Assessment of the operating parameters of the Cap-and-Trade System

Pre-consultations

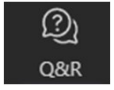
December 5, 2023

Votre gouvernement

Québec

Webinar Logistics

- Presentation
  - This presentation is available online on the Assessment of the operating parameters of the Cap-and-Trade System Web page
- Questions period during the webinar
  - Submit questions in writing during and after the presentation
  - Questions will be posted in the "Q & A" section of the webinar screen and read by the moderator at the end of the presentation



Submitting comments

- Comments must be submitted in writing, **before January 16, 2025**, using the web form
  - The web form is available online on the Assessment of the operating parameters of the Cap-and-Trade System Web page
- The comments received will be published in their entirety on the web page following the pre-consultation period
  - Only the e-mail address will not be published

Agenda

- Reminder of the objective of the approach
- GHG storage
  - Objectives
  - Background
  - Regulatory framework
  - Your opinion
- New green energies
  - Objectives
  - Biomethane (renewable natural gas [RNG], from renewable sources [RSG])
  - Green hydrogen
  - Other
  - Your opinion
- Next steps
- Questions period

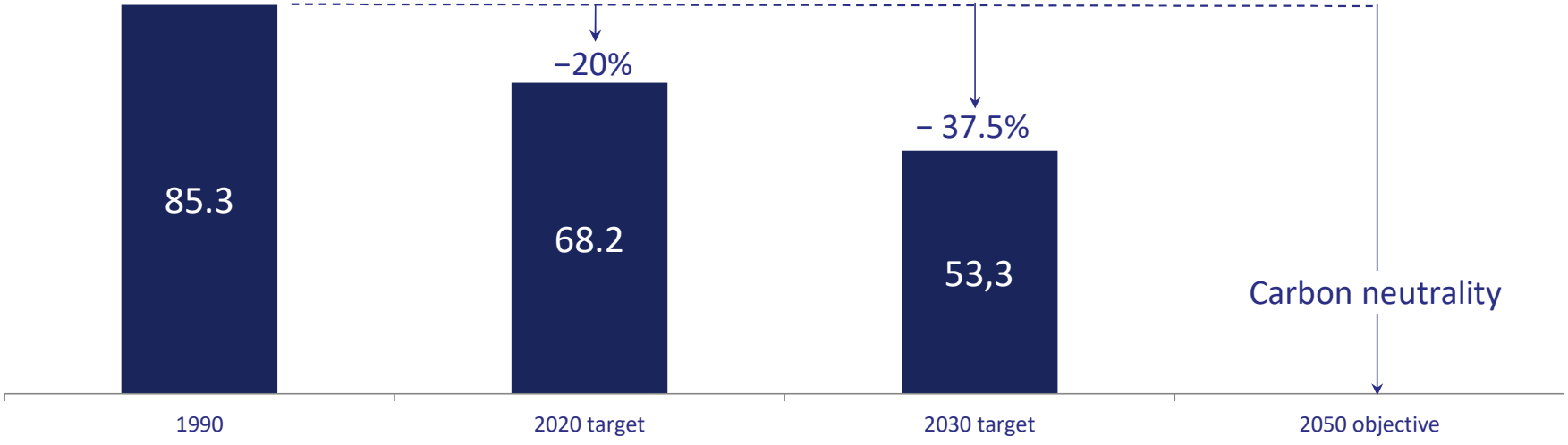
Objective of the approach

- Ensuring efficient operation of the cap-and-trade system to reduce GHG emissions in Québec
- Contribute to achieving the greenhouse gas emissions reduction target by 2030
- Contribute to achieving carbon neutrality by 2050

Objective of the approach

Québec's GHG emission reduction targets

- 1990 emissions, reduction targets and objectives (in millions of tons of CO_2 equivalent)



GHG STORAGE

GHG storage

Objectives

- Achieve carbon neutrality by capturing and permanently storing emissions from sectors that are difficult or impossible to electrify or decarbonize.
  - Geological (reservoirs, aquifers, carbonation)
  - Biological (vegetation, afforestation, reforestation)
- Enable reductions in emission sectors and sources covered by the cap-and-trade system.
  - Reduction in a sector not covered by the cap-and-trade system = Offset credits (when all applicable criteria are met)*.

* See the October 25, 2023 presentation on this subject.

