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Montreal's wood stove ban: a lot of hot air

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Montreal proposes to ban the installation of most kinds of wood stoves and wood fireplaces in new houses – but to let people keep using the 50,000 wood stoves and wood fireplaces already in use. This is as rational as banning the purchase of new cars but letting people continue driving gas guzzlers.

In either case, you deny the environmental advances inherent in technological innovation and preserve the more primitive and wasteful technology of the past. In contrast, Revelstoke, B.C., offers \$500 rebates to people who dump old stoves for new, efficient stoves. Both cities can't be right.

Montreal justifies its reactionary stance, in part, with scary rhetoric based on scary federal statistics. Environment Canada asserts, for example, that a conventional wood stove, burning for nine hours, emits as much particulate matter – known historically as soot – as a car driven 18,000 kilometres. It asserts that an advanced-technology wood stove, burning for 60 hours, emits the same accumulation of particulate matter. Yet it recommends wood heat as “safe, economical and efficient.”

Hmmm. Assume that these wood stove-car comparisons are accurate. Assume a wood-heating season of 150 days. In this case, using Environment Canada numbers, a conventional wood stove would emit as much particulate matter (PM10) in a year as car driven 7,200,000 kilometres (400 nine-hour units of time x 18,000).

A new, efficient wood stove would emit as much particulate matter in a year as a car driven 1,080,000 kilometres (60 units of time x 18,000).

Now assume that half of Montreal's 50,000 wood stoves are old and inefficient, and the other half new. Montreal's old stoves would emit as much particulate matter as a car driven 180 billion kilometres (7,200,000 x 25,000); and Montreal's newer, more efficient stoves would emit as much particulate matter as a car driven 27 billion kilometres (1,080,000 x 25,000).

Combined, these 50,000 wood stoves would thus emit as much particulate matter a car driven 207 billion kilometres.

Wow. This sounds ominous, doesn't it? This sounds extremely ominous, doesn't it? But, of course, it isn't really. What's the environmental significance of 207 billion kilometres worth of particulate matter emitted from the exhaust pipe of a car? Well, not much. Naturally, it depends on the make and model of the car. But thanks to catalytic converters and more recent technological advances, cars made in the 21st century don't emit much PM10 at all. Most governments apparently no longer routinely measure them. Some coal-fired electricity plants emit very significant amounts of particulate matter – as do forest fires and much living vegetation.

Most of the Earth's particulate matter, by far, comes from natural causes. Some authorities say 90 per cent. Environment Canada notes that residential wood stoves contribute 30 per cent of the particulate matter caused by humans – but doesn't mention that this could mean that wood stoves, most of them old and inefficient, are responsible for 3.3 per cent of the particulate matter in the atmosphere. Were old stoves replaced with new stoves, this percentage would drop dramatically.

The latest technology eliminates not only PM10 emissions but also PM2 emissions, minute particles of

soot that are considered even more dangerous as environmental pollutants. BMW, to cite a single make of car, uses particulate filters that remove the smallest particles (measuring a millionth of a millimetre). These filters collect the microscopic particles in the minuscule pores of a fleece-like metal foil, where they are burned off at a temperature of 200 degrees Celsius. Equipped with advanced technology, even diesel cars and tug boats can now emit little particulate-matter pollution.

When you compare low-emission wood stoves with a roughly zero-emission automobile standard, you are performing a statistical stunt – which works only because many people assume that cars emit perilous amounts of every kind of pollution.

The U.S. Environmental Protection Agency says that new, superefficient wood stoves and wood fireplaces produce 94 per cent less smoke pollution than conventional wood stoves and less still than conventional fireplaces (which, of course, primarily heats outdoor air). Indeed, the EPA says that some of these stoves and fireplaces produce 98 per cent less smoke pollution.

The new wood stoves eliminate almost all soot by burning wood – and then (as cars now do) by burning the smoke. Environment Canada explains: “The advanced technology wood stove has an insulating firebrick lining and a large baffle covering the top of the firebox. The bricks and baffle reflect heat back toward the fire, raising its temperature. Underneath the baffle are air tubes where superheated secondary air is fed to the fire through small holes. The gases rising from the wood are kept hot. The smoke is burned in the firebox. No visible smoke arises from the chimney.

“Most conventional wood stoves are empty steel boxes. You can't burn wood cleanly in an empty steel box.”

With the right stove, wood heat is now competitive with any other heat source in the world – and more romantic by far than all the others. The flames in a low-emission fireplace reach higher and dance more. And, as a wise person once observed, the flame in a fireplace shouldn't have to arrive by pipeline. Tell Montreal.