

Draft Québec offset protocol on carbon sequestration through afforestation and reforestation activities on private lands

December 2020

Outline

1. Overview
2. Quantification approach
3. Project realization process
4. Project simulation
5. Comparative financial analysis
6. Facilitating project development
7. Conclusion

1. Overview

- Eligible project types
 - Afforestation of land without forest cover (e.g. fallow land, gravel pit, road, etc.)
 - Reforestation of land with forest cover (e.g. to address poor regeneration)
 - Does not include improved forest management
- Private lands in Québec
- Innovative tonne-year quantification approach rewarding climate benefit achieved at the time of credit issuance
- Rewards carbon sequestered in wood products

2. Quantification approach

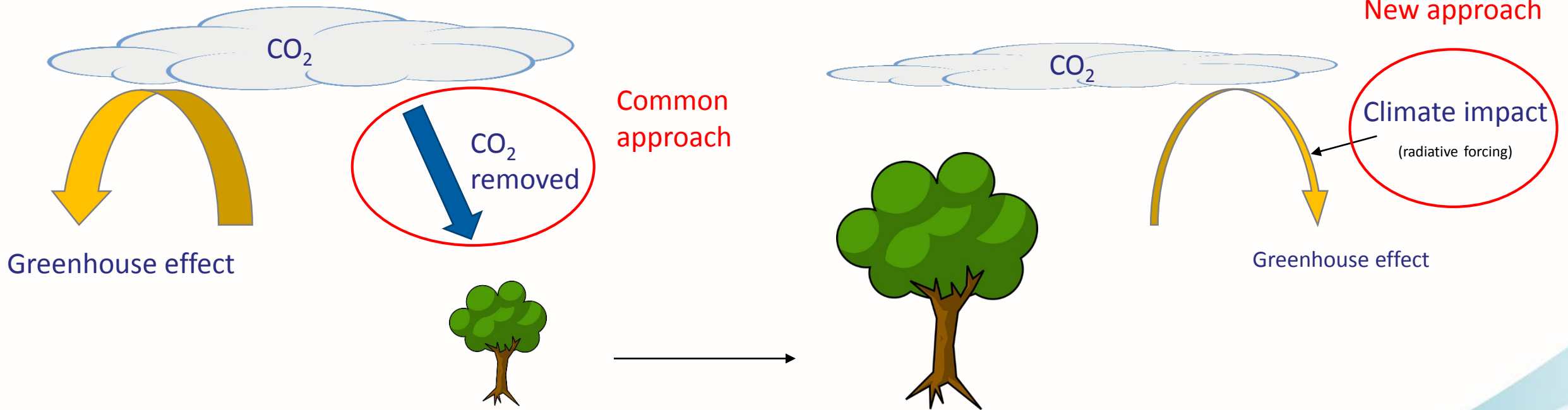
Common approach

- Measuring CO₂ removed from the atmosphere
- **1 tonne CO₂ removed = 1 offset credit**
- Sequestrations must be maintained over 100 years after issuance

New approach developed

- Measuring **climat impact** of CO₂ removed from the atmosphere over a time period
- **Cooling effect (tonne CO₂ removed) over time**
- No requirement to maintain sequestrations after issuance