GHG storage

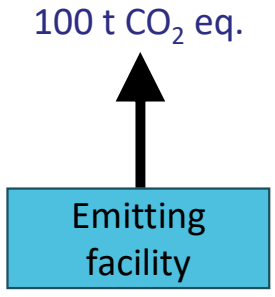
Background

- Capture and storage
  - Technologies to capture, transport and store GHG permanently.
    - Note: WCI requires assurance that storage is permanent or, if temporary, that it will last at least 100 years for certain protocols.
- Transfer
  - An emitter who transfers GHG off-site, for example to a storage facility, must subtract them from its reporting under the *Regulation respecting the mandatory reporting of certain emissions of contaminants into the atmosphere* (RMRCECA).
  - Only non-biogenic emissions would be exempt from coverage.

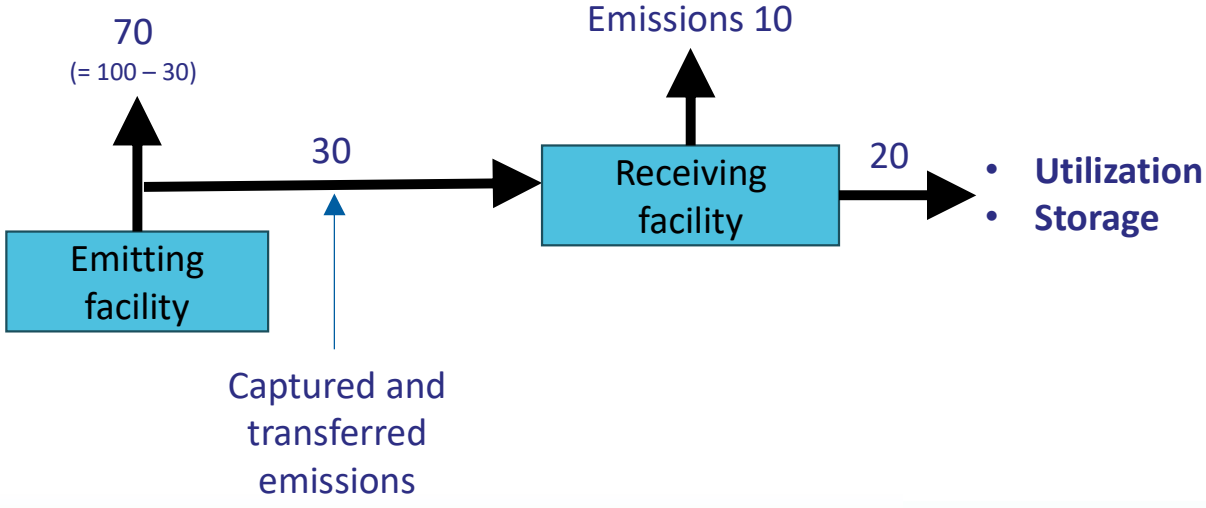
GHG storage

Background

Baseline scenario



Utilization or storage project



GHG storage

Background

- Utilization
  - CO_2 distributor
    - Food & beverages:
      - Softdrinks
      - Greenhouses
    - Refrigeration, dry ice
    - Water treatment
    - Etc.
  - Fuel synthesis
  - Other
- Storage
  - Geological
    - Reservoirs
    - Carbonation
  - Vegetation
  - Ocean floor
  - Other

Emissions deferred (mainly)

Storage time (permanency)

GHG storage

Regulatory framework

- Emissions captured, stored, re-used or transferred off-site
  - RMRCECA
    - Must be subtracted from the reporting.
  - Cap-and-trade regulation
    - Only verified emissions, i.e. emissions of fossil origin, can be excluded from the coverage obligation.
      - Covered facilities are not required to cover CO_2 emissions of biogenic origin.
    - If the facility's emissions fall below its reference intensity, **it continues to receive free allocation for the emissions it no longer has to cover**.
    - This provides a financial incentive to set up capture, transfer, utilization and storage projects.

GHG storage

Regulatory framework

- Total GHG emissions for all emitters covered by the RMRCECA

  = (Fossil GHG) + (Biogenic GHG) - (Fossils GHG) - (Biogenis GHG)

  Generated on-site

  Captured, stored, eliminated, re-used or transferred off-site

- Total GHG emissions to be covered by the cap-and-trade system

  = (Fossil GHG generated on-site*) - (Fossil GHG Captured, stored, eliminated, re-used, transfered)

- Therefore, transferring biogenic CO_2 out of a facility covered by the cap-and-trade system does not reduce its coverage obligation.

