



Clean Fuel Regulations:

Quantification Method Development Guidance Document

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Foreword

The *Clean Fuel Regulations* require primary suppliers (i.e., producers and importers of gasoline and diesel) to reduce the carbon intensity (CI) of the gasoline and diesel they produce in and import into Canada for use in Canada. These Regulations also establish a credit market whereby the annual CI reduction requirement could be met via three main categories of credit-creating actions:

- Compliance category 1: actions throughout the lifecycle of a fossil fuel that reduce its CI, by carrying out a Carbon Dioxide Equivalent (CO₂e) emission-reduction project in respect of fossil fuels. This document focuses on this compliance category.
- Compliance category 2: the supply of low CI fuels.
- Compliance category 3: Supplying fuel or energy to advanced vehicle technologies.

Environment and Climate Change Canada (ECCC) has developed this Quantification Method Development Guidance Document to facilitate the understanding of the requirements pertaining to CO₂e-emission-reduction projects in compliance category 1 and to provide more information on the development of the quantification methods provided by ECCC to determine the number of credits from eligible projects.

The full text of the Regulations and associated documents are available on ECCC's website:

www.canada.ca/clean-fuel-regulations.

If you have questions about the *Clean Fuel Regulations*, please contact the following email address: cfsncp@ec.gc.ca.

Disclaimer

This document does not in any way supersede or modify the *Canadian Environmental Protection Act, 1999* or the *Clean Fuel Regulations*, or offer any legal interpretation of those Regulations. Where there are any inconsistencies between this document and the Act or the Regulations, the Act and the Regulations take precedence.

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1.0 Introduction

The *Clean Fuel Regulations* (the Regulations) recognize actions that reduce a fossil fuel's carbon intensity (CI) through Carbon Dioxide Equivalent (CO₂e) emission-reduction projects ("project") at any point along the lifecycle of a fossil fuel in the liquid state at standard conditions. The ability of a project to create credits is governed by a quantification method (QM) provided by Environment and Climate Change Canada (ECCC). This document provides guidance on the process ECCC and experts will follow to develop those QMs and criteria to assess additionality of project types.

For more information on the requirements of a CO₂e-emission-reduction project, please refer to the Regulations, including sections 19, 20 and 30 to 44.

2.0 QMs Provided by ECCC

A registered creator may apply for the recognition of a CO₂e-emission-reduction project. Please refer to sections 34 and 38 of the Regulations for the content of applications for projects carried out in Canada and in a foreign country respectively. Once an application is approved, credits may be created annually and are determined in accordance with the QM. Each project must use the applicable QM provided by ECCC to quantify the annual number of credits.

2.1 Specific QMs vs Generic QM

ECCC provides specific QMs that are applicable to a project of a specific type. Projects under specific QMs have no limit on the amount of credits that primary suppliers may use to satisfy their annual reduction requirement, except in one case; there is a limit where gaseous credits are created under the QM for co-processing in refineries, for the production of co-processed low-CI propane. In this case, a primary supplier may use gaseous credits to satisfy up to 10% of their annual reduction requirement. The additionality assessment outlined in section 6.0 would be performed at the project type level during the development or revision of these specific QMs, with the exception of the QM for co-processing in refineries. Please refer to section 2.3 for more information on the unique treatment of projects under the QM for co-processing in refineries.

In addition, ECCC is providing a generic QM for projects of a type for which there is no applicable QM. It was developed in order to help incent early investments and innovative technologies. Provided they meet the eligibility criteria, projects under this generic QM may include, but are not limited to:

- methane reductions that are additional to regulatory requirements;
- combined heat and power;
- fuel switching;
- electrification; and
- energy efficiency projects.

There is no limit for credit creation under the generic QM. However, a primary supplier may use credits created under this QM to satisfy up to 10% of its annual reduction requirement. The additionality assessment outlined in section 6.0 would not apply to projects under this generic QM. Instead, separate and more streamlined additionality criteria were developed and are assessed at the project level. Note that Sections 3.0 to 5.0 on eligibility, crediting and the development process still apply to the generic QM. Table 1 summarizes the main differences between specific QMs and the generic QM.

Table 1: Specific QMs vs the Generic QM

	Specific QMs	Generic QM
Scope	For specific project types	For which there is no applicable QM, such as, but not limited to: <ul style="list-style-type: none"> • methane reductions that are additional to regulatory requirements; • combined heat and power; • fuel switching • electrification; and • energy efficiency projects.
% Limit on credits used to satisfy annual reduction requirement	No limit on liquid class credits. (10 % limit for gaseous class credits created under the QM for co-processing in refineries)	10%
Additionality Assessment	At the Project Type Level, to follow procedure indicated in section 6.0, except for the QM for co-processing in refineries, which is considered additional.	At the Project Level, streamlined additionality criteria

Please refer to ECCC's website (www.canada.ca/clean-fuel-regulations) for all published QMs.

2.2 Transition to a Specific QM

In the event that a specific QM is developed during the initial crediting period or extension period of a project recognized under the Generic QM that is applicable to a project, an application may be sent to have the project recognized under the specific QM. Please refer to subsections 37(2) and 40(2) of the Regulations for the content of the application for projects carried out in Canada and in a foreign country respectively.

Note that under the specific QM, the additionality assessment described under section 6.0 would have already been performed at the project type level during the development of the

specific QM. The remaining crediting period would be calculated using the formula indicated in subsection 37(5), 40(5) or 42(4) of the Regulations, as the case may be.

Once the project starts creating credits under the specific QM, credits can no longer be created under the generic QM. Liquid class credits created under the specific QM would no longer be subject to the 10% limit on a primary supplier's use to meet its annual reduction requirement. However, unused banked credits previously created under the generic QM would still be subject to the 10% limit.

It is important to note that it is not an obligation for an existing recognized project to move to the specific QM. The quantification rules and eligibility criteria may be different under the generic QM and the specific QM. An existing recognized project may stay under the Generic QM for the duration of the initial crediting period, but extensions and any new projects must use the specific QM.

