



## Forest Bioeconomy

Climate change mitigation options in the Canadian forest sector

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Environment and Sustainability

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1

## Presentation outline

- 1. A word on FPInnovations**
- 2. Climate emergency: A call to action**
- 3. The forest bioeconomy's relevance in Canada**
- 4. How to put the forest sector to work for climate change mitigation?**

2

## FPInnovations

FPInnovations is a private not-for-profit organization that specializes in the creation of solutions in support of the Canadian forest sector's global competitiveness.

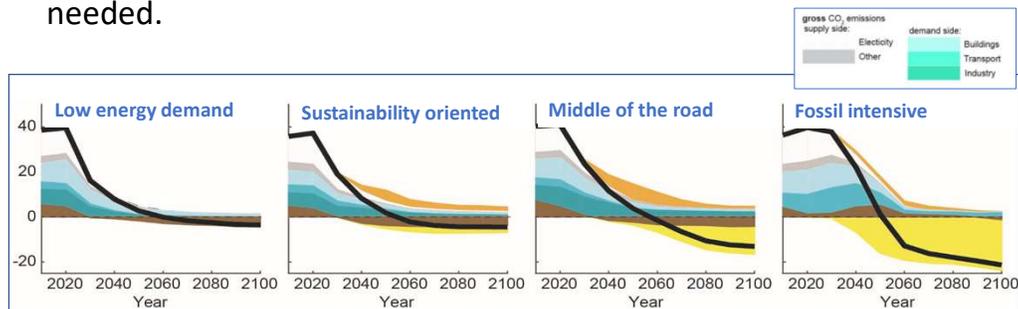
- Innovation catalyst for the Canadian forest industry sector
- Over 300 experts across Canada, spans industry value chain from forests to markets
- Unique partnership with industry and governments
- 180 industry members and FPAC
- Partnering with universities and institutions in Canada and abroad



3

## IPCC's 1.5°C report – A call to action

- Meeting 1.5°C target will require 45% decline in global emissions by 2030 relative to 2010, and net-zero by 2050.
- «Pathways limiting global warming to 1.5°C require *rapid* and *far-reaching transitions* in energy, land, urban and infrastructure (incl. transport and buildings), and industrial systems (high confidence).»
- Wide portfolio of options and significant upscaling of investments needed.



\*Carbon dioxide removal in brown and yellow.

Source: IPCC 1.5°C report, Chapter 2.

4

## Climate change mitigation

Emission reduction paradigm



«In the long term, a sustainable forest management strategy aimed at **maintaining or increasing forest carbon stocks**, while producing an annual **sustained yield of timber, fibre or energy from the forest**, will generate the largest sustained mitigation benefit. » IPCC, 2007. AR4 WG3.

5

## Forest bioeconomy means looking at the forest with an integrated approach

**Climate change mitigation =  
Forest + Products + Substitution**



\*Based on IPCC AR4 and CBM-CFS3 model.

6

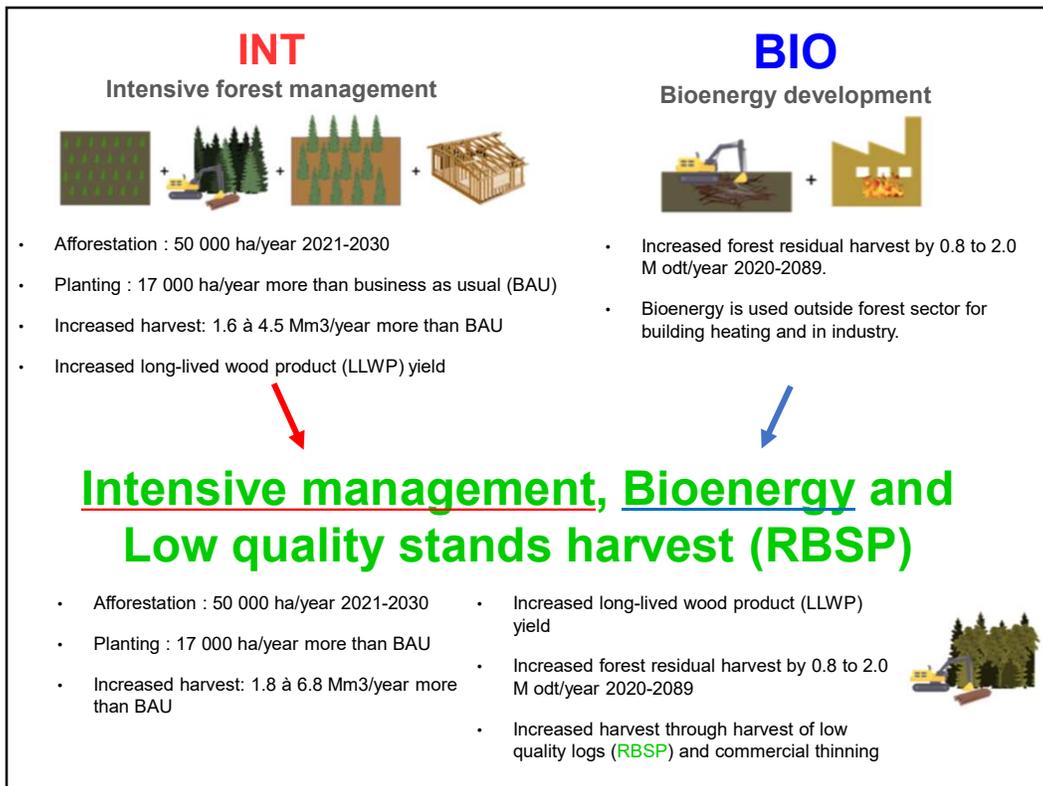
## Forest and Climate Change Working Group