* Some exclusions apply (RMRCECA, section 6.6)

GHG storage

Regulatory framework

- RMRCECA
  - Proposed amendments to the Draft regulations amending the RMRCECA published on September 20, 2023:
    - Provides for mandatory reporting for facilities undertaking capture, storage, elimination or utilization of GHG or facilities receiving transfers of such emissions from other facilities, regardless of the RMRCECA declaratory threshold.
    - The objectives of these modifications are as follows:
      - Allow GHG emission reductions achieved through smaller-scale projects to be reported and accounted for regardless of the threshold, so that they can be included in Quebec's GHG inventory;
      - Facilitate the reporting validation process;
      - Avoid the possibility of a facility transferring a quantity of GHG below the 10,000 tm CO_2 eq. threshold to a facility that would be below the reporting threshold and could emit these GHG without reporting them, causing these GHG to "disappear" from the inventory.

GHG storage

Your opinion

- Regulation
  - Are existing regulations sufficient to allow storage projects?
  - In your opinion, if a facility transferred GHG to a second facility for utilization, but would emit a portion of the GHG, who should be responsible for the CO_2 emissions associated with the utilization process? The operator of the facility that generated the CO_2, or the facility receiving the transfer for utilization?
  - Should the sectors that could use storage be regulated?
  - What does permanence means to you, and what controls and monitoring should be put in place to ensure that storage is permanent?
  - Regarding stored CO_2, how should accidental releases into the atmosphere be handled under the RMRCECA and the cap-and-trade system?
  - What do you think of the proposed amendments to the RMRCECA concerning the coverage of capture and storage activities?
- Technologies
  - What technologies do you think are most likely to enable permanent removal of GHG from the atmosphere?
  - Which technologies should be prioritized for the development of quantification protocols?

GHG storage

Your opinion

- General
  - Should the amount of GHG that can be stored be limited to promote emissions reductions?
  - Given that geological storage is non-renewable, should we limit the amount of GHG that can be stored per year by an emitter? By Quebec?
  - Given that geological storage is non-renewable, should sectors that cannot be decarbonized be prioritized for use of geological storage, or should any facility have access to it if it wishes and if it can afford it?
  - What do you think about the social acceptability of geological storage?
  - What role do you think capture and storage activities will play in achieving carbon neutrality by 2050?
  - Do you have any other comments or options to propose?

NEW GREEN ENERGIES

New green energies

Objectives

- Replace fossil fuels with biogenic fuels or green hydrogen.

- Introduce regulatory provisions to guide, enable and promote these replacements.

New green energies

Backgroung

- Biofuels: any fuel whose entire heat generating capacity is derived from biomass.
- In accordance with the guidelines of the Intergovernmental Panel on Climate Change (IPCC), CO_2 from biomass (of biogenic origin) is not included in the Québec GHG emissions inventory.
- CO_2 of biogenic origin is not covered by the cap-and-trade system, i.e. reporting facilities do not have to cover these emissions.
- Note:
  - Methane (CH_4) and nitrous oxide (N_2O) attributable to the use or combustion of biomass are included in the inventory and are covered by the cap-and-trade system (in the activity sectors concerned).
  - Emissions covered by the cap-and-trade must be verified by a third party (RMRCECA, section 6.6).
- For a given quantity of GHG emissions, an emitter subject to the cap-and-trade system who would switch from fossil fuels to biomass fuels would reduce its coverage obligation.

New green energies

Biomethane

- The *Regulation respecting the quantity of renewable natural gas to be delivered by a distributor of the* Régie de l'énergie requires natural gas distributors to achieve a 10% share of gas from renewable sources (RSG, biomethane + green hydrogen) in their distribution networks by 2030.
- The volume of biomethane distributed in Quebec could therefore increase to over 600 Mm^3 in 2030*, representing a potential reduction of around 1.2 Mt CO_2 eq. in GHG emissions covered by the cap-and-trade system.

* Régie de l'énergie, Énergir, Cause tarifaire 2023-2024

New green energies

Biomethane

- Biomethane is injected into the natural gas network inside or outside Québec.
- It then becomes indistinguishable from fossil natural gas in the network.
- It is therefore impossible for distributors or end users to know who has actually consumed the biomethane.
- Unlike other fuels that are actually delivered to the user, facilities purchasing biomethane from a distributor do not physically receive the purchased biomethane at their facilities.
- For this reason, distributors keep records of their biomethane purchases and sales.
- Biomethane purchased by a facility replaces fossil emissions in its emissions report on an accounting basis.

New green energies

Biomethane

- As this particular situation is not currently provided for by the RMRCECA, the MELCCFP requires proofs that are not required for other biofuels:
  1. Proof of the biogenic nature of the volumes declared (origin) and proof that they are free of any carbon of fossil origin;
  2. Proof that biomethane is injected into the North American natural gas network and proof of the physical link with the delivery site;
  3. Proof that the buyer is the sole purchaser of the volumes sold (due to accounting substitution).