2.3 QM for Co-Processing in Refineries

The QM for Co-processing in refineries has a unique treatment, in order to provide a similar treatment for co-processed low CI fuels as for other low CI fuels that may create credits under compliance category 2. However, the QM includes further requirements related to determining and verifying the quantity and CI of co-processed low CI fuels produced at the refinery. This project type is considered additional, that is, an activity that goes beyond business-as-usual (further described in section 6.0). Also, there is no end to the crediting period, similar to compliance category 2 under the Regulations. Please refer to sections 94 to 97 of the Regulations for more information on compliance category 2. Furthermore, as is the case for compliance category 2, only fuels used in Canada are eligible for crediting under this QM.

2.4 QMs for Projects Carried Out in a Foreign Country

A registered creator may apply for the recognition of a project carried out in a foreign country if there is an agreement referred to in paragraph 39(1)(b) of the Regulations between Canada and that foreign country or subdivision of a foreign country and the agreement is applicable to that type of project.

The activities carried out during the project in a foreign country must result in the reduction, sequestration or use of CO₂e emissions that are comparable in effectiveness with projects that are carried out in Canada and the project must meet the criteria set out in subsections 39(2) or (3) of the Regulations.

The most pertinent sections for the requirements of a CO₂e-emission-reduction project are 19, 20 and 30 to 44 of the Regulations. For further precision, the following sections apply to CO₂e-emission-reduction projects carried out in a foreign country:

- Sections 19 to 20 (also apply to projects carried out in Canada);
- Sections 30 to 33 (also apply to projects carried out in Canada);
- Sections 38 to 41;
- Sections 42 to 44 (also apply to projects carried out in Canada).

For further guidance on the development of the agreement, subsection 39(4) of the Regulations sets out the conditions that the agreement must meet. The agreement between Canada and the foreign country or subdivision of a foreign country must:

- specify the QM(s) that are applicable to projects of any specified types that are carried out in that foreign country or subdivision;
- recognize the emission reductions result from practices that are beyond the normal course of business;
- recognize the emission reductions are permanent and that there are laws in force regarding that permanence that are comparable to the environmental laws in force in Canada in terms of effectiveness;
- recognize that there are environmental laws that are in force that are applicable to those specific types of projects and that they are comparable to the laws in force in Canada in terms of effectiveness;
- set out how the foreign country or the subdivision will carry out enforcement activities and how it will enforce compliance with the laws related to permanence and those specific types of projects that are equivalent to the level of enforcement in Canada; and
- set out how the foreign country or the subdivision will cooperate and share information with Canada to assist in the administration and enforcement of the Regulations.

As mentioned in section 5.0 of this guidance document, as well as paragraphs 31(2)(c) and 32(2)(f) of the Regulations, every QM provided by ECCC will indicate whether it is:

- applicable to projects carried out in Canada; or
- applicable to project carried out in a specified foreign country or subdivision of a foreign country that has an agreement with Canada.

Project proponents wishing to carry out a project in a foreign country should contact the government of their country or the government of the subdivision of their country to request the development of an agreement with Canada.

A foreign country or a subdivision of a foreign country wishing to have an agreement with Canada should contact the Low Carbon Fuels Division at cfsncp@ec.gc.ca for further guidance on the development of the agreement.

3.0 Eligibility

To be eligible for credit creation under the Regulations, a project must:

- result in the reduction, sequestration or use of CO₂e emissions that are released at any point along the lifecycle of a fossil fuel in the liquid state at standard conditions as per paragraphs 30(a) to (c) or result in the production of co-processed low-carbon-intensity fuel as per paragraph 30(d)
- determine its reduction, sequestration or use of CO₂e emissions with a QM that is applicable to the project and provided by ECCC; and
- have the action specified in the QM that allows the project to begin to reduce, sequester or use CO₂e emissions occur on or after July 1, 2017, unless the QM provides that the

activity may be carried out before that date (for example, the QM for co-processing in refineries).

Section 33 of the Regulations provide a list of the following project types that are not eligible for credit creation under the Regulations and for which no emissions-reduction quantification are applicable:

- projects that include an operational or physical change that is solely for the purpose of reducing the production of fuel;
- projects that are maintenance activities;
- projects that include a reduction in the number of tonnes of CO₂e emissions by displacing the use of a type of crude oil processed by a facility with the use of another type of crude oil (e.g., switching from processing a heavy crude oil to a light crude oil). In other words, emission reductions associated with this displacement must not be included in the calculation of credits for the project;
- projects that consist of current practices that would be carried out in the ordinary course of business. For further information on this point please refer to 6.0 Additionality Assessment; or
- projects that include a reduction associated with the use of low-CI fuels, electricity or hydrogen if that fuel, electricity or hydrogen is eligible for credit creation under any of sections 94, 96, 98 to 102 and 104 of the Regulations. In other words, emission reductions associated with this use must not be included in the calculation of credits for the project.

4.0 Crediting

4.1 Crediting Period

Each QM must establish a crediting period. The crediting period will be 10 years for all projects, except for:

- a project that is CO₂ capture and permanent storage or enhanced oil recovery with CO₂ capture and permanent storage, for which the crediting period will be 20 years; and
- a project that is under the QM for co-processing in refineries, for which there is no end to the crediting period.

A new application may be submitted for a one-time only extension of five years of the crediting period, using the valid QM at that point in time. In other words, provided that the QM still exists and the project still meets the eligibility criteria, re-application for an additional five year crediting period is permitted. An application for the extension must be sent during the last year of the initial crediting period and must indicate any change from the content of the original application.