- Develop and **implement a robust modeling approach** to evaluate the role of forest management and forest products in climate change mitigation.
- **Propose measures and strategic guidelines** to make the forest sector a part of climate change action plans based on the best available science.



**Scientific advisory committee:** \*Quebec Ministry of Forests (MFFP), \*Ministry of Environment (MELCC), Quebec Ministry of Energy and Natural Resources, Quebec Chief Forester, Transition Énergétique Québec, Natural Resources Canada, Environment and Climate Change Canada (E3C).

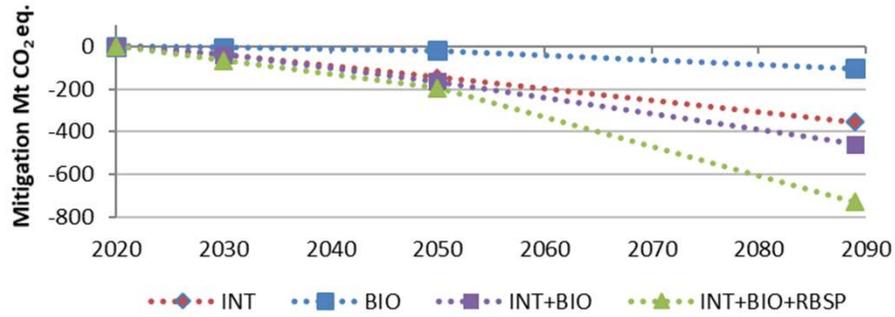
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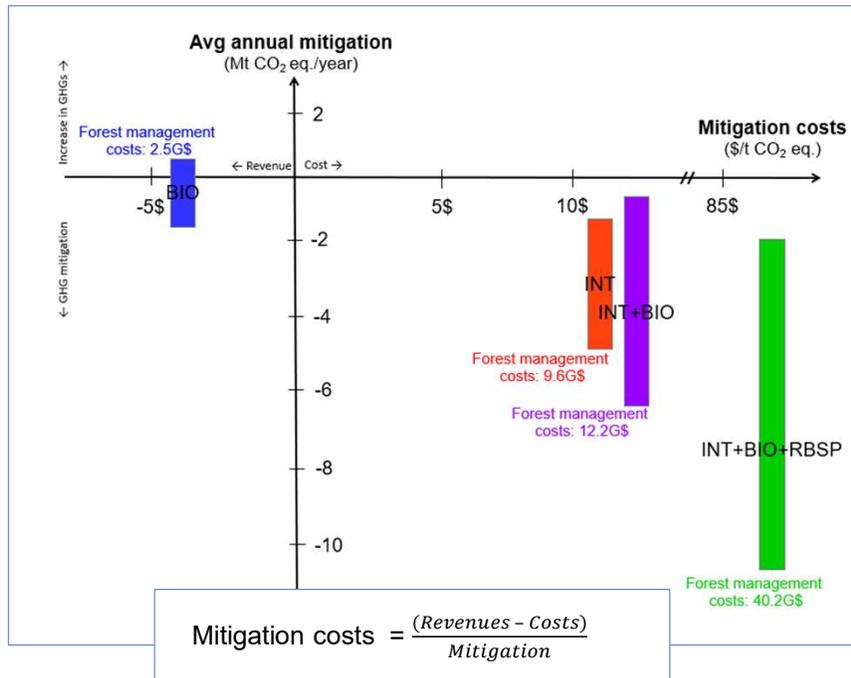
## Results

### Cumulative mitigation with targeted substitution and rapid industry modernization



9

## Mitigation costs



10

## Conclusions

- Climate change mitigation by 2030 is possible through forest sector (0.5-6.7 Mt CO<sub>2</sub>/year by 2030).
- Best results are achieved over the long-term where >10 Mt CO<sub>2</sub>/year is within reach.
- Afforestation provides 36 Mt mitigation between 2020-2089. Can act as a «buffer», role is mainly to help increase supply over the long-term.
- The forest sector can provide short-term mitigation through substitution of non-renewables by sustainable low carbon footprint alternatives. Forest bioeconomy.
  - Role of policies and market development is key!
- Bioenergy is integral part of forest sector operations. Outside forest sector, bioenergy makes sense if it is part of a larger intensive forest management strategy and if substitution is targeted.



