Photo credit: Dave Hoefler

CSA CARBON INDICATOR

TPAG Meeting
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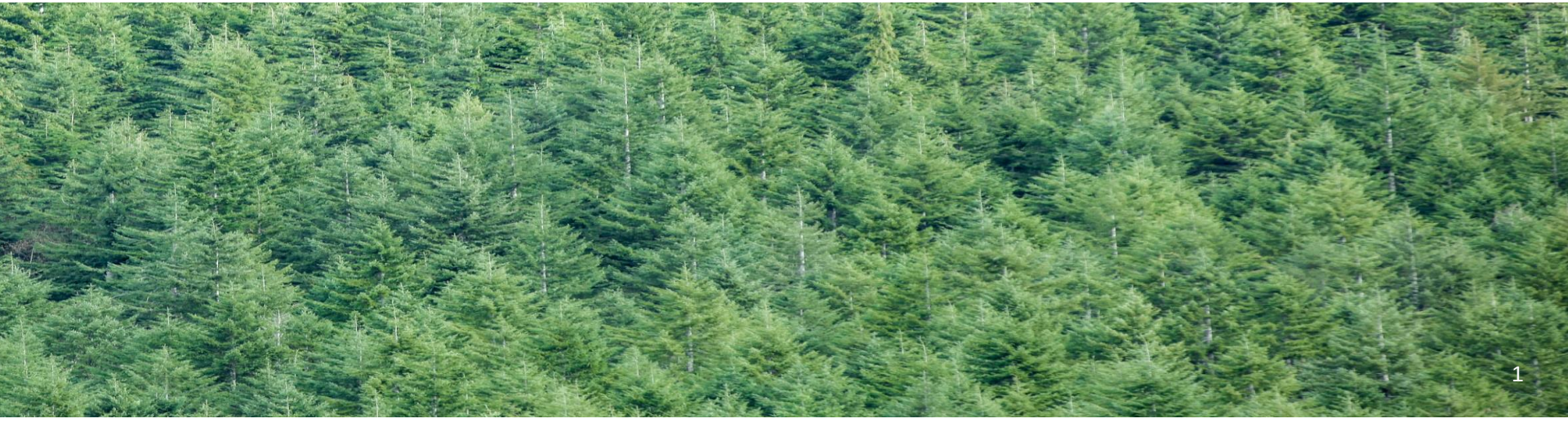
OUTLINE

- CSA carbon indicator refresher
- Scope of CSA carbon indicator
- Review methodology of each component within the carbon indicator
  - Carbon uptake
  - Short-lived products
  - Fuel consumption
  - Debris burned



Indicator 4.1.1 Net Carbon Uptake

Indicator 4.1.1: Net Carbon Uptake

Element: 4.1 Carbon Uptake and Storage *Maintain the processes that take carbon from the atmosphere and store it in forest ecosystems.*				
Value	**Objective**	**Indicator**	**Target**	**Variance**
The uptake of carbon	The net rate of carbon uptake by the forest is positive over time	Net carbon uptake	The net annual carbon uptake on the DFA is positive	1 year negative

History

Core Indicator under CSA Z809-08. Title updated for CSA Z809-16.

Basis for the Target

The basic premise of a sustainable forest management organization is that it should be at least carbon neutral from the onset. In this context, carbon neutrality is a demonstration that harvest levels are sustainable. Forest management should be shown to be a positive contributing activity for global ecological cycles over time.

