Québec

SUBMISSION BY THE GOVERNMENT OF QUÉBEC TO THE SUPERVISORY BODY OF THE 6.4 MECHANISM PURSUANT TO PARAGRAPH 22 OF DECISION 7/CMA 4

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SUBJECT:

Contribution of the Government of Québec pursuant to a call from the Supervisory Body of the 6.4 mechanism (A6.4-SB005-A02) seeking contributions from stakeholders on guidelines and recommendations pertaining to greenhouse gas (GHG) emission removal and absorption activities.

The Government of Québec is pleased to respond to a call from the Supervisory Body of the 6.4 mechanism seeking contributions from stakeholders concerning guidelines and recommendations pertaining to greenhouse gas (GHG) emission removal and absorption activities.

Executive summary

This submission reflects the international trend that seeks to develop and implement effective market mechanisms to fight against climate change. In the Québec context, this has mainly led to the establishment of a GHG emission cap-and-trade system and its offset credits component.

From the standpoint of offsetting GHG emissions, the Government of Québec recognizes the participation by the Québec private forest sector in the activities of the Québec-California regulatory carbon market. Unlike an offset project that seeks to reduce GHG emissions, a carbon sequestration project or an atmospheric carbon dioxide removal project in the forest environment is intrinsically non-permanent. This reality limits the actual potential of offset credits issued to eliminate or offset all the adverse effects stemming from anthropic GHG emissions in the atmosphere.

At present, whether the market is voluntary or regulatory, the offset credit quantification and issuance approach adopted for temporary atmospheric CO_2 removal projects only rewards a quantity of carbon and an anticipated climate benefit, thereby forcing project promoters and the authorities of a GHG emission offset program to establish mandatory long-term monitoring, reporting and verification (MRV) measures for over 100 years to ensure environmental integrity.

This submission seeks to comment on the different challenges such as permanence, quantification approach, additionality, sovereignty, and land use related to the public call from the Supervisory Body of the 6.4 mechanism (A6.4-SB005-A02) pertaining to greenhouse gas removal or absorption activities.

This submission also seeks to recommend to the Supervisory Body the approval of a new offset credit quantification and issuance approach for temporary atmospheric CO_2 removal projects in view of its adoption at the 5th meeting of the Parties to the Paris Agreement (CMA-5). This new approach must not only quantify and reward a quantity of carbon removed from the atmosphere but, above all, quantify and reward an actual climatic effect or climate benefit stemming implicitly from the maintenance of a quantity of carbon outside the atmosphere for a specified period of time. This new approach must also ensure that as soon as a credit is issued it must be able to eliminate impending climate impacts quantified over 100 years of the GHG emissions (tonnes of CO_2 equivalent) associated with it. Consequently, the burdensome operational and financial constraints associated with complying with the criterion of permanence such as the management of the risk of carbon reversibility (contribution to a reserve fund, private insurance) and carbon reversibility (administrative monitoring, invalidation, and an offset replacement process in respect of carbon returned to the atmosphere) become obsolete. What is more, access to and the use of land involved in this type of project are not limited by long-term commitments to maintain the carbon stocks rewarded through the conditional issuance of offset credits. By proceeding in this way, the quantification and issuance approach can demonstrate that the environmental integrity of the credits generated and the principle of the intergenerational equity of the initiatives to fight climate change are assured when a credit is issued and not after a period of 100 years.

Lastly, this submission seeks to emphasize to the Supervisory Body that the Government of Québec has adopted such an approach to rigorously and transparently respond to the challenges that temporary atmospheric CO_2 removal projects pose.

Québec's initiatives and progress pertaining to offsetting GHG emissions

The Government of Québec has been fully committed to the fight against climate change since 2006, when it adopted the first fossil fuel levy in North America. Today, to attain its climate targets, Québec is relying extensively on its Cap-and-Trade System for Greenhouse Gas Emissions (C&T system) in force since 2013 and linked to California's similar program since January 1, 2014, under the Western Climate Initiative (WCI). Better known as the Québec carbon market, the system puts a price on carbon and covers nearly 80% of Québec's GHG emissions. Through the imposition of decreasing annual caps that limit the amount of GHG that can be emitted in the atmosphere, it ultimately guarantees GHG emission reductions in the sectors covered by the Québec's-California's common market.