2. Quantification approach Climate impact of a tree

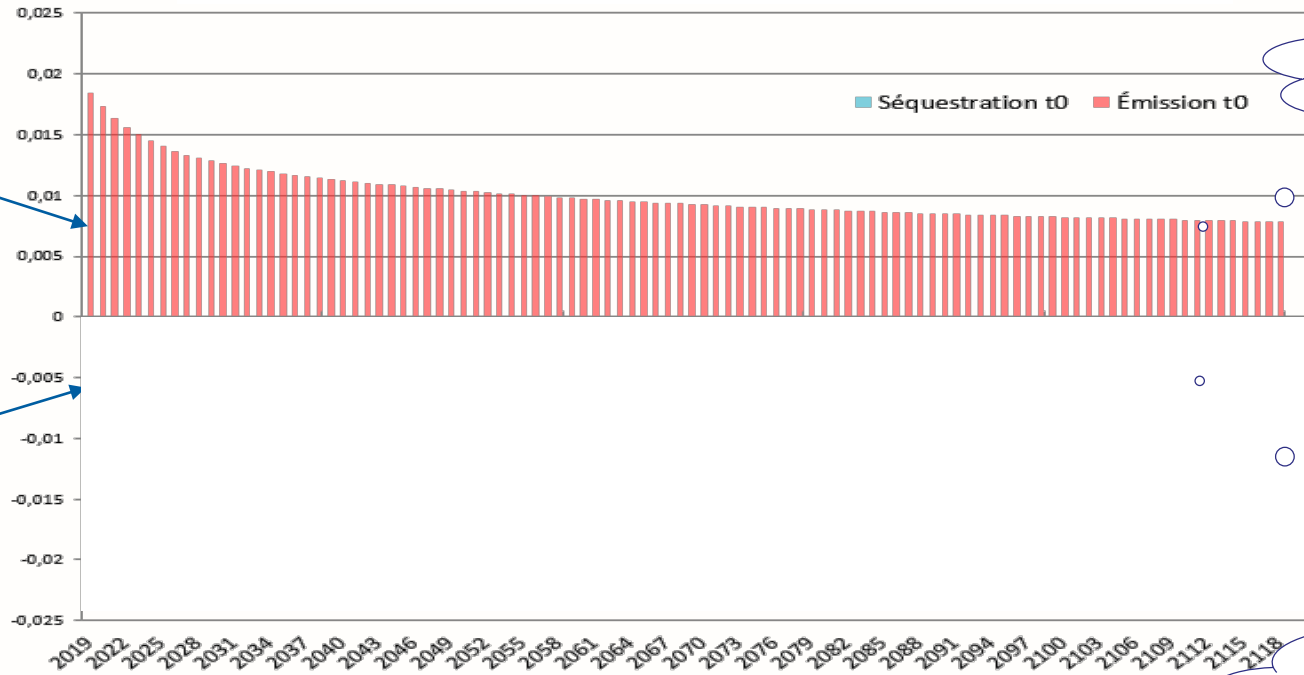


Radiative forcing = unit measuring the climate impact of a GHG emission or removal

2. Quantification approach

Climate impact of CO₂ emission or removal

Instant radiative forcing (W/m²)