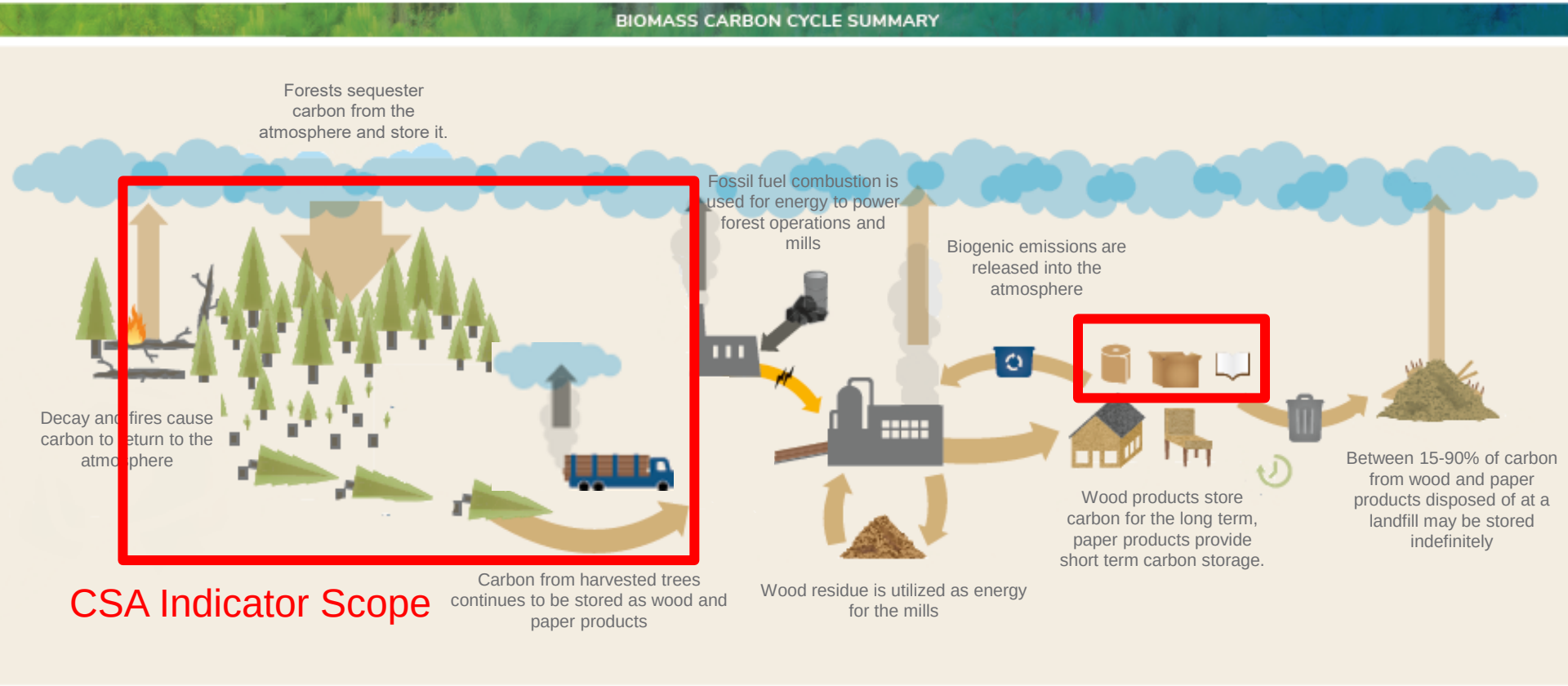
The variance is meant to help account for fluctuation in yearly cut levels due to market conditions and license obligations under provincial legislation.

Current Status & Results

The net carbon uptake on the DFA is simply defined as the difference between the total carbon uptake on the DFA by its growing stock, minus the net carbon removed from the DFA through harvest operations and the total carbon emitted through fuel consumption during forest management operations.

Year	Description	CO2e (tonnes)	Target Met (Y/N)	Variance Met (Y/N/N/a)
2023	Carbon uptake (from growing stock TFL 44)	599,580	Y	n/a
	Carbon removed (to short-lived products1)	-136,775		
	Fuel Consumed (harvest & transport)	-3,608		
	Debris burned (debris disposal/operational fires)	-68,748		
	NET Carbon Uptake	**390,468**		