Together with this market mechanism, Québec has developed an offset credit component that offers the possibility for promoters to voluntarily carry out GHG emission reduction projects or atmospheric CO_2 removal projects whose GHG emissions are not covered by the carbon market. Such promoters can then obtain offset credits from the government and sell them to businesses covered by the carbon market which they can then use toward meeting their compliance obligations.

The purchase on the Québec carbon market of regulated offset credits enables covered emitters to offset the emissions that they have been unable to reduce in their own establishments and to reduce their compliance cost. To foster GHG emission reductions, the use of offset credits to achieve regulatory compliance has been limited to 8%.

In December 2022, the Government of Québec adopted a new forest offset credit regulation (protocol) as part of its carbon market. The regulation makes afforestation and fill planting reforestation activities carried out on private Québec lands eligible for the issuance of offset credits.

Factors pertaining to the structured consultation and the pursuit of deliberations

Before focusing succinctly on the key characteristics of the quantification and issuance approach introduced by the new Québec Forest protocol, we would like to present the reasoning that led to its development by responding to the questions raised in the A6.4-SB005-A02 document. In Québec's view, the following comments could better pinpoint the key challenges to which any temporary atmospheric CO_2 removal project should respond, whether in the forest sector or in other sectors, to ensure both the environmental integrity of the issued credits and the principle of intergenerational equity of climate change. We are, therefore, submitting them to the Supervisory Body to provide input on its mandate aimed at further elaborating and developing based on rules, modalities, and procedures recommendations to the CMA-5 on atmospheric CO_2 removal activities and related methodologies.

Offset project challenges in the forest sector

The role of the forest sector and its contribution to the mitigation of, or adaptation to climate change are relatively well known and documented. However, reliance on this area of activity as a credible means of offsetting or eliminating all the climate impacts stemming from anthropic GHG emissions in the atmosphere is less well understood. Furthermore, certain groups criticize the advantages for the host communities to establish projects in this sector given the cumbersome process and significant constraints often associated with their implementation. Above all, they challenge the manner in which such projects tackle the permanence issue of sequestered carbon.

We believe that the principles of environmental integrity, the intergenerational equity and the sustainable development must be the pillars of the 6.4 mechanism of the *Paris Agreement* and consequently, of any methodology accounting for atmospheric removal. Unlike the climate benefits

stemming from a GHG emission reduction project, the climate benefits associated with the removal of atmospheric CO_2 and those related to carbon storage in the biomass of a forest ecosystem can only be temporary, which limits the compensatory potential associated with this type of project. Thus, the following issues must be tackled:

Issue 1: The choice of the quantification and issuance approach (Stock change inventory or tonne-year accounting)

GHG emission offset programs must more broadly recognize the non-permanent nature of temporary removals rewarded by offset credits and, consequently, compel a project promoter to use a quantification and issuance approach related to the nature of the project. The approach used should be formulated according to the type of project. It should also be able to demonstrate why a credit is generated and why its use is risk-free for the environmental integrity of the climate system. To ensure the environmental integrity of credits in a credible and transparent manner, the approach used should generate credits that can eliminate upon issuance and not after a period of 10, 20, or 100 years the climate impacts stemming from anthropic CO_2 emissions in the atmosphere.