1 tonne CO₂e
emitted at
year 0

1 tonne CO₂
removed at
year 0

Warming effect

Cooling effect

2. Quantification approach

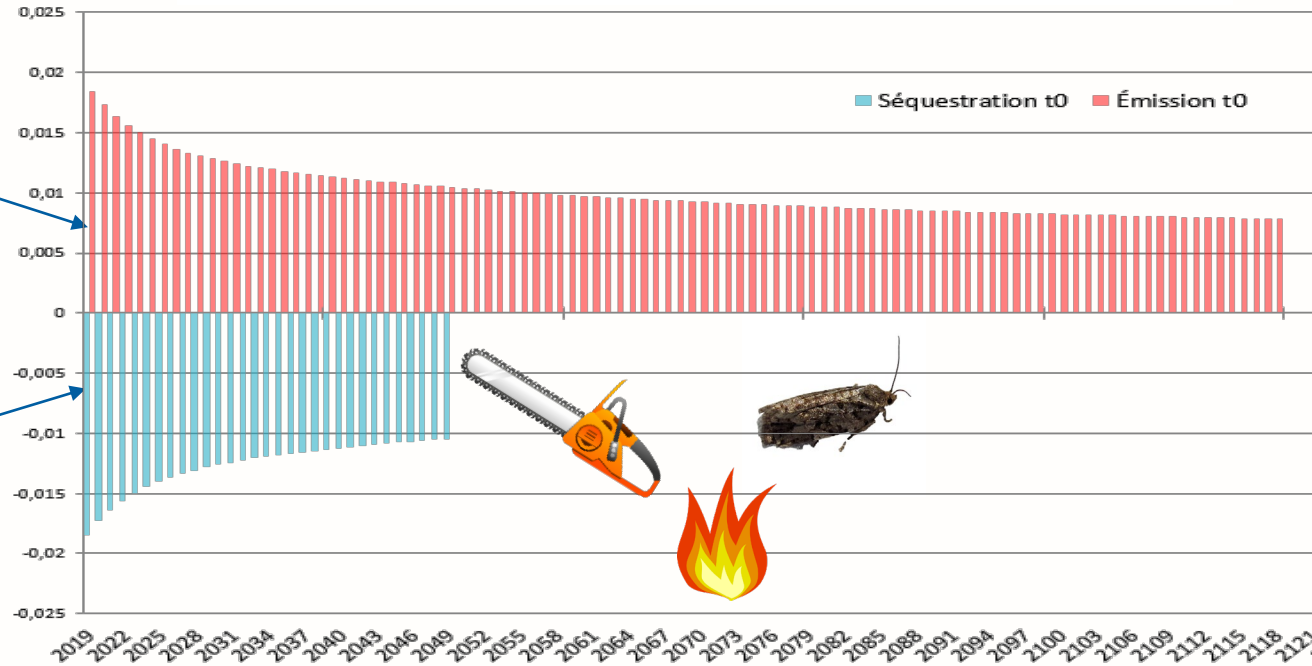
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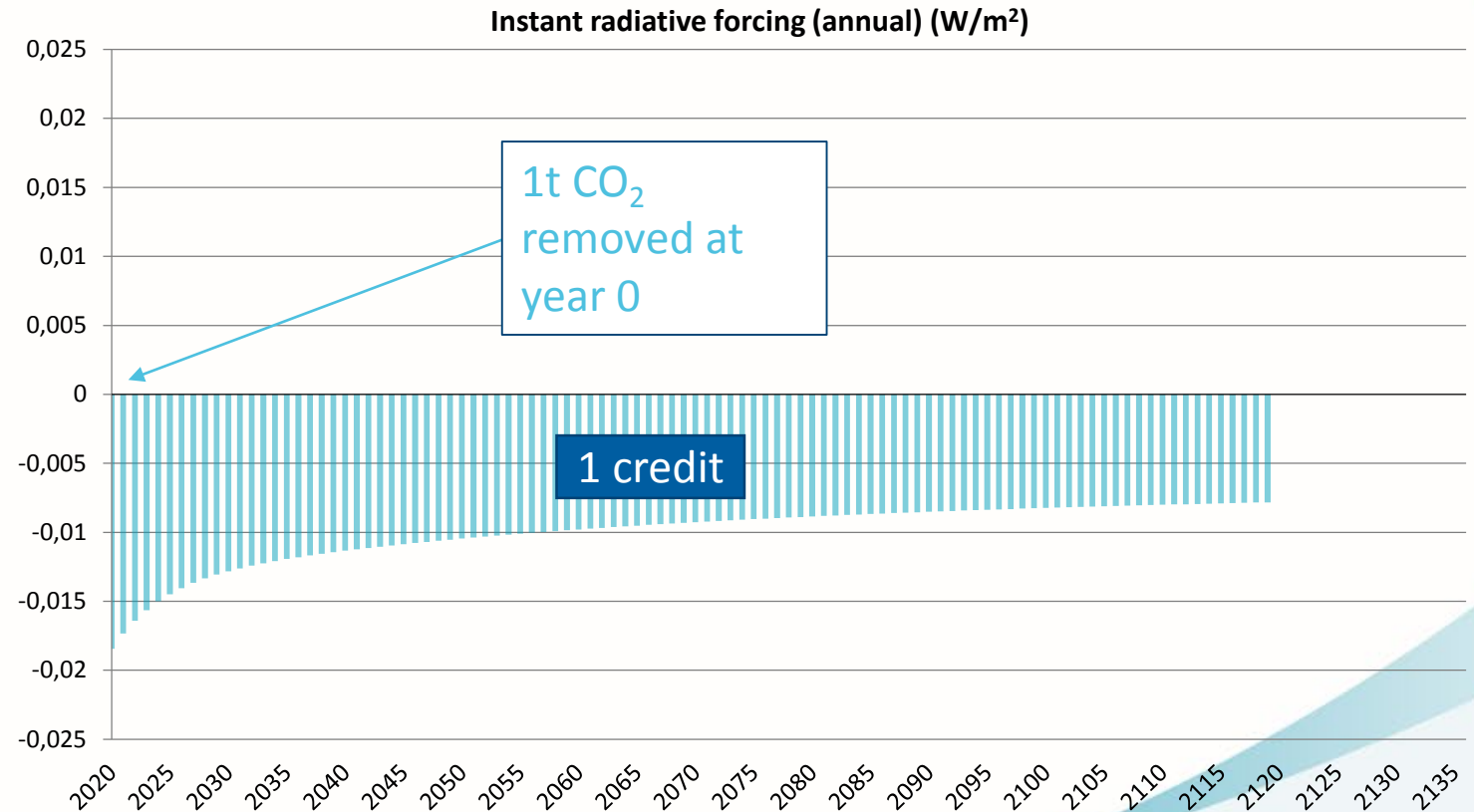
2. Quantification approach

