48. Section 70.17 is amended in the first paragraph

(1) by adding the following at the end of subparagraph 2.1:

", along with the verification plan and all the exchanges of information between the promoter and the verifier for project verification purposes";

(2) by replacing subparagraph 5 by the following:

"(5) a list of any errors, omissions or inaccuracies noted by the verifier at the time of the project verification or project report or relating to the data, information or methods used, including the following elements:

(a) the date on which the promoter was informed of the errors, omissions or inaccuracies;

(b) a description of any errors, omissions or inaccuracies;

(c) where applicable, a description of the action taken by the promoter to correct any errors, omissions or inaccuracies and the date on which the action was taken;

(*d*) for errors, omissions or inaccuracies that cannot be corrected, an assessment of the impact of each of them on the quantity of GHG emission reductions eligible for the issue of offset credits;";

(3) by striking out subparagraph 6;

(4) by replacing "the corrections" in subparagraph 7 by "any correction".

49. Section 70.18 is replaced by the following:

"**70.18.** The promoter must, before submitting a project report to the Minister in accordance with section 70.14, correct any error, omission or inaccuracy identified during the verification, if correction is possible.".

50. Section 70.19 is replaced by the following:

"70.19. A verification report of a project report is deemed positive if the verifier can attest with reasonable assurance that the project has been implemented in accordance with this Regulation.".

51. Section 70.20 is amended

(1) by replacing "proportion" in the first paragraph by "provision";

(2) by inserting "of an issuance request along with" after "receipt" in the first paragraph.

52. Section 70.21 is amended

(1) by replacing the part of the first paragraph preceding subparagraph 1 by the following:

"**70.21.** The Minister may require the promoter to replace any offset credit issued for a project under the first paragraph of section 70.20 in the following cases:";

(2) by replacing the second sentence of the third paragraph by the following:

"The Minister also transfers the number of offset credits paid into the environmental integrity account for the project under the second paragraph of section 70.20, in proportion to the number of offset credits replaced by the promoter, into the invalidation account to be extinguished.".

53. Section 71 is amended in paragraph 1 by inserting "the second paragraph of section 19.0.1," after "section 19," and by replacing ", 70.13 or 70.14" by "or 70.13, the first and second paragraphs of section 70.13.1, section 70.14".

54. Section 73 is amended in paragraph 1 by inserting "the first paragraph of section 19.0.1," after "section 19,".

55. Section 74 is amended by inserting "the second paragraph of section 19.0.1," after "section 19," in the part preceding subparagraph 1 of the first paragraph.

56. Section 75.4 is amended by inserting "the first paragraph of section 19.0.1," after "section 19,".

57. The following is inserted after section 75.4:

"CHAPTER I.2 OTHER SANCTIONS

"**75.5.** The Minister may suspend or cancel the registration for the system of a person other than an emitter referred to in section 2, when the Minister has reasonable grounds to believe that the integrity of the system is threatened.".

58. Appendix A is amended by striking out ", except activities to process waste by dismembering and related activities" in the fifth line of the table.

59. Appendix B.1 is amended by adding the following at the end:

"2. Province of Ontario

The emission allowances issued by the Province of Ontario pursuant to the document O. Reg. 144/16: The Cap and Trade Program, are deemed to be equivalent to the emission allowances issued pursuant to this Regulation, based on the correspondence indicated in the following table for each type of emission allowance:

	Québec	Ontario
Types of	Emission unit	Ontario emission
emission		allowance
allowance	Early	Ontario early
(each having	reduction	reduction credit
a value	credit	
corresponding	Offset credit	Ontario offset
to 1 metric		credit
tonne CO ₂		
equivalent)		

60. Table B in Part I of Appendix C is amended

(1) by adding, in the part concerning the Other sector of activity, under the line "Aluminum I Calcinated coke production I Metric tonne of calcinated coke", the line "Other² I Dismembering I Metric tonne of treated matter";

(2) by adding, in the part concerning the Metallurgy sector of activity, under the line "Metallurgy I Copper anode production I Metric tonne of copper anodes I Metric tonne of recycled secondary materials", the line "Metallurgy I Copper cathode production I Metric tonne of recycled secondary materials".

61. Division A of Part II of Appendix C is amended

(1) by striking out "of "covered establishment as of 2013" and "covered establishment after 2013"" in the heading;

(2) by replacing the definition of "covered establishment after 2013" by the following:

"(2) "covered establishment after 2013" means an establishment for which the verified GHG emissions for 2012, 2013, 2014 or 2015 are equal to or exceed the emissions threshold;"; (3) by adding the following definitions at the end:

"(3) "covered establishment as of 2018" means an establishment for which the verified GHG emissions for 2016, 2017 or 2018 are equal to or exceed the emissions threshold;

(4) "establishment covered prior to 2021" means an establishment referred to in paragraph 1, 2 or 3, or an establishment referred to in section 2.1 before 2021 that is still targeted by the system in 2021;

(5) "covered establishment as of 2021" means an establishment for which the verified GHG emissions for 2019 or for any of the subsequent years are equal to or exceed the emissions threshold.".

62. Division C of Part II of Schedule C is amended

(1) by inserting "until 2020" at the end of paragraph 3;

(2) by adding the following after paragraph 3:

"(4) prebaked anode production and aluminum production using prebaked anode technologies except a side-worked prebaked anode technology as of 2021.".

63. Division D of Part II of Appendix C is amended

(1) by replacing "fourth" in the part of the third paragraph preceding subparagraph 1 by "fifth" and by inserting "referred to in section 2" after "an emitter";

(2) by replacing, in subparagraph 4 of the third paragraph, "using equations 1-1, 5-1 and 5-2" by "using equations 1-1 and 5-1 for the years 2013 to 2014, using equation 5-2 for the years 2015 to 2017 and using equation 5-3 for the years 2018 to 2020";

(3) by inserting the following after the subparagraph 4 of the third paragraph:

"(5) in the case of a covered establishment as of 2018 that is not considered on a sectoral basis and that possesses all the GHG emissions data for years d-2 to d, using equations 1-1 and 4-9 to 4-14;

(6) in the case of a covered establishment as of 2018 that is not considered on a sectoral basis, that does not possess all the GHG emissions data for years d-2 to d, and for which, as the case may be,

(a) the GHG emissions data for years d to d+2, or d+1 to d+3 where d is the year in which the establishment became operational, are all available, using equations 1-1 and 4-15 to 4-20;

(b) the GHG emissions data for years d to d+2, or d+1 to d+3 where d is the year in which the establishment became operational, are not all available, using equations 1-1, 4-21 and 4-22, until the data are all available;

(7) in the case of a covered establishment as of 2018 that is not considered on a sectoral basis, that does not possess a determined reference unit, and for which, as the case may be,

(a) the GHG emissions data for years d to d+2, or d+1 to d+3 where d is the year in which the establishment became operational, are all available, using equations 1-1 and 4-23 and 4-24;

(b) the GHG emissions data for years d to d+2, or d+1 to d+3 where d is the year in which the establishment became operational, are not all available, using equations 1-1, 4-21 and 4-22, until those data are all available;

(8) in the case of an establishment covered prior to the year 2021 that is not considered on a sectoral basis, using equations 7-1 and 8-1 to 8-10 for the years 2021 to 2023;

(9) in the case of an establishment covered prior to the year 2021 that produces cement, prebaked anodes or aluminum by using a prebaked anode technology other than the side-worked prebaked anode technology, using equations 7-1 and 9-1 for the years 2021 to 2023;

(10) in the case of a covered establishment as of 2021 that is not considered on a sectoral basis and that possesses all the GHG emissions data for years d-2 to d, using equations 7-1 and 10-1 to 10-4;

(11) in the case of a covered establishment as of 2021 that is not considered on a sectoral basis, that does not possess all the GHG emissions data for years d-2 to d, and for which, as the case may be,

(a) the GHG emissions data for years d to d+2, or d+1 to d+3 where d is the year in which the establishment became operational, are all available, using equations 7-1 and 11-1 to 11-4;

(b) the GHG emissions data for years d to d+2, or d+1 to d+3 where d is the year in which the establishment became operational, are not all available, using equations 7-1, 11-5 and 11-6, until the data are all available;

(12) in the case of a covered establishment as of 2021 that does not possess a determined reference unit and for which, as the case may be,

(a) the GHG emissions data for years d to d+2, or d+1 to d+3 where d is the year in which the establishment became operational, are all available, using equations 7-1, 12-1 and 12-2;

(b) the GHG emissions data for years d to d+2, or d+1 to d+3 where d is the year in which the establishment became operational, are not all available, using equations 7-1, 11-5 and 11-6, until the data are all available;

(13) in the case of an establishment that produces liquid aluminum by using a side-worked prebaked anode technology, using equations 7-1 and 8-1 to 8-7 for the years 2021 to 2023;

(14) in the case of an establishment in the lime sector, using equations 7-1 and 8-11 to 8-20 for the years 2021 to 2023;

(15) in the case of an establishment that produces steel (slabs, pellets or ingots), metallic silicon, ferrosilicon, reduced iron pellets or titanium dioxide (TiO₂), using equations 7-1 and 6-15 for the years 2021 to 2023;

(16) in the case of a copper refinery, using equations 7-1 and 6-16 for the years 2021 to 2023.";

(4) by adding the following after the third paragraph:

"Subject to the fifth paragraph, the total quantity of GHG emission units allocated without charge to an emitter referred to in section 2.1 is calculated in accordance with the following methods:

(1) in the case of a covered establishment referred to in section 2.1 that is not considered on a sectoral basis and that possesses all the GHG emissions data for years *e*-3 to *e*-1, using equations 1-1 and 4-25 to 4-30 for the years 2018 to 2020;

(2) in the case of a covered establishment referred to in section 2.1 that is not considered on a sectoral basis, that does not possess all the GHG emissions data for years *e*-3 to *e*-1 and for which, as the case may be,

(a) the GHG emissions data for years e-1 to e+1, or e to e+2 where e-1 is the year in which the establishment became operational, are all available, using equations 1-1 and 4-31 to 4-36 for the years 2018 to 2020;

(*b*) the GHG emissions data for years *e*-1 to *e*+1, or *e* to *e*+2 where *e*-1 is the year in which the establishment became operational, are not all available, using equations 1-1 and 4-37 and 4-38 for the years 2018 to 2020, until the data are all available;

(3) in the case of a covered establishment referred to in section 2.1 that does not possess a determined reference unit, that is not considered on a sectoral basis and for which, as the case may be,

(a) the GHG emissions data, for years e-1 to e+1, or e to e+2 where e-1 is the year in which the establishment became operational, are all available, using equations 1-1, 4-39 and 4-40 for the years 2018 to 2020;

(*b*) the GHG emissions data, for years *e*-1 to *e*+1, or *e* to *e*+2 where *e*-1 is the year in which the establishment became operational, are not all available, using equations 1-1 and 4-37 and 4-38 for the years 2018 to 2020, until the data are all available;

(4) in the case of a covered establishment referred to in section 2.1 that is not considered on a sectoral basis and that possesses all the GHG emissions data for years e-3 to e-1, using equations 7-1 and 13-1 to 13-4 for the years 2021 to 2023;

(5) in the case of a covered establishment referred to in section 2.1 that is not considered on a sectoral basis, that does not possess all the GHG emissions data for years *e*-3 to *e*-1 and for which, as the case may be,

(a) the GHG emissions data for years e-1 to e+1, or e to e+2 where e-1 is the year in which the establishment became operational, are all available, using equations 7-1 and 14-1 to 14-4 for the years 2021 to 2023;

(*b*) the GHG emissions data for years *e*-1 to *e*+1, or *e* to *e*+2 where *e*-1 is the year in which the establishment became operational, are not all available, using equations 7-1, 14-5 and 14-6 for the years 2021 to 2023, until the data are all available;

(6) in the case of a covered establishment referred to in section 2.1 that does not possess a determined reference unit and for which, as the case may be,

(a) the GHG emissions data, for years e-1 to e+1, or e to e+2 where e-1 is the year in which the establishment became operational, are all available, using equations 7-1, 15-1 and 15-2 for the years 2021 to 2023;

(*b*) the GHG emissions data for years *e*-1 to *e*+1, or *e* to *e*+2 where *e*-1 is the year in which the establishment became operational, are not all available, using equations 7-1, 14-5 and 14-6 for the years 2021 to 2023, until the data are all available;";

(5) by adding "for the years 2013 to 2020 and using equations 6-10.1 and 6-10.2 for the years 2021 to 2023" at the end of subparagraph 4 of the fourth paragraph;

(6) by inserting, in subparagraph 5 of the fourth paragraph, "and the production of a new reference unit" after "new facility";

(7) by adding "for the years 2013 to 2020 and using equation 6-11.1 for the years 2021 to 2023" at the end of subparagraph 7 of the fourth paragraph;

(8) by adding "for the years 2013 to 2020 and using equation 6-14 for the years 2021 to 2023" at the end of subparagraph 8 of the fourth paragraph;

(9) by replacing the fifth paragraph by the following:

"To be considered in the calculation of emission units allocated without charge, any change to the information provided for in subparagraph 4 of the first paragraph of section 7 and provided by the emitter when registering for the system must be sent to the Minister, together with any supporting document, not later than 1 June following the end of the compliance period affected by the change.";

(10) by adding the following after the fifth paragraph:

"Any change sent to the Minister within the time limit prescribed in the fifth paragraph applies from the beginning of the compliance period referred to in that paragraph.";

(11) by inserting "for the years 2013 to 2020" at the end of the heading of division 1;

(12) by replacing "5-1, 5-2, 6-2, 6-7, 6-8 and 6-9" in equation 1-1 by "4-9, 4-15, 4-21, 4-23, 4-25, 4-31, 4-37, 4-39, 5-1, 5-2, 5-3, 6-2, 6-7, 6-8, 6-9 and 6-10.3";

(13) by replacing equation 2-8 by the following:

"Equation 2-8 Calculation of the intensity target of GHG emissions by type of activity at an establishment that is not considered on a sectoral basis for year 2020

 $I_{2020\,i} = I_{FP\,2020\,i} + I_{C\,2020\,i} + I_{O\,2020\,i}$

Where:

 $I_{2020 j}$ = Intensity target of GHG emissions attributable to type of activity *j* at the establishment for year 2020, in metric tonnes CO₂ equivalent per reference unit;

j = Type of activity;

 $I_{FP \ 2020 \ j}$ = Intensity of fixed process emissions calculated for year 2020 for type of activity *j*, using equation 2-8.1;

 $I_{C 2020 j}$ = Intensity of combustion emissions calculated for year 2020 for type of activity *j*, using equation 2-8.2;

 $l_{0 \ 2020 \ j}$ = Intensity of other emissions calculated for year 2020 for type of activity *j*, using equation 2-8.3.

Equation 2-8.1 Calculation of the intensity target of fixed process emissions by type of activity at an establishment that is not considered on a sectoral basis for year 2020

 $I_{FP\ 2020\ j}\ =\ I_{FP\ av\ j}$

Where:

 $I_{FP \ 2020 \ j}$ = Intensity of fixed process emissions calculated for year 2020 for type of activity *j*;

j = Type of activity;

 $I_{FP av j}$ = Average intensity of fixed process emissions attributable to type of activity *j* at the establishment for the period 2007-2010, calculated using equation 2-3, in metric tonnes CO₂ equivalent per reference unit.

Equation 2-8.2 Calculation of the intensity target of combustion emissions by type of activity at an establishment that is not considered on a sectoral basis for year 2020

 $I_{C \ 2020 \ j} = R \times min[(0.95)I_{C \ min \ j}; (0.90)I_{C \ av \ j}]$

Where:

 $I_{C 2020 j}$ = Intensity of combustion emissions calculated for year 2020 for type of activity *j*;

j = Type of activity;

R = Intensity multiplication factor for combustion emissions at the establishment calculated using equations 2-4 and 2-5 or, in the case of an establishment producing pulp and paper described by NAICS code 3221, having a value of 1;

min = Minimum value, representing the lesser of the 2 elements calculated;

0.95 = Proportion corresponding to 95% of the minimum intensity of combustion emissions;

 $I_{C \min j}$ = Minimum annual intensity of combustion emissions attributable to type of activity *j* at the establishment for the years 2007 to 2010 inclusively, in metric tonnes CO₂ equivalent per reference unit;

0.90 = Proportion corresponding to 90% of the average intensity of combustion emissions;

 $I_{C avj}$ = Average intensity of combustion emissions attributable to type of activity *j* at the establishment for the years 2007 to 2010, calculated using equation 2-6, in metric tonnes CO₂ equivalent per reference unit.

Equation 2-8.3 Calculation of the intensity target of other emissions by type of activity at an establishment that is not considered on a sectoral basis for the year 2020

 $I_{0 \ 2020 \ i} = min [(0.95)I_{0 \ min \ i}; (0.90)I_{0 \ av \ i}]$

Where:

 $l_{0 \ 2020 \ j}$ = Intensity of other emissions calculated for the year 2020 for type of activity *j*;

j = Type of activity;

min = Minimum value, representing the lesser of the 2 elements calculated;

0.95 = Proportion corresponding to 95% of the minimum intensity of other emissions;

 $l_{0 \min j}$ = Minimum annual intensity of other emissions attributable to type of activity *j* at the establishment for the years 2007 to 2010 inclusively, in metric tonnes CO₂ equivalent per reference unit;

0.90 = Proportion corresponding to 90% of the average intensity of other emissions;

 $l_{0 \text{ av } j}$ = Average intensity of other emissions attributable to type of activity *j* at the establishment for the years 2007 to 2010, calculated using equation 2-7, in metric tonnes CO₂ equivalent per reference unit.";

(14) by replacing "and covered establishment after 2013" in the heading of Division 4 by ", covered establishment after 2013, covered establishment as of 2018 and covered establishment referred to in section 2.1";

(15) by inserting "for covered establishments as of 2013 and for covered establishments after 2013" at the end of the heading of Division 4.2;

(16) by inserting "covered after 2013" after "or" in the heading of Equation 4-8;

(17) by inserting the following after Division 4.2:

4.3. Calculation method for the years 2018 to 2020 for covered establishments as of 2018

4.3.1. Covered establishment as of 2018 that is not considered on a sectoral basis for the years 2018 to 2020 and that possesses all the GHG emissions data for years d-2 to d

Equation 4-9 Calculation of the number of GHG emission units allocated without charge by type of activity at a covered establishment as of 2018 that is not considered on a sectoral basis for the years 2018 to 2020 and that possesses GHG emissions data for years *d*-2 to *d*

$$A_{ij} = \left[I_{FP \, dep \, j} \times a_{FP,i} + R \times I_{C \, dep \, j} \times a_{C,i} + I_{O \, dep \, j} \times a_{O,i} \right] \times P_{Rij}$$

Where:

 A_{ij} = Total number of GHG emission units allocated without charge by type of activity *j* at an establishment for year *i*;

i = Each year in the period 2018-2020 for which the emitter is required to cover its GHG emissions;

j = Type of activity;

 $I_{FP dep j}$ = Average intensity of fixed process emissions attributable to type of activity *j* at the establishment for years *d*-2 to *d*, calculated using equation 4-10, in metric tonnes CO₂ equivalent per reference unit;

d = First year for which the GHG emissions of the establishment are equal to or exceed the emissions threshold; in the case of a dismembering establishment covered as of 2018, d corresponds to the year 2016;

 $a_{FP,i}$ = Cap adjustment factor for the allocation of fixed process emissions for year *i* for establishments covered between 2018 and 2020, as defined in Table 4 of this Appendix, where n=*i*-(*d*+2);

R = Intensity multiplication factor for combustion emissions at the establishment, calculated using equation 4-11 or, in the case of an establishment producing pulp and paper described by NAICS code 3221, having a value of 1;

 $I_{C \text{ dep } j}$ = Average intensity of combustion emissions attributable to type of activity *j* at the establishment for years *d*-2 to *d*, calculated using equation 4-13, in metric tonnes CO₂ equivalent per reference unit;

 $a_{C,i}$ = Cap adjustment factor for the allocation of combustion emissions for year *-i* for establishments covered between 2018 and 2020, as defined in Table 4 of this Appendix, where n=i-(d+2);

 $I_{O \text{ dep } j}$ = Average intensity of other emissions attributable to type of activity *j* at the establishment for years *d*-2 to *d*, calculated using equation 4-14, in metric tonnes CO₂ equivalent per reference unit;

 $a_{O,i}$ = Cap adjustment factor for the allocation of other emissions for year i for establishments covered between 2018 and 2020, as defined in Table 4 of this Appendix, where n=*i*-(*d*+2);

 $P_{Ri j}$ = Total quantity of reference units produced or used at the establishment for type of activity *j* during year *i*.

Equation 4-10 Calculation of the intensity of fixed process emissions by type of activity at a covered establishment as of 2018 that is not considered on a sectoral basis and that possesses GHG emissions data for years d-2 to d

$$I_{FP \ dep \ j} = \frac{\sum_{i=(d-2)}^{d} GHG \ FP_{ij}}{\sum_{i=(d-2)}^{d} P_{Rij}}$$

Where:

I FP dep j = Average intensity of fixed process emissions attributable to type of activity j at the establishment for years d-2 to d, in metric tonnes CO₂ equivalent per reference unit;

j = Type of activity;

d = First year for which the GHG emissions of the establishment are equal to or exceed the emissions threshold;

i = Years *d*-2, *d*-1 and *d*;

GHG FP_{ij} = Fixed process emissions attributable to type of activity j at the establishment for year i, in metric tonnes CO₂ equivalent;

 $P_{Ri j}$ = Total quantity of reference units produced or used at the establishment for type of activity *j* during year *i*.