It is entirely appropriate for GHG emission reduction projects to rely on a quantification approach of the Stock change inventory gain type. However, in the case of projects that involve temporary CO_2 removal, reliance on this approach raises several operational, financial, and integrity issues. Notwithstanding that the mass dimension is important to the climate benefit stemming from temporary CO_2 removal, the temporal dimension must be considered in the offset logic. Failure to acknowledge the impact of this dimension means that it is impossible to define the actual climate benefit associated with temporary CO_2 removal. Accordingly, the removal of 1 tonne of CO_2 for 10 years does not produce the same climate benefit as the removal of the same quantity over 100 years. Indeed, it has been shown that the emission of one tonne of CO_2 will engender climate impacts for several hundred years before it is absorbed by a natural sink. An important corollary therefore is that the temporary removal of one tonne of CO_2 over 100 years does not eliminate the total climatic impact of the emission of one tonne of CO_2. This reality, when we seek to offset the climatic effect of one tonne of CO_2, warrants caution concerning the approach adopted to issue credits for temporary atmospheric CO_2 removal projects.

The tonne-year accounting approach for atmospheric CO_2 removal projects is much more coherent with the nature of this type of project. The special report on land use, land use change and forestry[1] presented different approaches to measure, account for, monitor, and verify the gains stemming from the completion of a project related to the temporary removal of atmospheric CO_2. The report presents the tonne-year accounting approach and its advantages. In a context where reliance on temporary removals is contemplated to reduce a national GHG emissions budget, it is more than necessary to be able to demonstrate the actual compensatory potential of the credits used to conduct this significant accounting exercise.

Recently, several criticisms have been levied in specialized publications regarding the intention of certain GHG offset programs to adopt the ton-year approach for forest sector projects. Basically, these criticisms more closely raise a problem or an issue pertaining to the manner in which the additionality of the GHG gains rewarded by an offset credit is defined, than point to a methodological flaw stemming from the reliance on this approach. A comparative analysis of the gains rewarded by offset credits associated with either of the quantification and issuance approaches would certainly

[1] Robert T. Watson, Ian R. Noble, Bert Bolin, N. H. Ravindranath, David J. Verardo, and David J. Dokken (editors), *IPCC, 2000*, Cambridge University Press, UK, 375 pages.

provide a less negative picture of the tonne-year accounting approach and cast it in a favourable light.

It should be emphasized that if the additionality criterion is properly managed, a tonne-year accounting approach can hardly overestimate the number of credits to be issued since the creation of a credit is based on an actual, permanent climate benefit and depends on the length of the period during which the carbon is kept out of the atmosphere. Consequently, in cases where the promoter introduces a project aimed at delaying the harvesting of a forest stand, the promoter would not receive a credit for each tonne of carbon present during this period but only a fraction of a credit. The fraction would be equivalent to the quantity of the climate benefit stemming from having delayed for one or more years the return to the atmosphere of the carbon sequestered. The impact of this reality, combined with the administrative and financial burden inherent in submitting an application for the issuance of credits to the authorities of a program (inventory, verification, etc.), could significantly delay a project's profitability aimed at postponing the harvesting of a forest stand by one or more years.

The development of approaches based on the concept of tonne-year accounting thus seeks to address the issue related to the permanence criterion and the implications associated with its management to guarantee compliance with it, i.e., to physically maintain outside the atmosphere the CO_2 removed for a variable number of years.

Issue 2: The choice of the quantification and issuance approach (*ex-ante* vs. *ex-post*)

All GHG emission offset programs are defined according to the choice that is made between an *ex-ante* and an *ex-post* issuance approach. At present, offset programs define the two approaches based on compliance with a single criterion, i.e., that the reduction or removal must be real when a credit is issued. This definition does not however consider the obligation to comply with all the offset program's criteria and requirements at the time of issuance of a credit. Yet to tie that issuance to commitments and conditions that will be met over time (after 100 years in the case of the permanence criterion) calls into question the capacity of a program to guarantee the environmental integrity and intergenerational equity of the temporary gains rewarded.

To enhance the credibility, rigour, and transparency of all the initiatives and gains associated with a project to offset GHG emissions, we believe that the definition of an *ex-ante* and an *ex-post* approach should be revised. The definition of both approaches should indeed be based on the answer to the following question: At the time of issuance, were all the offset program's criteria and requirements met? If the answer is positive, the *ex-post* approach applies. If the response is negative, the *ex-ante* approach applies with or without the conditions pertaining to a particular criterion or requirement of the program.