Offset credit issuance

Climate benefit (W/m²) → Offset credits (t CO₂e)

- **Conversion to offset credit:**

- 1 credit = climate benefit of 1t CO₂ removed over 100 years
- If sequestration < 100 years, deliver corresponding portion of climate benefit (area in blue)
- Sequestration for 30 years = 40% of credit



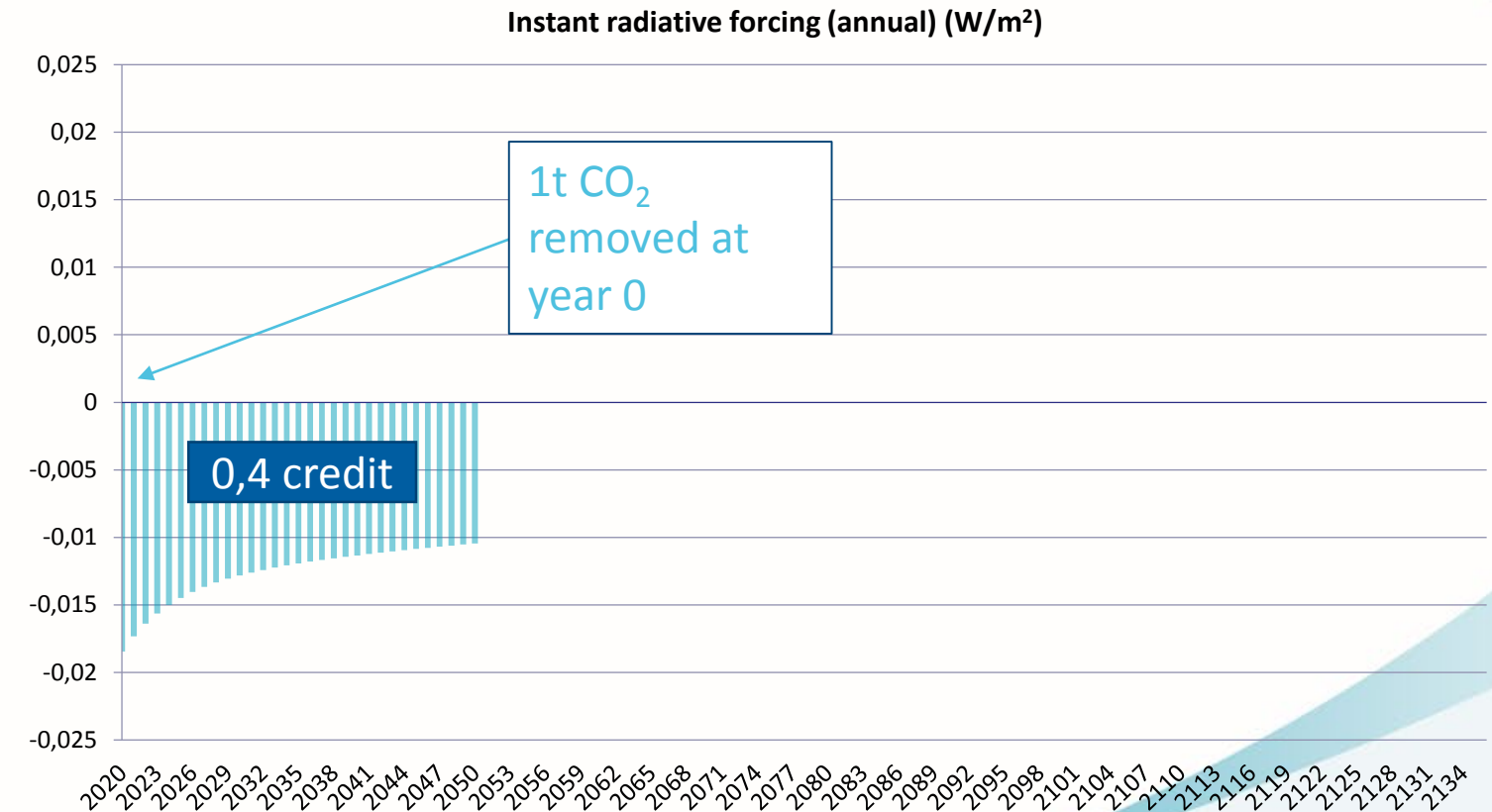
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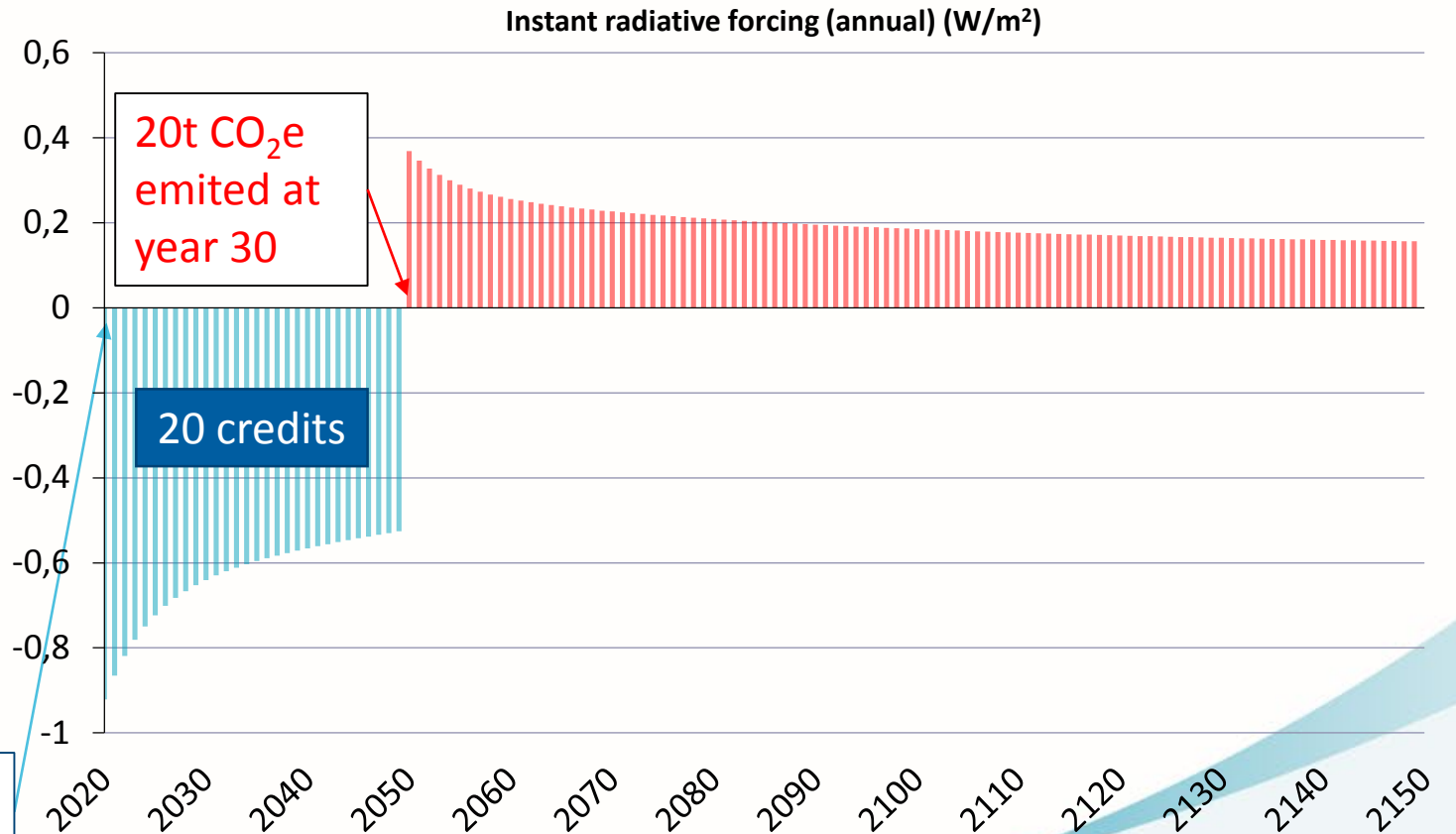
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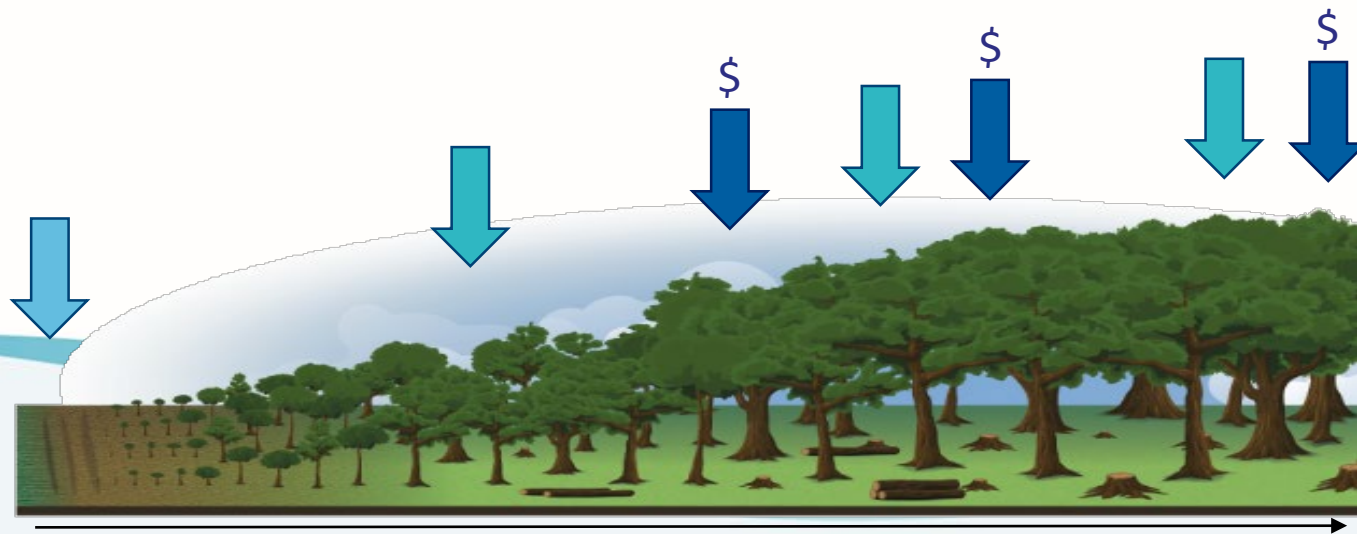
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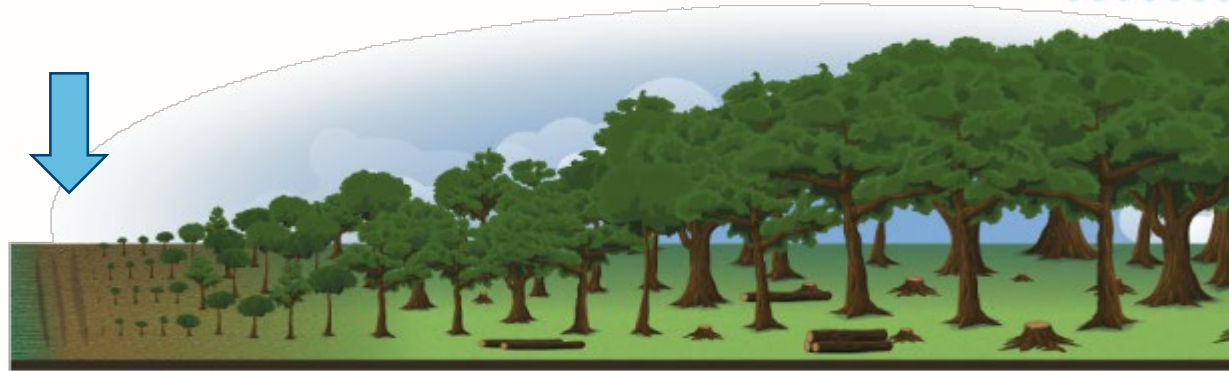