Equation 4-11 Calculation of the intensity multiplication factor for combustion emissions at a covered establishment as of 2018 that is not considered on a sectoral basis and that possesses GHG emissions data for years d-2 to d

 $R = 0.80 \times GFR + (1 - GFR)$

Where:

R = Intensity multiplication factor for combustion emissions at the establishment;

0.80 = Proportion corresponding to 80% of the GFR ratio;

GFR = Ratio between the total combustion emissions attributable to the use of natural gas, gasoline, diesel, heating oil, propane, petroleum coke and coal, excluding refinery fuel gas, and total combustion emissions at the establishment, calculated using equation 4-12.

Equation 4-12 Calculation of the GFR ratio for a covered establishment as of 2018 that is not considered on a sectoral basis and that possesses GHG emissions data for years d-2 to d

$$GFR = \frac{\sum_{i=(d-2)}^{(d)} GHG \ GFR_i}{\sum_{i=(d-2)}^{(d)} GHG \ C_i}$$

Where:

GFR = Ratio between the total combustion emissions attributable to the use of natural gas, gasoline, diesel, heating oil, propane, petroleum coke and coal, excluding refinery fuel gas, and total combustion emissions at the establishment;

d = First year for which the GHG emissions of the establishment are equal to or exceed the emissions threshold;

i = Years *d*-2, *d*-1 and *d*;

GHG GFR_i = Combustion emissions attributable to the use of natural gas, gasoline, diesel, heating oil, propane, petroleum coke and coal, excluding refinery fuel gas, at the establishment during year *i*, in metric tonnes CO_2 equivalent;

GHG C_i = Total combustion emissions attributable to the use of fuel at the establishment during year *i*, in metric tonnes CO₂ equivalent.

Equation 4-13 Calculation of the intensity of combustion emissions by type of activity at a covered establishment as of 2018 that is not considered on a sectoral basis and that possesses GHG emissions data for years d-2 to d



Where:

 $I_{C \text{ dep } j}$ = Average intensity of combustion emissions attributable to type of activity *j* at the establishment for years *d*-2 to *d*, in metric tonnes CO₂ equivalent per reference unit;

j = Type of activity;

d = First year for which the GHG emissions of the establishment are equal to or exceed the emissions threshold;

i = Years *d*-2, *d*-1 and *d*;

GHG C_{ij} = Combustion emissions attributable to type of activity *j* at the establishment for year *i*, in metric tonnes CO₂ equivalent;

 $P_{Ri j}$ = Total quantity of reference units produced or used at the establishment for type of activity *j* during year *i*.

Equation 4-14 Calculation of the intensity of other emissions by type of activity at a covered establishment as of 2018 that is not considered on a sectoral basis and that possesses GHG emissions data for years d-2 to d



Where:

 $I_{O \text{ dep } j}$ = Average intensity of other emissions attributable to type of activity *j* at the establishment for years *d*-2 to *d*, in metric tonnes CO₂ equivalent per reference unit;

j = Type of activity;

d = First year for which the GHG emissions of the establishment are equal to or exceed the emissions threshold;

i = Years *d*-2, *d*-1 and *d*;

GHG O_{ij} = Other emissions attributable to type of activity j at the establishment for year i, in metric tonnes CO₂ equivalent;

 $P_{Ri j}$ = Total quantity of reference units produced or used at the establishment for type of activity j during year *i*.

4.3.2. Covered establishment as of 2018 that is not considered on a sectoral basis and that does not possess all the GHG emissions data for years d-2 to d

The total quantity of GHG emission units allocated without charge to an emitter is calculated in accordance with the following methods:

(1) in the case of an establishment for which the GHG emissions data for years d to d+2, or d+1 to d+3 where d is the year in which the establishment became operational, are all available, using equation 4-15;

(2) in the case of an establishment for which the GHG emissions data for years d to d+2, or d+1 to d+3 where d is the year in which the establishment became operational, are not all available, using equation 4-21.

Equation 4-15 Calculation of the number of GHG emission units allocated without charge by type of activity at a covered establishment as of 2018 that is not considered on a sectoral basis for the years 2018 to 2020 and that does not possess all the GHG emissions data for years d-2 to d

$$A_{ij} = \left[I_{FP \ dep \ j} \times a_{FP,i} + R \times I_{C \ dep \ j} \times a_{C,i} + I_{O \ dep \ j} \times a_{O,i} \right] \times P_{Ri \ j}$$

Where:

 A_{ij} = Total number of GHG emission units allocated without charge by type of activity *j* at an establishment for year *i*;

i = Each year in the period 2018-2020 for which the emitter is required to cover its GHG emissions;

j = Type of activity;

 $I_{FP dep j}$ = Average intensity of fixed process emissions attributable to type of activity *j* at the establishment for years *d* to *d*+2, or *d*+1 to *d*+3 where *d* is the year in which the establishment became operational, calculated using equation 4-16, in metric tonnes CO₂ equivalent per reference unit;

d = First year for which the GHG emissions of the establishment are equal to or exceed the emissions threshold;

 $a_{FP,i}$ = Cap adjustment factor for the allocation of fixed process emissions for year *i* for establishments covered between 2018 and 2020, as defined in Table 4 of this Appendix, where n=*i*-(*d*+2);

R = Intensity multiplication factor for combustion emissions at the establishment calculated using equation 4-17 or, in the case of an establishment producing pulp and paper described by NAICS code 3221, having a value of 1;

 $I_{C \text{ dep } j}$ = Average intensity of combustion emissions attributable to type of activity *j* at the establishment for years *d* to *d*+2, or *d*+1 to *d*+3 where *d* is the year in which the establishment became operational, calculated using equation 4-19, in metric tonnes CO₂ equivalent per reference unit;

 $a_{C,i}$ = Cap adjustment factor for the allocation of combustion emissions for year *i* for establishments covered between 2018 and 2020, as defined in Table 4 of this Appendix, where n=*i*-(*d*+2);

 $I_{O \text{ dep } j}$ = Average intensity of other emissions attributable to type of activity j at the establishment for years d to d+2, or d+1 to d+3 where d is the year in which the establishment became operational, calculated using equation 4-20, in metric tonnes CO₂ equivalent per reference unit;

 $a_{O,i}$ = Cap adjustment factor for the allocation of other emissions for year *i* for establishments covered between 2018 and 2020, as defined in Table 4 of this Appendix, where n=*i*-(*d*+2);

 $P_{Ri j}$ = Total quantity of reference units produced or used at the establishment for type of activity *j* during year *i*.

Equation 4-16 Calculation of the intensity of fixed process emissions by type of activity at a covered establishment as of 2018 that is not considered on a sectoral basis and that does not possess all the GHG emissions data for years d-2 to d

$$I_{FP \ dep \ j} = \frac{\sum_{i=(d)}^{d+2} GHG \ FP_{ij}}{\sum_{i=(d)}^{d+2} P_{Rij}}$$

Or

$$I_{FP \ dep \ j} = \frac{\sum_{i=(d+1)}^{d+3} GHG \ FP_{ij}}{\sum_{i=(d+1)}^{d+3} P_{Rij}}$$

Where:

 $I_{FP dep j}$ = Average intensity of fixed process emissions attributable to type of activity *j* at the establishment for years *d* to *d*+2, or *d*+1 to *d*+3 where *d* is the year in which the establishment became operational, in metric tonnes CO₂ equivalent per reference unit;

j = Type of activity;

d = First year for which the GHG emissions of the establishment are equal to or exceed the emissions threshold;

i = Years d to d+2, or d+1 to d+3 where d is the year in which the establishment became operational;

GHG FP_{ij} = Fixed process emissions attributable to type of activity j at the establishment for year i, in metric tonnes CO₂ equivalent;

 $P_{Ri j}$ = Total quantity of reference units produced or used at the establishment for type of activity *j* during year *i*.

Equation 4-17 Calculation of the intensity multiplication factor for combustion emissions at a covered establishment as of 2018 that is not considered on a sectoral basis and that does not possess all the GHG emissions data for years d-2 to d

 $R = 0.80 \times GFR + (1 - GFR)$

Where:

R = Intensity multiplication factor for combustion emissions at the establishment;

0.80 = Proportion corresponding to 80% of the GFR ratio;

GFR = Ratio between the total combustion emissions attributable to the use of natural gas, gasoline, diesel, heating oil, propane, petroleum coke and coal, excluding refinery fuel gas, and total combustion emissions at the establishment, calculated using equation 4-18.

Equation 4-18 Calculation of the GFR ratio for a covered establishment as of 2018 that is not considered on a sectoral basis and that does not possess all the GHG emissions data for years *d*-2 to *d*

$$GFR = \frac{\sum_{i=(d)}^{(d+2)} GHG \ GFR_i}{\sum_{i=(d)}^{(d+2)} GHG \ C_i}$$
Or

$CEP - \sum_{i=(d+1)}^{(d+3)} GHG \ GFR_i$	
$\sum_{i=(d+1)}^{(d+3)} GHG C_i$	

Where:

GFR = Ratio between the total combustion emissions attributable to the use of natural gas, gasoline, diesel, heating oil, propane, petroleum coke and coal, excluding refinery fuel gas, and total combustion emissions at the establishment;

d = First year for which the GHG emissions of the establishment are equal to or exceed the emissions threshold;

i = Years *d* to d+2, or d+1 to d+3 where *d* is the year in which the establishment became operational;

GHG GFR_i = Combustion emissions attributable to the use of natural gas, gasoline, diesel, heating oil, propane, petroleum coke and coal, excluding refinery fuel gas, at the establishment during year i, in metric tonnes CO_2 equivalent;

GHG C_i = Total combustion emissions attributable to the use of fuel at the establishment during year *i*, in metric tonnes CO₂ equivalent.

Equation 4-19 Calculation of the intensity of combustion emissions by type of activity at a covered establishment as of 2018 that is not considered on a sectoral basis and that does not possess all the GHG emissions data for years d-2 to d



Or

$$I_{C \ dep \ j} = \frac{\sum_{i=(d+1)}^{d+3} GHG \ C_{ij}}{\sum_{i=(d+1)}^{d+3} P_{Rij}}$$

Where:

 $I_{C \text{ dep } j}$ = Average intensity of combustion emissions attributable to type of activity *j* at the establishment for years *d* to *d*+2, or *d*+1 to *d*+3 where *d* is the year in which the establishment became operational, in metric tonnes CO₂ equivalent per reference unit;

j = Type of activity;

d = First year for which the GHG emissions of the establishment are equal to or exceed the emissions threshold;

i = Years d to d+2, or d+1 to d+3 where d is the year in which the establishment became operational;

GHG C_{ij} = Combustion emissions attributable to type of activity *j* at the establishment for year *i*, in metric tonnes CO₂ equivalent;

 $P_{Ri j}$ = Total quantity of reference units produced or used at the establishment for type of activity *j* during year *i*.

Equation 4-20 Calculation of the intensity of other emissions by type of activity at a covered establishment as of 2018 that is not considered on a sectoral basis and that does not possess all the GHG emissions data for years d-2 to d

$$I_{0 \ dep \ j} = \frac{\sum_{i=(d)}^{d+2} GHG \ O_{ij}}{\sum_{i=(d)}^{d+2} P_{Rij}}$$

Or

$$I_{0 \ dep \ j} = \frac{\sum_{i=(d+1)}^{d+3} GHG \ O_{ij}}{\sum_{i=(d+1)}^{d+3} P_{Rij}}$$

Where:

 $I_{O \text{ dep } j}$ = Average intensity of other emissions attributable to type of activity *j* at the establishment for years *d* to *d*+2, or *d*+1 to *d*+3 where *d* is the year in which the establishment became operational, in metric tonnes CO₂ equivalent per reference unit;

j = Type of activity;

d = First year for which the GHG emissions of the establishment are equal to or exceed the emissions threshold;

i = Years *d* to d+2, or d+1 to d+3 where *d* is the year in which the establishment became operational;

GHG $O_{i j}$ = Other emissions attributable to type of activity *j* at the establishment for year *i*, in metric tonnes CO₂ equivalent;

 $P_{Ri j}$ = Total quantity of reference units produced or used at the establishment for type of activity *j* during year *i*.

Equation 4-21 Calculation of the number of GHG emission units allocated without charge for a covered establishment as of 2018 that is not considered on a sectoral basis for the years 2018 to 2020 and that does not possess all the GHG emissions data for years d to d+2, or d+1 to d+3 where d is the year in which the establishment became operational

 $A_{i} = (EC_{TOTAL\,i} \times EF \times a_{C,i}) + (GHG_{FP\,i} \times a_{FP,i}) + (GHG_{O\,i} \times a_{O,i})$

Where:

 A_i = Total number of GHG emission units allocated without charge for year *i*;

i = Each year in the period 2018-2020 for which the emitter is required to cover GHG emissions;

 $EC_{TOTAL i}$ = Energy consumption in year *i*, calculated using equation 4-22, in GJ;

EF = Emission factor for natural gas, in metric tonnes CO₂ equivalent/GJ, calculated using equation 4-21.1;

 $a_{C,i}$ = Cap adjustment factor for the allocation of combustion emissions for year *i* for establishments covered between 2018 and 2020, as defined in Table 4 of this Appendix, where n=*i*-(*d*+2);

d = First year for which the GHG emissions of the establishment are equal to or exceed the emissions threshold;

 GHG_{FPi} = Fixed process emissions at the establishment for year *i*, in metric tonnes CO₂ equivalent;

 $a_{FP,i}$ = Cap adjustment factor for the allocation of fixed process emissions for year *i* for establishments covered between 2018 and 2020, as defined in Table 4 of this Appendix, where n=*i*-(*d*+2);

 GHG_{0i} = other emissions at the establishment for year *i*, in metric tonnes CO_2 equivalent;

 $a_{O,i}$ = Cap adjustment factor for the allocation of other emissions for year *i* for establishments covered between 2018 and 2020, as defined in Table 4 of this Appendix, where n=*i*-(*d*+2).

Equation 4-21.1 Calculation of the emission factor for natural gas

 $EF = \left((EF_{CO2} \times 1,000) + (EF_{CH4} \times GWP_{CH4}) + (EF_{N20} \times GWP_{N20}) \right) \\ \times 0.000001$

Where:

 EF_{CO2} = Emission factor of CO₂ for natural gas taken from Table 1-4 of the Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere (chapter Q-2, r. 15), in kilograms of CO₂ per GJ;

1,000 = Conversion factor, kilograms to grams;

 EF_{CH4} = Emission factor of CH₄ for natural gas, for industrial uses, taken from Table 1-7 of the Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere (chapter Q-2, r. 15), in grams of CH₄ per GJ;

 GWP_{CH4} = Global warming potential of CH₄ taken from Schedule A.1 to the Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere (chapter Q-2, r. 15);

 EF_{N2O} = Emission factor of N₂O for natural gas, for industrial uses, taken from Table 1-7 of the Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere (chapter Q-2, r. 15), in grams of N₂O per GJ;

 GWP_{N2O} = Global warming potential of N₂O taken from Schedule A.1 to the Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere (chapter Q-2, r. 15);

0.000001 = Conversion factor, grams to metric tonnes;

Equation 4-22 Calculation of energy consumption for year i of a covered establishment as of 2018 that is not considered on a sectoral basis and that does not possess all the GHG emissions data for years d to d+2

$$EC_{TOTAL\,i} = \sum_{k=1}^{n} Fuel_k \times HHV_k$$

Where:

EC_{TOTAL i} = Energy consumption in year *i* in GJ;

i = Each year of the period 2018-2020 for which the emitter is required to cover GHG emissions;

n = Total number of types of fuel used;

k = Type of fuel;

Fuel_k = Mass or volume of fuel burned:

(a) in dry metric tonnes, where the quantity is expressed as a mass;

(*b*) in thousands of cubic metres at standard conditions, where the quantity is expressed as a volume of gas;

(c) in kilolitres, where the quantity is expressed as a volume of liquid;

 HHV_k = High heat value for measurement period *i*, expressed

(a) in GJ per dry metric tonne, in the case of fuels whose quantity is expressed as a mass;

(b) in GJ per thousand cubic metres, in the case of fuels whose quantity is expressed as a volume of gas;

(c) in GJ per kilolitre, in the case of fuels whose quantity is expressed as a volume of liquid.

4.3.3. Covered establishment as of 2018 that is not considered on a sectoral basis and that does not possess a determined reference unit

The total quantity of GHG emission units allocated without charge to an emitter is calculated in accordance with the following methods:

(1) in the case of an establishment for which the GHG emissions data for years d to d+2, or d+1 to d+3 where d is the year in which the establishment became operational, are all available, using equation 4-23;

(2) in the case of an establishment for which the GHG emissions data for years d to d+2, or d+1 to d+3 where d is the year in which the establishment became operational, are not all available, using equation 4-21.

Equation 4-23 Calculation of the number of GHG emission units allocated without charge for the years 2018 to 2020 for a covered establishment as of 2018 that does not possess a determined reference unit and that possesses all the GHG emissions data for years d to d+2, or d+1 to d+3 where d is the year in which the establishment became operational

$$A_{i} = \left[\left(EC_{TOTAL,av} \times EF \times a_{C,i} \right) + \left(GHG_{FP,av} \times a_{FP,i} \right) + \left(GHG_{O,av} \times a_{O,i} \right) \right]$$

Where:

 A_i = Total number of GHG emission units allocated without charge for year *i*;

i = Each year in the period 2018-2020 for which the emitter is required to cover GHG emissions;

 $EC_{TOTAL,av}$ = Average energy consumption for years *d* to *d*+2, or *d*+1 to *d*+3 where *d* is the year in which the establishment became operational, calculated using equation 4-24, in GJ;

d = First year for which the GHG emissions of the establishment are equal to or exceed the emissions threshold;

EF = Emission factor for natural gas, in metric tonnes CO₂ equivalent/GJ, calculated using equation 4-21.1;

 $a_{C,i}$ = Cap adjustment factor for the allocation of combustion emissions for year *i* for establishments covered between 2018 and 2020, as defined in Table 4 of this Appendix, where n=*i*-(d+2);

 GHG_{FPav} = Average fixed process emissions at the establishment for years d to d+2, or d+1 to d+3 where d is the year in which the establishment became operational, in metric tonnes CO_2 equivalent;

 $a_{FP,i}$ = Cap adjustment factor for the allocation of fixed process emissions for year *i* for establishments covered between 2018 and 2020, as defined in Table 4 of this Appendix, where n=*i*-(*d*+2);

 $GHG_{0,av}$ = Average other emissions at the establishment for years *d* to *d*+2, or *d*+1 to *d*+3 where *d* is the year in which the establishment became operational, in metric tonnes CO₂ equivalent;

 $a_{O,i}$ = Cap adjustment factor for the allocation of other emissions for year *i* for establishments covered between 2018 and 2020, as defined in Table 4 of this Appendix, where n=*i*-(*d*+2).

Equation 4-24 Calculation of average energy consumption for years d to d+2, or d+1 to d+3 where d is the year in which the establishment became operational, for a covered establishment as of 2018 that possesses all the GHG emissions data for those years

$$EC_{TOTAL,av} = \sum_{d}^{d+2} \left(\sum_{k=1}^{n} Fuel_k \times HHV_k \right) \div 3$$

Or

$$EC_{TOTAL,av} = \sum_{d+1}^{d+3} \left(\sum_{k=1}^{n} Fuel_k \times HHV_k \right) \div 3$$

Where:

 $EC_{TOTAL,av}$ = Average energy consumption for years *d* to *d*+2, or *d*+1 to *d*+3 where *d* is the year in which the establishment became operational, in GJ;

d = First year for which the GHG emissions of the establishment are equal to or exceed the emissions threshold;

n = Total number of types of fuel used;

k = Type of fuel;

 $Fuel_k$ = Mass or volume of fuel burned:

(a) in dry metric tonnes, where the quantity is expressed as a mass;

(*b*) in thousands of cubic metres at standard conditions, where the quantity is expressed as a volume of gas;

(c) in kilolitres, where the quantity is expressed as a volume of liquid;

 HHV_k = High heat value for measurement period *i*, expressed

(a) in GJ per dry metric tonne, in the case of fuels whose quantity is expressed as a mass;

(*b*) in GJ per thousand cubic metres, in the case of fuels whose quantity is expressed as a volume of gas;

(c) in GJ per kilolitre, in the case of fuels whose quantity is expressed as a volume of liquid.

4.4. Calculation method for the years 2018 to 2020 for the covered establishments referred to in section 2.1.

4.4.1. Covered establishment referred to in section 2.1 that is not considered on a sectoral basis and for which the GHG emissions data for years e-3 to e-1 are all available

Equation 4-25 Calculation of the number of GHG emission units allocated without charge by type of activity at a covered establishment referred to in section 2.1 that is not considered on a sectoral basis for the years 2018 to 2020 and for which the GHG emissions data for years e-3 to e-1 are all available

$$A_{ij} = \left[I_{FP \ dep \ j} \times a_{FP,i} + R \times I_{C \ dep \ j} \times a_{C,i} + I_{O \ dep \ j} \times a_{O,i}\right] \times P_{Ri \ j}$$

Where:

 A_{ij} = Total number of GHG emission units allocated without charge by type of activity *j* at an establishment for year *i*;

i = Each year in the period 2018-2020 for which the emitter is required to cover its GHG emissions;

j = Type of activity;

 $I_{FP dep j}$ = Average intensity of fixed process emissions attributable to type of activity *j* at the establishment for years *e*-3 to *e*-1, calculated using equation 4-26, in metric tonnes CO₂ equivalent per reference unit;

e = Year of application for registration for the system;

 $a_{FP,i}$ = Cap adjustment factor for the allocation of fixed process emissions for year i for establishments covered between 2018 and 2020, as defined in Table 4 of this Appendix, where n=i-(e+1);

R = Intensity multiplication factor for combustion emissions at the establishment calculated using equation 4-27 or, in the case of an establishment producing pulp and paper described by NAICS code 3221, having a value of 1;

 $I_{C \text{ dep } j}$ = Average intensity of combustion emissions attributable to type of activity *j* at the establishment for years *e*-3 to *e*-1, calculated using equation 4-29, in metric tonnes CO₂ equivalent per reference unit;

 $a_{C,i}$ = Cap adjustment factor for the allocation of combustion emissions for year i for establishments covered between 2018 and 2020, as defined in Table 4 of this Appendix, where n=*i*-(*e*+1);

 $I_{O \text{ dep } j}$ = Average intensity of other emissions attributable to type of activity *j* at the establishment for years e-3 to e-1, calculated using equation 4-30, in metric tonnes CO₂ equivalent per reference unit;

 $a_{O,i}$ = Cap adjustment factor for the allocation of other emissions for year *i* for establishments covered between 2018 and 2020, as defined in Table 4 of this Appendix, where n=*i*-(*e*+1);

 $P_{Ri j}$ = Total quantity of reference units produced or used at the establishment for type of activity *j* during year *i*.

