
FOREST CARBON INFORMATION NOTES

MODULE 5: UTILIZATION AND RESIDUE BURNING

KEY TAKE-AWAYS

- Making use of forest harvesting residues for bioenergy, pulp and paper, or even long-lived products such as wood composites instead of burning this material, has a significant GHG reduction benefit for B.C. on the scale of electrifying all cars and trucks
- Using fibre for longer-lived products such as wood composites has a significantly greater greenhouse gas (GHG) benefit than using it for bioenergy
- The province's Forest Carbon Initiative (FCI) is developing tools and funding support mechanisms to make this a reality, making this a win both for the climate, jobs and the economy

When logging takes place in B.C., a variable amount of the stored forest carbon is left behind on site as logging residue. To reduce subsequent risk of wildfires and to maximize the area for reforestation, it is standard practice to pile the residues and burn them during appropriate weather conditions. In addition to detrimental effects on air quality, burning slashpiles contributes significantly to the total greenhouse gas (GHG) emissions attributed to the forestry sector.

Instead of burning this material, it can be transported off site and used for forest products such as bioenergy, pulp, newsprint, oriented strand board (OSB)/wood composite and potentially other engineered wood products. This creates a compelling opportunity for the forestry sector to assist in meeting the province's climate change goals by reducing the amount of harvest residue that is burned in piles.

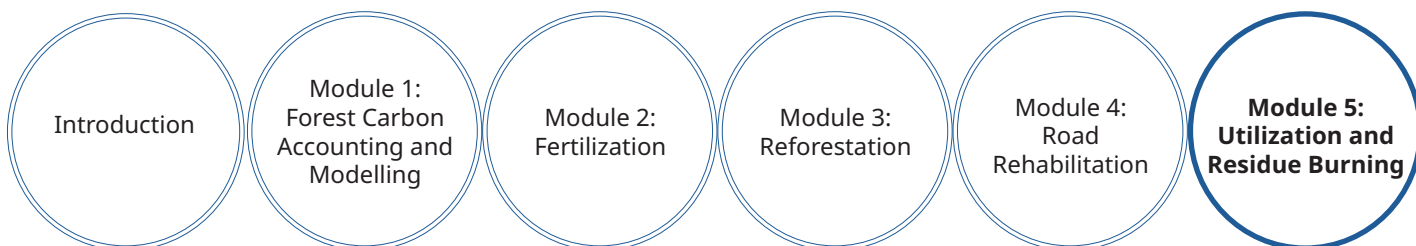
Avoided emissions can also occur by producing less residual fibre through changes to stand-level planning, or by leaving fibre to decay on site provided this meets hazard abatement guidelines.

HOW ARE GHG BENEFITS OF UTILIZATION CALCULATED?

Utilization projects are assessed and evaluated for their ability to generate a GHG benefit by initiating the project when compared against a baseline. The baseline of utilization projects assumes harvest residues are burnt in a slash pile. Project emissions are calculated using long term emissions factors that vary by the end-use product type (e.g., bioenergy, kraft pulp, newsprint, fence posts, etc.) By burning harvest residues in a bioenergy plant instead of slashpiles, the combustion conditions can be controlled, avoiding

the emission of potent GHGs that have a higher global warming potential than carbon dioxide, including methane, nitrous oxide and carbon monoxide (Figure 1).

The amount of long-term GHG benefit of utilizing logging waste is dependent on what type of product is produced with that fibre. Product types with longer expected lifespans both in-use and in landfills, will produce a greater GHG benefit than shorter-lived products like bioenergy or paper (see Figure 2).