3. Project realization process



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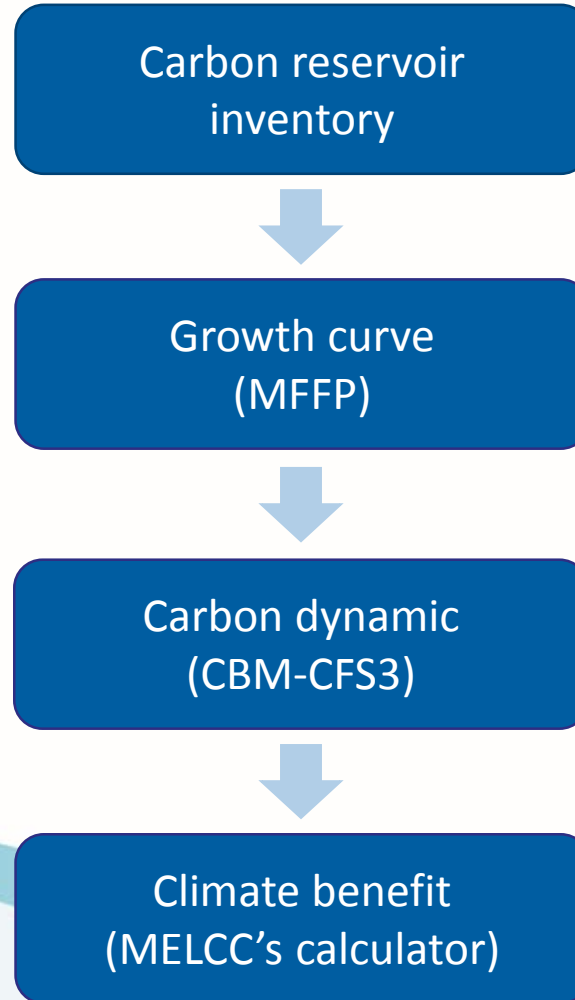
Step 1 Project preparation



- Characterization of the territory's original state (land-use history, forest inventory)
- Determination of baseline scenario, and project scenario with a forest management plan
- Verification by an accredited verification body (and a forest engineer)

3. Project realization process

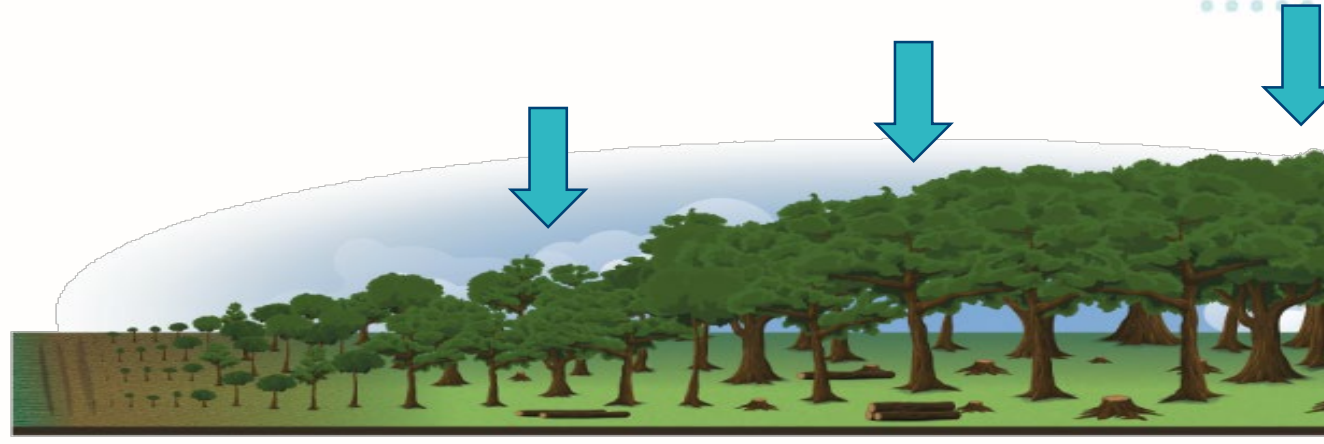
Baseline and project scenarios determination