11

## Policy roadmap

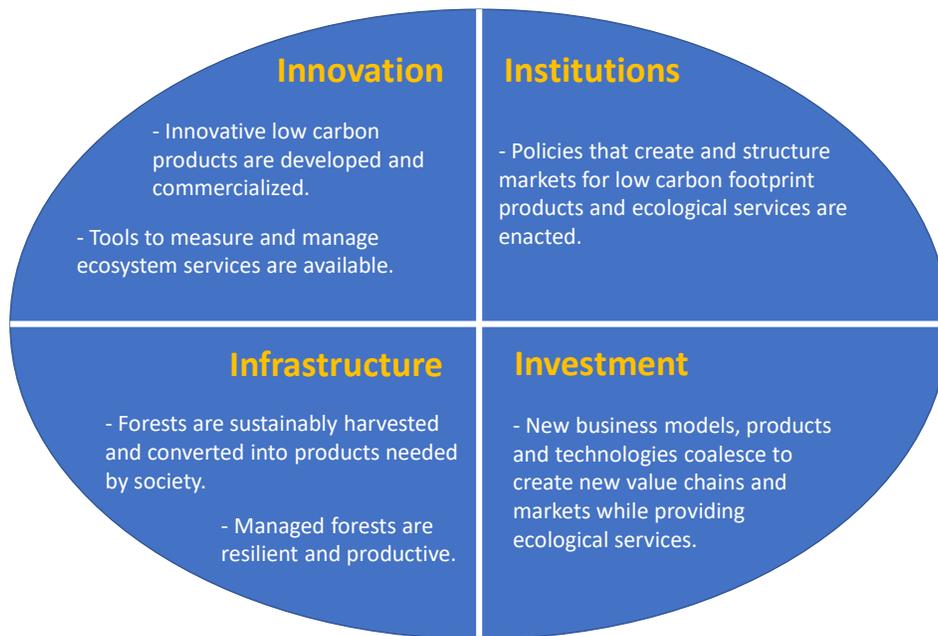
### Priorities

- Increase yield of long-lived wood products (LLWP) which store carbon for a longer time. Role for R&D.
- Implement mechanisms / methods to identify the largest emission reductions from substitution of non-renewables (i.e. fossil). Implement policies and regulations that create markets for these goods.
- Activate the forest-products-substitution system through afforestation. Select species and origin of seedlings in context of climate change adaptation.
- Given the low cost of intensive forest management, consider generating carbon offsets on public lands.
- Facilitate the harvest and use of low-quality stands given economic, social and environmental constraints.



12

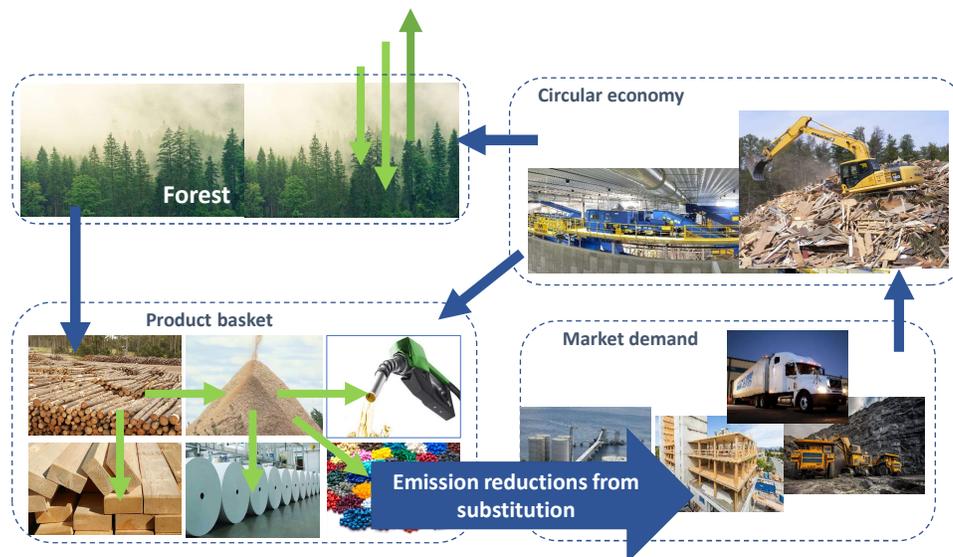
# Climate Smart Forestry



Adapted from Verkerk, 2020.

13

## Next steps



14

14

# Thank you!

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Canadian Forest Service / Service canadien des forêts