Equation 4-26 Calculation of the intensity of fixed process emissions by type of activity at a covered establishment referred to in section 2.1 that is not considered on a sectoral basis and for which the GHG emissions data for years e-3 to e-1 are all available

$$I_{FP \ dep \ j} = \frac{\sum_{i=(e-3)}^{e-1} GHG \ FP_{ij}}{\sum_{i=(e-3)}^{e-1} P_{Rij}}$$

Where:

 $I_{FP dep j}$ = Average intensity of fixed process emissions attributable to type of activity *j* at the establishment for years *e*-3 to *e*-1, in metric tonnes CO₂ equivalent per reference unit;

j = Type of activity;

e = Year of application for registration for the system;

i = Years *e*-3, *e*-2 and *e*-1;

GHG FP_{ij} = Fixed process emissions attributable to type of activity j at the establishment for year i, in metric tonnes CO₂ equivalent;

 $P_{Ri j}$ = Total quantity of reference units produced or used at the establishment for type of activity *j* during year *i*.

Equation 4-27 Calculation of the intensity multiplication factor for combustion emissions for a covered establishment referred to in section 2.1 that is not considered on a sectoral basis and for which the GHG emissions data for years e-3 to e-1 are all available

$$R = 0.80 \times GFR + (1 - GFR)$$

Where:

R = Intensity multiplication factor for GHG combustion emissions at the establishment;

0.80 = Proportion corresponding to 80% of the GFR ratio;

GFR = Ratio between the total combustion emissions attributable to the use of natural gas, gasoline, diesel, heating oil, propane, petroleum coke and coal, excluding refinery fuel gas, and total combustion emissions at the establishment, calculated using equation 4-28.

Equation 4-28 Calculation of the GFR ratio for a covered establishment referred to in section 2.1 that is not considered on a sectoral basis and for which the GHG emissions data for years e-3 to e-1 are all available

$$GFR = \frac{\sum_{i=(e-3)}^{(e-1)} GHG \ GFR_i}{\sum_{i=(e-3)}^{(e-1)} GHG \ C_i}$$

Where:

GFR = Ratio between the total combustion emissions attributable to the use of natural gas, gasoline, diesel, heating oil, propane, petroleum coke and coal, excluding refinery fuel gas, and total combustion emissions at the establishment;

e = Year of registration for the system;

i = Years e-3, e-2 and e-1;

GHG GFR_i = combustion emissions attributable to the use of natural gas, gasoline, diesel, heating oil, propane, petroleum coke and coal, excluding refinery fuel gas, at the establishment during year *i*, in metric tonnes CO_2 equivalent;

GHG C_i = Total combustion emissions attributable to the use of fuel at the establishment during year *i*, in metric tonnes CO₂ equivalent.

Equation 4-29 Calculation of the intensity of combustion emissions by type of activity at a covered establishment referred to in section 2.1 that is not considered on a sectoral basis and for which the GHG emissions data for years e-3 to e-1 are all available



Where:

 $I_{C \text{ dep } j}$ = Average intensity of combustion emissions attributable to type of activity *j* at the establishment for years e-3 to e-1, in metric tonnes CO₂ equivalent per reference unit;

j = Type of activity;

e = Year of application for registration for the system;

i = Years *e*-3, *e*-2 and *e*-1;

GHG C_{ij} = Combustion emissions attributable to type of activity *j* at the establishment for year *i*, in metric tonnes CO₂ equivalent;

 $P_{Ri j}$ = Total quantity of reference units produced or used at the establishment for type of activity *j* during year *i*.

Equation 4-30 Calculation of the intensity of other emissions by type of activity at a covered establishment referred to in section 2.1 that is not considered on a sectoral basis and for which the GHG emissions data for years e-3 to e-1 are all available

$$I_{0 dep j} = \frac{\sum_{i=(e-3)}^{e-1} GHG O_{ij}}{\sum_{i=(e-3)}^{e-1} P_{Rij}}$$

Where:

 $I_{O \text{ dep } j}$ = Average intensity of other emissions attributable to type of activity j at the establishment for years *e*-3 to *e*-1, in metric tonnes CO₂ equivalent per reference unit;

j = Type of activity;

e = Year of application for registration for the system;

i = Years e-3, e-2 and e-1;

GHG O_{ij} = Other emissions attributable to type of activity *j* at the establishment for year *i*, in metric tonnes CO₂ equivalent;

 $P_{Ri j}$ = Total quantity of reference units produced or used at the establishment for type of activity *j* during year *i*.

4.4.2. Covered establishment referred to in section 2.1 that is not considered on a sectoral basis and for which the GHG emissions data for years e-3 to e-1 are not all available

The total quantity of GHG emission units allocated without charge to an emitter is calculated in accordance with the following methods:

(1) in the case of an establishment for which the GHG emissions data for years e-1 to e+1, or e to e+2 where e-1 is the year in which the establishment became operational, are all available, using equation 4-31;

(2) in the case of an establishment for which the GHG emissions data for years e-1 to e+1, or e to e+2 where e-1 is the year in which the establishment became operational, are not all available, using equation 4-37.

Equation 4-31 Calculation of the number of GHG emission units allocated without charge by type of activity at a covered establishment referred to in section 2.1 that is not considered on a sectoral basis for the years 2018 to 2020 and for which the GHG emissions data for years e-3 to e-1 are not all available

$$A_{ij} = \left[I_{FP \ dep \ j} \times a_{FP,i} + R \times I_{C \ dep \ j} \times a_{C,i} + I_{O \ dep \ j} \times a_{O,i}\right] \times P_{Rij}$$

Where:

 A_{ij} = Total number of GHG emission units allocated without charge by type of activity *j* at an establishment for year *i*;

i = Each year in the period 2018-2020 for which the emitter is required to cover GHG emissions;

j = Type of activity;

 $I_{\text{FP dep }j}$ = Average intensity of fixed process emissions attributable to type of activity *j* at the establishment for years *e*-1 to *e*+1, or *e to e*+2 where *e*-1 is the year in which the establishment became operational, calculated using equation 4-32, in metric tonnes CO₂ equivalent per reference unit;

e = Year of application for registration for the system;

 $a_{FP,i}$ = Cap adjustment factor for the allocation of fixed process emissions for year *i* for establishments covered between 2018 and 2020, as defined in Table 4 of this Appendix, where n=*i*-(*e*+1);

R = Intensity multiplication factor for combustion emissions at the establishment calculated using equation 4-33 or, in the case of an establishment producing pulp and paper described by NAICS code 3221, having a value of 1;

 $I_{C \text{ dep } j}$ = Average intensity of combustion emissions attributable to type of activity *j* at the establishment for years *e*-1 to *e*+1, or *e to e*+2 where *e*-1 is the year in which the establishment became operational, calculated using equation 4-35, in metric tonnes CO₂ equivalent per reference unit;

 $a_{C,i}$ = Cap adjustment factor for the allocation of combustion emissions for year *i* for establishments covered between 2018 and 2020, as defined in Table 4 of this Appendix, where n=*i*-(*e*+1);

 $I_{O \text{ dep } j}$ = Average intensity of other emissions attributable to type of activity j at the establishment for years e-1 to e+1, or e to e+2 where e-1 is the year in which the establishment became operational, calculated using equation 4-36, in metric tonnes CO₂ equivalent per reference unit;

 $a_{O,i}$ = Cap adjustment factor for the allocation of other emissions for year *i* for establishments covered between 2018 and 2020, as defined in Table 4 of this Appendix, where n=*i*-(*e*+1);

 $P_{Ri j}$ = Total quantity of reference units produced or used at the establishment for type of activity *j* during year *i*.

Equation 4-32 Calculation of the intensity of fixed process emissions by type of activity at a covered establishment referred to in section 2.1 that is not considered on a sectoral basis and for which the GHG emissions data for years e-3 to e-1 are not all available

$$I_{FP \ dep \ j} = \frac{\sum_{i=(e-1)}^{e+1} GHG \ FP_{ij}}{\sum_{i=(e-1)}^{e+1} P_{Rij}}$$

Or



Where:

 $I_{FP dep j}$ = Average intensity of fixed process emissions attributable to type of activity *j* at the establishment for years *e*-1 to *e*+1, or *e to e*+2 where *e*-1 is the year in which the establishment became operational, in metric tonnes CO₂ equivalent per reference unit;

j = Type of activity;

e = Year of application for registration for the system;

i = Years *e*-1 to *e*+1, or *e* to *e*+2 where *e*-1 is the year in which the establishment became operational;

GHG FP_{ij} = Fixed process emissions attributable to type of activity j at the establishment for year i, in metric tonnes CO₂ equivalent;

 $PR_{i j}$ = Total quantity of reference units produced or used at the establishment for type of activity *j* during year *i*.

Equation 4-33 Calculation of the intensity multiplication factor for combustion emissions for a covered establishment referred to in section 2.1 that is not considered on a sectoral basis and for which the GHG emissions data for years e-3 to e-1 are not all available

 $R = 0.80 \times GFR + (1 - GFR)$

Where:

R = Intensity multiplication factor for combustion emissions at the establishment;

0.80 = Proportion corresponding to 80% of the GFR ratio;

GFR = Ratio between the total GHG combustion emissions attributable to the use of natural gas, gasoline, diesel, heating oil, propane, petroleum coke and coal, excluding refinery fuel gas, and total combustion emissions at the establishment, calculated using equation 4-34.

Equation 4-34 Calculation of the GFR ratio for a covered establishment referred to in section 2.1 that is not considered on a sectoral basis and for which the GHG emissions data for years e-3 to e-1 are not all available

$$GFR = \frac{\sum_{i=(e-1)}^{(e+1)} GHG \ GFR_i}{\sum_{i=(e-1)}^{(e+1)} GHG \ C_i}$$

Or

$$GFR = \frac{\sum_{i=(e)}^{(e+2)} GHG \ GFR_i}{\sum_{i=(e)}^{(e+2)} GHG \ C_i}$$

Where:

GFR = Ratio between the total combustion emissions attributable to the use of natural gas, gasoline, diesel, heating oil, propane, petroleum coke and coal, excluding refinery fuel gas, and total combustion emissions at the establishment;

e = Year of registration for the system;

i = Years e-1 to e+1, or e to e+2 where e-1 is the year in which the establishment became operational;

GHG GFR_i = Combustion emissions attributable to the use of natural gas, gasoline, diesel, heating oil, propane, petroleum coke and coal, excluding refinery fuel gas, at the establishment during year *i*, in metric tonnes CO_2 equivalent;

GHG C_i = Total combustion emissions attributable to the use of fuel at the establishment during year *i*, in metric tonnes CO₂ equivalent.

Equation 4-35 Calculation of the intensity of combustion emissions by type of activity at a covered establishment referred to in section 2.1 that is not considered on a sectoral basis and for which the GHG emissions data for years e-3 to e-1 are not all available

$$I_{C \ dep \ j} = \frac{\sum_{i=(e-1)}^{e+1} GHG \ C_{ij}}{\sum_{i=(e-1)}^{e+1} P_{Rij}}$$

Or

$$I_{C \ dep \ j} = \frac{\sum_{i=(e)}^{e+2} GHG \ C_{ij}}{\sum_{i=(e)}^{e+2} P_{Rij}}$$

Where:

 $I_{C \text{ dep } j}$ = Average intensity of combustion emissions attributable to type of activity *j* at the establishment for years *e*-1 to *e*+1, or *e* to *e*+2 where *e*-1 is the year in which the establishment became operational, in metric tonnes CO₂ equivalent per reference unit;

j = Type of activity;

e = Year of application for registration for the system;

i = Years *e*-1 to *e*+1, or *e* to *e*+2 where *e*-1 is the year in which the establishment became operational;

GHG C_{ij} = Combustion emissions attributable to type of activity *j* at the establishment for year *i*, in metric tonnes CO₂ equivalent;

 $P_{Ri j}$ = Total quantity of reference units produced or used at the establishment for type of activity *j* during year *i*.

Equation 4-36 Calculation of the intensity of other emissions by type of activity at a covered establishment referred to in section 2.1 that is not considered on a sectoral basis and for which the GHG emissions data for years e-3 to e-1 are not all available

$$I_{O \ dep \ j} = \frac{\sum_{i=(e-1)}^{e+1} GHG \ O_{ij}}{\sum_{i=(e-1)}^{e+1} P_{Rij}}$$

Or

$$I_{O \ dep \ j} = \frac{\sum_{i=(e)}^{e+2} GHG \ O_{ij}}{\sum_{i=(e)}^{e+2} P_{Rij}}$$

Where:

 $I_{O \text{ dep } j}$ = Average intensity of other emissions attributable to type of activity *j* at the establishment for years *e*-1 to *e*+1, or *e* to *e*+2 where *e*-1 is the year in which the establishment became operational, in metric tonnes CO₂ equivalent per reference unit;

j = Type of activity;

e = Year of application for registration for the system;

i = Years e-1 to e+1, or e to e+2 where e-1 is the year in which the establishment became operational;

GHG $O_{i j}$ = Other emissions attributable to type of activity *j* at the establishment for year *i*, in metric tonnes CO₂ equivalent;

 $P_{Ri j}$ = Total quantity of reference units produced or used at the establishment for type of activity *j* during year *i*.

Equation 4-37 Calculation of the number of GHG emission units allocated without charge for a covered establishment referred to in section 2.1 that is not considered on a sectoral basis for the years 2018 to 2020 and for which the GHG emissions data for years e-1 to e+1, or e to e+2 where e-1 is the year in which the establishment became operational, are not all available

$$A_{i} = (EC_{TOTAL\,i} \times EF \times a_{C,i}) + (GHG_{FP\,i} \times a_{FP,i}) + (GHG_{O\,i} \times a_{O,i})$$

Where:

 A_i = Total number of GHG emission units allocated without charge for year *i*;

i = Each year in the period 2018-2020 for which the emitter is required to cover its GHG emissions;

 $EC_{TOTAL i}$ = Average energy consumption for year *i*, calculated using equation 4-38, in GJ;

EF = Emission factor for natural gas, in metric tonnes CO₂ equivalent/GJ, calculated using equation 4-21.1;

 $a_{C,i}$ = Cap adjustment factor for the allocation of combustion emissions for year *i* for establishments covered between 2018 and 2020, as defined in Table 4 of this Appendix, where n=*i*-(*e*+1);

 $GHG_{FP i}$ = Fixed process emissions at the establishment for year *i*, in metric tonnes CO₂ equivalent;

 $a_{FP,i}$ = Cap adjustment factor for the allocation of fixed process emissions for year *i* for establishments covered between 2018 and 2020, as defined in Table 4 of this Appendix, where n=*i*-(*e*+1);

 GHG_{Oi} = Average other emissions at the establishment for year *i*, in metric tonnes CO_2 equivalent;

 $a_{0,i}$ = Cap adjustment factor for the allocation of other emissions for year *i* for establishments covered between 2018 and 2020, as defined in Table 4 of this Appendix, where n=*i*-(*e*+1).

Equation 4-38 Calculation of average energy consumption for years e and e+1 of an establishment for the years 2018 to 2020 that is not considered on a sectoral basis and for which the GHG emissions data for years e-1 to e+1, or e to e+2 where e-1 is the year in which the establishment became operational, are not all available

$$EC_{TOTAL\,i} = \sum_{k=1}^{n} Fuel_k \times HHV_k$$

Where:

ECTOTAL i = Energy consumption for year *i*, in GJ;

n = Total number of types of fuel used;

k = Type of fuel;

Fuel_k = Mass or volume of fuel burned:

(a) in dry metric tonnes, where the quantity is expressed as a mass;

(*b*) in thousands of cubic metres at standard conditions, where the quantity is expressed as a volume of gas;

(c) in kilolitres, where the quantity is expressed as a volume of liquid;

 HHV_k = High heat value for measurement period *i*, expressed

(a) in GJ per dry metric tonne, in the case of fuels whose quantity is expressed as a mass;

(*b*) in GJ per thousand cubic metres, in the case of fuels whose quantity is expressed as a volume of gas;

(c) in GJ per kilolitre, in the case of fuels whose quantity is expressed as a volume of liquid.

4.4.3. Covered establishment referred to in section 2.1 that is not considered on a sectoral basis and that does not possess a determined reference unit

The total quantity of GHG emission units allocated without charge to an emitter is calculated in accordance with the following methods:

(1) in the case of an establishment for which the GHG emissions data for years e-1 to e+1, or e to e+2 where e-1 is the year in which the establishment became operational, are all available, using equation 4-39;

(2) in the case of an establishment for which the GHG emissions data for years e-1 to e+1, or e to e+2 where e-1 is the year in which the establishment became operational, are not all available, using equation 4-37.

Equation 4-39 Calculation of the number of GHG emission units allocated without charge for a covered establishment referred to in section 2.1 that is not considered on a sectoral basis for the years 2018 to 2020, that does not possess a determined reference unit and for which the GHG emissions data for years e-1 to e+1, or e to e+2 where e-1 is the year in which the establishment became operational, are all available

$$A_{i} = \left[\left(EC_{TOTAL,av} \times EF \times a_{C,i} \right) + \left(GHG_{FP,av} \times a_{FP,i} \right) + \left(GHG_{O,av} \times a_{O,i} \right) \right]$$

Where:

 A_i = Total number of GHG emission units allocated without charge for year *i*;

i = Each year in the period 2018-2020 for which the emitter is required to cover its GHG emissions;

 $EC_{TOTAL,av}$ = Average energy consumption for years *e*-1 to *e*+1, or *e* to *e*+2 where *e*-1 is the year in which the establishment became operational, calculated using equation 4-40, in GJ;

e = Year of application for registration for the system;

EF = Emission factor for natural gas, in metric tonnes CO₂ equivalent/GJ, calculated using equation 4-21.1;

 $a_{C,i}$ = Cap adjustment factor for the allocation of combustion emissions for year i for establishments covered between 2018 and 2020, as defined in Table 4 of this Appendix, where n=*i*-(*e*+1);

 $GHG_{FP,av}$ = Average fixed process emissions at the establishment for years *e*-1 to *e*+1, or *e* to *e*+2 where *e*-1 is the year in which the establishment became operational, in metric tonnes CO₂ equivalent;

 $a_{FP,i}$ = Cap adjustment factor for the allocation of fixed process emissions for year *i* for establishments covered between 2018 and 2020, as defined in Table 4 of this Appendix, where n=*i*-(*e*+1);

 $GHG_{O,av}$ = Average other emissions at the establishment for years *e*-1 to *e*+1, or *e* to *e*+2 where *e*-1 is the year in which the establishment became operational, in metric tonnes CO₂ equivalent;

 $a_{O,i}$ = Cap adjustment factor for the allocation of other emissions for year *i* for establishments covered between 2018 and 2020, as defined in Table 4 of this Appendix, where n=*i*-(*e*+1).