If Canadian federal or provincial legislation is implemented which creates a legal obligation that overlaps with the scope of the project, no credits may be created for the legislated actions as of the date the requirements in the legislation come into force. It is important to note that if there were credits being created under the QM that are not covered by the legislation, that portion

would continue to earn credits annually. During the review of an existing QM, if a QM is determined to be no longer additional for reasons other than legislation overlap and the QM is withdrawn, existing projects will still receive credits for the duration of the initial crediting period. Please refer to sections 6.2 and 6.3 for more information on regulatory considerations and legislation overlap. No new applications or extensions will be accepted after a QM is withdrawn.

In the case of a project carried out in a foreign country, the crediting period would prematurely terminate in the event that Canada no longer has an agreement with the foreign country or subdivision of a foreign country. Furthermore, actions that are legally required by federal or provincial legislation in Canada are not eligible for credit creation for projects carried out in a foreign country. In other words, regardless of the location of the project, regulatory overlap is based on legislation in Canada.

4.2 Credit Creators

The QM specifies the default credit creator and specific rules for aggregation, when applicable. The registered creator may differ from the default credit creator if the project proponent enters into an agreement with another participant to create credits for the project (please refer to section 21 of the Regulations).

4.3 Credit Class

Credits are created in the liquid class, with the exception of projects under the QM for co-processing in refineries which may create gaseous class credits for the production of specific gaseous co-processed low-CI fuels.

4.4 Invalidity of Credits

If a registered creator fails to comply with any of the requirements on recording and retention of information set out in sections 166 and 168 of the Regulations in relation to a CO₂e-emission-reduction project, any compliance credits that are created by the project during the period of non-conformity with those requirements are not valid and are considered to be excess compliance credits that may be suspended by ECCC under section 158 of the Regulations or cancelled by ECCC under section 160 of the Regulations.

4.5 Number of Credits

In the case of a project carried out in Canada, the number of credits is determined based on the proportion of the quantity of crude oil or fossil fuel that is liquid at standard conditions whose carbon intensity was reduced as a result of the activities carried for the project and that is not exported from Canada. The QM applicable to the project will indicate in more detail the method of calculation for the proration.

In the case of a project carried out in a foreign country, the number of credits is determined based on the proportion of the quantity of crude oil or fossil fuel that is liquid at standard conditions whose carbon intensity was reduced as a result of the activities carried for the project and that is imported into Canada for use in Canada. The QM applicable to the project and the

foreign country or subdivision of a foreign country specified in the agreement referred to in 39(1)(b) of the Regulations will indicate in more detail the method of calculation for the proration.

5.0 QM Development Process

The generic QM or a specific QM for a type of project must:

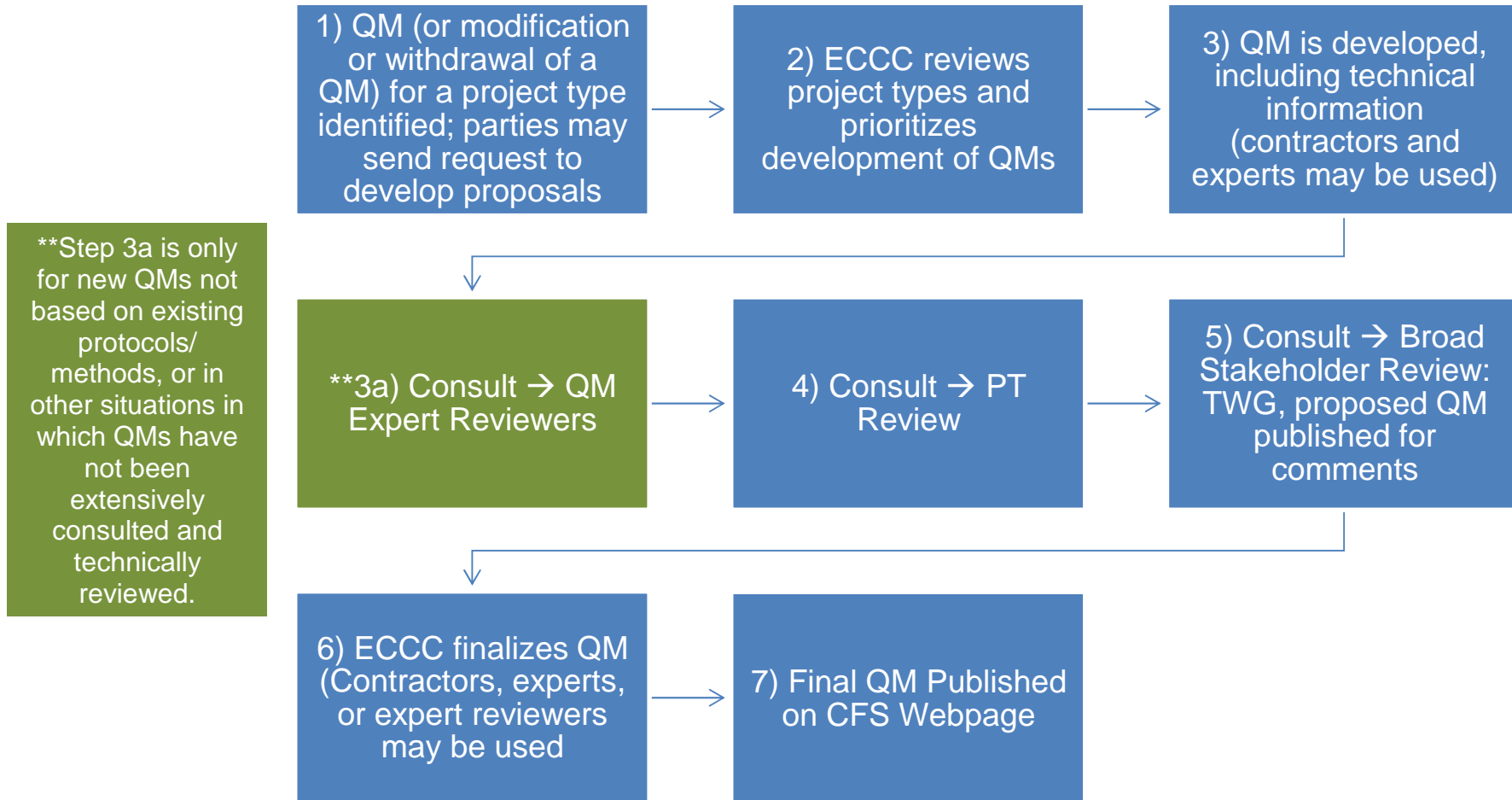
- be consistent with ISO Standard 14064-2 *Specification with Guidance at the Project level for Quantification, Monitoring and Reporting of GHG Emission Reductions or Removal Enhancements*;
- establish the time period after which the carrying out of the project ceases to create compliance credits (no less than 10 years);
- indicate that it is applicable to projects carried out in Canada or indicate that it is applicable to projects carried out in a specified foreign country or subdivision of a foreign country that has an agreement with Canada referred to in paragraph 39(1)(b) of the Regulations.

