

## VOICES FOR GOOD AIR

### KEY POINTS ABOUT FORESTRY SLASH BURNING

Voices for Good Air is making the following key points about slash burning. For detail and references, please see our Position Paper on the Clean Air Now Web site, [can-bv.ca/](http://can-bv.ca/), or email [chipeniuk@xplornet.com](mailto:chipeniuk@xplornet.com).

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**The Voices for Good Air *Position Paper on Forestry Slash Burning* calls for a Complete or Nearly Complete Ban on Forestry Slash Burning. If this policy option is difficult for the Government of British Columbia to act on without lengthy deliberation, Voices for Good Air recommends that the Government institute a Moratorium on Forestry Slash Burning. Finally, if neither an Outright Ban nor a Moratorium is politically feasible, Voices recommends the Inclusion of Wood Burnt as Forestry Slash under the terms of the B.C. Carbon Tax.**

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**Description of logging slash.** When a logging operation harvests a cutblock in British Columbia, what usually happens is that it trims all the branches off large trees of a desirable species, cuts off their tops, and trims the commercial stems to desirable lengths. Whatever is skidded to roadside landings but not hauled away to a mill for further processing becomes slash. In the careful scientific literature, “slash” refers not just to the materials gathered into piles and burnt but to all the other crushed wood and bark left on the landscape. Because they are dead and broken into fine pieces in contact with the ground, these residual materials are soon “burnt” in the sense that they decompose and release most of their carbon to the atmosphere.

**Quantities of slash are enormous.** Quantities of slash resulting from logging vary according to forest type and forest history, but conservative estimates average somewhere around 50 tonnes of slash per hectare of cutblock. Since the area of forest harvested annually in British Columbia is about 200,000 hectares, the weight of slash produced by industrial forestry is about 10,000,000 tonnes a year.

**Most of the slash is burnt.** Most of the forestry slash generated in B.C. is burnt in big “slash piles.” Nominally, according to industry sources, the number of slash piles burnt in just one forest district, the Bulkley Timber Supply Area, is 4,000 per year. In just one airshed, the Bulkley Valley-Lakes District airshed, the number of slash piles burnt is 20,000. In the province as a whole, the number of slash piles burnt may be as much as 400,000.

**Burning slash releases colossal volumes of greenhouse gases.** Since wood is composed mainly of carbon compounds, burning slash releases carbon monoxide, which soon changes to carbon dioxide, and other greenhouse gases. Because the carbon in wood combines with oxygen

in the air when it burns, 1 kilogram of wood produces roughly 1.9 kilograms of carbon dioxide. Consequently the burning of slash piles in British Columbia could be adding in the neighborhood of 19,000,000 tonnes – 19 megatonnes – of carbon dioxide to the atmosphere of the Earth each year. By comparison, the total mass of CO<sub>2</sub>-equivalent gases emitted in British Columbia annually, apart from land use, land use change, and forestry emissions, is a little over 60 megatonnes.

**Slash burning is exempt from the B.C. Carbon Tax.** Slash is composed of hydrocarbons. Under the B.C. Carbon Tax, most industries which burn hydrocarbons pay a tax calculated on how much carbon dioxide (or carbon dioxide equivalent) they release into the atmosphere. So do the individual residents of B.C. when they buy gasoline for their automobiles or pay for the natural gas to heat their homes. The logging industry pays no Carbon Tax on the wood it burns in the course of its operations.

**Burning slash is not “carbon neutral.”** The rationale for exempting wood burnt as slash from the B.C. Carbon Tax, if there is a public rationale, is probably that burning slash is thought to be “carbon neutral.” In a world in which global warming was not a catastrophe already occurring, burning slash might be carbon neutral if all the biomass converted into carbon dioxide by burning were subsequently taken in again and sequestered in fully grown new trees, new undergrowth, new deadfall, and so on. The trouble is that climate change is occurring at a great and accelerating pace, while most Canadian trees require a century or more to attain the size at which we are cutting them, and in the meanwhile the replacement trees sequester only a fraction of the carbon bound in the trees we cut down. (Carbon sequestration in construction materials is not very helpful in keeping carbon dioxide from entering the atmosphere, since manufactured wood products entail much wastage of wood and the half-life of carbon stored in them is in the neighborhood of 25 years, and wood materials used in buildings and homes eventually ends up in landfills or burning.)

In 1992, when the Kyoto Protocol was negotiated and signed, it was believed that global warming would not become extremely dangerous till perhaps 2050 or even 2100. Now, however, the International Panel on Climate Change warns that levels of human emissions of greenhouse gases into the atmosphere must be reversed much sooner than that, by 2030 or 2040 at latest. But a tree planted in most places in B.C. today will be just a sapling in 2030 and a slender pole in 2040. It is much too late for slash burning to be written off as balanced by replanting the forests we cut.

**Smoke from slash burning affects human health.** Breathing wood smoke is bad for human health. In the words of the “*Open Burning Smoke Control Regulation Policy Intentions Paper for Consultation*” – the Open Burning Smoke Control Regulation covers forestry slash smoke -- “Research has shown there is no threshold below which smoke has no health effects. This means

it is important to minimize the amount of smoke produced and humans' exposure to it. The majority of health impacts from smoke result from extended exposure to concentrations below the level at which a public advisory would be issued.”