- All this information is mainly of a contractual nature.

New green energies

Suggestions

- Elements to consider for biomethane needed by MELCCFP:
  - Distinct reporting of volumes and GHG emissions for biomethane and fossil natural gas;
  - Use of emission factors, natural gas sampling, analysis and measurement requirements;
  - Introduction of the concepts of substitution and contractual volumes;
  - Obligation to verify the CO_2 content of biomethane, given the monetary consequences for the cap-and-trade system.
    - Clarification that although this CO_2 must be verified, it does not have to be covered.

New green energies

Suggestions

- Elements to consider for biomethane needed by MELCCFP:
  - Tree possible situations regarding verification requirements:
    1. The emitter obtains the biomethane from a distributor (exclusive right in Quebec).
       - Can replace proofs 1 to 3 by:
         - Copies of the distributor's invoices;
         - An annual attestation from the distributor stating that all volumes of biomethane delivered to the emitter have received a positive statement from the distributor's verifier.
    2. The emitter buys biomethane via "direct purchase".
       - Proofs 1 to 3.

Reminder of the tree proofs:
1. 100% biogénic
2. Linked network injection
3. Sole purchaser

New green energies

Suggestions

- Elements to consider for biomethane needed by MELCCFP:
  - Tree possible situations regarding verification requirements:
    3. Natural gas or biomethane distributors (which must cover the emissions of emitters not subject to the cap-and-trade system):
       - Proofs 1 to 3
       - List of suppliers and volumes distributed in Quebec for each of them;
       - Total volume of biomethane exported
       - Total volume of biomethane delivered that is purchased via "direct purchase", with or without transfer of ownership
       - Portion of distributed quantity deferred from a previous year
       - Portion of acquired quantity deferred to a subsequent year

Reminder of the tree proofs:
1. 100% biogénic
2. Linked network injection
3. Sole purchaser

New green energies

Suggestions

- Elements to consider for biomethane:
  - In the event that the verifier is unable to obtain one of the required proofs, the volumes of biomethane acquired must be declared as volumes of natural gas, and the corresponding GHG emissions must be reported as being of fossil origin.
  - Biomethane producers located in Quebec who inject biomethane into the Quebec transmission or distribution network can report the biomethane as "self-consumed".

New green energies

Suggestions

- Elements to consider for biomethane:
  - For emitters not subject to the cap-and-trade system and who do not have to have their emissions report verified, natural gas can be substituted by biomethane in their emissions report only if the biomethane volumes have been acquired by a natural gas distributor within the meaning of the *Act respecting the Régie de l'énergie*, and if they have obtained a positive statement from the distributor's verifier.
  - This does not restrict the way in which an emitter sources its gas, but only the use of the term "biomethane" in its emissions report. Unverified biomethane must be reported as natural gas.

New green energies

Green hydrogen

- Hydrogen produced by electrolysis of water using electricity from renewable sources (hydro, wind, solar, etc.).
- Could be directly substituted as a fuel or raw material.
  - Could reduce fossil-based emissions from facilities subject to the cap-and-trade system.
- Natural gas distributors
  - Can introduce green hydrogen into their networks to reach 10% of RSG by 2030.

New green energies

Green hydrogen

- For reference, other types of hydrogen:

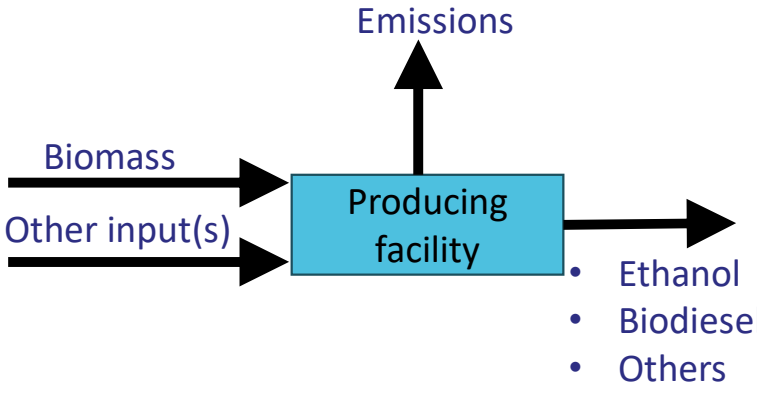
	Couleur	Technique	Matière première	Énergie
Électricité	Jaune	Électrolyse	Eau	Origine mixte provenant du réseau
	Vert			Éolienne, solaire, hydraulique etc.
	Rose			Nucléaire
	Turquoise	Pyrolyse	Méthane	Origine mixte provenant du réseau
	Noir	Gazéification	Charbon + eau	Combustibles fossiles
	Brun		Charbon brun (lignite) + eau	
	Gris	Reformage	Charbon & méthane + eau	
	Bleu	Reformage/captage de CO2		

- Note: Definitions vary depending on sources.