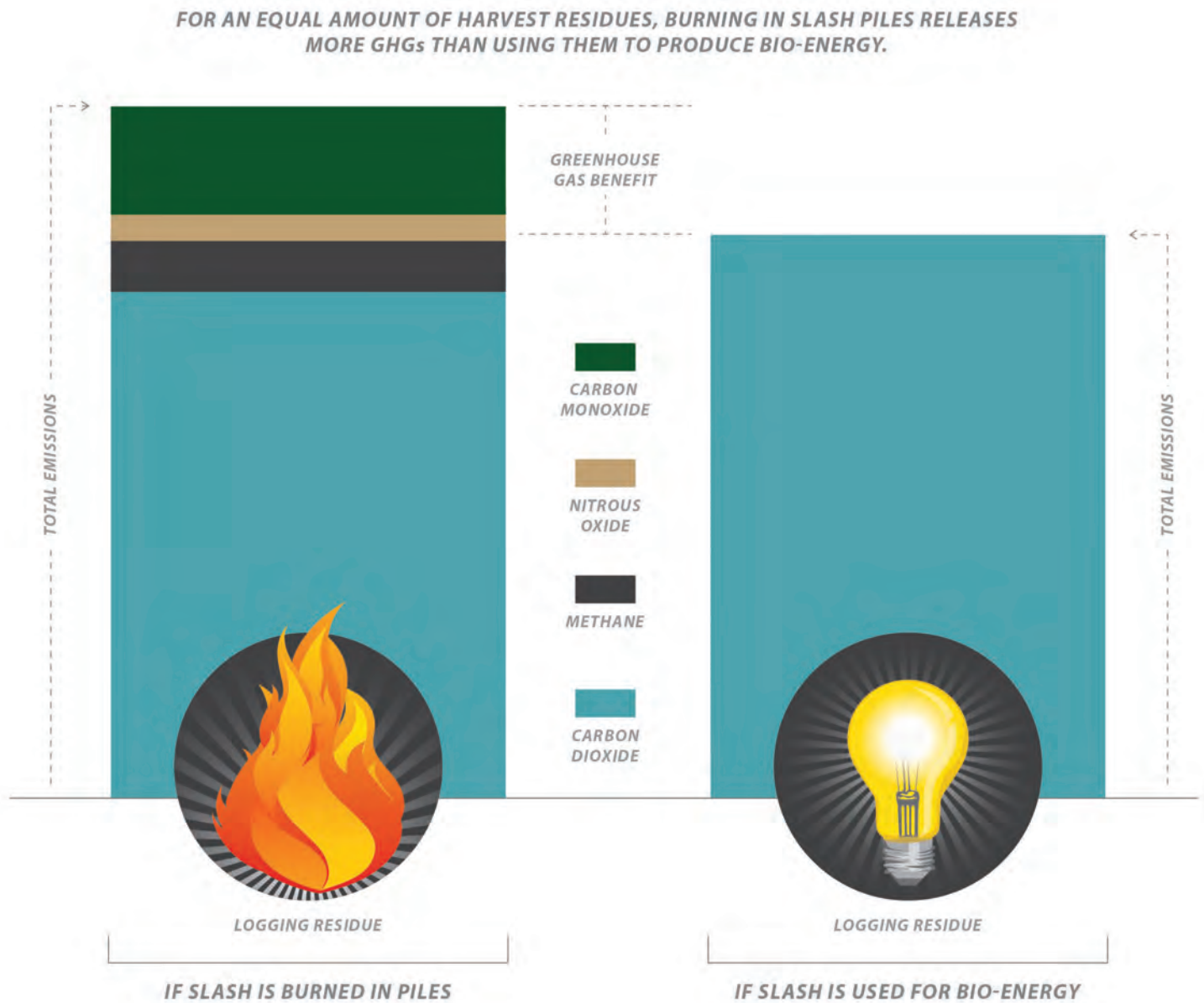
WHAT ARE THE GHG AND ECONOMIC BENEFITS ASSOCIATED WITH IMPROVING UTILIZATION OF FELLED MATERIALS?

Table 1 shows the potential annual and cumulative GHG benefits in units of carbon dioxide equivalents¹ and economic impacts obtained by increasing fibre utilization for a handful of different product types.

Note again that the GHG benefits are greater if the harvest residuals are used to produce pulp and paper

products and even greater still if used to produce longer-lived forest products such as new building products (e.g. wood composites, scrimber board, etc.). This is because these longer-lived construction products keep carbon locked away and out of the atmosphere for many decades.

Figure 1. For an equal amount of harvest residues, burning in slashpiles releases more GHGs than transporting and using them to produce bioenergy.



¹ The term “carbon dioxide equivalent” is used to describe the impact of all types of GHG emissions, including methane and nitrous oxides, via a common comparable unit

Figure 2. Utilization of residual biomass for longer-lived products produces a significantly greater GHG benefit than using it for bio-energy