Equation 4-40 Calculation of average energy consumption for a covered establishment referred to in section 2.1 that is not considered on a sectoral basis, that does not possess a determined reference unit, and for which the GHG emissions data for years e-1 to e+1, or e to e+2 where e-1 is the year in which the establishment became operational, are all available

$$EC_{TOTAL,av} = \sum_{e=1}^{e+1} \left(\sum_{k=1}^{n} Fuel_k \times HHV_k \right) \div 3$$

Or

$$EC_{TOTAL,av} = \sum_{e}^{e+2} \left(\sum_{k=1}^{n} Fuel_k \times HHV_k \right) \div 3$$

Where:

 $EC_{TOTAL,av}$ = Average energy consumption for years *e*-1 to *e*+1, or *e* to *e*+2 where *e*-1 is the year in which the establishment became operational, in GJ;

e = Year of application for registration for the system;

k = Type of fuel;

n = Total number of types of fuel used;

 $Fuel_k$ = Mass or volume of fuel burned:

(a) in dry metric tonnes, where the quantity is expressed as a mass;

(*b*) in thousands of cubic metres at standard conditions, where the quantity is expressed as a volume of gas;

(c) in kilolitres, where the quantity is expressed as a volume of liquid;

HHV_k = High heat value for measurement period *i*, expressed

(a) in GJ per dry metric tonne, in the case of fuels whose quantity is expressed as a mass;

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(*b*) in GJ per thousand cubic metres, in the case of fuels whose quantity is expressed as a volume of gas;

(c) in GJ per kilolitre, in the case of fuels whose quantity is expressed as a volume of liquid.";

(18) by adding the following after the heading of Division 5.2 and before equation 5-2:

"5.2.1. Establishment considered on a sectoral basis for the years 2015 to 2017 and establishment considered on a sectoral basis that possesses all the GHG emissions data for years d to d+2, or d to d+1 where d is the year in which the establishment became operational for the years 2018 to 2020";

(19) by adding the following after equation 5-2:

"5.2.2. Establishment considered on a sectoral basis that does not possess all the GHG emissions data for years d to d+2, or d to d+1where d is the year in which the establishment became operational for the years 2018 to 2020

Equation 5-3 Calculation of the total quantity of GHG emission units allocated free of charge by type of activity at an establishment covered from 2018 that is considered on a sectoral basis for the years 2018 to 2020 and that does not possess all the GHG emissions data for the years d to d+2, or d+1 to d+3 where d is the year in which the establishment became operational

$$A_{i} = max \left(\sum_{j=1}^{m} I_{2020S} \times P_{R\,ij} ; \frac{p}{q} \times \left[(EC_{TOTAL\,i} \times EF \times a_{C,i}) + (GHG_{FP\,i} \times a_{FP,i}) + (GHG_{O\,i} \times a_{O,i}) \right] \right)$$

Where:

 A_i = Total number of GHG emission units allocated free of charge for an establishment for year *i*;

i = Each year of the period 2018-2020 for which the emitter is required to cover GHG emissions;

max = Maximum value between the 2 calculated values;

j = Type of activity;

m = Total number of type of activities of the establishment;

 I_{2020S} = Target intensity for GHG emissions attributable to type of activity *j* of the sector for the year 2020, calculated using equation 3-2, in metric tonnes CO₂ equivalent per reference unit;

 $P_{Ri j}$ = Total quantity of reference units produced or used by the establishment for the type of activity *j* during year *i*;

p = 2020-*i*;

q = Maximum value between 1 and p;

EC_{TOTAL i} = Energy consumption of year *i*, calculated using equation 4-22, in GJ;

EF = Emission factor for natural gas, in metric tonnes CO₂/GJ equivalent, calculated using equation 4-21.1;

 $a_{C,i}$ = Cap adjustment factor for the allocation of combustion emissions for year *i* for establishments covered between 2018 and 2020, as defined in Table 4 of this Appendix, with n=*i*-(*d*+2);

d = First year for which the establishment's GHG emissions are equal to or exceed the emissions threshold;

 GHG_{FPi} = Fixed process emissions of the establishment for year *i*, in metric tonnes equivalent CO₂;

 $a_{FP,i}$ = Cap adjustment factor for the allocation of fixed process emissions for year *i* for establishment covered between 2018 and 2020, as defined in Table 4 of this Appendix, with n=*i*-(*d*+2);

 GHG_{Oi} = other emissions of the establishment for year *i*, in metric tonnes CO_2 equivalent;

 $A_{O,i}$ = Cap adjustment factor for the allocation of other emissions for year *i* for establishments covered between 2018 and 2020, as defined in Table 4 of this Appendix, with n=*i*-(*d*+2).";

(20) by adding the following equations after Equation 6-7:

"Equation 6-7.1 Calculation of the intensity target of fixed process emissions at an establishment fabricating rigid foamed insulation Where:

 $I_{FP2020j}$ = Intensity of fixed process emissions calculated for year 2020 for type of activity *j*;

j = Type of activity, namely the fabrication of rigid foamed insulation;

 I_{FP} = Intensity of fixed process emissions at the establishment for year 2010, calculated using equation 6-4, in metric tonnes CO₂ equivalent per board foot of rigid foamed insulation.

Equation 6-7.2 Calculation of the intensity target for combustion emissions at an establishment fabricating rigid foamed insulation

```
I_{C2020j} = R \times 0.9415 \times I_{C}
```

Where:

 I_{C2020j} = Intensity of combustion emissions calculated for year 2020 for type of activity *j*;

j = Type of activity, namely the fabrication of rigid foamed insulation;

R = Intensity multiplication factor for combustion emissions at the establishment, calculated using equations 4-6 and 4-7;

0.9415 = Proportion corresponding to an annual improvement of 1% in the intensity factor during years 2015 to 2020;

 I_C = Intensity of combustion emissions at the establishment for year 2010, calculated using equation 6-5, in metric tonnes CO_2 equivalent per board foot of rigid foamed insulation.

Equation 6-7.3 Calculation of the intensity target of other emissions at an establishment fabricating rigid foamed insulation

```
I_{O2020j} = 0.9415 \times I_{O}
```

Where:

 I_{O2020j} = Intensity of other emissions calculated for year 2020 for type of activity *j*;

j = Type of activity, namely the fabrication of rigid foamed insulation;

0.9415 = Proportion corresponding to an annual improvement of 1% in the intensity factor during years 2015 to 2020;

 I_0 = Intensity of fixed process emissions at the establishment for year 2010, calculated using equation 6-6 in metric tonnes CO₂ equivalent per board foot of rigid foamed insulation.";

(21) by replacing "2014 and using equation 6-9 for 2015 to 2020" in the first paragraph of Division 6.4 by "2014, using Equation 6-9 for 2015 to 2020 and using equation 6-10.1 for 2021 to 2023";

(22) by adding the following equations after Equation 6-10:

"Equation 6-10.1 Calculation of the number of GHG emission units allocated without charge by type of activity at an establishment producing cathodic zinc and using hydrogen as a fuel to supply its furnaces for the years 2021 to 2023

 $A_{i j} = \left[\left(I_{C stan j} \times a_{C,i} + I_{O stan j} \times a_{O,i} + F_{Hi} \right) \times P_{Ri,j} + \max \left(GHG_{FP i,j}; I_{FP stan j} \times P_{R i,j} \right) \times a_{FP,i} \right] \times AF_{i,j}$

Where:

 A_{ij} = Total quantity of GHG emission units allocated without charge for the production of cathodic zinc at the establishment for year *i*;

i = Each year included in the period 2021 to 2023;

j = Type of activity, namely the production of cathodic zinc;

 $I_{C stan j}$ = Standard intensity of combustion emissions attributable to the production of cathodic zinc at the establishment for the years 2021 to 2023, calculated using equation 8-4, in metric tonnes CO₂ equivalent per reference unit;

 $a_{C,i}$ = Cap adjustment factor for the allocation of combustion emissions for year *i*, as defined in Table 5 of this Appendix;

 $I_{O \text{ stan j}}$ = Standard intensity of other emissions attributable to the production of cathodic zinc at the establishment for the years 2021 to 2023, calculated using equation 8-6, in metric tonnes CO₂ equivalent per reference unit;

 $a_{O,i}$ = Cap adjustment factor for the allocation of other emissions for year *i*, as defined in Table 5 of this Appendix;

 F_{Hi} = Adjustment factor for the partial or total loss of hydrogen supply for year *i*, calculated using equation 6-10.2;

max = Maximum value between GHG_{FP i,j} and I_{FP stan j} x P_{Ri j};

 $GHG_{FP l,j}$ = Fixed process emissions attributable to the type of activity *j* at the establishment for year *i*, in metric tonnes CO₂ equivalent;

 $I_{FP \text{ stan } j}$ = Standard intensity of fixed process emissions attributable to the production of cathodic zinc at the establishment for the years 2021 to 2023, calculated using equation 8-26, in metric tonnes CO₂ equivalent per reference unit;

 P_{Rij} = Total quantity of cathodic zinc produced at the establishment in year *i*, in metric tonnes of cathodic zinc;

 $a_{FP,i}$ = Cap adjustment factor for the allocation of fixed process emissions for yeatr i, as defined in Table 5 of this Appendix;

 $AF_{i,j}$ = Assistance factor for the production of cathodic zinc for year *i*, as defined in Table 7 of this Appendix.

Equation 6-10.2 Calculation of adjustment factor for the partial or total loss of hydrogen supply

$$F_{H\,i} = \begin{bmatrix} 0.065 & -\frac{H_{2,i}}{P_{Rij}} \end{bmatrix} \times 0.3325 \times 1.889 \times 0.95 \times a_{C,i} \text{ where } \begin{bmatrix} H_{2,i} \\ P_{Rij} \end{bmatrix} \le 0.065$$

and
$$F_{H\,i} = 0 \text{ where } \begin{bmatrix} H_{2,i} \\ P_{Rij} \end{bmatrix} > 0.065$$

Where:

 F_{Hi} = Adjustment factor for the partial or total loss of hydrogen supply for year *i*;

i = Each year included in the period 2021 to 2023;

0.065 = Ratio between the annual consumption of hydrogen and the annual production during the year used to calculate the minimum annual intensity of combustion emissions, in cubic kilometres of hydrogen per metric tonne of cathodic zinc;

 $H_{2,i}$ = Hydrogen consumption for year *i*, in cubic kilometres;

 P_{Rij} = Total quantity of cathodic zinc produced at the establishment in year *i*, in metric tonnes of cathodic zinc;

0.3325 = Volume equivalency factor for hydrogen and natural gas, in cubic kilometres of natural gas per cubic kilometre of hydrogen;

1.889 = Emission factor for natural gas, in metric tonnes CO₂ equivalent per cubic kilometre of natural gas;

0.95 = Proportion corresponding to 95% of the minimum intensity of combustion emissions;

 $a_{c,i}$ = Cap adjustment factor for the allocation of combustion emissions for year *i*, as defined in Table 5 of this Appendix.";

(23) in the French text, by adding "étalon" after "unité" in the heading of Division 6.5;

(24) in Division 6.5.1:

(a) by replacing "The quantity of GHG" in the part preceding paragraph 1 by "(1) Until 31 December 2017, the quantity of GHG";

(*b*) by replacing "(1)" by "(*a*)" and "(2)" by "(*b*)";

(c) by adding the following after paragraph 2:

"(2) For the years 2018 to 2020, the quantity of GHG emission units allocated without charge to an emitter for a new facility located on the site of one of the emitter's covered establishments at which production does not replace production at another establishment or facility must be calculated using Equation 6.10-3 for the period where the GHG emissions data for years *d* to *d*+2, or *d*+1 to *d*+3 where *d* is the year in which the new facility became operational, are not all available.

Equation 6-10.3 Calculation of the number of GHG emission units allocated without charge for a new facility at a covered establishment for the period where the GHG emissions data for years d to d+2, or d+1 to d+3 where d is the year in which the new facility became operational, are not all available

$$A_{NF\,i} = \left(\left(EC_{NF\,TOTAL\,i} \times EF \times a_{C,i} \right) + \left(GHG_{NF\,FP\,i} \times a_{FP,i} \right) + \left(GHG_{NF\,O\,i} \times a_{O,i} \right) \right)$$

Where:

 A_{NFi} = Total number of GHG emission units allocated without charge for a new facility for year *i*;

i = Each year in the period for which the emitter is required to cover GHG emissions;

 $EC_{NF TOTAL i}$ = Energy consumption of the new facility in year *i*, calculated using equation 6-10.4, in GJ;

EF = Emission factor for natural gas, in metric tonnes CO₂ equivalent/GJ, calculated using equation 4-21.1;

 $a_{C,i}$ = Cap adjustment factor for the allocation of combustion emissions for year *i*, as defined in Table 4 of this Appendix, where n=*i*-(*d*+2);

d = First year for which the GHG emissions of the new facility are equal to or exceed the emissions threshold;

GHG_{NF FP i} = Fixed process emissions of the new facility for year *i*, in metric tonnes CO_2 equivalent;

 $a_{\text{FP},i}$ = Cap adjustment factor for the allocation of fixed process emissions for year *i*, as defined in Table 4 of this Appendix, where n=*i*-(*d*+2);

 GHG_{NFOi} = Other emissions of the new facility for year *i*, in metric tonnes CO_2 equivalent;

 $a_{0,i}$ = Cap adjustment factor for the allocation of other emissions for year *i*, as defined in Table 4 of this Appendix, where n=i-(d+2).

Equation 6-10.4 Calculation of the energy consumption for year *i* of a new facility at a covered establishment for the period where the GHG emissions data for years *d* to d+2, or d+1 to d+3 where *d* is the year in which the new facility became operational, are not all available

$$EC_{NF \ TOTAL \ i} = \sum_{k=1}^{n} (Fuel_k \times HHV_k)$$

Where:

EC_{NF TOTAL i} = Energy consumption of the new facility in year *i*, in GJ;

i = Each year in the period for which the emitter is required to cover its GHG emissions;

n = Total number of types of fuel used;

k = Type of fuel;

Fuel_k = Mass or volume of fuel burned, expressed

(a) in dry metric tonnes, where the quantity is expressed as a mass;

(*b*) in thousands of cubic metres at standard conditions, where the quantity is expressed as a volume of gas;

(c) in kilolitres, where the quantity is expressed as a volume of liquid;

 HHV_k = High heat value for measurement period *i*, expressed

(a) in GJ per dry metric tonne, in the case of fuels whose quantity is expressed as a mass;

(*b*) in GJ per thousand cubic metres, in the case of fuels whose quantity is expressed as a volume of gas;

(c) in GJ per kilolitre, in the case of fuels whose quantity is expressed as a volume of liquid.

(3) For the years 2021 to 2023, the quantity of GHG emission units allocated without charge to an emitter for a new facility situated on the site of a covered establishment that is not considered on a sectoral basis must be calculated

(a) for the period where the GHG emissions data for years d to d+2, or d+1 to d+3 where d is the year in which the new facility became operational, are not all available, using equation 6-10.3;

(*b*) for the period where the GHG emissions data for years d to d+2, or d+1 to d+3 where d is the year in which the new facility became operational, are all available, using equations 6-10.5 and 7-1.

Equation 6-10.5 Calculation of the number of GHG emission units allocated without charge by type of activity at a new facility of a covered establishment that is not considered on a sectoral basis for the years 2021 to 2023 during the period where the GHG emissions data for years d to d+2, or d+1 to d+3 where d is the year in which the new facility became operational, are all available

 $A_{NFij} = \left(I_{FP \text{ stan } NFj} \times a_{FP,i} + I_{C \text{ stan } NFj} \times a_{C,i} + I_{O \text{ stan } NFj} + x a_{O,i} \right) \overline{\times P_{Rij}}$ $\times AF_{i,i}$

Where:

 $A_{NF i j}$ = Total number of GHG emission units allocated without charge by type of activity *j* at a new facility for year *i*;

i = Each year included in the period 2021 to 2023 for which the emitter is required to cover its GHG emissions;

j = Type of activity;

 $I_{FP stan NFj}$ = Standard intensity of fixed process emissions attributable to type of activity *j* of the new facility using equation 6-10.7, in metric tonnes CO₂ equivalent per reference unit;

 $a_{FP,i}$ = Cap adjustment factor for the allocation of fixed process emissions for year *i*, as defined in Table 5 of this Appendix for a new facility covered prior to 2021 and in Table 6 of this Appendix for a new facility covered as of 2021, where n=*i*-(*d*+2);

 $I_{C \text{ stan NF } j}$ = Standard intensity of GHG combustion emissions attributable to type of activity *j* at the new facility using equation 6-10.7, in metric tonnes CO₂ equivalent per reference unit;

 $a_{c,i}$ = Cap adjustment factor for the allocation of combustion emissions for year i, as defined in Table 5 of this Appendix for a new facility covered prior to 2021 and in Table 6 of this Appendix for a new facility covered as of 2021, where n=*i*-(*d*+2);

d = First year for which the GHG emissions of the new facility are equal to or exceed the emissions threshold;

 $I_{O \text{ stan NF } j}$ = Standard intensity of other emissions attributable to type of activity *j* at the new facility calculated using equation 6-10.8, in metric tonnes CO₂ equivalent per reference unit;

 $a_{0,i}$ = Cap adjustment factor for the allocation of other emissions for year *i*, as defined in Table 5 of this Appendix for a new facility covered prior to 2021 and in Table 6 of this Appendix for a new facility covered as of 2021, where n=i-(d+2);

 $P_{R i,j}$ = Total quantity of reference units produced or used by the establishment for type of activity *j* during year *i*;

 $AF_{i,j}$ = Assistance factor for type of activity *j* for year *i*, as defined in Table 7 of this Appendix.

Equation 6-10.6 Calculation of the standard intensity of fixed process emissions by type of activity at a new facility of a covered establishment that is not considered on a sectoral basis for the period in which the GHG emissions data for years d to d+2, or d+1 to d+3where d is the year in which the new facility became operational, are all available

$$I_{FP \, stan \, NF \, j} = \frac{\sum_{i=(d)}^{d+2} GHG_{FP \, NF \, i \, j}}{\sum_{i=(d)}^{d+2} P_{R \, i \, j}}$$

Or

$$I_{FP \, stan \, NF \, j} = \frac{\sum_{i=(d+1)}^{d+3} GHG_{FP \, NF \, i \, j}}{\sum_{i=(d+1)}^{d+3} P_{R \, i \, j}}$$

 $I_{FP stan NFj}$ = Standard intensity of fixed process emissions attributable to the type of activity *j* of the new facility for years *d* to *d*+2, or *d*+1 to *d*+3 where *d* is the year in which the new facility became operational, in metric tonnes CO₂ equivalent per reference unit;

i = Years *d* to d+2, or d+1 to d+3 where *d* is the year in which the new facility became operational;

j = Type of activity;

d = First year for which the GHG emissions of the new facility are equal to or exceed the emissions threshold;

 $GHG_{FP NF i j}$ = Fixed process emissions attributable to type of activity *j* at the new facility for year *i*, in metric tonnes CO₂ equivalent;

 $P_{R i j}$ = Total quantity of reference units produced or used by the establishment for type of activity *j* during year *i*.

Equation 6-10.7 Calculation of the standard intensity of combustion emissions by type of activity at a new facility of a covered establishment that is not considered on a sectoral basis for the period where the GHG emissions data for years d to d+2, or d+1 to d+3 where d is the year in which the new facility became operational, are all available

$$I_{C \, stan \, NF \, j} = \frac{\sum_{i=(d)}^{d+2} GHG_{C \, NF \, i \, j}}{\sum_{i=(d)}^{d+2} P_{R \, i \, j}}$$

Or

$$I_{C \, stan \, NF \, j} = \frac{\sum_{i=(d+1)}^{d+3} GHG_{C \, NF \, i \, j}}{\sum_{i=(d+1)}^{d+3} P_{R \, i \, j}}$$

Where:

 $I_{C \text{ stan NF } j}$ = Standard intensity of GHG combustion emissions attributable to type of activity *j* at the new facility for years *d* to *d*+2, or *d*+1 to *d*+3 where *d* is the year in which the new facility became operational, in metric tonnes CO₂ equivalent per reference unit;

i = Years *d* to *d*+2, or *d*+1 to *d*+3 where *d* is the year in which the new facility became operational;

j = Type of activity;

d = First year for which the GHG emissions of the new facility are equal to or exceed the emissions threshold;

 $GHG_{C NF i j}$ = Combustion emissions attributable to type of activity *j* at the new facility for year *i*, in metric tonnes CO₂ equivalent;

 $P_{R i,j}$ = Total quantity of reference units produced or used by the establishment for type of activity *j* during year *i*.

Equation 6-10.8 Calculation of the standard intensity of other emissions by type of activity at a new facility of a covered establishment that is not considered on a sectoral basis for the period where the GHG emissions data for years d to d+2, or d+1 to d+3 where d is the year in which the new facility became operational, are all available

$$I_{O \ stan \ NF \ j} = \frac{\sum_{i=(d)}^{d+2} GHG_{O \ NF \ i \ j}}{\sum_{i=(d)}^{d+2} P_{R \ i \ j}}$$

Or

$$I_{O \, stan \, NF \, j} = \frac{\sum_{i=(d+1)}^{d+3} GHG_{O \, NF \, i \, j}}{\sum_{i=(d+1)}^{d+3} P_{R \, i \, j}}$$

Where:

 $I_{O \text{ stan NF } j}$ = Standard intensity of other emissions attributable to type of activity j at the new facility for years *d* to *d*+2, or *d*+1 to *d*+3 where d is the year in which the new facility became operational, in metric tonnes CO₂ equivalent per reference unit;

i = Years d to d+2, or d+1 to d+3 where d is the year in which the new facility became operational;

j = Type of activity;

d = First year for which the GHG emissions of the new facility are equal to or exceed the emissions threshold;

GHG_{O NF i j} = Other emissions attributable to type of activity j at the new facility for year i, in metric tonnes CO₂ equivalent;

 $P_{R,ij}$ = Total quantity of reference units produced or used at the establishment for type of activity *j* during year *i*.

(4) For the years 2021 to 2023, the quantity of GHG emission units allocated without charge to an emitter for a new facility situated on the site of a covered establishment that is considered on a sectoral basis must be calculated

(a) for the period during which GHG emissions data for years d to d+2, or d+1 to d+3 where d is the year in which the new facility became operational, are not all available, using equation 6-10.3;

(b) for the period during which GHG emissions data for years d to d+2, or d+1 to d+3 where d is the year in which the new facility became operational, are all available, using equations 6-10.9 and 7.1.