Scope of Indicator 4.1.1 Net Carbon Uptake



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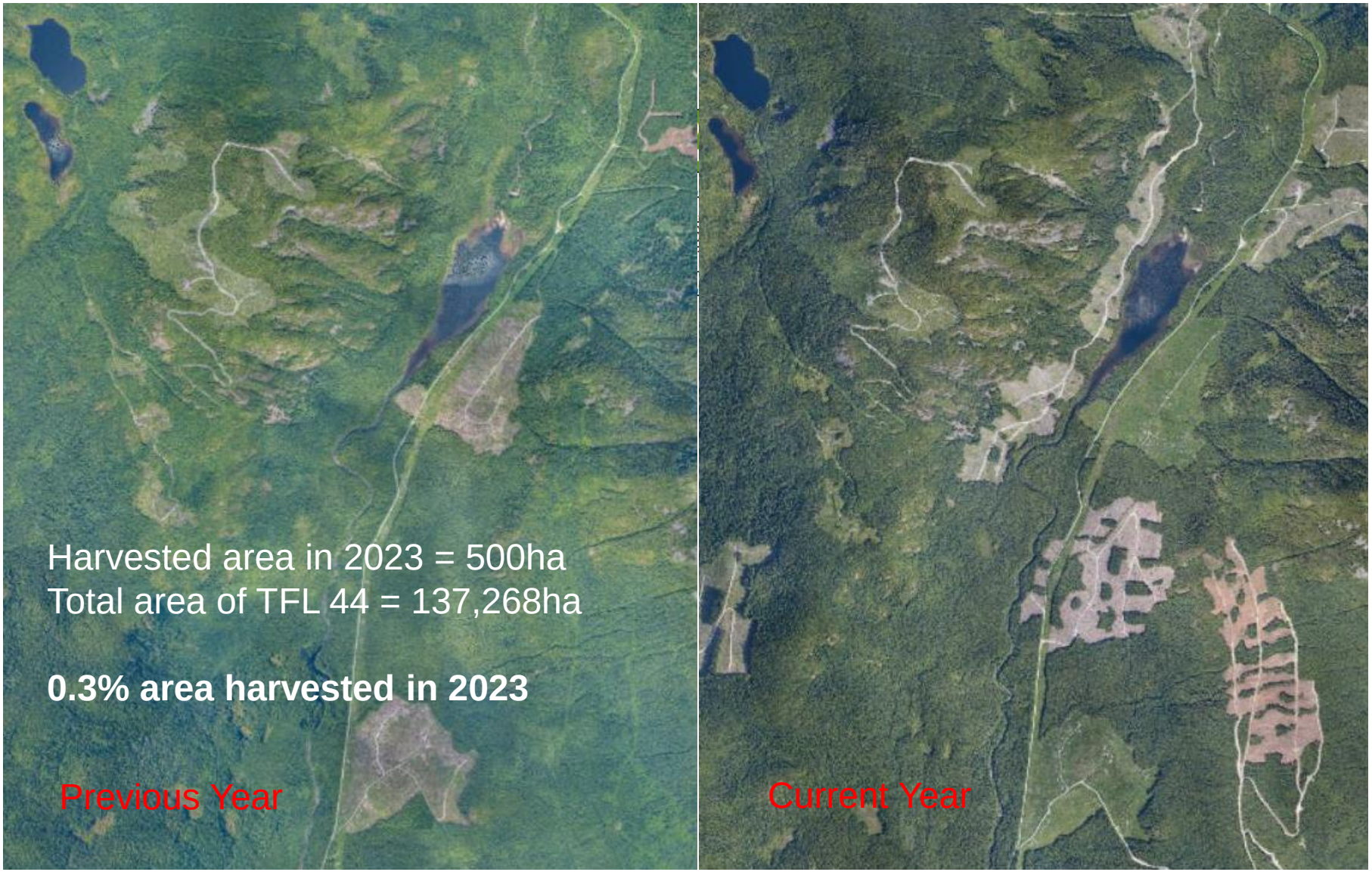
Carbon Uptake (from growing stock TFL 44)



Carbon Uptake (from growing stock TFL 44)