Issue 3: Additionality

The challenge of the additionality of the gains rewarded by offset credits is not specific to removal projects. The choice of activities and gains eligible for the issuance of offset credits, the adoption of a detailed definition of what constitutes additionality, and a rigorous application of this criterion should avoid several pitfalls related to the risk of rewarding gains that would have otherwise materialized in the absence of an offset project.

To gain the trust of Québec stakeholders in the Québec carbon market and maximize the climate and financial benefits associated with a removal project (the gains from a project scenario less the gains from the reference scenario) – in other words, for the same reasons that led the Clean Development Mechanism to render removal activities eligible for recognition – the Government of Québec has decided to solely make eligible for issuance of offset credits sustainable forest

development activities with respect to which it was easy to demonstrate the additionality, i.e., afforestation and fill planting reforestation activity.

Issue 4: Permanence

The main issue of removal projects is the permanence of the gains or climate benefits resulting from the implementation of this type of project according to the quantification and issuance approach now adopted by all GHG emission offset programs to ensure compliance with it. This issue determines, above all others raised in the scientific literature, the compensatory potential of this type of credit or its capacity to play its role, i.e., to eliminate all the climatic effects of GHG emissions associated with it.

The definition of the permanence criterion, as adopted by WCI partners, implies the obligation to ensure a net atmospheric effect equivalent to that resulting from a reduction of an emission of one tonne of CO_2. According to the same definition, the net atmospheric effect would be obtained if the removal of one tonne of CO_2 was maintained outside the atmosphere for 100 years. The temporal notion introduced into this definition is intended to define a convention that allows for a non-permanent gain to become a permanent gain and not to define the means to achieve permanence.

At present, the only common methodology adopted by all the GHG emission offset programs to ensure compliance with the permanence criterion is that of compelling a project promoter to physically maintain outside the atmosphere the carbon rewarded by offset credits for a period equal to the choice made by the program's authorities, according to their definition of the permanence criterion.

However, we believe that linking the issuance of credits to future compliance with one or more criteria or requirements of the program, represents a significant risk to the obligation to guarantee the environmental integrity of the credits issued.

Whereas the quantification and issuance approach introduced into the Québec forestry protocol ensures a net atmospheric effect, measured over a period of 100 years, equivalent to that resulting from the presence in the atmosphere of an emission of one tonne of CO_2 as soon as the credit is issued.

Issue 5: Sovereignty, land and resource use, and natural disturbances

The implementation of a temporary atmospheric CO_2 removal project in public or private territories poses, according to the quantification and issuance approach that is now widely adopted in the world, a significant challenge both to local, regional, subnational, and national governments, which are responsible for managing such territories for the well-being and benefit of their communities, and for private property owners. Accordingly, the obligation to physically maintain the carbon sequestered for a specified period of time to guarantee environmental integrity implicitly forces a promoter to control and limit access to, and the possible use of, the territory and its resources. For certain groups, this consequence of compliance with the permanence criterion according to the concept of conditionality and long-term commitment to ensure the environmental integrity of the market mechanism and the project's profitability represents a risk of infringement on the sovereignty of local, regional, or national governments.

Along the same lines, to adopt a quantification and issuance approach that rewards an anticipated benefit forces project promoters to develop and implement more or less effective mechanisms to manage the inevitable risk of carbon re-entering the atmosphere which is caused by natural or anthropic disturbances inherent in the territories and the dynamics or natural processes of a forest ecosystem. In addition to being costly and highly restrictive, such mechanisms cannot alone guarantee the environmental integrity of a market mechanism over a period as long as 100 years

after the issuance of a credit. And all the more so since most market mechanisms are not designed to last that long. Indeed, many are designed to help achieve carbon neutrality by mid-century or sooner.