Equation 6-10.9 Calculation of the number of GHG emission units allocated without charge by type of activity at a new facility at a covered establishment that is considered on a sectoral basis for the years 2021 to 2023

 $A_{NFij} = I_{(S NF)ij} \times P_{Rij} \times AF_{ij}$

Where:

 $A_{NF i j}$ = Total number of GHG emission units allocated without charge by type of activity *j* at a new facility for year *i*;

i = Each year included in the period 2021 to 2023 for which the emitter is required to cover its GHG emissions;

j = Type of activity;

 $I_{(S NF) i,j}$ = Intensity of GHG emissions attributable to type of activity *j* at new facilities in the sector for year *i*, determined in accordance with Tables 1 to 2 of this Appendix, in metric tonnes CO₂ equivalent per reference unit;

 $P_{R i,j}$ = Total quantity of reference units produced or used by the establishment for type of activity *j* during year *i*;

 $AF_{i,j}$ = Assistance factor for type of activity *j* for year *i*, as defined in Table 7 of this Appendix.";

(25) by replacing Division 6.5.3 by the following:

"6.5.3. Production of a new reference unit

(1) until 2020, the quantity of GHG emission units allocated without charge to an emitter for the production of a new reference unit by one of its covered establishments must be calculated using equation 4-21 for the period during which the GHG emissions data for years d to d+2, or d+1 to d+3 where d is the first year of production of the new reference unit, are not all available;

(2) for the years 2021 to 2023, the quantity of GHG emission units allocated without charge to an emitter for the production of a new reference unit by a covered establishment must be calculated

(a) in the case of an establishment that is not considered on a sectoral basis, for the period during which the GHG emissions data for years d to d+2, or d+1 to d+3 where d is the first year of production of the new reference unit, are not all available, using equation 11-5;

(*b*) in the case of an establishment that is not considered on a sectoral basis, for the period during which GHG emissions data for years *d* to d+2, or d+1 to d+3 where *d* is the first year of production of the new reference unit, are all available, using equations 11-1 to 11-4, which apply from 2018;

(c) in the case of an establishment that is considered on a sectoral basis, for the period during which GHG emissions data for years d to d+2, or d+1 to d+3 where d is the first year of production of the new reference unit, are not all available, using equation 11-5;

(*d*) in the case of an establishment that is considered on a sectoral basis, for the period during which GHG emissions data for years *d* to d+2, or d+1 to d+3 where *d* is the first year of production of the new reference unit, are all available, using equation 9-1.";

(26) by inserting ", but prior to 2021," in the heading of Division 6.6;

(27) in Division 6.7:

(a) by adding the following after the heading and before Equation 6-11:

"(1) Until 2020, the quantity of GHG emission units allocated without charge to an emitter for an enterprise that acquires, for consumption of the enterprise or for sale in Québec, power generated in another Canadian province or territory or in a US state where a system covering electricity production in particular has been established by an entity that is not a partner entity must be calculated using equation 6-11.

(2) For the years 2021 to 2023, the quantity of GHG emission units allocated without charge to an emitter for an enterprise that acquires, for consumption of the enterprise or for sale in Québec, power generated in another Canadian province or territory or in a US state where a system covering electricity production in particular has been established by an entity that is not a partner entity must be calculated using equation 6-11.1.";

(b) by adding the following before the heading of Division 6.3:

"Equation 6-11.1 Calculation of the total quantity of GHG emission units allocated without charge to an enterprise that acquires, for consumption of the enterprise or for sale in Québec, power generated in another Canadian province or territory or in a US state where a system covering electricity production in particular has been established by an entity that is not a partner entity

$$A_i = \frac{P_i^{Non-WCI}}{P_i^{WCI}} \times E_i^{Non-WCI}$$

Where:

 A_i = Total quantity of GHG emission units allocated without charge for year *i*;

 $P_i^{Non-WCl}$ = Weighted average sale price of emission allowances of year *i* at an auction held during year *i* by other Canadian provinces or territories or by US states where a system covering electricity production has been established by an entity that is not a partner entity, in US dollars;

 P_i^{WCI} = Weighted average sale price of emission allowances of year *i* at an auction held during year *i* by Québec or other Canadian provinces or territories or by US states where a system covering electricity production in particular has been established by a partner entity, in US dollars;

 $E_i^{Non-WCl}$ = Annual GHG emissions for year *i* relating to the production of electricity acquired from another Canadian province or territory or from a US state where producers are subject to a system established by an entity that is not a partner entity, taking into account the new GWP values determined in Addendum III to the document "Report of the Conference of the Parties on its nineteenth session, held in Warsaw from 11 to 23 November 2013", FCCC/CP/2013/10/Add.3, (new GWP values), in metric tonnes CO₂ equivalent;

i = Each year in the period 2021-2023 for which the emitter is required to cover its emissions.";

(28) in Division 6.8:

(*a*) by replacing "2014 and using equation 6-13 for years 2015 to 2020" in the first paragraph by "2014, using equation 6-13 for the years 2015 to 2020, and using equation 6-14 for the years 2021 to 2023";

(b) by adding the following after Equation 6-13:

Equation 6-14 Calculation of the total quantity of GHG emission units allocated free of charge for a copper foundry for the years 2021 to 2023

$$A_{i} = \left[\left(I_{C \ stan \ cu} \times a_{C,i} \times P_{cu,i} \right) + \left[\max \left(GHG_{FP \ cu,i}; \ I_{FP \ stan \ cu} \times P_{R \ cu,i} \right) \right] \\ \times a_{FP,i} \right] \times AF_{cu,i} \\ + \left[\left(I_{C \ stan \ RSM} \times a_{C,i} \times P_{RSM,i} \right) + A_{recycl,i} \right] \times AF_{RSM,i}$$

Where:

 A_i = Total quantity of GHG emission units allocated free of charge for the production of copper anodes at the establishment for year *i*;

 $I_{C \text{ stan cu}}$ = Standard intensity of combustion emissions attributable to the production of copper anodes at the establishment for the years 2021 to 2023, calculated using equation 8-2, in metric tonnes CO₂ equivalent per metric tonne of copper anodes;

 $a_{c,i}$ = Cap adjustment factor for the allocation of combustion emissions for year *i*, as defined in Table 5 of this Appendix;

 $P_{R cu,i}$ = Total quantity of copper anodes produced by the establishment during year *i*, in metric tonnes of copper anodes;

max = Maximum value between GHG_{FP cu,i} and I_{FP stan cu} x P_{cu,i};

 $GHG_{FP CU,i}$ = Fixed process emissions attributable to the production of copper anodes at the establishment for year *I*, in metric tonnes CO_2 equivalent;

 $I_{FP \ stan \ cu}$ = Standard intensity of fixed process emissions attributable to the production of copper anodes at the establishment for the years 2021 to 2023, calculated using equation 8-6, in metric tonnes CO₂ equivalent per metric tonne of copper anodes;

 $a_{FP,i}$ = Cap adjustment factor for the allocation of fixed process emissions for year *i*, as defined in Table 5 of this Appendix;

 $AF_{cu,i}$ = Assistance factor for the production of copper anodes during year *i*, as defined in Table 7 of this Appendix;

 $P_{RRSM,i}$ = Total quantity of secondary materials recycled at the establishment in year *i*, in metric tonnes of recycled secondary materials;

 $A_{recycl,i}$ = GHG emissions attributable to the carbon content of recycled secondary materials introduced into the process for year *i*, in metric tonnes CO₂ equivalent;

 $AF_{RSM,i}$ = Assistance factor for the treatment of gas from the recycling of secondary materials in year *i*, as defined in Table 7 of this Appendix.

For the application of Equation 6-14, recycled secondary materials used in a process at a copper foundry are deemed to be all materials used in the process other than fuel, ore, reducing agents, materials used for slag purification, carbonated reactants and carbon electrodes.

Equation 6-15 Calculation of the total quantity of GHG emission units allocated free of charge for the production of steel (slabs, billets or ingots), metallic silicon, ferrosilicon, reduced iron pellets or titanium dioxide (TiO₂) for the years 2021 to 2023

$$A_{i,j} = \left[\left(I_{C \ stan \ j} \times a_{C,i} + I_{O \ stan \ j} \times a_{O,i} \right) \times P_{R \ i,j} + \max \left(GHG_{FP \ i,j}; I_{FP \ stan \ j} \times P_{R \ i,j} \right) \times a_{FP,i} \right] \times AF_{i,j}$$

Where:

A _{i,j} = Total quantity of GHG emission units allocated free of charge by type of activity *j* for year *i*;

i = Each year included in the period from 2021 to 2023 for which the emitter is required to cover GHG emissions;

j = Type of activity, namely the production of steel (slabs, billets or ingots) or the production of metallic silicon or the production of ferrosilicon, reduced iron pellets or titanium dioxide (TiO₂);

 $I_{C \text{ stan } j}$ = Standard intensity of combustion emissions attributable to type of activity *j* at the establishment for the years 2021 to 2023, calculated using equation 8-4, in metric tonnes CO₂ equivalent per reference unit;

 $a_{c,i}$ = Cap adjustment factor for the allocation of combustion emissions for year *i*, as defined in Table 5 of this Appendix;
$I_{O \text{ stan } j}$ = Standard intensity of other emissions attributable to type of activity *j* at the establishment for the years 2021 to 2023, calculated using equation 8-6, in metric tonnes CO₂ equivalent per reference unit;

 $a_{O,i}$ = Cap adjustment factor for the allocation of other emissions for year *i*, as defined in Table 5 of this Appendix;

 $P_{Ri,j}$ = Total quantity of reference units produced or used by the establishment for the type of activity *j* during year *i*;

max = Maximum value between GHG_{FPi,j} and $I_{FP stan i} \times P_{Ri,i}$;

 $GHG_{FPi,j}$ = Fixed process emissions attributable to the type of activity *j* at the establishment for year *i*, in metric tonnes CO₂ equivalent;

 $I_{FP \text{ stan } j}$ = Standard intensity of fixed process emissions attributable to the type of activity *j* at the establishment for the years 2021 to 2023, calculated using equation 8-2, in metric tonnes CO₂ equivalent per reference unit;

 $a_{FP,i}$ = Cap adjustment factor for the allocation of fixed process emissions for year *i*, as defined in Table 5 of this Appendix;

AF $_{i,j}$ = Assistance factor for the type of activity *j* for year *i*, as defined in Table 7 of this Appendix.

Equation 6-16 Calculation of the total quantity of GHG emission units allocated free of charge to a copper refinery for the years 2021 to 2023

$$A_{i} = \left[\left(I_{C \ stan \ cath} \times a_{C,i} \right) + \left(I_{FP \ stan \ cath} \times a_{FP,i} \right) \right] \times P_{R \ cath,i} \times AF_{cath,i} + \left[\left(GHG_{C,i \ RSM} \times a_{C,i} \right) \right] \times AF_{RSM,i}$$

Where:

 A_i = Total quantity of GHG emission units allocated free of charge for the production of copper cathodes at the establishment for year *i*;

 $l_{C \text{ stan cath}}$ = Standard intensity of combustion emissions attributable to the production of copper cathodes at the establishment for the years 2021 to 2023, calculated using equation 8-2, in metric tonnes CO₂ equivalent per metric tonne of copper cathodes;

 $a_{c,i}$ = Cap adjustment factor for the allocation of combustion emissions for year *i*, as defined in Table 5 of this Appendix;

IFP stan cath = Standard intensity of fixed process emissions attributable to the production of copper cathodes at the establishment for the years 2021 to 2023, calculated using equation 8-6, in metric tonnes CO_2 equivalent per metric tonne of copper anode;

 $a_{FP,i}$ = Cap adjustment factor for the allocation of fixed process emissions for year *i*, as defined in Table 5 of this Appendix;

 $P_{R \text{ cath},i}$ = Total quantity of copper cathodes produced at the establishment for year *i*, in metric tonnes of copper anodes;

 $AF_{cath,i}$ = Assistance factor for the production of copper cathodes for year *i*, as defined in Table 7 of this Appendix;

 $GHG_{C,i RSM} = GHG$ combustion emissions attributable to the treatment of recycled secondary materials for year *i*, in metric tonnes CO₂ equivalent;

 $AF_{RSM,i}$ = Assistance factor for the treatment of recycled secondary materials for year *i*, as defined in Table 7 of this Appendix.";

(29) by adding the following after Division 6.8:

"7. Calculation of the total quantity of GHG emission units allocated without charge to an establishment for the years 2021 to 2023

Equation 7-1 Calculation of the total quantity of GHG emission units allocated without charge to an establishment for the years 2021 to 2023

$$A_{establishment i} = \sum_{i=1}^{m} A_{i,i}$$

Where:

A_{establishment i} = Total quantity of GHG emission units allocated without charge to an establishment for year *i* for all types of activity *j* of the establishment listed in Table B of this Appendix;

i = Each year included in the period 2021 to 2023 for which the emitter is required to cover GHG emissions;

m = Total number of types of activity at the establishment;

j = Each type of activity at the establishment;

A_{i, j} = Number of GHG emission units allocated without charge by type of activity *j* for year *i*, calculated using equations 8-1, 8-1.1, 9-1, 10-1, 11-1, 11-5, 12-1, 13-1, 14-1, 14-5, 15-1, 6-10.1, 6-10.5, 6-10.9, 6-11.1, 6-14, 6-15 or 6-16.

8. Establishment covered prior to 2021 that is not considered on a sectoral basis or establishment producing lime or liquid aluminum using a side-worked prebaked anode technology

Equation 8-1 Calculation of the number of GHG emission units allocated without charge by type of activity for the years 2021 to 2023 at an establishment covered prior to 2021 that is not considered on a sectoral basis or an establishment producing lime or liquid aluminum using a side-worked prebaked anode technology

 $A_{ij} = (I_{FP\,stan\,j} \times a_{FP,i} + I_{C\,stan\,j} \times a_{C,i} + I_{O\,stan\,j} \times a_{O,i}) \times P_{R\,i,j} \times AF_{i,j}$

Where:

 A_{ij} = Total number of GHG emission units allocated without charge by type of activity *j* at an establishment for year *i*;

i = Each year included in the period 2021 to 2023 for which the emitter is required to cover GHG emissions;

j = Type of activity;

 $I_{FP \text{ stan } j}$ = Standard intensity of fixed process emissions attributable to type of activity *j* at the establishment for the years 2021 to 2023 using equation 8-2, 8-8 or equation 8-11, in metric tonnes CO₂ equivalent per reference unit;

 $A_{c,i}$ = Cap adjustment factor for the allocation of combustion emissions for year *i*, as defined in Table 5 of this Appendix;

 $l_{C \text{ stan } j}$ = Standard intensity of GHG combustion emissions attributable to type of activity *j* at the establishment for the years 2021 to 2023, calculated using, as the case may be, equation 8-4, 8-9 or 8-13, or, in the case of an establishment producing alumina from bauxite, having a value of 0.4, in metric tonnes CO₂ equivalent per reference unit;

 $A_{FP,i}$ = Cap adjustment factor for the allocation of fixed process emissions for year *i*, as defined in Table 5 of this Appendix;

 $l_{0 \text{ stan } j}$ = Standard intensity of other emissions attributable to type of activity *j* at the establishment for the years 2021 to 2023 using equation 8-6, 8-10 or 8-17, in metric tonnes CO₂ equivalent per reference unit;

 $a_{o,i}$ = Cap adjustment factor for the allocation of other emissions for year *i*, as defined in Table 5 of this Appendix;

 $P_{Ri,j}$ = Total quantity of reference units produced or used at the establishment for type of activity *j* during year *i*;

 $AF_{i,j}$ = Assistance factor for type of activity *j* for year *i*, as defined in Table 7 of this Appendix.

Equation 8-1.1 Calculation of the number of GHG emission units allocated free of charge per type of activity for the years 2021 to 2023 at an establishment covered prior to 2021 that is not considered on a sectoral basis and does not possess a determined reference unit

$$A_{i} = \left[\left(EC_{TOTAL,av} \times EF \times a_{C,i} \right) + \left(GHG_{FP,av} \times a_{FP,i} \right) + \left(GHG_{O,av} \times a_{A,i} \right) \right] \times AF_{i,i}$$

Where:

A_i = Total number of GHG emission units allocated free of charge for year *i*;

i = Each year included in the period 2021 to 2023 for which the emitter is required to cover GHG emissions;

 $EC_{TOTAL,av}$ = Average energy consumption for the reference years, calculated, as the case may be, using equation 4-24 or 4-40, in GJ;

EF = Emission factor for natural gas, in metric tonnes CO₂/GJ equivalent, calculated using equation 4-21.1;

 $a_{C,i}$ = Cap adjustment factor for the allocation of combustion emissions for year *i*, as defined in Table 5 of this Appendix;

 $GHG_{FP,av}$ = Average fixed process emissions at the establishment for the reference years, in metric tonnes CO_2 equivalent, calculated using the new GWP values;

 $a_{FP,i}$ = Cap adjustment factor for the allocation of fixed process emissions for year *i*, as defined in Table 5 of this Appendix;

 $GHG_{O,av}$ = Average other emissions at the establishment for the reference years, in metric tonnes CO_2 equivalent, calculated using the new GWP values;

 $a_{o,i}$ = Cap adjustment factor for the allocation of other emissions for year *i*, as defined in Table 5 of this Appendix;

 $AF_{i,j}$ = Assistance factor for type of activity *j* for year *i*, as defined in Table 7 of this Appendix.

8.1. Calculation method for standard intensities for an establishment using GHG emissions data for the years 2007 to 2010

Equation 8-2 Calculation of the standard intensity of fixed process emissions by type of activity at an establishment that is not considered on a sectoral basis or an establishment producing liquid aluminum using a side-worked prebaked anode technology for the years 2021 to 2023 and using GHG emissions data for the years 2007 to 2010

 $I_{FP\,stan\,j} = C_{FP\,j} \times I_{FP2020\,j}$

Where:

 $I_{FP \text{ stan } j}$ = Standard intensity of fixed process emissions for the period 2021-2023 for type of activity *j*;

 $C_{FP j}$ = Correction factor for the intensity of fixed process emissions for type of activity *j*, calculated using equation 8-3;

 $I_{FP2020 j}$ = Intensity of fixed process emissions calculated for year 2020 for type of activity *j*, using equation 2-8.1, or using equation 6-7.1 in the case of the fabrication of rigid foamed insulation, using the old GWP values.

Equation 8-3 Calculation of correction factor for fixed process emissions to take into account the new GWP values

 $C_{FP \, j} = av \left[\frac{GHG_{FP \, j \, 2013} \, (new \, GWP)}{GHG_{FP \, j \, 2013} \, (old \, GWP)}; \frac{GHG_{FP \, j \, 2014} \, (new \, GWP)}{GHG_{FP \, j \, 2014} \, (old \, GWP)}; \frac{GHG_{FP \, j \, 2015} \, (new \, GWP)}{GHG_{FP \, j \, 2015} \, (old \, GWP)} \right]$

Where:

C_{FP j} = Correction factor for the intensity of fixed process emissions for type of activity *j*;

j = Type of activity;

av = Average fixed process emissions for the years 2013, 2014 and 2015;

 GHG_{FPj} = Fixed process emissions for type of activity *j* at the establishment for the years 2013, 2014 and 2015, calculated using the old GWP values, determined in Schedule A.1 to the Regulation respecting the mandatory reporting of certain emissions of contaminants into the atmosphere (chapter Q-2, r. 15) or the new GWP values, in metric tonnes CO₂ equivalent, excluding unusable years; Equation 8-4 Calculation of the standard intensity of combustion emissions by type of activity at an establishment that is not considered on a sectoral basis or an establishment producing liquid aluminum using a side-worked prebaked anode technology and using GHG emissions data for the years 2007 to 2010

 $I_{C \, stan \, j} = C_{C \, j} \times I_{C2020 \, j} \times C_{cR}$

Where:

 $I_{C \text{ stan } j}$ = Standard intensity of combustion emissions for the period 2021-2023 for type of activity *j*;

 C_{Cj} = Correction factor for the intensity of combustion emissions for type of activity *j*, calculated using equation 8-5;

 $I_{C2020 j}$ = Intensity of combustion emissions calculated for year 2020 for type of activity *j*, using equation 2-8.2, or using equation 6-7.2 in the case of the fabrication of rigid foamed insulation, using the old GWP values;

 C_{cR} = Correction factor of the multiplication factor of the intensity of combustion emissions at the establishment, calculated using equation 8-4.1.

Equation 8-4.1 Calculation of the correction factor of the multiplication factor of combustion emissions at the establishment

 $C_{cR} = \max[1; 0.85/R]$

Where:

 C_{cR} = Correction factor of the multiplication factor of the intensity of combustion emissions at the establishment;

max = Maximum value between 1 and $\frac{0.85}{R}$;

R = Intensity multiplication factor for GHG emissions, calculated using equation 2-4, 4-6, 4-11, 4-17, 4-27 or 4-33 or, in the case of an establishment producing pulp and paper described by NAICS code 3221, having a value of 1.

Equation 8-5 Calculation of correction factor for combustion emissions by type of activity to take into account the new GWP values

$C_{FPj}=av$	GHG _{FP j 2013} (new GWP)	$GHG_{FP \ j \ 2014}$ (new GWP)	$GHG_{FP \ j \ 2015}$ (new GWP)
	GHG _{FP j 2013} (old GWP)	GHG _{FP j 2014} (old GWP)	GHG _{FP j 2015} (old GWP)

Where:

 $C_{FP j}$ = Correction factor for the intensity of combustion emissions for type of activity *j*;

j = Type of activity;

av = Average combustion emissions for the years 2013, 2014 and 2015;

GHG_{FP j} = Combustion emissions for type of activity *j* at the establishment for the years 2013, 2014 and 2015, calculated using the old GWP values, determined in Schedule A.1 to the Regulation respecting the mandatory reporting of certain emissions of contaminants into the atmosphere (chapter Q-2, r. 15) (old GWP values) or the new GWP values in metric tonnes CO₂ equivalent, excluding unusable years.

Equation 8-6 Calculation of the standard intensity of other emissions by type of activity at an establishment that is not considered on a sectoral basis or an establishment producing liquid aluminum using a side-worked prebaked anode technology for the years 2021 to 2023 using GHG emissions data for the years 2007 to 2010

 $I_{O stan j} = C_{O j} \times I_{O2020 j}$

Where:

 $l_{0 \text{ stan } j}$ = Standard intensity of other emissions for the period 2021-2023 for type of activity *j*;

j = Type of activity;

 C_{0j} = Correction factor for the intensity of other emissions for type of activity *j*, calculated using equation 8-7;

 $I_{02020 j}$ = Intensity of other emissions calculated for year 2020 for type of activity *j*, using equation 2-8.3, or using equation 6-7.3 For the fabrication of rigid foamed insulation, using the old GWP values.