The main source of rural air pollution is the particles and gases produced by the combustion of wood. Inhaled fine particulate matter (PM2.5) in wood smoke can penetrate deeply into the lungs causing health problems in the lungs or it can be absorbed into the general circulation and cause effects elsewhere in the body. Recent research by the BC Centre for Disease Control on community wildfire smoke exposure showed clear evidence of increased deaths due specifically to cardiovascular and respiratory causes. There was also an increase in deaths specifically due to stroke and lower respiratory infection and this was higher in rural areas.

Research into the health effects of exposure to forest industry slash smoke as separate from other sources of smoke is lacking. However, it is reasonable for the public to worry that slash smoke has negative effects on human health similar to those shown to be caused by exposure to other kinds of wood smoke. Furthermore, members of the public would expect that as a matter of good governance, research-based evidence on the health effects of slash smoke as amassed by the Ministry of Health would be incorporated into the planning and policies of the Ministry of Forests, Lands and Natural Resources Operations (MFLNRO) and Ministry of Environment. Such collaboration and coordination would be in the best interest of the public's health.

**Canadian governments are under a legal obligation to apply The Precautionary Principle to smoke from the burning of slash.** Canada has signed a number of international agreements imposing an obligation on governments to apply The Precautionary Principle to processes which are strongly suspected of harming human health, even if research evidence is not yet conclusive. As a government within Canada, the Government of British Columbia is legally obliged to apply The Precautionary Principle in matters such as subjecting human populations to the smoke from forestry slash burning.

**If burning forestry slash is a strong driver of global warming and it harms human health, why does the Government of British Columbia allow it?** Under the B.C. Wildfire Act and the Wildfire Regulation, logging operators are legally required to dispose of the slash they produce in their cutblocks. The principal reasons behind this requirement are apparently (i) that reducing fuel loads in the cutblocks is thought to lower the hazard of wildfire; and (ii) it is thought that if slash were allowed to accumulate, the productive land base for forestry would gradually diminish. However, according to an article published by highly qualified Canadian Forest Service scientists in 2016, there is almost no case research testing the relationship between slash burning (or not slash burning) and wildfire. It is modelling studies which suggest that piling and burning slash reduces the risk of wildfire; and modelling studies do not relate to reality in quite the same way as case studies do, since human beings can never think of all the variables at play in complex situations. As for slash encumbering the landscape sufficiently to impair regrowth of a forest, research evidence is either hard to locate or there is none.

When reasons for burning slash are enumerated, there are four or five of them, and none of them is well supported by science. When reasons for not burning slash are compiled, there are nine or ten of them, most of which are supported by peer-reviewed research.

**It may not be a good idea to burn the forest to reduce the chances that the forest will be burnt.** Annually, after the commercial timber is removed, slash fires burn or greatly hasten the oxidation of the aboveground biomass on approximately 200,000 hectares of British Columbian forest. In 2016, the amount of forest lost to wildfire in British Columbia was 100,187 hectares. Although burning the slash biomass of 200,000 acres of forest may (or may not; the scientific evidence is lacking; see above) have reduced wildfire losses to some extent, Voices for Good Air doubts that the benefit of burning slash equals or exceeds what burning costs the future.

**There are alternatives to burning slash.** There are several alternatives to burning slash, among which the most promising are converting some of the slash to biochar; burying some of the slash; stacking some of the slash in such a fashion that it decays very slowly; manufacturing some of the slash; and combining methods according to circumstances. The Voices for Good Air Position Paper does not mention selective logging or refraining from logging high-elevation slow-growing timber, but they deserve consideration too, because they would result in much less slash resulting from timber harvesting.

**Voices for Good Air proposes three policy options for addressing forestry slash burning.** The Voices for Good Air Position Paper concludes its argument by proposing three policy options to address the harms done by forestry slash burning. The first is an **Outright Ban on Forestry Slash Burning**. Legislatively, this policy change is simple, requiring only an amendment to the Wildfire Regulation of the Wildfire Act. Of course much thinking would have to go into the transition to the new policy.

The second option is a **Moratorium on Forestry Slash Burning**. A moratorium could probably be imposed through Order in Council. It might require much less planning, because, after all, during the three or five years of a moratorium, slash could be handled exactly the way it is now, except for the lighting of the slash piles. However, it would be possible to run landscape-scale experiments during the moratorium, testing whether burning slash actually does reduce wildfire; and those experiments would need to be planned.

The third option is **Extending the B.C. Carbon Tax to Wood Burnt as Slash**. According to the calculations presented in the Voices Position Paper, logging companies would have to be very attached to burning to insist on burning slash (as opposed to disposing of it by other means). As a further incentive for logging operators to shift to alternative methods of disposal, the extended Carbon Tax could be *revenue-neutral* within the forestry industry if carbon tax receipts from slash burners were returned to operators who disposed of their slash using other methods.

**The Open Burning Smoke Control Regulation (OBSCR) is no solution to the problems of slash burning.** The Voices Position Paper has nothing to say about OBSCR as a solution to the problems of slash burning, for several reasons. First, OBSCR has utterly failed as a means of safeguarding the population of British Columbia against the dangers slash burning presents to human health. Because it depends on venting forecasts, which are probabilistic and have a low success rate, OBSCR forces residents living anywhere near slash fires to play a game of chance, with the four-day odds of some residents getting “hit” being not much more favorable, if at all, than those in Russian roulette. Second, OBSCR does nothing at all to reduce or eliminate the emission of greenhouse gases into the atmosphere. Third, the existence of OBSCR, amended or not, distracts the public from the only serious solution to the harms of forestry slash burning, namely for the Government of British Columbia to end forestry slash burning altogether.