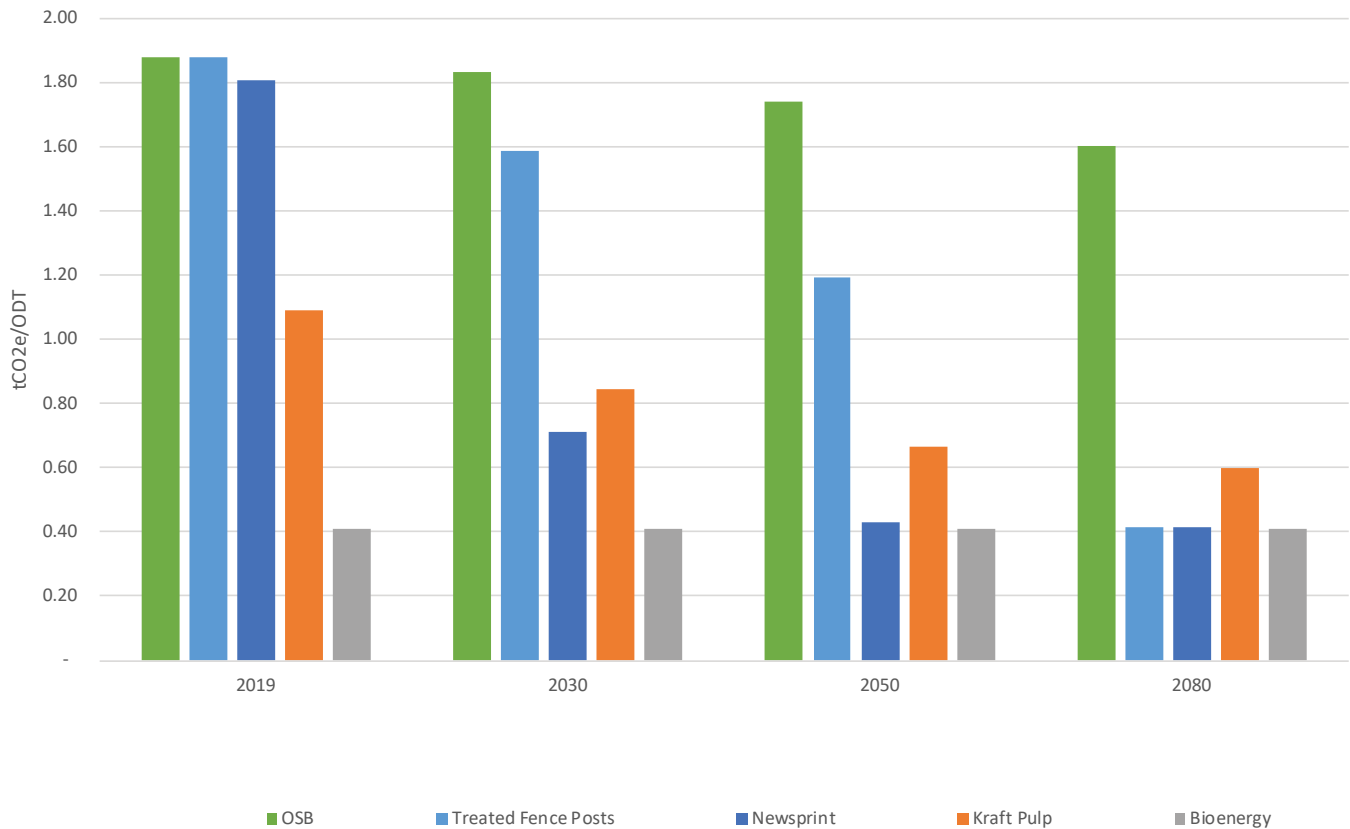


Table 1. Annual and cumulative GHG benefits of increasing utilization of felled stands for a single hectare in 2018 and economic benefits of hypothetical 10,000 ha utilization projects.

Product type from 33 m3/ha of logging residue	Annual GHG Benefit (tCO2e/ha)			Cumulative GHG Benefit (tCO2e)		Cumulative Cost of CO2e in 2050 (\$/tCO2e)	Economic Benefits for 10,000 ha (33,000 m3) utilized	
	2018	2030	2080	2030	2050		FTE	GDP (\$M)
Bioenergy	5.5	0	0	5.5	5.5	\$60	4.4	7.8
Kraft Pulp	14.3	0	0	7.1	5.7	\$58	6.0	3.1
Newsprint	24.4	0	0	9.1	5.8	\$57	6.0	3.1

HOW CAN WE IMPROVE OUR CHANCES OF SUCCESS?

Strategic Approaches to Better Utilization

- Consider silvicultural and harvesting systems that reduce waste wood in piles.
- Increase utilization of material in stand management activities or fire mitigation projects.
- Find mechanisms to abate fire hazard risk that do not involve burning.
- Work with multiple funding agencies to fund project activities and costs that are not eligible for FCI funding.



Operational and Tactical Practices

- Implement the FPInnovations [log handling guidelines](#).
- Include the use of the Concurrent Residual Harvesting System in planning conversations that are aimed at reducing burning.
- Seek to understand local fibre supply shortages to direct FCI funding opportunities.
- Promote the sorting of secondary products within the primary products planning regime to improve product-specific recovery to minimize the amount of waste wood burned on site.
- The BC Fibre Action Plan provides further guidance, tools and resources to support the increased utilization of residual fibre.
- Fiber utilization projects need to ensure coarse woody debris (CWD) targets are considered and achieved where required.
- Consult a wildlife biologist to check which red- and blue-listed species occur in the area and use log piles. In these areas, consider making smaller piles that can be left unburnt.

FOR MORE INFORMATION

For more information about the FCI, please see:

- [BC Fibre Action Plan \(2016\)](#)
- [Residual Fibre Recovery](#)
- [Fibre Recovery Tenures](#)

Inquiries about the Forest Carbon Initiative may be directed to: forest.carbon@gov.bc.ca

This information note was prepared for Ministry of Forests, Lands, Natural Resource Operations and Rural Development (FLNRORD) staff, the Forest Enhancement Society of British Columbia, contractors, Indigenous Nations and stakeholders to communicate the potential benefits and opportunities in mitigating climate change through such activities, and to offer robust, evidence-based advice on best practices.



Ministry of
Forests, Lands, Natural
Resource Operations
and Rural Development