All specific QMs, must also:

- be based on data that are verifiable for a given period of time;
- be based on emission factors that are considered by generally recognized scientific sources:
 - to be appropriate for the quantification of the reduction, sequestration or use of CO₂e emissions for the type of project;
 - not to result in an overestimate of that quantification; and
- set out data necessary to determine the compliance credits created each year for the project in operation.

The steps in the QM development process and consultations is summarized in Figure 1 and detailed below. It is important to note that Steps 1 to 7 are followed for the development, modification or withdrawal of a QM.

*Figure 1: Process and Consultations for QMs**



*same process is followed for modifications or withdrawals of QMs

Step 1: New QM, modification of an existing QM or withdrawal of an existing QM

New QMs will be developed by ECCC or a team of technical experts including ECCC representatives. ECCC will finalize and approve all QMs with input from experts and stakeholders. While ECCC will make the final determination, ECCC encourages parties to apply for approval to develop/revise a QM. Responsibilities of the requesting parties would include:

- Proposing the development/revision of QMs (by sending a formal request mentioned below);
- Coordinating research and information review;
- Developing draft materials; and
- Liaising with stakeholders to receive further input.

The request to develop a QM for a given project type will be used by ECCC to assess the eligibility and feasibility of a project type under the Regulations. The request must include:

- An overview of the proposed project type including the proposed activities, including how the project type will result in emission reductions;
- Rationale for the development of the QM;
- A description of the proposed baseline scenario that is the hypothetical reference case that best represents the conditions most likely to occur in absence of the project;
- Emission reduction or sequestration potential, including any data, technical or economic assumptions and calculations to support the reduction potential;
- A brief description of the potential project monitoring requirements; and
- How the project type will meet additionality criteria including:
 - An explanation of how the activity is additional (e.g. regulatory requirements, discussion on business as usual, common practice, current and projected level of uptake including a proposed methodology to evaluate the penetration rate, if applicable, and barriers to implementation) along with applicable supporting documents and data; and
 - A discussion on financial barriers and the information and data on capital and operating costs associated with the project type.

A request to revise a QM must include:

- The QM being considered and specific sections in the QM that the party proposes to revise;
- A detailed description of the proposed revision and how it aligns with program requirements;
- If proposed revisions relate to eligibility criteria, how the new or revised eligibility criteria will ensure that the project type will meet the applicable additionality criteria;
- Analysis and impact assessment of the revisions on the approved QM, which may include the change in reduction potential and economic impacts;
- A list of any quantification methods or guidance documentation in other jurisdictions applicable to the proposed revision; and
- A description of the accuracy of the proposed approach and revision relative to the published quantification requirements and published science, including supporting documentation; and

- A list of any literature or scientific studies supporting the proposed approach and revision.

A request to withdraw a QM must include:

- The QM to be withdrawn; and
- A detailed description and analysis of the rationale to withdraw the QM, including data and documentation demonstrating how the QM no longer meets the additionality criteria or the objectives of the Regulations.

The development of QMs takes into consideration existing emission reduction accounting methods or offset protocols in other jurisdictions.

Step 2 – ECCC reviews the project types and prioritizes the development of QMs

Upon review of the project types, ECCC will notify any parties that have made requests if the project type does not meet the eligibility criteria or if information is missing.

In the case of a modification or withdrawal of a QM, ECCC will notify registered creators for projects recognized under the QM regarding its intent to modify or remove the relevant QM.

Step 3 – QM is developed, including technical information (contractor and experts may be used)

If a request to develop a QM is selected, a team of technical experts, including ECCC representatives and the party who submitted the proposal will be formed, approved by ECCC. The team of technical experts, coordinated by the party who submitted the proposal, will compile technical information including:

- An explanation of the project type, including a clear description of the activities generating the emission reduction or sequestration;
- Best practice guidance used to support the activity. This may include offset protocols from other jurisdictions;
- Mechanisms for addressing permanence and leakage;
- Review of science, relevant research, and/or technology appropriate to the activity;
- Example calculations, including all equations and relevant variables to quantify;
- Record requirements to demonstrate emission reduction, sequestration or use;
- Assessment of and justification for the baseline scenario selected;
- Evaluation of sources, sinks, and reservoirs in the baseline scenario and project; and
- Detailed description of monitoring requirements for the baseline scenario and project.

ECCC has final decision on approving, modifying or withdrawing a QM.

Step 3a Consult → QM Expert Reviewers

For new QMs not based on existing protocols or methods, or in other situations in which the QM requires additional consultation and technical review, expert reviewers will be selected to support the development of the QMs.