For the reasons mentioned above, we have decided to develop and adopt a new and unique non-conditional quantification and issuance approach for forest offset credits, based on rewarding an actual climate benefit that can offset, when a credit is used, 100 years of climate impact associated with a GHG emission, thereby avoiding the constraints and consequences related to these issues.

The solution is an innovative approach that hinges on the actual climate benefits associated with a removal

The *Regulation respecting afforestation and reforestation projects eligible for the issuance of offset credits on privately-owned land* (the Regulation) that the Government of Québec adopted recently and that we invite you to consult marks a significant milestone in the field of offset credits related to projects that engender temporary results or climate benefits, such as those achieved in the forest sector. In our opinion, the approach developed and introduced in the Québec protocol stands out strongly and, we believe, favourably from the other offset credit quantification and issuance approaches now in force on the world's regulatory or voluntary carbon markets, which includes the REDD+ approaches and the enhanced forest management protocols.

Indeed, Québec's Forest protocol is the first such protocol that seeks to genuinely reward atmospheric CO_2 removals not only according to the quantity of CO_2 removed from the atmosphere but also the actual climatic effect or benefit of keeping a quantity of carbon out of the atmosphere for a given period. By proceeding in this way and avoiding rewarding an anticipated climate benefit, the Québec offset protocol can guarantee the environmental integrity of removal initiatives as soon as the offset credit is issued on the market and not after a variable period depending on the requirements of a GHG emission offset program. It is also the first protocol to confirm that when an offset is issued to a promoter the latter has already complied with all the program's criteria and requirements.

The protocol allows for the issuance of forest offsets solely according to the climate benefit (radiative effect) associated with the annual carbon stocks removed from the atmosphere and the length of the period during which the stocks have been maintained outside the atmosphere. The approach issues a credit only if the climate benefit linked to it is sufficient to eliminate the impact measured over 100 years resulting from the presence in the atmosphere of one tonne of CO_2. By proceeding in this manner, the approach avoids rewarding anticipated climate benefits and carbon stocks that have not yet been measured within the boundaries of a project.

Contrary to the outcomes or climate benefits associated with the completion of a GHG emission reduction project, the protocol recognizes an often-overlooked truth, i.e., the climate benefits associated with atmospheric CO_2 removal and those related to carbon storage in the biomass of a forest ecosystem can only be temporary.

The Québec Regulation has been elaborated and enacted mainly to ensure the environmental integrity of the offset credits issued at the time of their issuance. The protocol does not issue credits when a project is initiated or when long-term commitments are made using the permanence criterion. It greatly enhances the conventional tonne-year accounting approach by focusing solely on the actual climate benefits achieved and not those that should be achieved. Thus, promoters do not have to give guarantees on the carbon stocks over several decades or even for more than 100 years. Under this approach, there is no need to provide for a special offset reserve should a project fail to fulfil its conditions concerning the permanence criterion by releasing into the atmosphere the carbon

that it intended to sequester. What is more, there is no need to cancel or invalidate the credits, except, of course, in case of fraud.

The Québec offset credit quantification and issuance approach also reduces the financial burden and operational constraints associated with project-related MRV obligations. It allows the promoter to decide when to submit a credit issuance request and affords considerable flexibility concerning the use of the territory covered and its resources, while guaranteeing the government's sovereignty over the territory. By proceeding in this way, questioning the length of the reporting period to be adopted became pointless, as the promoter need only claim climate benefits based on actual and measured carbon stocks, and is not bound by conditions over a certain period. Furthermore, the approach has the potential to apply to all activities pertaining to temporary atmospheric CO_2 removals regardless of the sector, e.g., agriculture, land use, and changes in land use.

To help project promoters to make the necessary calculations, the Government of Québec has mandated the International Reference Center for Life Cycle Assessment and Sustainable Transition (CIRAIG), a Québec organization, to develop an innovative tool to determine the outcome of an afforestation and reforestation project according to the Québec approach: the *Calculator for the radiative effect budget and for the number of offset credits to be issued concerning the completion of an afforestation and reforestation project*.