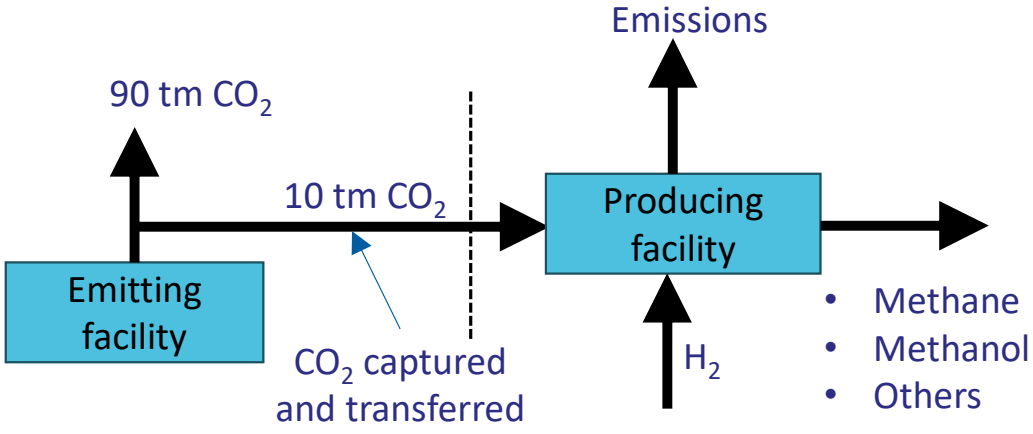
New green energies

Other

- Biofuel synthesis



- Subject to RMRCECA:
  - Emitters (10,000 tm CO_2 eq. threshold)
  - Distributors (200 liters of fuel threshold)
- Must cover corresponding CH_4 and N_2O emissions



- The transferred CO_2 must be biogenic to qualify as biofuel
- Subject to RMRCECA:
  - Emitters (10,000 tm CO_2 eq. threshold)
  - Distributors (200 liters of fuel threshold)
- Must cover corresponding CH_4 and N_2O emissions

New green energies

Your opinion

- Biomethane:
  - What do you think of the proposed elements to be considered for biomethane?
  - How can distributors obtain a positive statement from a verifier so that their customers can submit their RMRCECA report on June 1st?
  - How can volumes purchased outside Quebec be verified?
  - How can we ensure compliance with the RMRCECA outside the province of Quebec?
  - Do you have any other comments or options to propose?

New green energies

Your opinion

- Green hydrogen:
  - What uses should be prioritized for green hydrogen?
  - Should reporting of green hydrogen be required for the purpose of the assessment the GHG reduction target, for monitoring fossil fuel substitution in Quebec and for verifying the GHG emissions reports of facilities subject to the cap-and-trade system?
  - Should other types of hydrogen be considered in the same way as green hydrogen? For example, hydrogen produced by electrolysis with electricity from nuclear power, or produced by steam reforming of methane, the CO_2 of which would have been stored.
  - Do you have any other comments or options to propose?

New green energies

Your opinion

- Other biofuels
  - How can we support biofuels producers and users from a regulatory and reporting point of view?
  - Who do you think should be responsible for the CO_2 emissions associated with the CO_2 captured from a plant to manufacture a fuel and that is emitted into the atmosphere when that fuel is burned? The operator of the plant that generated the CO_2 or the fuel distributor when the fuel is sold?
  - Are there other biofuels we should consider?
  - Should the renewable nature of a biofuel be considered?
    - Renewable: from natural sources or processes considered inexhaustible, their rate of renewal being equal to or greater than their rate of consumption.
  - What role do you see new green energies playing in achieving the 2030 target and carbon neutrality in 2050?
  - Do you have any other comments or options to propose?

Next steps

Srping 2024	If applicable, publication of a draft regulation or other legislative instrument (e.g. Order in Council)
Summer 2024	If applicable, issue regulation or other legislative instrument (e.g. Order in Council)

To be informed of upcoming events, visit our web page:
Assessment of the operating parameters of the Cap-and-Trade System (gouv.qc.ca)

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