Equation 8-7 Calculation of the correction factor for other emissions by type of activity to take into account the new GWP values

 $C_{0\,j} = av \left[\frac{GHG_{0\,j\,2013} (new \,GWP)}{GHG_{0\,j\,2013} (old \,GWP)}; \frac{GHG_{0\,j\,2014} (new \,GWP)}{GHG_{0\,j\,2014} (old \,GWP)}; \frac{GHG_{0\,j\,2015} (new \,GWP)}{GHG_{0\,j\,2015} (old \,GWP)} \right]$

Where:

 $C_{0 j}$ = Correction factor for the intensity of other emissions for type of activity *j*;

j = Type of activity;

av = Average of other emissions for the years 2013, 2014 and 2015;

 $GHG_{O\,j}$ = Other emissions for type of activity *j* at the establishment for the years 2013, 2014 and 2015, calculated using the old GWP values, determined in Schedule A.1 to the Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere (chapter Q-2, r. 15) or the new GWP values, in metric tonnes CO_2 equivalent, excluding unusable years.

8.2. Calculation method for standard intensities for an establishment using no GHG emissions data for the years 2007 to 2010

Equation 8-8 Calculation of the standard intensity of fixed process emissions by type of activity at an establishment that is not considered on a sectoral basis for the years 2021 to 2023 and using no emissions data for the years 2007 to 2010

 $I_{FP \ stan \ j} = I_{FP \ dep \ j}$

Where:

 $I_{FP \text{ stan } j}$ = Average standard intensity of fixed process emissions attributable to type of activity *j* at the establishment for the reference years, in metric tonnes CO₂ equivalent per reference unit;

j = Type of activity;

 $I_{FP dep j}$ = Average intensity of fixed process emissions attributable to type of activity *j* at the establishment for the reference years, calculated using, as the case may be, equation 4-3, 4-10, 4-16, 4-26 or 4-32, in metric tonnes CO₂ equivalent per reference unit, using the new GWP values.

Equation 8-9 Calculation of the standard intensity of combustion emissions by type of activity at an establishment that is not considered on a sectoral basis and using no GHG emissions data for the years 2007 to 2010

 $I_{C \, stan \, j} = R \times 0.99^n \times I_{C \, dep \, j} \times C_{cR}$

Where:

 $I_{C \text{ stan } j}$ = Average standard intensity of combustion emissions attributable to activity *j* at the establishment for the reference years, in metric tonnes CO₂ equivalent per reference unit;

j = Type of activity;

R = Intensity multiplication factor for combustion emissions at the establishment, calculated using equation 4-6, 4-11, 4-17, 4-27 or 4-33 or, in the case of an establishment producing pulp and paper described by NAICS code 3221, having a value of 1;

n = i - (d+2);

d = First year for which the GHG emissions at the establishment are equal to or exceed the emissions threshold;

i = Year 2020;

 $I_{C \text{ dep } j}$ = Average intensity of combustion emissions attributable to type of activity *j* at the establishment for the reference years, calculated using, as the case may be, equation 4-4, 4-13, 4-19, 4-29 or 4-35, in metric tonnes CO₂ equivalent per reference unit, using the new GWP values;

 C_{cR} = Correction factor of the multiplication factor of the intensity of combustion emissions at the establishment, calculated using equation 8-4.1.

Equation 8-10 Calculation of standard intensity of other emissions by type of activity at an establishment that is not considered on a sectoral basis and using no emissions data for the years 2007 to 2010 for the years 2021 to 2023

 $I_{O stan i} = 0.99^n \times I_{O dep i}$

Where:

 $I_{o \text{ stan } j}$ = Average standard intensity of other emissions attributable to type of activity *j* at the establishment for the reference years, in metric tonnes CO₂ equivalent per reference unit;

j = Type of activity;

n = i - (d+2);

d = First year for which GHG emissions of the establishment are equal to or exceed emissions threshold;

i = Year 2020;

 $I_{O \text{ dep } j}$ = Average intensity of other emissions attributable to type of activity *j* at the establishment for the reference years, calculated, as the case may be, using equation 4-5, 4-14, 4-20, 4-30 or 4-36, in metric tonnes CO₂ equivalent, using the new GWP values.

8.3 Calculation method for standard intensities for an establishment producing lime

Equation 8-11 Calculation of the standard intensity of fixed process emissions by type of activity at an establishment in the lime sector

$$I_{FP\,stan\,j} = \frac{\sum_{i=2007}^{2010} \sum_{k=1}^{l} C_{FP\,jk}.GHG_{FP\,ijk}}{\sum_{i=2007}^{2010} \sum_{k=1}^{l} P_{R\,ijk}}$$

Where:

 $I_{FP \text{ stan } j}$ = Standard intensity of fixed process emissions in the lime sector for the period 2021-2023 for type of activity *j*;

j = Type of activity;

i = Each year included in the period 2007-2010;

k = Covered establishment in the lime sector;

I = Number of covered establishment from 2013 in the lime sector;

 $C_{FP jk}$ = Correction factor for the intensity of fixed process emissions for type of activity *j* at establishment *k*, calculated using equation 8-12;

GHG_{FP ijk} = Fixed process emissions for type of activity *j* at establishment *k* during years *i*, in metric tonnes CO₂ equivalent;

 $P_{R ijk}$ = Total quantity of reference units produced or used by establishment *k* for type of activity *j* during year *i*.

Equation 8-12 Calculation of correction factor for fixed process emissions to take into account the new GWP values

$$C_{FP \ jk} = av \left[\frac{GHG_{FP \ 2013 \ jk} \ (new \ GWP)}{GHG_{FP \ 2013 \ jk} \ (old \ GWP)}; \frac{GHG_{FP \ 2014 \ jk} \ (new \ GWP)}{GHG_{FP \ 2013 \ jk} \ (old \ GWP)}; \frac{GHG_{FP \ 2015 \ jk} \ (new \ GWP)}{GHG_{FP \ 2015 \ jk} \ (old \ GWP)}; \frac{GHG_{FP \ 2015 \ jk} \ (new \ GWP)}{GHG_{FP \ 2015 \ jk} \ (old \ GWP)} \right]$$

Where:

 $C_{FP jk}$ = Correction factor for the intensity of fixed process emissions for type of activity *j* at establishment *k*;

j = Type of activity;

k = Covered establishment in the lime sector;

av = Average of fixed process emissions for the years 2013, 2014 and 2015;

GHG_{FP jk} = Fixed process emissions for type of activity *j* at establishment *k* for the years 2013, 2014 and 2015, calculated using the old GWP values, determined in Schedule A.1 to the Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere (chapter Q-2, r. 15) or the new GWP values, in metric tonnes CO_2 equivalent, excluding years that are not usable.

Equation 8-13 Calculation of the standard intensity of combustion emissions by type of activity at an establishment in the lime sector

 $I_{C \, stan \, j} = R_{S}. \, min\{0.95. \, I_{C \, stan \, min \, j} ; \, 0.90. \, I_{C \, stan \, av \, j}\}$

Where:

 $I_{C \text{ stan } j}$ = Standard intensity of combustion emissions in the lime sector for the period 2021-2023 for type of activity *j*;

j = Type of activity;

 R_s = Sectoral intensity multiplication factor for combustion emissions calculated using equations 3-4 and 3-5;

min = Minimum value between the 2 calculated elements;

0.95 = Proportion corresponding to 95% of the minimum intensity of combustion emissions;

 $I_{C \text{ stan min } j}$ = Minimum annual intensity of combustion emissions for type of activity *j* for the years 2007-2010, calculated using equation 8-14, in metric tonnes CO₂ equivalent per reference unit;

0.90 = Proportion corresponding to 90% of the average intensity of combustion emissions;

 $I_{C \text{ stan av } j}$ = Average intensity of combustion emissions for type of activity *j* for the years 2007-2010, calculated using equation 8-15, in metric tonnes CO₂ equivalent per reference unit.

Equation 8-14 Calculation of the minimum intensity of combustion emissions by type of activity at an establishment in the lime sector

$$= min \left[\frac{\sum_{k=1}^{l} C_{C jk} GHG_{C 2007 jk}}{\sum_{k=1}^{l} P_{R 2007 jk}}; \frac{\sum_{k=1}^{l} C_{C jk} GHG_{C 2008 jk}}{\sum_{k=1}^{l} P_{R 2008 jk}}; \frac{\sum_{k=1}^{l} C_{C jk} GHG_{C 2009 jk}}{\sum_{k=1}^{l} P_{R 2009 jk}}; \frac{\sum_{k=1}^{l} C_{C jk} GHG_{C 2010 jk}}{\sum_{k=1}^{l} P_{R 2010 jk}} \right]$$

Where:

 $I_{C \text{ ref min } j}$ = Minimum annual intensity of combustion emissions for type of activity *j* for the years 2007-2010, in metric tonnes CO₂ equivalent per reference unit;

j = Type of activity;

min = Minimum value of annual intensities of combustion emissions for the years 2007-2010;

k = Covered establishment in the lime sector;

I = Number of covered establishments from 2013 in the lime sector;

 $C_{C jk}$ = Correction factor for the intensity of combustion emissions for type of activity *j* at establishment *k*, calculated using equation 8-16;

 $GHG_{C jk}$ = Combustion emissions for type of activity *j* of establishment *k* during years 2007 à 2010, in metric tonnes CO₂ equivalent;

 P_{Rjk} = Total quantity of reference units produced or used by establishment *k* for type of activity *j* during years 2007 to 2010.

Equation 8-15 Calculation of the average intensity of combustion emissions by type of activity at an establishment in the lime sector

$$I_{C \ stan \ av \ j} = \frac{\sum_{i=2007}^{2010} \sum_{k=1}^{l} C_{C \ jk} GHG_{C \ ijk}}{\sum_{i=2007}^{2010} \sum_{k=1}^{l} P_{R \ ijk}}$$

Where:

 $I_{C \text{ stan av } j}$ = Average intensity of combustion emissions for type of activity *j* for the years 2007-2010, in metric tonnes CO₂ equivalent per reference unit;

j = Type of activity;

i = Each year included in the period 2007-2010;

k = Covered establishment in the lime sector;

I = Number of covered establishments from 2013 in the lime sector;

 $C_{C jk}$ = Correction factor for the intensity of combustion emissions for type of activity *j* at establishment *k*, calculated using equation 8-16;

 $GHG_{C ijk}$ = Combustion emissions for type of activity *j* at establishment *k* during year *i*, in metric tonnes CO₂ equivalent;

 $P_{R ijk}$ = Total quantity of reference units produced or used by establishment *k* for type of activity *j* during year *i*.

Equation 8-16 Calculation of the correction factor for combustion emissions by type of activity to take into account the new GWP values

 $C_{C jk} = av \left[\frac{GHG_{C 2013 jk} (new GWP)}{GHG_{C 2013 jk} (old GWP)}; \frac{GHG_{C 2014 jk} (new GWP)}{GHG_{C 2014 jk} (old GWP)}; \frac{GHG_{C 2015 jk} (new GWP)}{GHG_{C 2015 jk} (old GWP)} \right]$

Where:

 $C_{C jk}$ = Correction factor for the intensity of combustion emissions for type of activity *j* of establishment *k*;

j = Type of activity;

k = Covered establishment in the lime sector;

av = Average of the combustion emissions for the years 2013, 2014 and 2015;

 $GHG_{C jk}$ = Combustion emissions for type of activity *j* at establishment *k* for the years 2013, 2014 and 2015, calculated using the old GWP values, determined in Schedule A.1 to the Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere (chapter Q-2, r. 15) or the new GWP values, in metric tonnes CO₂ equivalent, excluding years that are not usable.

Equation 8-17 Calculation of the standard intensity of other emissions by type of activity at an establishment in the lime sector

 $I_{O \, stan \, j} = min\{0.95. \, I_{O \, stan \, \min j} ; \, 0.90. \, I_{O \, stan \, av \, j}\}$

Where:

 $l_{0 \text{ stan } j}$ = Standard intensity of other emissions in the lime sector for the period 2021-2023 for type of activity *j*;

j = Type of activity;

 R_s = Sectoral intensity multiplication factor of other emissions calculated using equations 3-4 and 3-5;

min = Minimum value between the 2 calculated elements;

0.95 = Proportion corresponding to 95% of the minimum intensity of other emissions;

 $I_{O \text{ stan min } j}$ = Minimum annual intensity of other emissions for type of activity *j* for the years 2007-2010, calculated using equation 8-18, in metric tonnes CO₂ equivalent per reference unit;

0.90 = Proportion corresponding to 90% of the average intensity of other emissions;

 $l_{O \text{ stan av } j}$ = Average intensity of other emissions for type of activity *j* for the years 2007-2010, calculated using equation 8-19, in metric tonnes CO₂ equivalent per reference unit.

Equation 8-18 Calculation of the minimum intensity of other emissions by type of activity at an establishment in the lime sector



Where:

 $I_{O \text{ stan min } j}$ = Minimum annual intensity of other emissions for type of activity *j* for the years 2007-2010, in metric tonnes CO₂ equivalent per reference unit;

j = Type of activity;

min = Minimum value of annual intensities of other emissions for the years 2007-2010;

k = Covered establishment in the lime sector;

I = Number of covered establishments from 2013 in the lime sector;

 C_{Ojk} = Correction factor for the intensity of other emissions for type of activity *j* at establishment *k*, calculated using equation 8-20;

 $GHG_{O jk}$ = Other emissions for type of activity *j* at establishment *k* during years 2007 to 2010, in metric tonnes CO₂ equivalent;

 P_{Rjk} = Total quantity of reference units produced or used by establishment *k* for type of activity *j* during years 2007 to 2010.

Equation 8-19 Calculation of the average intensity of other emissions by type of activity at an establishment in the lime sector

$$I_{O \ stan \ av \ j} = \frac{\sum_{i=2007}^{2010} \sum_{k=1}^{l} C_{O \ k} GHG_{O \ ijk}}{\sum_{i=0}^{n} \sum_{i=0}^{n} P_{R \ ijk}}$$

Where:

 $I_{O \text{ stan av } j}$ = Average intensity of other emissions for type of activity *j* for the years 2007-2010, in metric tonnes CO₂ equivalent per reference unit;

j = Type of activity;

i = Each year included in the period 2007-2010;

k = Covered establishment in the lime sector;

I = Number of covered establishments from 2013 in the lime sector;

 C_{Ojk} = Correction factor for the intensity of other emissions for type of activity *j* of establishment *k*, calculated using equation 8-20;

 $GHG_{O ijk}$ = Other emissions for type of activity *j* at establishment *k* during year *i* in metric tonnes CO₂ equivalent;

 $P_{R ijk}$ = Total quantity of reference units produced or used by establishment *k* for type of activity *j* during year *i*.

Equation 8-20 Calculation of the correction factor for other emissions by type of activity to take into account new GWP values

 $C_{0 \ jk} = \ av \left[\frac{GHG_{0 \ 2013 \ jk} \ (new \ GWP)}{GHG_{0 \ 2013 \ jk} \ (old \ GWP)}; \frac{GHG_{0 \ 2014 \ jk} \ (new \ GWP)}{GHG_{0 \ 2014 \ jk} \ (old \ GWP)}; \frac{GHG_{0 \ 2015 \ jk} \ (new \ GWP)}{GHG_{0 \ 2015 \ jk} \ (old \ GWP)} \right]$

Where:

 C_{Ojk} = Correction factor for the intensity of other emissions for type of activity *j* at establishment *k*;

j = Type of activity;

k = Covered establishment in the lime sector;

av = Average of the other emissions for the years 2013, 2014 and 2015;

GHG_{0 jk} = Other emissions for type of activity *j* at establishment *k* for the years 2013, 2014 and 2015, calculated using the old GWP values, determined in Schedule A.1 to the Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere (chapter Q-2, r. 15) or the new GWP values, in metric tonnes CO₂ equivalent, excluding years that are not usable.

9. Establishment producing cement, prebaked anodes or aluminum by using a prebaked anode technology other than the side-worked technology, covered prior to 2021 that is considered on a sectoral basis for the years 2021 to 2023

Equation 9-1 Calculation of the number of GHG emission units allocated without charge by type of activity at an establishment producing cement, prebaked anodes or aluminum using a prebaked anode technology other than the side-worked technology, covered prior to 2021 that is considered on a sectoral basis for the years 2021 to 2023

$$A_{i j} = I_{(S)i,j} \times P_{R i,j} \times AF_{i,j}$$

Where:

 A_{ij} = Total number of GHG emission units allocated without charge by type of activity *j* at an establishment for year *i*;

i = Each year included in the period 2021 to 2023;

j = Type of activity;

 $I_{(S) i,j}$ = Intensity of GHG emissions attributable to type of activity *j* in the sector for year *i*, determined in accordance with Tables 1 and 2 of this Appendix, in metric tonnes CO₂ equivalent per reference unit;

 $P_{R i,j}$ = Total quantity of reference units produced or used at the establishment for type of activity *j* during year *i*;

 $AF_{i,j}$ = Assistance factor for type of activity *j* for year *i*, as defined in Table 7 of this Appendix.

9.1. Sectoral intensities in the aluminum sector

Table 1: Sectoral intensities in the aluminum sector

Year	Intensity of GHG emissions for liquid aluminum production using a prebaked anode technology other than the side-worked technology (leaving the electrolysis hall)	Intensity of GHG emissions for the production of baked anodes removed from furnace
2021	1.787	0.3129
2022	1.777	0.3102
2023	1.767	0.3074

9.2. Sectoral intensities in the cement sector

Table 2: Sectoral intensities in the cement sector

Year	Intensity of GHG emissions for the production of clinker and the mineral additives added to the clinker produced
2021	0.7814
2022	0.7767
2023	0.7721

10. Covered establishment as of 2021 that is not considered on a sectoral basis and that possesses all the GHG emissions data for years d-2 to d

Equation 10-1 Calculation of the number of GHG emission units allocated without charge by type of activity at a covered establishment as of 2021 that is not considered on a sectoral basis for the years 2021 to 2023 and that possesses GHG emissions data for years *d*-2 to *d*

$$A_{ij} = |I_{FP dep j} \times a_{FP,i} + I_{C dep j} \times a_{C,i} + I_{0 dep j} \times a_{0,i}| \times P_{Rij} \times AF_{i,j}$$

Where:

 A_{ij} = Total number of GHG emission units allocated without charge by type of activity *j* at an establishment for year *i*;

i = Each year in the period 2021-2023 for which the emitter is required to cover its GHG emissions;

j = Type of activity;

 $I_{FP dep j}$ = Average intensity of fixed process emissions attributable to type of activity *j* at the establishment for years *d*-2 to *d*, calculated using equation 10-2, in metric tonnes CO₂ equivalent per reference unit;

d = First year for which the GHG emissions of the establishment are equal to or exceed the emissions threshold;

 $a_{FP,i}$ = Cap adjustment factor for the allocation of fixed process emissions for year *i* for establishments covered between 2021 and 2023, as defined in Table 6 of this Appendix, where n=*i*-(*d*+2);

 $I_{C dep j}$ = Average intensity of GHG combustion emissions attributable to type of activity *j* at the establishment for years *d*-2 to *d*, calculated using equation 10-3, in metric tonnes CO₂ equivalent per reference unit;

 $a_{C,i}$ = Cap adjustment factor for the allocation of combustion emissions for year *i* for establishments covered between 2021 and 2023, as defined in Table 6 of this Appendix, where n=*i*-(*d*+2);

 $I_{O \text{ dep } j}$ = Average intensity of other emissions attributable to type of activity *j* at the establishment for years *d*-2 to *d*, calculated using equation 10-4, in metric tonnes CO₂ equivalent per reference unit;

 $a_{O,i}$ = Cap adjustment factor for the allocation of other emissions for year *i* for establishments covered between 2021 and 2023, as defined in Table 6 of this Appendix, where n=*i*-(*d*+2);

 $P_{Ri j}$ = Total quantity of reference units produced or used at the establishment for type of activity *j* during year *i*;

 $AF_{i,j}$ = Assistance factor for type of activity *j* for year *i*, as defined in Table 7 of this Appendix.

Equation 10-2 Calculation of the intensity of fixed process emissions by type of activity at a covered establishment as of 2021 that is not considered on a sectoral basis

$$l_{FP \ dep \ j} = \frac{\sum_{i=(d-2)}^{d} GHG \ FP_{ij}}{\sum_{i=(d-2)}^{d} P_{Rij}}$$

Where:

I FP dep j = Average intensity of fixed process emissions attributable to type of activity j at the establishment for years d-2 to d, in metric tonnes CO₂ equivalent per reference unit;

j = Type of activity;

d = First year for which the GHG emissions of the establishment are equal to or exceed the emissions threshold;

i = Years *d*-2, *d*-1 and *d*;

GHG FP_{ij} = Fixed process emissions attributable to type of activity j at the establishment for year i, in metric tonnes CO₂ equivalent;

 $P_{Ri j}$ = Total quantity of reference units produced or used at the establishment for type of activity *j* during year *i*.

Equation 10-3 Calculation of the intensity of combustion emissions by type of activity at a covered establishment as of 2021 that is not considered on a sectoral basis



Where:

 $I_{C dep j}$ = Average intensity of combustion emissions attributable to type of activity *j* at the establishment for years *d*-2 to *d*, in metric tonnes CO₂ equivalent per reference unit;

j = Type of activity;

d = First year for which the GHG emissions of the establishment are equal to or exceed the emissions threshold;

i = Years *d*-2, *d*-1 and *d*;

GHG C_{ij} = Combustion emissions attributable to type of activity *j* at the establishment for year *i*, in metric tonnes CO₂ equivalent;

 $P_{Ri j}$ = Total quantity of reference units produced or used at the establishment for type of activity *j* during year *i*.