3. Project realization process

Step 2

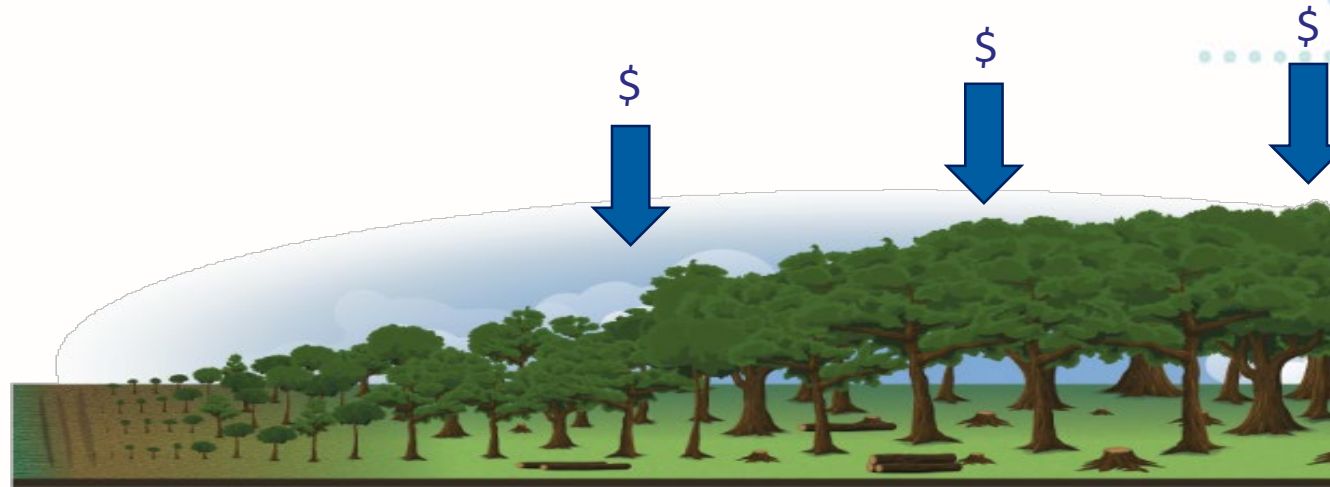
Implementation
and monitoring



- Monitoring needed only when perturbations occur (type of perturbation and area affected) or when forestry activities occur (type of activity and harvest volume)
- Record keeping by project developer (observation and record of events susceptible to impact carbon stocks and the amount of credits that will be generated)

3. Project realization process

Step 3 Credit issuance



- Carbon reservoir inventory
- Determination of project vs baseline scenarios' climate benefit
- Conversion to offset credits
- Verification by accredited verification body (and a forest engineer)

4. Project simulation

- **Planting in 2021**

- White spruce
- 10 hectares
- Bas-Saint-Laurent

- **Forest management**

- Harvests from 30 years onwards
- Final cut at 80 years



Photo : J. Ménétrier, MRNF

Credit issuance

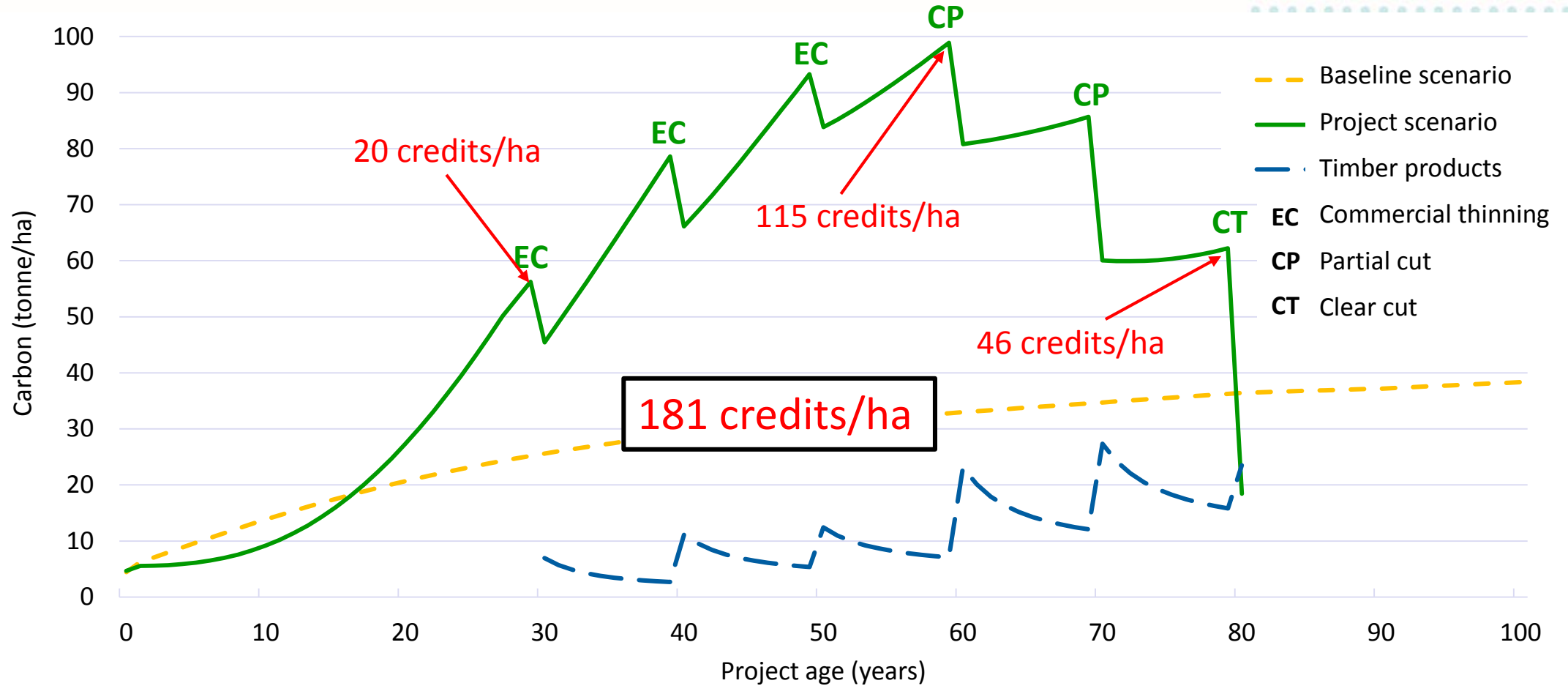
CI-1 (30 y)

CI-2 (60 y)

CI-3 (80 y)