As specific expertise is required for each project type, the expert reviewers may be different for each QM. The following is the proposed composition of expert reviewers (up to 17 members):

- 1 chair from ECCC
- 2 other governmental representatives i.e. Natural Resources Canada, ECCC, National Research Council Canada, etc.
- 4 Provincial/Territorial members
- 3 members from academia, Environmental Non-Governmental Organizations (ENGOS) (with expertise in oil and gas sector, in the project type or in GHG accounting)
- 2 project type experts
- 1 member with the upstream oil and natural gas expertise
- 1 member with the refining expertise
- 1 member with natural gas distribution expertise (when the project is relevant for the natural gas sector)
- 1 member with the transmission pipeline expertise (when the project is relevant for the natural gas sector)
- 1 member with the biofuel expertise (when the project is relevant for the biofuel industry)

ECCC will launch a call for academia, ENGOS and project type experts. Provincial and Territorial (P/T) members will be delegated by the Clean Fuel Standard (CFS) P/T Committee. Although the selection of QM expert reviewers is limited, as per Step 5, broader consultations will be conducted.

Steps 4 to 7 – Consultations – Finalization – Publication

Provinces and stakeholders will have an opportunity to comment on the draft QM. ECCC will review comments and finalize the QM, in which contractors, experts or expert reviewers may be used.

In the case of a modification of a QM, ECCC will notify registered creators for projects recognized under the QM when they must use the revised QM. This would be the case when legislation is implemented which partially overlaps with activities in the QM. In other cases, such as when more accurate data or emission factors become available, existing recognized projects may continue to use the previous QM. However, when the QM references external data sources such as emission factors from the Fuel LCA Model, the most up to date information must be used and this is not considered a modification.

6.0 Additionality Assessment

ECCC will not provide a QM for a project type that consists of current practices that would be carried out in the ordinary course of business, in other words, for a project type that is not additional. This section explains how paragraph 33(d) of the Regulations is applied for project types using a specific QM.

A project type must generate emission reductions that are real and incremental to a defined base case (i.e., additional) for each QM. The additionality assessment presented here does not apply to the generic QM or the QM for co-processing in refineries. For the QM for co-processing in refineries, the project type is considered additional. The additionality assessment will be conducted by ECCC for each other specific QM:

- During the development of a new QM; and
- During the review of an existing QM.

The decision to review an existing QM is made:

- Using a risk-based approach;
- Taking into consideration stakeholder input;
- When the ongoing assessment of the legal and regulatory landscape identifies a new legislation that is implemented or an existing legislation that is amended that impacts activities associated with one or more QM (see Figure 3 and section 6.3).

Furthermore, the following factors will inform the risk-based approach:

- Time since the QM was last reviewed;
- Known issues with the QM including any relevant results from verification, or changes to additionality;
- If the QM needs to be aligned with other regulations, policies or initiatives;
- The number of projects using the QM; and
- The number of credits created under the QM.

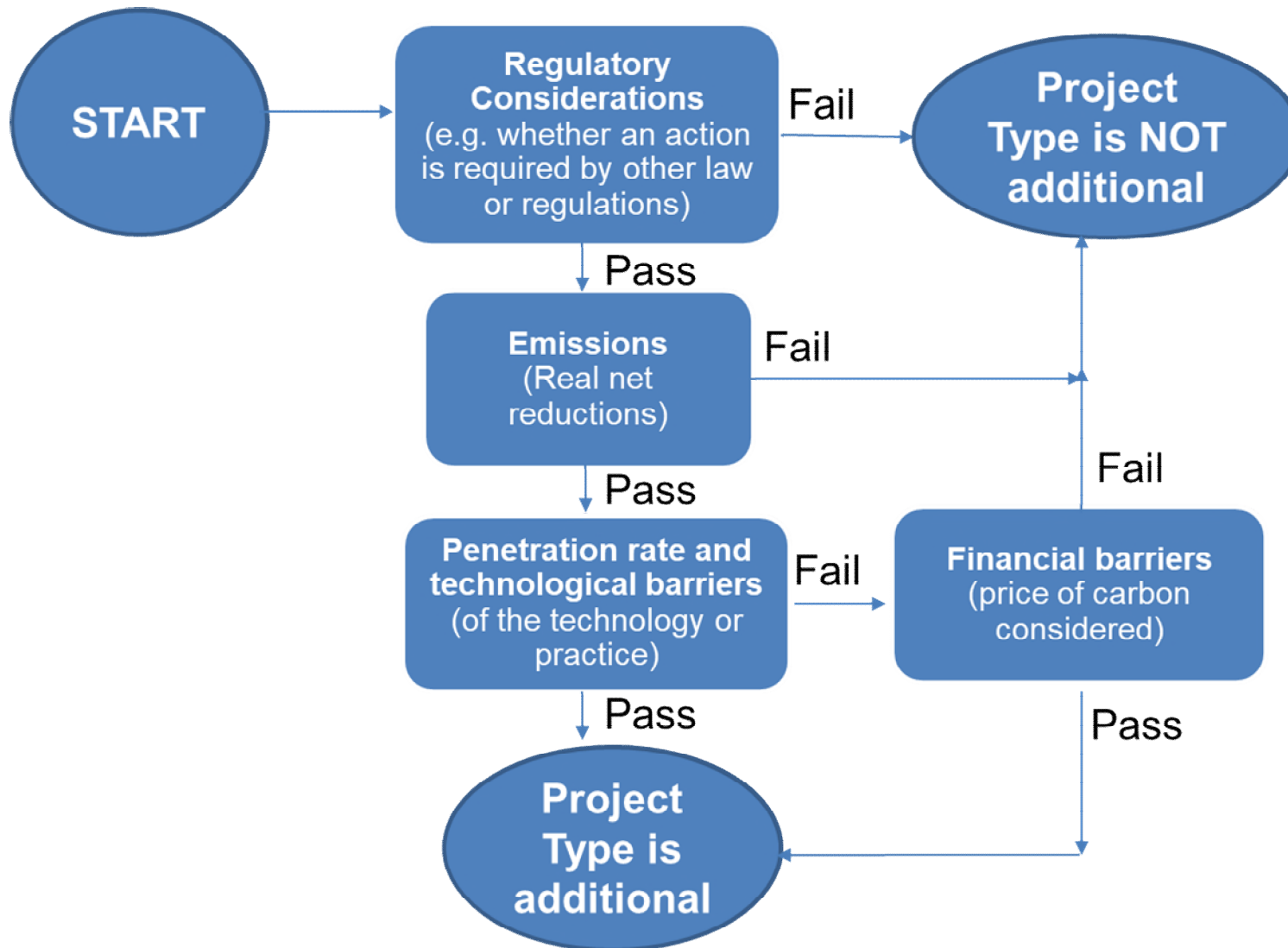
The additionality assessment will take into account many factors, including:

1. Regulatory Considerations (i.e., whether an action is required by other laws or regulations). When this criterion is not met, the project type is not considered additional.
2. Emissions (real net reductions). When this criteria is not met, the project type is not considered additional.
3. Penetration rate and/or technological barriers (of the technology or practice). When this criterion is not met, the project type must consider financial barriers.
4. Financial barriers. When this criterion is not met, the project type is not considered additional. This criteria is only considered in cases in which the project type failed to meet the criteria listed in #3.

Figure 2 outlines these factors in a flow chart. More details on each of these factors are indicated in sections 6.1 to 6.6.

It is important to note that ECCC has final decision on the results of the additionality assessment during the QM development or review processes.

Figure 2: Additionality Assessment for the Development or Review of QMs



6.1 Consideration of Carbon Pricing

A project that overlaps with the compliance requirements or enables the creation of credits under federal, provincial or territorial carbon pollution pricing systems (i.e. performance credits, surplus credits, allowances, etc.) will be eligible for credit creation under the Regulations, if there is an applicable specific QM for the project type or if the project meets the eligibility and streamlined additionality criteria of the generic QM. For example, actions by a fossil fuel supplier (such as a refinery) to reduce its emissions by installing more energy efficient technology will reduce its exposure to carbon pollution pricing: it will either pay less or will be able to earn credits that it can sell to others covered by the pricing system. It also has the potential to create credits that can be used or sold for compliance under the Regulations. In the case where financial barriers are being assessed for a project type, the federal, provincial, or territorial carbon price will be taken into account (see section 6.6). QMs will not be developed for project types that are not considered additional based on the additionality assessment (emissions, penetration rate, technological barriers, financial barriers).

6.2 Regulatory Considerations

Regulatory overlap will be assessed by reviewing proposed and existing federal and provincial legislation at the time of:

- The new QM development; or
- The review of an existing QM.

Actions that are part of a project type that are legally required by other federal or provincial laws, regulations, by-laws or directives are not additional. No QM will be provided by ECCC when proposed or existing legislation fully overlap with the actions that are part of a project type.

The scope of the QM will be adjusted when proposed or existing legislation overlap with actions that are part of the project type, but the opportunity may remain to realize reductions outside or beyond the legal requirements. In accordance with paragraph 2(g) of Schedule 4 of the Regulations, the application for the recognition of a project must include an indication of the regulatory regime and the federal or provincial laws under which the project operates as well as any federal or provincial laws and programs under which it receives funding.

The following project types are not considered to be legally required:

- A project type that overlaps with the compliance requirements or enables the creation of credits under federal, provincial or territorial carbon pollution pricing systems;
- A project type that overlaps with BC's Low Carbon Fuel Standard, such as co-processing at a refinery.

The Regulations allow for credit creation opportunities, even if a given project generate credits in another program in Canada (e.g., voluntary, federal or provincial offset programs). However, it is important to note that different programs may decide not to provide credits for the same actions. For example, projects creating credits after the registration of the Regulations will not be able to seek credits under the Federal Greenhouse Gas Offset System for the emission reduction achieved by the sources, sinks or reservoirs included in the scope of the project.

Stakeholders seeking clarity should contact the programs they are interested in to determine if credit creation under the Regulations would make a project ineligible for that particular program.

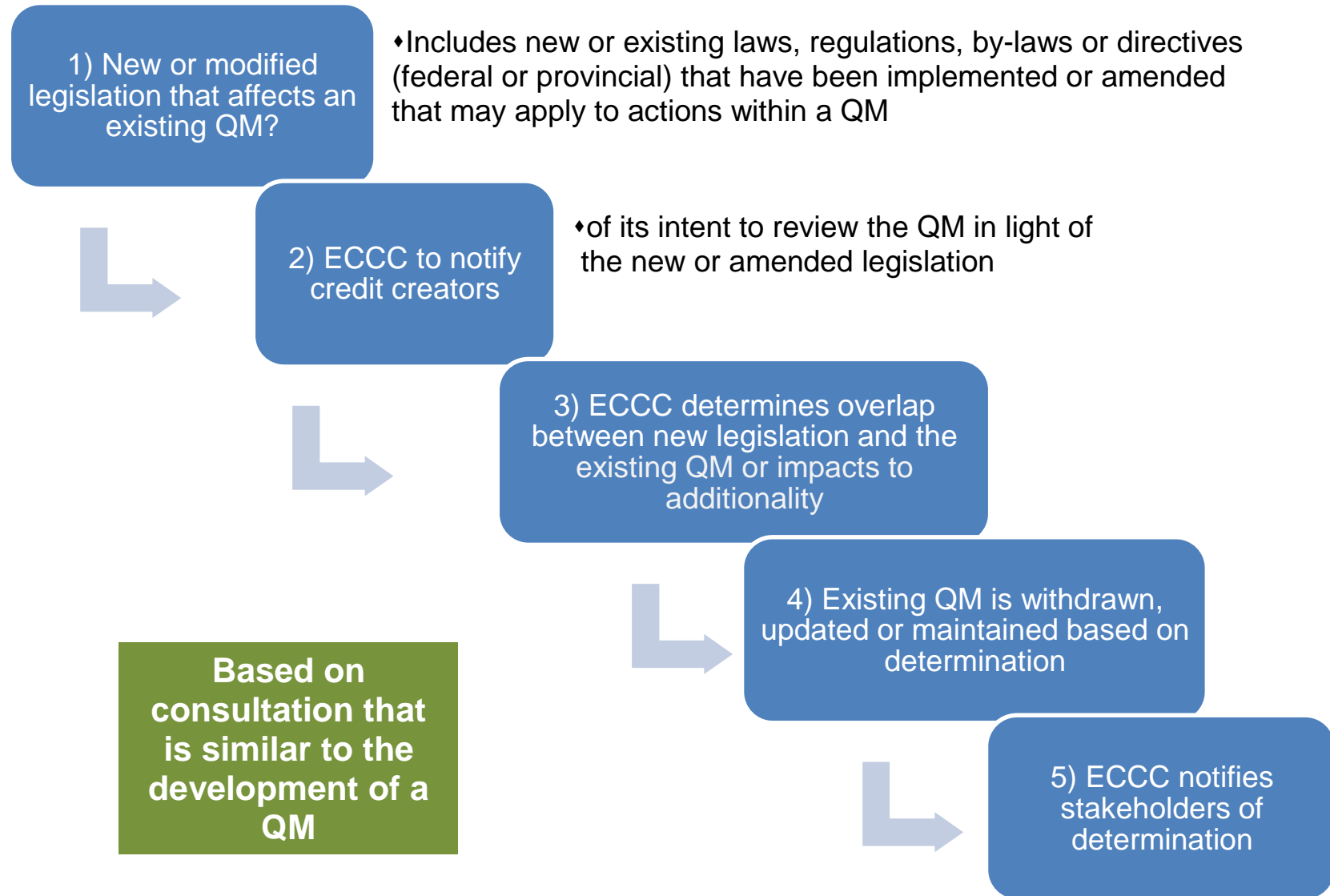
Furthermore, no QMs will be provided or a QM will be modified or withdrawn in the following situations:

- An action required by legislation that has co-benefits. For example, if a regulation came into place requiring an action to reduce SO₂ and this action also had the co-benefit of reducing GHGs.
- If not mandated by legislation, but the action were necessary in order to comply with the legislation.
 - In other words, in absence of the action, compliance with the legislation in question is still demonstrated.
- An action that is legislated in one province or territory (P/T), but not another. In other words, regulatory overlap is based on the most stringent legislation. In other words, if one P/T legislates an action or the action is necessary in order to comply with the legislation, then no QMs will be provided or a QM will be modified or withdrawn, except in the following case:
 - If the most stringent legislation sets an application threshold and it can be demonstrated that the QM could be modified such that the legislation would not apply to the projects of a specific type due to not meeting the application threshold, then a QM may be provided.
- An action that is legislated in Canada, in the case of a project carried out in a foreign country. In other words, in the case of a project carried out in a foreign country, regulatory overlap is based on legislation in Canada.

6.3 Ongoing Assessment of the Legal and Regulatory Landscape for Existing QMs

When the ongoing assessment of the legal and regulatory landscape identifies a new federal or provincial legislation or an existing legislation that is amended that impacts actions associated with one or more QMs, this would trigger the review of the applicable QM. The process to review the existing QM is outlined in Figure 3. First, any new or modified federal or provincial legislation that affects an existing QM is identified. This includes new or existing laws, regulations, by-laws or directives (federal, or provincial) that have been implemented or amended that may apply to actions within a QM. ECCC will notify registered creators for recognized projects under the QM of its intent to review the QM in light of the proposed new or amended federal or provincial legislation. ECCC will determine overlap between new legislation and the existing QM or impacts to additionality. After this determination, the existing QM is withdrawn, updated or maintained. ECCC will then notify stakeholders of the determination. Along each step of this process, stakeholders will have the opportunity to review and provide comments based on a process that is similar to that of a development of a QM, as indicated in Figure 1.

Figure 3: Example - Ongoing Assessment of the Legal and Regulatory Landscape for Existing QMs



6.4 Emissions

QMs will only be developed for project types that have the potential of generating net CO₂e emission reductions and that are quantifiable. QMs will not be developed for project types that can create credits under other compliance categories in the Regulations (e.g. supplying low-CI fuels and supplying fuel or energy to advanced vehicle technologies).

The concepts of permanence and leakage will be considered during QM development to ensure that emission reductions are real. If, as a result of a project type, emissions are simply shifted outside of the project boundary and result in a net increase in emissions, a QM will not be developed for the project type (leakage). Project boundaries will be defined carefully and emissions along the lifecycle of the project type will be considered. A project must result in a permanent emission reduction.

6.5 Penetration Rate and Technological Barriers

Penetration rate refers to the rate at which a new technology has been adopted by a given sector. The penetration rate must be less than 5% or no more than 5 entities. As long as one of these criteria is fulfilled, then no further assessment of additionality is needed. The penetration rate recognizes that in some sectors with few entities, the 5% may be more easily exceeded and provides flexibility of no more than 5 entities as an alternative threshold.

In general, the penetration rate will be determined in accordance with Equation 1.

Equation 1: Penetration Rate

$$\text{Penetration Rate} = \frac{\text{\#entities that have implemented reduction activity}}{\text{\# of entities in sector}} < 5\%$$

or $\text{\# entities in sector} \leq 5$

The number of facilities in a sector that report to the Greenhouse Gas Reporting Program (GHGRP) or to provincial programs will be considered when determining the number of entities in a sector, the denominator in the first part of Equation 1.

The number of entities that have implemented the reduction activity and the number of entities in a sector may be revised based on evidence that some facilities may not be on the same playing field. Examples include:

- New vs existing facilities; the penetration rate of a given technology may be vastly different for a new facility versus an existing facility.
- In Enhanced Oil Recovery, facilities that are a farther distance from a CO₂ pipeline are at a larger disadvantage than those that are closer.