Equation 10-4 Calculation of the intensity of other emissions by type of activity at a covered establishment as of 2021 that is not considered on a sectoral basis

$$I_{0 \ dep \ j} = \frac{\sum_{i=(d-2)}^{d} GHG \ O_{ij}}{\sum_{i=(d-2)}^{d} P_{Rij}}$$

Where:

 $I_{O \text{ dep } j}$ = Average intensity of other emissions attributable to type of activity *j* at the establishment for years *d*-2 to *d*, in metric tonnes CO₂ equivalent per reference unit;

j = Type of activity;

d = First year for which the GHG emissions of the establishment are equal to or exceed the emissions threshold;

i = Years *d*-2, *d*-1 and *d*;

GHG $O_{i j}$ = Other emissions attributable to type of activity *j* at the establishment for year *i*, in metric tonnes CO₂ equivalent;

 $P_{Ri j}$ = Total quantity of reference units produced or used at the establishment for type of activity *j* during year *i*.

11. Covered establishment as of 2021 that is not considered on a sectoral basis and that does not possess all the GHG emissions data for years d-2 to d

The total quantity of GHG emission units allocated without charge to an emitter is calculated in accordance with the following methods:

(1) in the case of an establishment for which the GHG emissions data for years d to d+2, or d+1 to d+3 where d is the year in which the establishment became operational, are all available, using equation 11-1;

(2) in the case of an establishment for which the GHG emissions data for years d to d+2, or d+1 to d+3 where d is the year in which the establishment became operational, are not all available, using equation 11-5.

Equation 11-1 Calculation of the number of GHG emission units allocated without charge by type of activity at a covered establishment as of 2021 that is not considered on a sectoral basis for the years 2021 to 2023 and that does not possess all the GHG emissions data for years d-2 to d

 $A_{ij} = \left[I_{FP \ dep \ j} \times a_{FP,i} + I_{C \ dep \ j} \times a_{C,i} + I_{O \ dep \ j} \times a_{O,i} \right] \times P_{Ri \ j} \times AF_{i,j}$

Where:

 A_{ij} = Total number of GHG emission units allocated without charge by type of activity *j* at an establishment for year *i*;

i = Each year in the period 2021-2023 for which the emitter is required to cover its GHG emissions;

j = Type of activity;

 $I_{FP dep j}$ = Average intensity of fixed process emissions attributable to type of activity *j* at the establishment for years *d* to *d*+2, or *d*+1 to *d*+3 where *d* is the year in which the establishment became operational, calculated using equation 11-2, in metric tonnes CO₂ equivalent per reference unit;

d = First year for which the GHG emissions of the establishment are equal to or exceed the emissions threshold;

 $a_{FP,i}$ = Cap adjustment factor for the allocation of fixed process emissions for year *i* for establishments covered between 2021 and 2023, as defined in Table 6 of this Appendix, where n=*i*-(*d*+2);

 $l_{C \text{ dep } j}$ = Average intensity of combustion emissions attributable to type of activity *j* at the establishment for years *d* to *d*+2, or *d*+1 to *d*+3 where *d* is the year in which the establishment became operational, calculated using equation 11-3, in metric tonnes CO₂ equivalent per reference unit;

 $a_{C,i}$ = Cap adjustment factor for the allocation of combustion emissions for year *i* for establishments covered between 2021 and 2023, as defined in Table 6 of this Appendix, where n=*i*-(*d*+2);

 $I_{O \text{ dep } j}$ = Average intensity of other emissions attributable to type of activity *j* at the establishment for years *d* to *d*+2, or *d*+1 to *d*+3 where *d* is the year in which the establishment became operational, calculated using equation 11-4, in metric tonnes CO₂ equivalent per reference unit;

 $a_{0,i}$ = Cap adjustment factor for the allocation of other emissions for year *i* for establishments covered between 2021 and 2023, as defined in Table 6 of this Appendix, where n=*i*-(*d*+2);

 $P_{Ri j}$ = Total quantity of reference units produced or used at the establishment for type of activity *j* during year *i*;

 $AF_{i,j}$ Assistance factor for type of activity *j* for year *i*, as defined in Table 7 of this Appendix.

Equation 11-2 Calculation of the intensity of fixed process emissions by type of activity at a covered establishment as of 2021 that is not considered on a sectoral basis and that does not possess all the GHG emissions data for years d-2 to d



Or

$$I_{FP \ dep \ j} = \frac{\sum_{i=(d+1)}^{d+3} GHG \ FP_{ij}}{\sum_{i=(d+1)}^{d+3} P_{Rij}}$$

Where:

 $I_{FP dep j}$ = Average intensity of fixed process emissions attributable to type of activity *j* at the establishment for years *d* to *d*+2, or *d*+1 to *d*+3 where *d* is the year in which the establishment became operational, in metric tonnes CO₂ equivalent per reference unit;

j = Type of activity;

d = First year for which the GHG emissions of the establishment are equal to or exceed the emissions threshold;

i = Years d to d+2, or d+1 to d+3 where d is the year in which the establishment became operational;

GHG FP_{ij} = Fixed process emissions attributable to type of activity j at the establishment for year i, in metric tonnes CO₂ equivalent;

 $P_{Ri j}$ = Total quantity of reference units produced or used at the establishment for type of activity *j* during year *i*.

Equation 11-3 Calculation of the intensity of combustion emissions by type of activity at a covered establishment as of 2021 that is not considered on a sectoral basis and that does not possess all the GHG emissions data for years d-2 to d

$$I_{C \ dep \ j} = \frac{\sum_{i=(d)}^{d+2} GHG \ C_{ij}}{\sum_{i=(d)}^{d+2} P_{Rij}}$$

Or

$$I_{C \ dep \ j} = \frac{\sum_{i=(d+1)}^{d+3} GHG \ C_{ij}}{\sum_{i=(d+1)}^{d+3} P_{Rij}}$$

Where:

 $I_{C dep j}$ = Average intensity of GHG combustion emissions attributable to type of activity *j* at the establishment for years *d* to *d*+2, or *d*+1 to *d*+3 where *d* is the year in which the establishment became operational, in metric tonnes CO₂ equivalent per reference unit;

j = Type of activity;

d = First year for which the GHG emissions of the establishment are equal to or exceed the emissions threshold;

i = Years d to d+2, or d+1 to d+3 where d is the year in which the establishment became operational;

GHG C_{ij} = Combustion emissions attributable to type of activity *j* at the establishment for year *i*, in metric tonnes CO₂ equivalent;

 $P_{Ri j}$ = Total quantity of reference units produced or used at the establishment for type of activity *j* during year *i*.

Equation 11-4 Calculation of the intensity of other emissions by type of activity at a covered establishment as of 2021 that is not considered on a sectoral basis and that does not possess all the GHG emissions data for years d-2 to d



Or

$$I_{O \ dep \ j} = \frac{\sum_{i=(d+1)}^{d+3} GHG \ O_{ij}}{\sum_{i=(d+1)}^{d+3} P_{Rij}}$$

Where:

 $I_{O \text{ dep } j}$ = Average intensity of other emissions attributable to type of activity *j* at the establishment for years *d* to *d*+2, or *d*+1 to *d*+3 where *d* is the year in which the establishment became operational, in metric tonnes CO₂ equivalent per reference unit;

j = Type of activity;

d = First year for which the GHG emissions of the establishment are equal to or exceed the emissions threshold;

i = Years *d* to d+2, or d+1 to d+3 where *d* is the year in which the establishment became operational;

GHG $O_{i j}$ = Other emissions attributable to type of activity *j* at the establishment for year *i*, in metric tonnes CO₂ equivalent;

 $P_{Ri j}$ = Total quantity of reference units produced or used at the establishment for type of activity *j* during year *i*.

Equation 11-5 Calculation of the number of GHG emission units allocated without charge for a covered establishment as of 2021 that is not considered on a sectoral basis for the years 2021 to 2023 and that does not possess all the GHG emissions data for the years d to d+2, or d+1 to d+3 where d is the year in which the establishment became operational

$$A_{i} = \left(\left(EC_{TOTAL i} \times EF \times a_{C,i} \right) + \left(GHG_{FP i} \times a_{FP,i} \right) + \left(GHG_{O i} \times a_{O,i} \right) \right)$$
$$\times AF_{i i}$$

Where:

 A_i = Total number of GHG emission units allocated without charge for year *i*;

i = Each year in the period 2021-2023 for which the emitter is required to cover its GHG emissions;

 $EC_{TOTAL i}$ = Energy consumption in year *i*, calculated using equation 11-6, in GJ;

EF = Emission factor for natural gas, in metric tonnes CO₂ equivalent/GJ, calculated using equation 4-21.1;

 $a_{C,i}$ = Cap adjustment factor for the allocation of combustion emissions for year *i* for establishments covered between 2021 and 2023, as defined in Table 6 of this Appendix, where n=*i*-(*d*+2);

 GHG_{FPi} = Fixed process emissions at the establishment for year *i*, in metric tonnes CO₂ equivalent;

 $a_{FP,i}$ = Cap adjustment factor for the allocation of fixed process emissions for year *i* for establishments covered between 2021 and 2023, as defined in Table 6 of this Appendix, where n=*i*-(*d*+2);

 GHG_{0i} = Other emissions at the establishment for year *i*, in metric tonnes CO_2 equivalent;

 $a_{O,i}$ = Cap adjustment factor for the allocation of other emissions for year *i* for establishments covered between 2021 and 2023, as defined in Table 6 of this Appendix, where n=*i*-(*d*+2);

 $AF_{i,j}$ = Assistance factor for type of activity *j* for year *i*, as defined in Table 7 of this Appendix.

Equation 11-6 Calculation of energy consumption for a year at a covered establishment as of 2021 that is not considered on a sectoral basis and that does not possess all the GHG emissions data for years d to d+2, or d+1 to d+3 where d is the year in which the establishment became operational

$$EC_{TOTAL\,i} = \sum_{k=1}^{n} (Fuel_k \times HHV_k)$$

Where:

ECTOTAL i = Energy consumption in year *i*, in GJ;

n = Total number of types of fuel used;

k = Type of fuel;

 $Fuel_k$ = Mass or volume of fuel burned:

(a) in dry metric tonnes, where the quantity is expressed as a mass;

(b) in thousands of cubic metres at standard conditions, where the quantity is expressed as a volume of gas;

(c) in kilolitres, where the quantity is expressed as a volume of liquid;

 HHV_k = High heat value for measurement period *i*, expressed

(a) in GJ per dry metric tonne, in the case of fuels whose quantity is expressed as a mass;

(*b*) in GJ per thousand cubic metres, in the case of fuels whose quantity is expressed as a volume of gas;

(c) in GJ per kilolitre, in the case of fuels whose quantity is expressed as a volume of liquid.

12. Covered establishment as of 2021 that is not considered on a sectoral basis and that does not possess a determined reference unit

The total quantity of GHG emission units allocated without charge to an emitter is calculated in accordance with the following methods:

(1) in the case of an establishment for which the GHG emissions data for years d to d+2, or d+1 to d+3 where d is the year in which the establishment became operational, are all available, using equation 12-1;

(2) in the case of an establishment for which the GHG emissions data for years d to d+2, or d+1 to d+3 where d is the year in which the establishment became operational, are not all available, using equation 11-5.

Equation 12-1 Calculation of the number of GHG emission units allocated without charge for an establishment covered as of 2021 that is not considered on a sectoral basis for the years 2021 to 2023, that does not possess a determined reference unit and that possesses all the GHG emissions data for years d to d+2, or d+1 to d+3 where d is the year in which the establishment became operational

$$A_{i} = \left[\left(EC_{TOTAL,av} \times EF \times a_{C,i} \right) + \left(GHG_{FP,av} \times a_{FP,i} \right) + \left(GHG_{O,av} \times a_{O,i} \right) \right] \times AF_{ii}$$

Where:

 A_i = Total number of GHG emission units allocated without charge for year *i*;

i = Each year in the period 2021-2023 for which the emitter is required to cover its GHG emissions;

d = First year for which the GHG emissions of the establishment are equal to or exceed the emissions threshold;

 $EC_{TOTAL,av}$ = Average energy consumption for years *d* to *d*+2, or *d*+1 to *d*+3 where *d* is the year in which the establishment became operational, calculated using equation 12-2 in GJ;

EF = Emission factor for natural gas, in metric tonnes CO₂ equivalent/GJ, calculated using equation 4-21.1;

 $a_{C,i}$ = Cap adjustment factor for the allocation of combustion emissions for year *i* for establishments covered between 2021 and 2023, as defined in Table 6 of this Appendix, where n=*i*-(*d*+2);

 $GHG_{FP,av}$ = Average fixed process emissions at the establishment for years d to d+2, or d+1 to d+3 where d is the year in which the establishment became operational, in metric tonnes CO₂ equivalent;

 $a_{FP,i}$ = Cap adjustment factor for the allocation of fixed process emissions for year *i* for establishments covered between 2021 and 2023, as defined in Table 6 of this Appendix, where n=*i*-(*d*+2);

GHG_{0,av} = Average other emissions at the establishment for years d to d+2, or d+1 to d+3 where d is the year in which the establishment became operational, in metric tonnes CO₂ equivalent;

 $a_{O,i}$ = Cap adjustment factor for the allocation of other emissions for year *i* for establishments covered between 2021 and 2023, as defined in Table 6 of this Appendix, where n=*i*-(*d*+2);

 AF_{ij} = Maximum of assistance factors for each type of activity *j* at the establishment for year *i*, as defined in Table 7 of this Appendix.

Equation 12-2 Calculation of average energy consumption for years d to d+2, or d+1 to d+3 where d is the year in which the establishment became operational, at a covered establishment as of 2021 that is not considered on a sectoral basis and that possesses all the GHG emissions data for those years

$$EC_{TOTAL,av} = \sum_{d}^{d+2} \left(\sum_{k=1}^{n} Fuel_k \times HHV_k \right) \div 3$$
Or

$$EC_{TOTAL,av} = \sum_{d+1}^{d+3} \left(\sum_{k=1}^{n} Fuel_k \times HHV_k \right) \div 3$$

Where:

 $EC_{TOTAL,av}$ = Average energy consumption for years *d* to *d*+2, or *d*+1 to *d*+3 where *d* is the year in which the establishment became operational, in GJ;

d = First year for which the GHG emissions of the establishment are equal to or exceed the emissions threshold;

k = Type of fuel;

n = Total number of types of fuel used;

 $Fuel_k$ = Mass or volume of fuel burned:

(a) in dry metric tonnes, where the quantity is expressed as a mass;

(*b*) in thousands of cubic metres at standard conditions, where the quantity is expressed as a volume of gas;

(c) in kilolitres, where the quantity is expressed as a volume of liquid;

 HHV_k = High heat value for measurement period *i*, expressed

(a) in GJ per dry metric tonne, in the case of fuels whose quantity is expressed as a mass;

(c) in GJ per kilolitre, in the case of fuels whose quantity is expressed as a volume of liquid.

13. Covered establishment referred to in section 2.1 that is not considered on a sectoral basis for which the GHG emissions data for years e-3 to e-1 are all available

Equation 13-1 Calculation of the number of GHG emission units allocated without charge by type of activity for year 2021 to 2023 at an establishment that is not considered on a sectoral basis and for which the GHG emissions data for years e-3 to e-1 are all available

$$A_{ij} = \left[I_{FP \ dep \ j} \times a_{FP,i} + I_{C \ dep \ j} \times a_{C,i} + I_{O \ dep \ j} \times a_{O,i} \right] \times P_{Ri \ j} \times AF_{i,j}$$

Where:

 A_{ij} = Total number of GHG emission units allocated without charge by type of activity *j* at an establishment for year *i*;

i = Each year in the period 2021-2023 for which the emitter is required to cover its GHG emissions;

j = Type of activity;

 $I_{FP dep j}$ = Average intensity of fixed process emissions attributable to type of activity *j* at the establishment for years *e*-3 to *e*-1, calculated using equation 13-2, in metric tonnes CO₂ equivalent per reference unit;

e = Year of application for registration for the system;

 $a_{FP,i}$ = Cap adjustment factor for the allocation of fixed process emissions for year *i* for establishments covered between 2021 and 2023, as defined in Table 6 of this Appendix, where n=*i*-(*e*+1);

 $I_{C \text{ dep } j}$ = Average intensity of combustion emissions attributable to type of activity *j* at the establishment for years *e*-3 to *e*-1, calculated using equation 13-3, in metric tonnes CO₂ equivalent per reference unit;

 $a_{C,i}$ = Cap adjustment factor for the allocation of combustion emissions for year *i* for establishments covered between 2021 and 2023, as defined in Table 6 of this Appendix, where n=i-(e+1);

 $I_{O \text{ dep } j}$ = Average intensity of other emissions attributable to type of activity *j* at the establishment for years *e*-3 to *e*-1, calculated using equation 13-4, in metric tonnes CO₂ equivalent per reference unit;

 $a_{0,i}$ = Cap adjustment factor for the allocation of other emissions for year *i* for establishments covered between 2021 and 2023, as defined in Table 6 of this Appendix, where n=*i*-(e+1);

 $P_{Ri j}$ = Total quantity of reference units produced or used at the establishment for type of activity *j* during year *i*;

 $AF_{i,j}$ = Assistance factor for type of activity *j* for year *i*, as defined in Table 7 of this Appendix.

Equation 13-2 Calculation of the intensity of fixed process emissions by type of activity at a covered establishment referred to in section 2.1 that is not considered on a sectoral basis and for which the GHG emissions data for years e-3 to e-1 are all available



Where:

I FP dep j = Average intensity of fixed process emissions attributable to type of activity *j* at the establishment for years *e*-3 to *e*-1, in metric tonnes CO₂ equivalent per reference unit;

j = Type of activity;

e = Year of application for registration for the system;

i = Years e-3, e-2 and e-1;

GHG FP_{ij} = Fixed process emissions attributable to type of activity j at the establishment for year i, in metric tonnes CO₂ equivalent;

 $P_{Ri j}$ = Total quantity of reference units produced or used at the establishment for type of activity *j* during year *i*.

Equation 13-3 Calculation of the intensity of combustion emissions for a covered establishment referred to in section 2.1 that is not considered on a sectoral basis and for which the GHG emissions data for years e-3 to e-1 are all available



Where:

 $I_{C \text{ dep } j}$ = Average intensity of combustion emissions attributable to type of activity *j* at the establishment for years *e*-3 to *e*-1, in metric tonnes CO₂ equivalent per reference unit;

j = Type of activity;

e = Year of application for registration for the system;

i = Years *e*-3, *e*-2 and *e*-1;

GHG C_{ij} = Combustion emissions attributable to type of activity *j* at the establishment for year *i*, in metric tonnes CO₂ equivalent;

 $P_{Ri j}$ = Total quantity of reference units produced or used at the establishment for type of activity *j* during year *i*.

Equation 13-4 Calculation of the intensity of other emissions for a covered establishment referred to in section 2.1 that is not considered on a sectoral basis and for which the GHG emissions data for years e-3 to e-1 are all available

$$I_{O \ dep \ j} = \frac{\sum_{i=(e-3)}^{e-1} GHG \ O_{ij}}{\sum_{i=(e-3)}^{e-1} P_{Rij}}$$

Where:

 $I_{O \text{ dep } j}$ = Average intensity of other emissions attributable to type of activity j at the establishment for years *e*-3 to *e*-1, in metric tonnes CO₂ equivalent per reference unit;

j = Type of activity;

e = Year of application for registration for the system;

i = Years *e*-3, *e*-2 and *e*-1;

GHG $O_{i j}$ = Other emissions attributable to type of activity *j* at the establishment for year *i*, in metric tonnes CO₂ equivalent;

 $P_{Ri j}$ = Total quantity of reference units produced or used at the establishment for type of activity *j* during year *i*.

14. Covered establishment referred to in section 2.1 that is not considered on a sectoral basis and for which the GHG emissions data for years *e*-3 to *e*-1 are not all available

The total quantity of GHG emission units allocated without charge to an emitter is calculated in accordance with the following methods:

(1) in the case of an establishment for which the GHG emissions data for years e-1 to e+1, or e to e+2 where e-1 is the year in which the establishment became operational, are all available, using equation 14-1;

(2) in the case of an establishment for which the GHG emissions data for years e-1 to e+1, or e to e+2 where e-1 is the year in which the establishment became operational, are not all available, using equation 14-5.

Equation 14-1 Calculation of the number of GHG emission units allocated without charge by type of activity at a covered establishment referred to in section 2.1 that is not considered on a sectoral basis for the years 2021 to 2023 and for which the GHG emissions data for years e-3 to e-1 are not all available

$$A_{ij} = \left[I_{FP \ dep \ j} \times a_{FP,i} + I_{C \ dep \ j} \times a_{C,i} + I_{O \ dep \ j} \times a_{O,i}\right] \times P_{Ri \ j} \times AF_{i,j}$$

Where:

 A_{ij} = Total number of GHG emission units allocated without charge by type of activity *j* at an establishment for year *i*;

i = Each year in the period 2021-2023 for which the emitter is required to cover its GHG emissions;

j = Type of activity;

 $I_{\text{FP dep }j}$ = Average intensity of fixed process emissions attributable to type of activity *j* at the establishment for years *e*-1 to *e*+1, or *e* to *e*+2 where *e*-1 is the year in which the establishment became operational, calculated using equation 14-2, in metric tonnes CO₂ equivalent per reference unit;

e = Year of application for registration for the system;

 $a_{FP,i}$ = Cap adjustment factor for the allocation of fixed process emissions for year *i* for establishments covered between 2021 and 2023, as defined in Table 6 of this Appendix, where n =*i*-(*e*+1);

 $I_{C \text{ dep } j}$ = Average intensity of combustion emissions attributable to type of activity *j* at the establishment for years *e*-1 to *e*+1, or *e* to *e*+2 where *e*-1 is the year in which the establishment became operational, calculated using equation 14-3, in metric tonnes CO₂ equivalent per reference unit;

 $a_{C,i}$ = Cap adjustment factor for the allocation of combustion emissions for year *i* for establishments covered between 2021 and 2023, as defined in Table 6 of this Appendix, where n=*i*-(*e*+1);

 $I_{O \text{ dep } j}$ = Average intensity of other emissions attributable to type of activity *j* at the establishment for years *e*-1 to *e*+1, or *e* to *e*+2 where *e*-1 is the year in which the establishment became operational, calculated using equation 14-4, in metric tonnes CO₂ equivalent per reference unit;

 $a_{O,i}$ = Cap adjustment factor for the allocation of other emissions for year *i* for establishments covered between 2021 and 2023, as defined in Table 6 of this Appendix, where n=*i*-(*e*+1);

 $P_{Ri j}$ = Total quantity of reference units produced or used at the establishment for type of activity *j* during year *i*;

 $AF_{i,j}$ = Assistance factor for type of activity *j* for year *i*, as defined in Table 7 of this Appendix.