An approach that lightens the operational and financial burden that project promoters bear without risk for environmental integrity

To reward an anticipated climate benefit stemming from a removal project implies the definition and implementation of costly processes and procedures to define and manage the risks of reversibility of the carbon removed from the atmosphere (contributions to a reserve fund, insurance, double planting, etc.). For a project promoter and also for officials of the GHG emission offset program, this choice of approach also implies very long-term commitments to MRV over a period of more than 100 years when the permanence criterion is defined according to this value. What is more, there is an obligation to establish and maintain an administrative structure to monitor changes in each removal project over time. In other words, the current permanence management approach implies commitments to the project by government authorities in the countries that accept the implementation of GHG removal projects. The adoption of an approach such as the one that Québec has adopted seeks to reward actual and past climate benefits without challenging environmental integrity and thus renders obsolete all or almost all the requirements and constraints mentioned earlier.

A *financial analysis* (only in French) that compares the profitability resulting from the implementation of a project established according to the Québec approach and that of a project established under the current approach used by offset programs has revealed a more advantageous net present value in favour of the Québec protocol. This result is mainly attributable to the absence of recurring MRV obligations. Under the approach that the Government of Québec has developed, these measures are mandatory only when a project is submitted and when a credit issuance request is submitted to the Québec program authorities, which significantly reduces project-completion costs. It is also worth noting that the adoption of a tonne-year accounting approach engenders monetary flows on the completion of a project overall and reduces the administrative, technical, and financial constraints associated with its completion.

In brief, this approach:

- Offers a quantification methodology according to the natural characteristics of, and the actual benefits to, the climate system.

- Provides that each credit, when issued, already offsets the future radiative effect of 100 years of climate impact on the climate system associated with an emission of 1 tCO_2 into the atmosphere.
- Simplifies the process leading to the issuance and management of offset credits by;
    - Reducing obligations concerning monitoring and oversight of the carbon sequestered (for promoters and program authorities);
    - Eliminating the carbon reversibility risk management obligation, thus;
        - Eliminating the obligation to contribute to a buffer pool;
    - Eliminating the obligation of physical maintenance and long-term commitments, thus;
        - Allowing promoter can end a project at any time;
        - Allowing land use for sustainable forest management or other purposes;
        - Eliminating the obligation to establish an administrative structure to ensure compliance with the permanence criterion, to monitor a project, and to invalidate and replace a credit in respect of which the carbon has returned to the atmosphere;
- Stands out from other tonne-year accounting approaches in that it does not attempt to define one or more equivalency factors, which tends to overestimate or underestimate the climatic effects;
- Rewards the transfer of carbon stocks from forest ecosystem reservoirs to Wood Forest Products;
- Avoids transferring environmental liabilities and their management to government authorities and future generations.

In addition to this submission, you will find attached a presentation of the approach developed by Québec, which, we believe will provide the Supervisory Body with more details. Moreover, to learn more about the development, sources and basis for reasoning of approach developed by the Government of Québec, please consult a *master's thesis* in which you will find a scientific article that proposes a new quantification and issuance approach for removal projects related to the agriculture sector, forestry, and land use. The approach introduced in the Québec regulation largely draws inspiration from this proposal.

To conclude, the Government of Québec wishes to assure the Supervisory Body of the 6.4 mechanism of its full collaboration and would be pleased to answer any questions or receive any comments it might have.

To obtain additional information on the approach and the regulation adopted by the Government of Québec, please visit the following Web page of the *Ministère de l'Environnement, de la lutte contre les changements climatiques, de la Faune et des Parcs* (MELCCFP):
Carbon Sequestration Through Afforestation or Reforestation on Private Lands.

Please email questions or comments to the Direction du marché du carbone in the MELCCFP (dmc.creditscompensatoires@environnement.gouv.qc.ca).