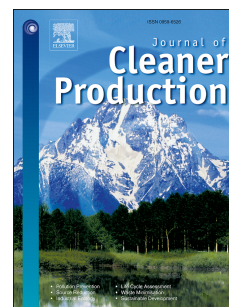


Accepted Manuscript

Is biomass energy really clean? An environmental life-cycle perspective on biomass-based electricity generation in China

Changqing Xu, Jinglan Hong, Jianmei Chen, Xiaofei Han, Chen Lin, Xiangzhi Li



PII: S0959-6526(16)30660-6

DOI: [10.1016/j.jclepro.2016.05.181](https://doi.org/10.1016/j.jclepro.2016.05.181)

Reference: JCLP 7363

To appear in: *Journal of Cleaner Production*

Received Date: 23 February 2016

Revised Date: 31 May 2016

Accepted Date: 31 May 2016

Please cite this article as: Xu C, Hong J, Chen J, Han X, Lin C, Li X, Is biomass energy really clean? An environmental life-cycle perspective on biomass-based electricity generation in China, *Journal of Cleaner Production* (2016), doi: 10.1016/j.jclepro.2016.05.181.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Is biomass energy really clean? An environmental life-cycle

perspective on biomass-based electricity generation in China

Changqing Xu,^{a,b} Jinglan Hong,^{a,*} Jianmei Chen^c, Xiaofei Han^c, Chen Lin^d,
Xiangzhi Li^{c,*}

^aShandong Provincial Key Laboratory of Water Pollution Control and Resource Reuse,
School of environmental science and engineering, Shandong University, Shanda south
road 27, Jinan 250100, China. E-mail: hongjing@sdu.edu.cn

^bSchool of Environment, Tsinghua University, Beijing 100084, China

^cSchool of medicine, Shandong University, Jinan 250012, China. E-mail:
xiangzhi@sdu.edu.cn

^dThe Center for Economic Research, Shandong University, Jinan 250100, China

ABSTRACT

A bottom-up approach combined with national and provincial statistical data was used to evaluate the potential environmental effects of electricity generation scenarios based on five mature biomasses in China. Coal-based electricity generation technology was used as control. Uncertainty analysis was conducted to confirm and add credibility to this study. The electricity generation capacities of municipal solid waste, sewage sludge, and corn straw account for approximately 0.86%, 0.085%, and 8.18%, respectively, of electricity generated in China in 2012. The estimated national environmental burden caused by biomass-based electricity generation was mainly observed in eastern China, which can be attributed to the relatively high population density and economic levels of this region. For each biomass-based scenario, the key

Download English Version:

<https://daneshyari.com/en/article/8101800>

Download Persian Version:

<https://daneshyari.com/article/8101800>

[Daneshyari.com](https://daneshyari.com)