

## Researchers predict 22 per cent reduction in provincial greenhouse gas with biochar use

February 21 2014, by Robyn Meyer

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A renewable fuel called biochar could substitute for all coal and some natural gas burned in BC resulting in as much as a 22 per cent reduction in provincial greenhouse gas emissions, according to a new policy paper from the Pacific Institute for Climate Solutions (PICS).

Biochar is a charcoal-like substance created from burning organic matter (biomass) such as waste-wood in a high temperature kiln under oxygen-limited conditions. The government considers it a low-[carbon](#) fuel because rather than introducing more carbon to the atmosphere (as burning [fossil fuels](#) does), it releases carbon that would have biodegraded anyway. The report —Industrial and Market Development of Biochar in BC— is the latest white paper from PICS, a collaboration of BC's research-intensive universities led by the University of Victoria. [Click here to read the report.](#)

Lead author Geoff de Ruyter from the University of Northern British Columbia says biochar is most commonly known as a product that can store carbon and improve soil quality. But he says biochar can substitute for coal in electricity or heat production, and this provides an immediate opportunity to reduce net carbon emissions.

"BC has enough excess forest residue and wood waste to create five million tonnes of biochar per year, which would account for 270 per cent of the province's internal coal usage," he says. "Substituting that amount of biochar for coal or [natural gas](#) could drop GHG emissions by 22 per cent—which would take BC two-thirds of the way toward its

legislated emissions reduction target of at least 33 per cent below 2007 levels by 2020."

De Ruiter says while biochar cannot currently compete with fossil fuels on cost, this could change if BC gives biochar carbon offset status, or if BC's revenue-neutral carbon tax is increased. But he says the environmental benefits should be enough incentive for industry and government to consider prioritising biochar. At least 12 biochar companies are in the planning or operational stages in BC.

In addition to industrial substitution, de Ruiter says remote communities with access to forestry waste could replace polluting diesel electricity generators with a biochar producing facility. The gases produced while biochar is being made could run the generator, and the biochar product could be used to generate local heat or be exported.

In the long term, biochar also offers a tantalizing prospect: diversifying into higher-return renewable products like synthetic graphite, activated carbon and even carbon electrodes for metal smelting. But de Ruiter cautions that this opportunity could be lost if a lack of industry coordination means competition between biomass users, such wood pellet and bioelectricity producers, drives up biomass prices.

The report contains six recommendations on biochar policy and planning, economics, environmental regulations and research, especially related to the use of [biochar](#) in agriculture and potential high-value products. The most urgent recommendation is the need for an academic-industry-government roundtable to update the 2008 BC bioenergy strategy and plan future best use of limited biomass resources.

**More information:** The paper is available online:  
[pics.uvic.ca/sites/default/files/publications/Biochar%20Paper%202014.pdf](http://pics.uvic.ca/sites/default/files/publications/Biochar%20Paper%202014.pdf)

Provided by University of Victoria

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