4. Project simulation

Carbon stock dynamics



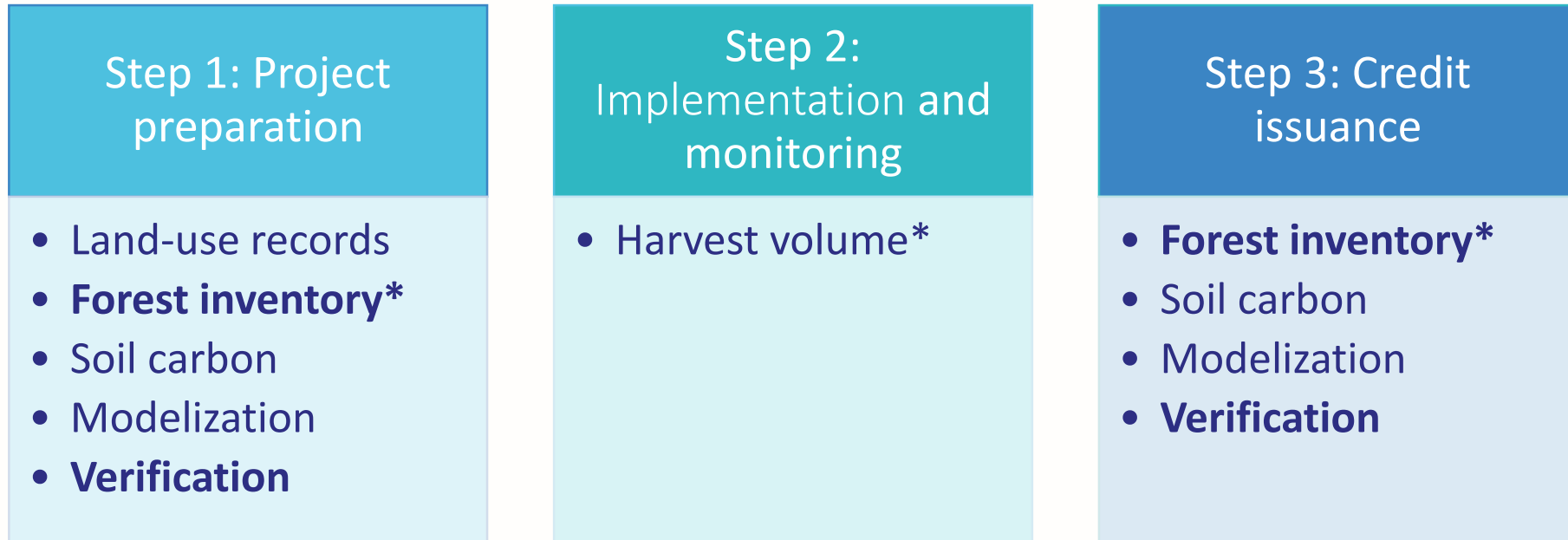
5. Comparative financial analysis

- Considers stacking multiple sources of income
 - Offset credits
 - Wood sale
 - Government subsidies from Ministère des Forêts, de la Faune et des Parcs (MFFP)
- **Radiative forcing approach is more advantageous** (higher net value) compared to common approach **on small territories** (< 100 ha)
 - Less monitoring and verification cost
 - No buffer pool (+/-20%)
 - Equal number of credits over 100 years

MFFP (2017). Analyse financière comparative de deux approches de comptabilisation du carbone appliquée à un projet de boisement en territoire privé, Québec, gouvernement du Québec, Direction de l'aménagement et de l'environnement forestiers, 37p.

6. Facilitating project development

Project costs



Items marked with a star are also required in order to obtain a governmental subsidy by the MFFP.
Items in bold represent the main activities in terms of cost.

6. Facilitating project development

Aggregation



- **Aggregation: Grouping of projects of the same project developer**
 - No limits on number of aggregated projects or total area of an aggregation
 - Allows forest inventory at the level of aggregated projects:
 - Quantification by project developer
 - Verification by verification body
- ✓ ***Reduce costs while maintaining environmental integrity***

6. Facilitating project development

Early action projects

- **Forest planted on or after January 1st 1990**
 - International baseline year used in defining GHG targets
- **Climate benefits from January 1st 2007 onwards**
 - Year of decision of the carbon market's creation
- ✓ ***Facilitate stakeholder participation and promote the conservation of existing forests and sequestered carbon***

7. Conclusion

Protocol key features

- **A/R project = offsets + forest management**
 - Maximize incomes and climate benefits (CO₂ removals, wood production and substitution)
- **Innovative quantification approach (based on radiative forcing)**
 - Amount of credits issued corresponds to the climate benefit achieved at the time of issuance
 - Avoid obligation to maintain the forest over 100 years
 - No long-term engagement for project developers and government
 - No risk of reversibility, no buffer pool
 - No restrictions on forest exploitation
 - More financially advantageous in Quebec's private land context
- **Measures to facilitate project development: aggregation and early action projects**

7. Conclusion

Work status

- Technical version of protocol developed in collaboration with ministère des Forêts, de la Faune et des Parcs (MFFP) – Governmental initiative
- Consultation with targetted stakeholders in spring 2018
- Protocol currently in legal drafting, public consultation forecasted for early 2021

For questions:

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