In addition, for some project types, the situation may arise where Equation 1 is not the most appropriate method to determine the penetration rate. Another metric may be used and documented. For example, for renewable electricity, the penetration rate could be determined by dividing renewable electricity production by total electricity production.

In situations in which sufficient information is not available to calculate the penetration rate or the penetration rate is exceeded, the project type must consider other technological barriers. A technological barrier is one that causes a high risk of technological failure. At least one significant barrier must be demonstrated and documented. Examples include:

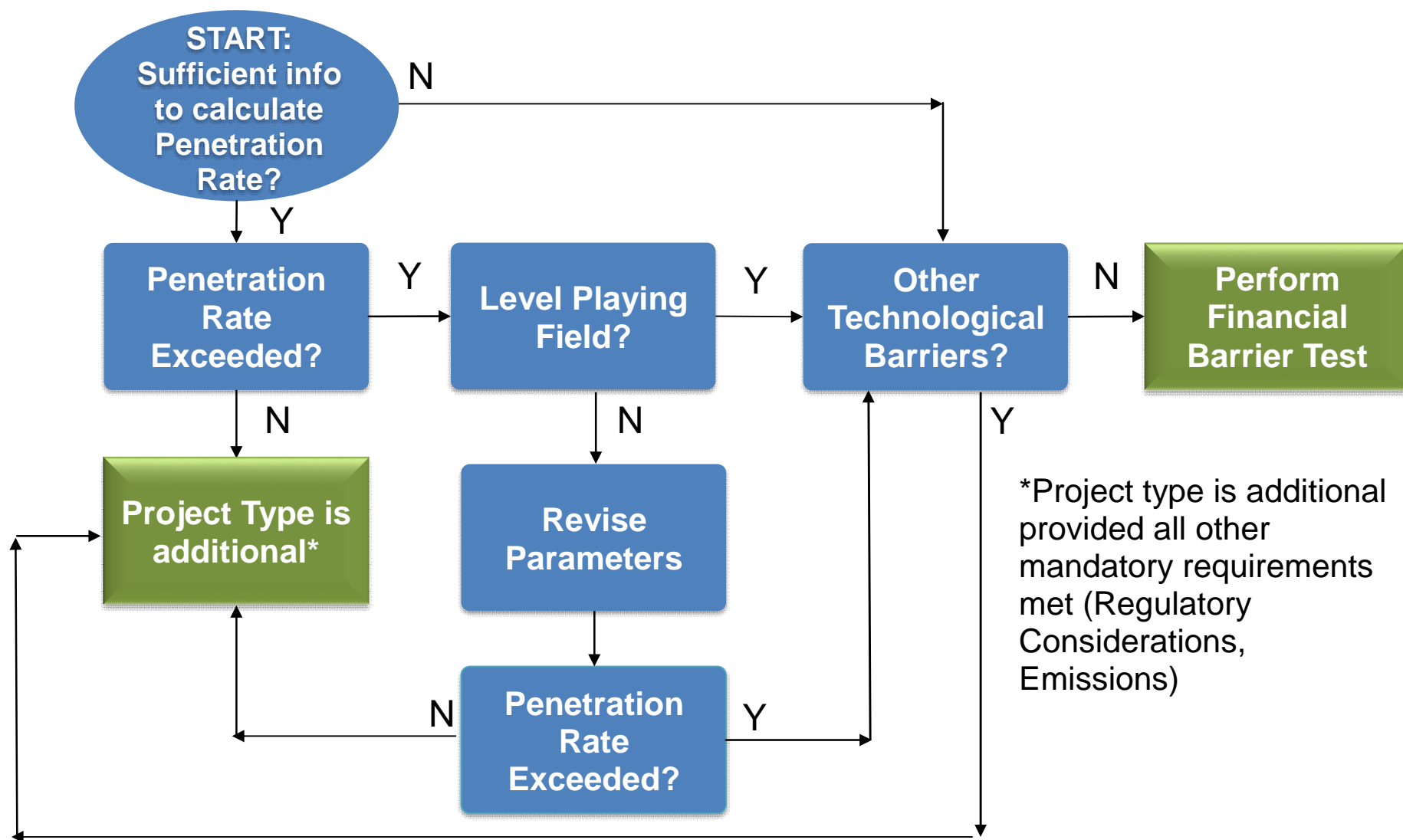
- First of its kind in Canada (when sufficient information is not available to calculate the penetration rate);
- Pre-commercial;
- Skilled labour to operate/maintain is not available; or
- Lack of infrastructure for implementation or maintenance of the technology.

A technological barrier must be demonstrated by relevant documentation. Examples of relevant documentation include:

- Scientific literature;
- Technology or market studies;
- Relevant statistical data;
- Technology manufacturer information;
- Proof that no education/training institution in Canada provides the needed skill; or
- Proof that no expatriate workers could reasonably be hired in Canada to implement the technology or process if there is an absence of relevant skills in Canada.

If no technological barrier is demonstrated, financial barriers must be considered. The details of this process are shown visually in Figure 4.

Figure 4: Penetration Rate and Technological Barriers



6.6 Financial Barriers

For a financial barrier to exist, it must be demonstrated that a project type is not economically or financially feasible without the revenue or value from the creation or transfer of credits under the Regulations. This means that the revenue or value from the credits under the Regulations will provide a material contribution to the project type. Multiple criteria may be assessed, including the abatement cost of the technology and the rate of return. The period of assessment should reflect the period of expected operation of the project. The applicable carbon price for that period of assessment must be taken into account. This includes the price of carbon at both the federal and provincial level since a given project type could apply in any province and some provinces have the federal carbon pricing system in place, and some have their own. Funding under federal, provincial, territorial or municipal mechanisms may be taken into account at the project type level. The financial barriers will be assessed at the project type level based on available information from various sources such as academic literature, conference proceedings, cost and benefit analysis from other regulations and verifiable data provided by stakeholders.