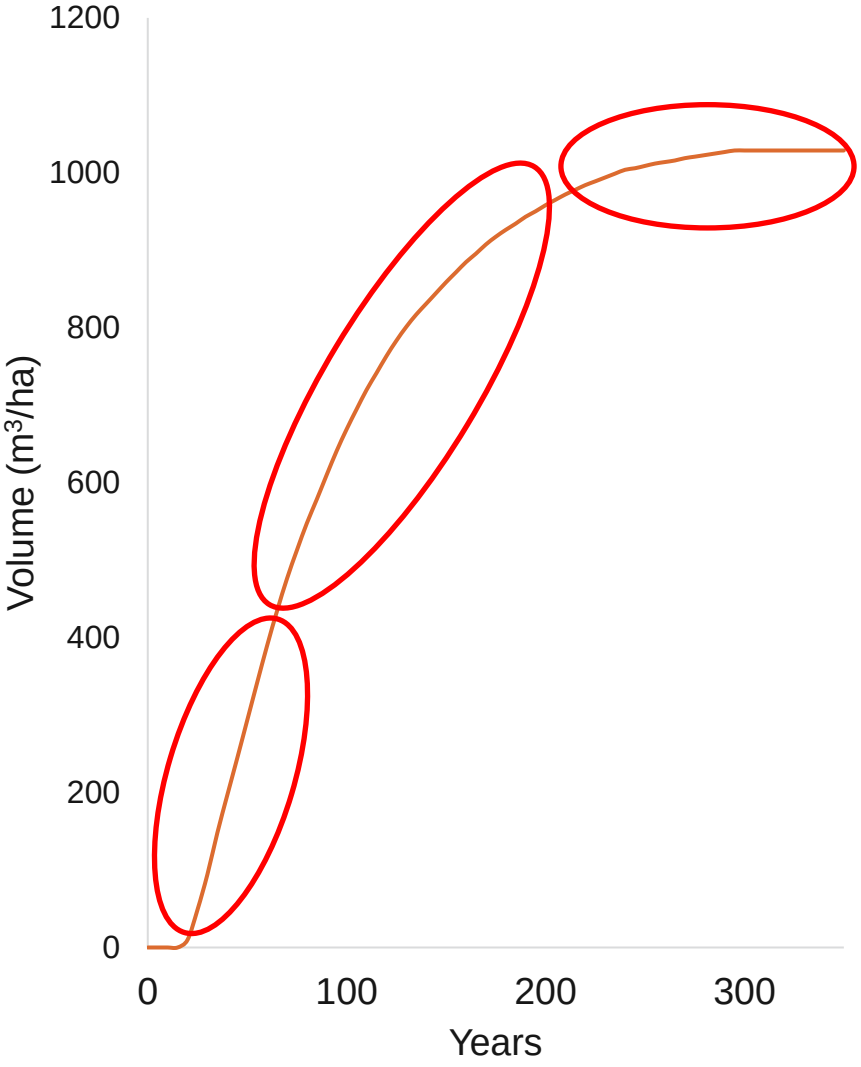
- Net carbon uptake:
  - Current inventory volume-previous year's inventory volume derived from growth and yield curves
  - Volume by species
  - Convert m^3 by a carbon factor (t/m^3) to get t of CO_2e
  - Different factor by species

Decay

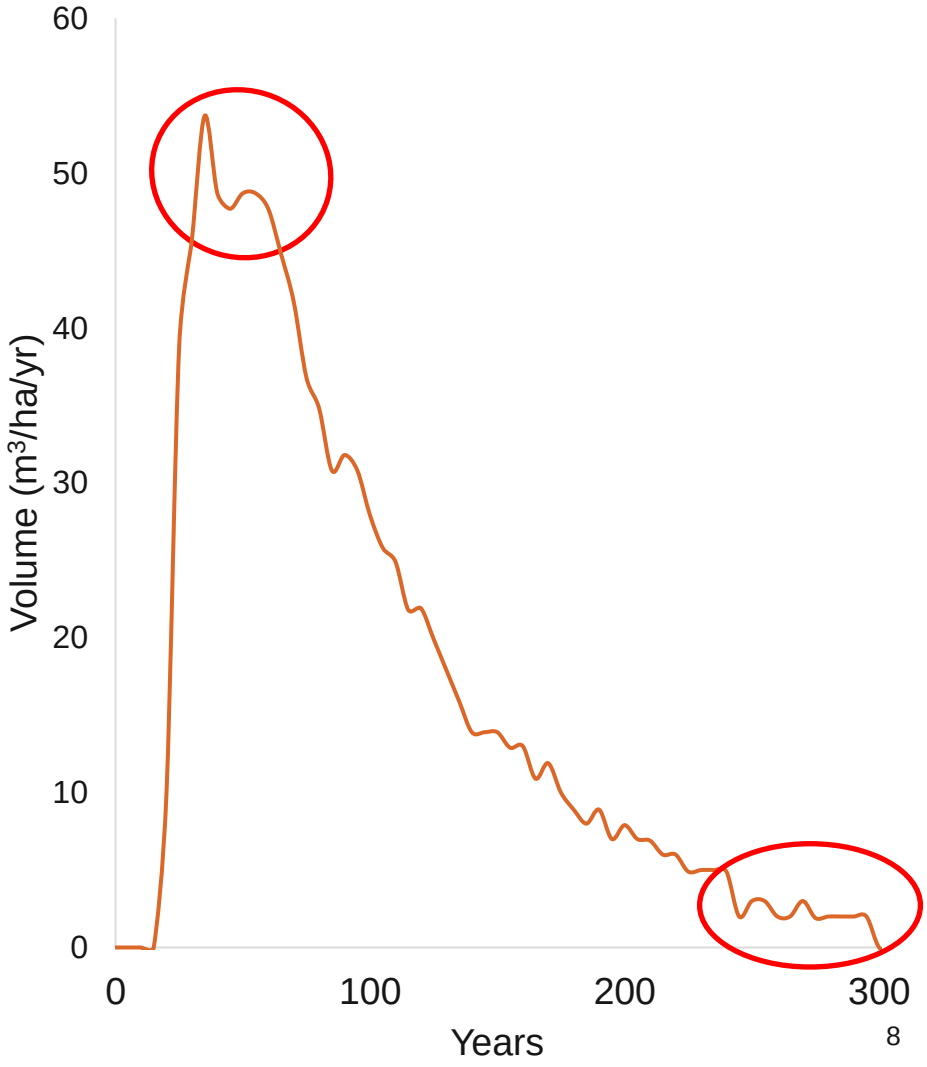
- Forest ecosystems release emissions from decaying organic matter
  - Organic matter comes from snags, branches, needles, leaves etc.
- Clearcuts increase the rate of decay as they create ideal conditions for decay
  - Create an open area with increased solar radiation and precipitation