Equation 14-2 Calculation of the intensity of fixed process emissions by type of activity at a covered establishment referred to in section 2.1 that is not considered on a sectoral basis and for which the GHG emissions data for years e-3 to e-1 are not all available

$$I_{FP \ dep \ j} = \frac{\sum_{i=(e-1)}^{e+1} GHG \ FP_{ij}}{\sum_{i=(e-1)}^{e+1} P_{Rij}}$$

Or

$$I_{FP \ dep \ j} = \frac{\sum_{i=(e)}^{e+2} GHG \ FP_{ij}}{\sum_{i=(e)}^{e+2} P_{Rij}}$$

Where:

 $I_{FP dep j}$ = Average intensity of fixed process emissions attributable to type of activity *j* at the establishment for years *e*-1 to *e*+1, or *e* to *e*+2 where *e*-1 is the year in which the establishment became operational, in metric tonnes CO₂ equivalent per reference unit;

j = Type of activity;

e = Year of application for registration for the system;

i = Years *e*-1 to *e*+1, or *e* to *e*+2 where *e*-1 is the year in which the establishment became operational;

GHG FP_{ij} = Fixed process emissions attributable to type of activity j at the establishment for year i, in metric tonnes CO₂ equivalent;

 $PR_{i j}$ = Total quantity of reference units produced or used at the establishment for type of activity *j* during year *i*.

Equation 14-3 Calculation of the intensity of combustion emissions by type of activity at a covered establishment referred to in section 2.1 that is not considered on a sectoral basis and for which the GHG emissions data for years e-3 to e-1 are not all available



Or

$$I_{C \ dep \ j} = \frac{\sum_{i=(e)}^{e+2} GHG \ C_{ij}}{\sum_{i=(e)}^{e+2} P_{Rij}}$$

Where:

 $I_{C dep j}$ = Average intensity of GHG combustion emissions attributable to type of activity *j* at the establishment for years *e*-1 to *e*+1, or *e* to *e*+2 where *e*-1 is the year in which the establishment became operational, in metric tonnes CO₂ equivalent per reference unit;

j = Type of activity;

e = Year of application for registration for the system;

i = Years e-1 to e+1, or e to e+2 where e-1 is the year in which the establishment became operational;

GHG C_{ij} = Combustion emissions attributable to type of activity *j* at the establishment for year *i*, in metric tonnes CO₂ equivalent;

 $P_{Ri j}$ = Total quantity of reference units produced or used at the establishment for type of activity *j* during year *i*.

Equation 14-4 Calculation of the intensity of other emissions by type of activity at a covered establishment referred to in section 2.1 that is not considered on a sectoral basis and for which the GHG emissions data for years e-3 to e-1 are not all available



Or

$$I_{O \ dep \ j} = \frac{\sum_{i=(e)}^{e+2} GHG \ O_{ij}}{\sum_{i=(e)}^{e+2} P_{Rij}}$$

Where:

 $I_{O \text{ dep } j}$ = Average intensity of other emissions attributable to type of activity *j* at the establishment for years *e*-1 to *e*+1, or *e* to *e*+2 where *e*-1 is the year in which the establishment became operational, in metric tonnes CO₂ equivalent per reference unit;

j = Type of activity;

e = Year of application for registration for the system;

i = Years *e*-1 to *e*+1, or *e* to *e*+2 where *e*-1 is the year in which the establishment became operational;

GHG $O_{i j}$ = Other emissions attributable to type of activity *j* at the establishment for year *i*, in metric tonnes CO₂ equivalent;

 $P_{Ri j}$ = Total quantity of reference units produced or used at the establishment for type of activity *j* during year *i*.

Equation 14-5 Calculation of the number of GHG emission units allocated without charge for a covered establishment referred to in section 2.1 that is not considered on a sectoral basis for the years 2021 to 2023 and for which the GHG emissions data for years e-1 to e+1, or e to e+2 where e-1 is the year in which the establishment became operational, are not all available

 $A_{i} = \left(\left(EC_{TOTAL\,i} \times EF \times a_{C,i} \right) + \left(GHG_{FP\,i} \times a_{FP,i} \right) + \left(GHG_{O\,i} \times a_{O,i} \right) \right) \times AF_{i,i}$

Where:

 A_i = Total number of GHG emission units allocated without charge for year *i*;

i = Each year in the period 2021-2023 for which the emitter is required to cover its GHG emissions;

 $EC_{TOTAL i}$ = Energy consumption in year *i*, calculated using equation 14-6, in GJ;

EF = Emission factor for natural gas, in metric tonnes CO₂ equivalent/GJ, calculated using equation 4-21.1;

 $a_{C,i}$ = Cap adjustment factor for the allocation of combustion emissions for year *i* for establishments covered between 2021 and 2023, as defined in Table 6 of this Appendix, where n=*i*-(*e*+1);

e = Year of application for registration for the system;

 GHG_{FPi} = Fixed process emissions at the establishment for year *i*, in metric tonnes CO₂ equivalent;

 $a_{FP,i}$ = Cap adjustment factor for the allocation of fixed process emissions for year *i* for establishments covered between 2021 and 2023, as defined in Table 6 of this Appendix, where n=*i*-(*e*+1);

 GHG_{Oi} = Other emissions at the establishment for year *i*, in metric tonnes CO_2 equivalent;

 $a_{O,i}$ = Cap adjustment factor for the allocation of other emissions for year *i* for establishments covered between 2021 and 2023, as defined in Table 6 of this Appendix, where n=*i*-(*e*+1);

 $AF_{i,j}$ = Assistance factor for type of activity *j* for year *i*, as defined in Table 7 of this Appendix.

Equation 14-6 Calculation of energy consumption in year i for a covered establishment referred to in section 2.1 that is not considered on a sectoral basis and for which the GHG emissions data for years e-1 to e+1, or e to e+2 where e-1 is the year in which the establishment became operational, are not all available

$$EC_{TOTAL i} = \sum_{k=1}^{n} (Fuel_k \times HHV_k)$$

Where:

ECTOTAL i = Energy consumption in year *i*, in GJ;

n = Total number of types of fuel used;

k = Type of fuel;

 $Fuel_k$ = Mass or volume of fuel burned:

(a) in dry metric tonnes, where the quantity is expressed as a mass;

(*b*) in thousands of cubic metres at standard conditions, where the quantity is expressed as a volume of gas;

(c) in kilolitres, where the quantity is expressed as a volume of liquid;

 HHV_k = High heat value for measurement period *i*, expressed

(a) in GJ per dry metric tonne, in the case of fuels whose quantity is expressed as a mass;

(*b*) in GJ per thousand cubic metres, in the case of fuels whose quantity is expressed as a volume of gas;

(c) in GJ per kilolitre, in the case of fuels whose quantity is expressed as a volume of liquid.

15. Covered establishment referred to in section 2.1 that is not considered on a sectoral basis and that does not possess a determined reference unit

The total quantity of GHG emission units allocated without charge to an emitter is calculated in accordance with the following methods:

(1) in the case of an establishment for which the GHG emissions data for years e-1 to e+1, or e to e+2 where e-1 is the year in which the establishment became operational, are all available, using equation 15-1;

(2) in the case of an establishment for which the GHG emissions data for years e-1 to e+1, or e to e+2 where e-1 is the year in which the establishment became operational, are not all available, using equation 14-5.
Equation 15-1 Calculation of the number of GHG emission units allocated without charge for a covered establishment referred to in section 2.1 that is not considered on a sectoral basis for the years 2021 to 2023, that does not possess a determined reference unit and for which the GHG emissions data for years e-1 to e+1, or e to e+2 where e-1 is the year in which the establishment became operational, are all available

 $A_{i} = \left[\left(EC_{TOTAL,av} \times EF \times a_{C,i} \right) + \left(GHG_{FP,av} \times a_{FP,i} \right) + \left(GHG_{O,av} \times a_{O,i} \right) \right] \\ \times AF_{i,i}$

Where:

 A_i = Total number of GHG emission units allocated without charge for year *i*;

i = Each year in the period 2021-2023 for which the emitter is required to cover its GHG emissions;

 $EC_{TOTAL,av}$ = Average energy consumption for years *e*-1 to *e*+1, or *e* to *e*+2 where *e*-1 is the year in which the establishment became operational, calculated using equation 15-2, in GJ;

e = Year of application for registration for the system;

EF = Emission factor for natural gas, in metric tonnes CO₂ equivalent/GJ, calculated using equation 4-21.1;

 $a_{C,i}$ = Cap adjustment factor for the allocation of combustion emissions for year *i* for establishments covered between 2021 and 2023, as defined in Table 6 of this Appendix, where n=i-(e+1);

 $GHG_{FP,av}$ = Average fixed process emissions at the establishment for years *e*-1 to *e*+1, or *e* to *e*+2 where *e*-1 is the year in which the establishment became operational, in metric tonnes CO₂ equivalent;

 $a_{FP,i}$ = Cap adjustment factor for the allocation of fixed process emissions for year *i* for establishments covered between 2021 and 2023, as defined in Table 6 of this Appendix, where n=*i*-(*e*+1);

 GHG_{Oav} = Average other emissions at the establishment for years e-1 to e+1, or e to e+2 where e-1 is the year in which the establishment became operational, in metric tonnes CO₂ equivalent;

 $a_{O,i}$ = Cap adjustment factor for the allocation of other emissions for year *i* for establishments covered between 2021 and 2023, as defined in Table 6 of this Appendix, where n=*i*-(*e*+1);

 $AF_{i,j}$ = Maximum of assistance factors for each type of activity *j* at the establishment for year *i*, as defined in Table 7 of this Appendix.

Equation 15-2 Calculation of average energy consumption for a covered establishment referred to in section 2.1 that is not considered on a sectoral basis, that does not possess a determined reference unit and for which the GHG emissions data for years e-1 to e+1, or e to e+2 where e-1 is the year in which the establishment became operational, are all available

$$EC_{TOTAL,av} = \sum_{e=1}^{e+1} \left(\sum_{k=1}^{n} Fuel_k \times HHV_k \right) \div 3$$

$$EC_{TOTAL,av} = \sum_{e}^{e+2} \left(\sum_{k=1}^{n} Fuel_k \times HHV_k \right) \div 3$$

Where:

 $EC_{TOTAL,av}$ = Average energy consumption for years *e*-1 to *e*+1, or *e* to *e*+2 where *e*-1 is the year in which the establishment became operational, in GJ;

e = Year of application for registration for the system;

n = Total number of types of fuel used;

k = Type of fuel;

 $Fuel_k$ = Mass or volume of fuel burned:

(a) in dry metric tonnes, where the quantity is expressed as a mass;

(*b*) in thousands of cubic metres at standard conditions, where the quantity is expressed as a volume of gas;

(c) in kilolitres, where the quantity is expressed as a volume of liquid;

 HHV_k = High heat value for measurement period *i*, expressed

(a) in GJ per dry metric tonne, in the case of fuels whose quantity is expressed as a mass;

(*b*) in GJ per thousand cubic metres, in the case of fuels whose quantity is expressed as a volume of gas;

(c) in GJ per kilolitre, in the case of fuels whose quantity is expressed as a volume of liquid.

16. Allocation cap adjustment factors

16.1. Covered establishment as of 2018 for the period 2018-2020

 Table
 4:
 Allocation
 cap
 adjustment
 factors
 for
 a
 covered
 establishment as of 2018 for the period 2018-2020
 covered
 covered

Year i	A _{FP,i}	Ac,i	a 0,i
2018	1.00	(0.99) ⁿ	(0.99) ⁿ
2019	1.00	(0.99) ⁿ	(0.99) ⁿ
2020	1.00	(0.99) ⁿ	(0.99) ⁿ

16.2. Establishment covered prior to 2021 for the period 2021-2023

 Table 5: Allocation cap adjustment factors for an establishment

 covered prior to 2021 for the period 2021-2023

Year i	A _{FP,i}	Ac,i	a 0,i
2021	0.995	0.985	0.970
2022	0.990	0.970	0.940
2023	0.985	0.955	0.910

16.3. Covered establishment as of 2021 for the period 2021-2023

 Table
 6:
 Allocation
 cap
 adjustment
 factors
 for
 a
 covered
 establishment as of 2021 for the period 2021-2023
 covered
 covered

Year i	A _{FP,i}	Ac,i	a 0,i
2021	1-(0.005*n)	1-(0.015*n)	1-(0.03*n)
2022	1-(0.005*n)	1-(0.015*n)	1-(0.03*n)
2023	1-(0.005*n)	1-(0.015*n)	1-(0.03*n)

17. Assistance factors

Table 7: Assistance factor defined for a reference unit by compliance period

Sector	Reference unit	Assistance factor 2021-2023		
Aluminum	metric tonne of liquid			
	aluminum (leaving the	1.00		
	electrolysis nall)	1.00		
	removed from furnace	1.00		
	metric tonne of baked	1.00		
	cathodes removed from			
	furnace	1.00		
	metric tonne of calcinated			
	coke	1.00		
	metric tonne of aluminum			
	hydroxide expressed as Al2O3			
	equivalent calculated at the	1.00		
Othor	precipitation stage	1.00		
Other		1.00		
	metric tonne of glass	1.00		
	nilseeds	1.00		
	metric toppe of carbon dioxide	1.00		
	cubic metre of gypsum	1.00		
	products	1.00		
Lime	metric tonne of calcic lime and	1.00		
	metric tonne of calcic lime kiln			
	dust sold	1.00		
	metric tonne of dolomitic lime			
	and metric tonne of dolomitic			
	lime kiln dust sold	1.00		
Chemical	board foot of rigid insulation	0.95		
	metric tonne of xylene and	1.00		
	toluene	1.00		
	a third person	1.00		
	metric tonne of titanium	1.00		
	pigment equivalent (raw			
	material)	1.00		
	metric tonne of PTA	1.00		
	metric tonne of LAB	1.00		
	kilolitre of ethanol	1.00		
	metric tonne of hydrogen	1.00		
	kilolitre of alcohol	0.90		

Sector	Reference unit	Assistance factor 2021-2023	
	metric tonne of catalyzer	1.00	
	(Including additives)	1.00	
0	metric tonne of tires	0.90	
Cement	metric tonne of clinker and		
	(avecum and limestone)		
	(gypsull and linestone)	1.00	
Electricity	megawatt-bour	0.60	
Liootholty	motric toppo of stoom	0.00	
Motolluray	metric tonne of reduced iron	0.60	
wetanurgy	nellets	1.00	
	metric tonne of steel (slabs	1.00	
	nellets or ingots)	1.00	
	metric tonne of rolled steel	1.00	
	metric tonne of Ti O2 slag cast	1:00	
	at the reduction furnaces	1 00	
	metric tonne of silicon metal	1.00	
	metric tonne of ferrosilicon	1.00	
	(50% and 75% concentration)	1.00	
	metric tonne of copper anodes	1 00	
	metric tonne of recycled		
	secondary materials	1.00	
	metric tonne of copper		
	cathodes	1.00	
	metric tonne of lead	1.00	
	metric tonne of wrought steel	1.00	
	metric tonne of iron powder		
	and steel powder at bagging,		
	after additives	1.00	
	metric tonne of cathodic zinc	0.95	
	metric tonne of iron load	0.95	
Mining and	metric tonne of flux pellets	1.00	
pelletization	metric tonne of low silica flux		
	pellets	1.00	
	metric tonne of direct		
	reduction pellets	1.00	
	metric tonne of blast furnace		
	pellets	1.00	
	metric tonne of intermediate	4.00	
	pellets	1.00	
	metric tonne of NICKEI	1.00	
	metric toppe of pickel and	1.00	
	copper produced	1.00	

Sector	Reference unit	Assistance factor 2021-2023
	metric tonne of iron	
	concentrate	1.00
	metric tonne of standard	
	pellets	1.00
Pulp and	metric tonne of various air-	
paper	dried saleable products	1.00
	metric tonne of various	
	saleable air-dried products of	
	each of the establishments	
	common to a steam network	1.00
	kilolitre of total crude oil	
Refining	refinery load	1.00
	reference unit not determined	
elsewhere in the table		0.90
	1	"

64. Appendix D is amended

(1) in Protocol 2, in Part I:

(a) by adding "biological oxidation for landfills whose concentration in CH_4 is less than or equal to 20%" after "are" in the third paragraph of point 1;

(b) in Division 6.1

(i) by striking out the second paragraph;

(ii) by replacing the definition of "OX" in Equation 3 by the following:

"OX = Factor for the oxidation of CH_4 by soil bacteria, using the value established for each of the cases provided for in subparagraphs 1, 2 and 3 below;"

(iii) by inserting the following after the definition of the factor "DF" in Equation 3:

"The factor for the oxidation of CH_4 by soil bacteria is established as follows:

(1) for closed landfill sites with a geomembrane covering the entire area of the landfill, the promoter must use a CH_4 oxidation rate of zero (0%) and show, in the first project report, that the landfill site has a geomembrane that meets the requirements of the Regulation respecting the landfilling and incineration of residual materials (chapter Q-2, r. 19);

(2) for landfills in operation, part of which is filled and covered by a geomembrane, the promoter must use a CH₄ oxidation rate of zero (0%) for the area covered by a geomembrane and a CH₄ oxidation rate of 10% for the area not covered by a geomembrane, and must pro-rate the CH₄ oxidation factor based on areas which are covered and uncovered by a geomembrane using Equation 3.1 (with areas measured in m²);

(3) for all other landfill sites, the promoter must use a CH4 oxidation factor of 10%.

In the cases referred to in subparagraphs 1 and 2, the promoter must show, in the project reports, that the landfill site has a geomembrane that meets the requirements of the Regulation respecting the landfilling and incineration of residual materials (chapter Q-2, r. 19). In the case referred to in subparagraph 2, the project report must include the manner used to determine the covered and uncovered areas.



Where:

OX = Factor for the oxidation of CH₄ by soil bacteria, for the case provided for in subparagraph 2;

AC = Area, in m^2 , of the area of the landfill site that is filled and covered by a geomembrane;

ANC = Area, in m^2 , of the area of the landfill site that is operating and not covered by the geomembrane under final cover at the start of the reporting period.";

(iv) by adding "or using equation 5.1 for the destruction by biological oxidation" at the end of the definition of variable "DE";

(v) by adding the following after equation 5:

Equation 5.1

 $DE_i = (T_{CH4} - T_{dest - CH4}) / T_{CH4}$

Where:

 DE_i = CH₄ destruction efficiency of biological oxidation destruction device, in cubic metres of CH₄ per cubic metre of LFG;

 T_{CH4} = Average CH₄ fraction of the gas that entered the destruction device during the project reporting period, determined using a continuous CH₄ analyzer, in cubic metres of CH₄ per cubic metre of LFG;

 $T_{dest - CH4}$ = Average CH₄ fraction of the gas at the outlet of the destruction device during the project reporting period, determined using a continuous CH₄ analyzer, in cubic metres of CH₄ per cubic metre of LFG.

(c) by adding the following 2 lines at the end of point 7.2 in Figure 7.1:

Parameter	Factor used in equations	Unit of measurement	Method	Frequency of measurement
CH ₄ fraction at the inlet of the destruction device	T _{CH4}	In cubic metres of CH ₄ per cubic metre of LFG	Measured continuously	Continuous
CH ₄ fraction at the outlet of the destruction device	Tdest - CH4	In cubic metres of CH ₄ per cubic metre of LFG	Measured continuously	Continuous

(*d*) in Division 7.3, by replacing subparagraph 3 of the first paragraph by the following:

"(3) calibrated by the manufacturer or by a third person certified for that purpose by the manufacturer, at the intervals prescribed by the manufacturer or, if the intervals are greater than 5 years, every 5 years.";

(2) in Protocol 2, in Part II, by inserting in the text following the heading of the Part, after "Table 1", "or must use the destruction efficiency calculated using equation 5.1 if the CH_4 is destroyed by biological oxidation";

(3) in Protocol 3, in Part I,

(a) by replacing "second" in the first paragraph of Division 2 by "third";

(b) by replacing "second" in the first paragraph of Division 8.1 by "first";

(c) by replacing the third paragraph of Division 9.4 by the following:

"If the moisture content determined under subparagraph 3 of the second paragraph is above 75% of the saturation point for the ODS, the promoter must dry the ODS mixture, conduct the circulation again in accordance with the method provided for in Division 9.2 in the case of mixed ODS, take the sample again and analyze it in accordance with the method in Divisions 9.3 and 9.4, or deduct the weight of the water, which includes the weight of the layer of free water floating on the ODS and the amount of dissolved water in the ODS.";

(4) in Protocol 4, in Division 2 of Part I, by replacing "second" in the first paragraph by "third";

(5) in Protocol 5, in Division 2 of Part I, by replacing "second" in the first paragraph by "third".

65. The Regulation, including its appendices, is amended by replacing "project reporting period", wherever it occurs, by "issuance period".

66. This Regulation comes into force on the date of its publication in the *Gazette officielle du Québec*, with the exception of section 59, which comes into force on the later date between 1 January 2018 and the date of publication in the *Gazette officielle du Québec* of an order concerning the ratification of an agreement with California and Ontario entered into pursuant to section 46.14 of the Environment Quality Act (chapter Q-2).

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