14 September 2018

SENT TO LSU AGCENTER/LOUISIANA FOREST PRODUCTS DEVELOPMENT CENTER - FOREST SECTOR / FORESTY PRODUCTS INTEREST GROUP

Response 2: EU Policy to Burn More Wood Will Fuel Climate Change

Dear All,

Dr. Gary Bull, Professor and Department Head, Forest Resources Management, University of British Columbia, Vancouver, Canada, and I have been discussing this post. He was kind enough to take the time to share his thoughts on the subject as well as provide articles with counter-perspectives.

Thank you Gary. It is greatly appreciated by all 500+ of us.

Regards,
Rich

Richard,

Below I have assembled some additional references for your readers on the debate over the use of biomass energy.

Source 1
First, I would refer readers to the IEA task force examining the climate change effects of biomass and bioenergy systems.

International Energy Agency
http://task38.ieabioenergy.com/

Under publication there is an extensive list of publications
http://task38.ieabioenergy.com/iea-publications/

Source 2
Second I have also attached three academic articles related to US biomass energy and its effects on climate change and forests . See attachments.

Sources 3
Third, I am attaching a few key links, with titles and abstracts, below that might also be helpful.

A couple of articles by Dr. Leif Gustavsson et al.

http://lnu.diva-portal.org/smash/record.jsf?pid=diva2%3A1077811&dswid=-6010

Climate effects of electricity production fuelled by coal, forest slash and municipal solid waste with and without carbon capture
Abstract [en]

We analyse the climate implications of producing electricity in large-scale conversion plants using coal, forest slash and municipal solid waste with and without carbon capture and storage (CCS). We calculate the primary energy,

carbon dioxide (CO2) and methane (CH4) emission profiles, and the cumulative radiative forcing (CRF) of different systems that produce the same amount of electricity. We find that using slash or waste for electricity production instead of coal somewhat increases the instantaneous CO2emission from the power plant, but avoids significant subsequent emissions from decaying slash in forests or waste in landfills. For slash used instead of coal, we find robust near- and long-term reductions in total emissions and CRF. Climate effects of using waste instead of coal are more ambiguous: CRF is reduced when CCS is used, but without CCS there is little or no climate benefits of using waste directly for energy, assuming that landfill gas is recovered and used for electricity production. The application of CCS requires more fuel, but strongly reduces the CO2 emissions. The use of slash or waste together with CCS results in negative net emissions and CRF, i.e. global cooling.

http://lnu.diva-portal.org/smash/record.jsf?pid=diva2%3A752744&dswid=-6010

Climate effects of bioenergy from forest residues in comparison to fossil energy
Abstract [en]
Forest residues can be left at the harvest site to gradually decompose, or can be collected for energy purposes. This study analyzes the primary energy and climate impacts of bioenergy systems where forest residues are collected and used for electricity, heat and transportation, compared to fossil-based energy systems where fossil fuels provide the same services while forest residues are left on site to decompose. Time profiles are elaborated of primary energy use and carbon dioxide emissions from various energy applications fulfilled by bioenergy or fossil energy systems. Different biological decay functions are considered based on process-based modeling and inventory data across various climate zones. For all scenarios, the changes in cumulative radiative forcing (CRF) are calculated over a 300-year period, to evaluate the short- and long-term contributions of forest residue to climate change mitigation. A life cycle perspective along the full energy chains is used to evaluate the overall effectiveness of each system. The results show largest primary energy and climate benefits when forest residues are collected and used efficiently for energy services. Using biomass to substitute fossil coal provides greater climate change mitigation benefits than substituting oil or fossil gas. Some bioenergy substitutions result in positive CRF, i.e. increased global warming, during an initial period. This occurs for relatively inefficient bioenergy conversion pathways to substitute less carbon intensive fossil fuels, e.g. biomotor fuel used to replace diesel. More beneficial bioenergy substitutions, such as efficiently replacing coal, result immediately in reduced CRF. Biomass decay rates and transportation distance have less influence on climate benefits.

Source 4
Fourth, I have attached an IEA response to a controversial report prepared by Chatham House in the UK, with several useful links.

Source 5
Fifth, and finally, I am attaching a report I prepared for UNFF on non-industrial use of biomass for energy earlier this year. It is a UNFF13 background study on forest and energy focussing on developing countries.

I hope your readers will find these other perspectives useful

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On Sep 13, 2018, at 08:58, Vlosky, Richard P. <RVlosky@agcenter.lsu.edu> wrote:

Dear "Current Issues" recipients,

Well, since I started this endeavor in 2014, this post resulted the most comments sent to me. I was also asked to provide the link to the original article….

https://www.nature.com/articles/s41467-018-06175-4

I also want to remind you that all past posts can be found at:

http://www.lfpdc.lsu.edu/publications/bits/index.htm

These are posted on our Louisiana Forest Products Development Center web site at the end of each month.

Regards,
Rich

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