STAND AGE AND CARBON SEQUESTRATION

Cumulative growth



Growth rate



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2022	Carbon uptake (from growing stock TFL 44)	626,151	Y	n/a
	Carbon removed (to short-lived products1)	-146,435		
	Fuel Consumed (harvest & transport)	-3,902		
	Debris burned (debris disposal/operational fires)	-90,743		
	NET Carbon Uptake	**385,071**		

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Carbon Removed (To Short-Lived Products)

- Short-lived products include:
  - Bioenergy, pellets, pulp and paper
- CSA indicator conservative as it assumes short-lived products consumed immediately
- Amount of volume moving to short-lived products is estimated using the proportion of wood recovered for lumber at the mill
  - Proportion of volume not recovered from the mill is multiplied with the volume of harvested wood in tCO2e
- Getting an update

Long-Lived Products – House Lifetime

Table A-209: Half-life of Solidwood and Paper Products in End-Uses

Parameter	Value	Units
Half-life of wood in single family housing 1920 and before	78.0	Years
Half-life of wood in single family housing 1920–1939	78.0	Years
Half-life of wood in single family housing 1940–1959	80.0	Years
Half-life of wood in single family housing 1960–1979	81.9	Years
Half-life of wood in single family housing 1980 +	83.9	Years
Ratio of multifamily half-life to single family half life	0.61	
Ratio of repair and alterations half-life to single family half-life	0.30	
Half-life for other solidwood product in end uses	38.0	Years
Half-life of paper in end uses	2.54	Years

Source: Skog, K.E. (2008) "Sequestration of C in harvested wood products for the U.S." *Forest Products Journal* 58:56–72.

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Fuel Consumed (Harvest & Transport)

- Fuel consumption is tracked
  - Fuel from all operations run predominantly by WFP are tracked
  - Includes fuel for field planners, surveyors, heavy duty machinery, trucks
- Fuel factor derived for litres consumed per cubic meter harvested for operations
  - Extrapolated for fuel estimates for operations like C̓awak ʔqin that are contractor based
- Getting an update

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Debris Burned (Debris Disposal/Operational Fires)

- Foresters collect data on shape, size and number of piles burnt
- Estimate the volume of each pile that fully burns
- Using wood density, estimate associated emissions from the burnt pile
- Also includes emissions from operational fires
  - Runaway burn pile fire

SUMMARY

- CSA carbon indicator's scope reflects what is within the control of the operation
- Potential to include more detail in carbon uptake component
- The short-lived products and fuel consumption components are getting updates
- All components use as much information from the operation as possible

Questions?

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