

Report #2 (King)

General comments:

Overall, the manuscript writing and data analysis/interpretation have greatly improved in response to comments provided by the four reviewers. The authors have done a good job of responding to my previous individual comments, changing the manuscript in substantive and obvious ways. In particular, it is now more clear what new contributions are being made here compared to the reviewed literature. In addition, consideration of irrigation of BPs has changed from what seemed a (unintentional) view towards advocacy to a more objective consideration in light of economic and environmental sustainability. In addition, inclusion of new analyses of bioenergy water use efficiency (or iwue) has provided a means of study inter-comparison, bringing forth important new insights. There are numerous grammatical corrections needed to this second draft, which I have attempted to point out in specific comments below. Overall, this is now an important contribution to the literature on the water use implications of a widespread bioenergy industry, and can be considered for publication after further minor revisions.

Reply: Thank you for the very positive evaluation and the numerous suggestion and improvements for our manuscript. We adopted almost all of them, with some comments below explaining the three exceptions.

P4 L81 [now P4 L83]: Change “on” to “of”.

Reply: We believe that this would change the meaning of the sentence. It is about the blue water application on bioenergy plantations.

P11 L263 [now P11 L266]: Perhaps a picky technical comment, but carbon sequestered during BECCS is not “removed” from the carbon cycle, rather it is moved from fluxes of the cycle to (hopefully) long-term pools.

Reply: Technically, you are absolutely right, however we would like to keep this simple image for CCS. We rephrased it to “removed from carbon cycling”.

P16 L377 [now P15 L381]: Change “128.4” to “128”;

Reply: Actually, the value from the paper is 128.4, while we see no need to round. If we would change this, it would have to be changed also in the Abstract and Introduction.

Report #3 (Ellison)

The current and more or less final version of the article reads well and appears to address most of the concerns raised in the first round of comments/reviews. I wanted only to highlight that the goal of increasing bioenergy production, if managed spatially and strategically, can potentially help increase upwind atmospheric contributions to the water cycle in downwind locations. Thus, there are opportunities here for positive synergistic interactions between increased bioenergy production and the promotion of increased water availability. However, I am aware of only one published article that highlights this opportunity (see link to reference: <http://dx.doi.org/10.1016/j.ecoleng.2016.02.031>). Moreover, in this particular example, potential local impacts on water availability (runoff) are marginal/limited. However, many opportunities likely exist in locations that could substantially contribute to both increase bioenergy production and downwind water availability (regardless of whether they use waste water or rainfall as a local resource input). Moreover, many regions have a lot of water available. Thus, in some locations the need for water to grow bioenergy resources is not a

limiting factor, but can still provide important and significant downwind atmospheric moisture.

I will also provide a few editing suggestions in the submitted pdf...

Reply:

We thank you for the positive evaluation and the suggestions in the PDF. We modified the paragraph accordingly to also reflect this potential for synergies (lines 210-220).