

[Comments on the US Environmental Protection Agency's
Draft Regulatory Analysis: Changes to the Renewable Fuel Standard Program](#)

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Executive Summary

The United States Environmental Protection Agency (US EPA) has set GHG emission goals for biomass-based diesel of at least 50% reduction versus a 2005 baseline for petroleum-based diesel. In their recent analysis (<http://www.epa.gov/OTAQ/renewablefuels/420d09001.pdf>) the US EPA state biodiesel only provides a 22% decrease and has significant GHG emissions resulting from indirect land use change (iLUC). However, there are some significant shortcomings associated with their rulemaking that have/will have major consequences for the biodiesel industry. Among these are how land conversion is evaluated and assigned to biodiesel feedstocks, which lands may possibly be converted, and how the conversions will take place, allocation for biodiesel production by-products (glycerin), use of satellite imagery and its associated errors in evaluating land use change, and in general, adequate technical data upon which to make such judgments. Following are more detailed descriptions of the major areas.

Specific Comments Relating to Biodiesel

1. The major problem with the whole US EPA analysis is that it seems to want to lay all global land management problems directly affected by a) increased population, b) food demands, c) energy demands, d) dietary trends, and e) increased ability for trade directly on biofuel/biodiesel production when these five areas (and others as well) have been part of the global economics for many years and have not been subjected to intense environmental quality standards.
2. The US EPA has written rules regarding alternate fuels, that while were done in good faith, relied on very little real scientific data and relies heavily on assumptions and models that have severe limitations concerning input data and really have not been evaluated through appropriate channels. This constitutes a major 'rush to judgment' based on one or two analyses (Searchinger et al.) that were soundly rejected due to massive inadequacies in data assumptions and use. The science and technology behind indirect land use evaluation is still highly uncertain and much scientific work remains to be done. To base a national rule with international implications on an extremely limited study is completely foolish.
3. The US EPA has not allowed anywhere near enough time to adequately analyze their modeling of indirect land use change emissions, even with the recent time extension.

Given the nature of what is being proposed, the costs associated with the new rule, and what it actually means to the biodiesel industry, this is wholly inadequate and definitely needs to be rethought. However, Congress did allow adequate time for EPA to implement a renewable fuel program specifically including biodiesel by January 2009.

4. The models rely upon very limited agricultural land use data and some data to these models is on a regional basis which completely ignores 'localized' effects that could be critical in achieving the mandated GHG emission reductions. For example, data concerning actual yields by individual soil types or series are not known and therefore can not be used as inputs to any models, which would definitely make a difference in results by land and soil type.
5. Crop rotations in which soybeans are part of part are not really mentioned or valued. Soybeans provide necessary chemical and physical inputs to the soil base, primarily following a feed grain such as corn or grain sorghum, and these benefits to my knowledge were not valued in the rule.
6. Soybeans are grown primarily for their meal as protein and the oil is essentially a by-product. This wasn't mentioned or acknowledged when considering 'splitting' or allocating GHG emissions to biodiesel. Also, the inclusion of double-cropping soybeans was not mentioned or acknowledged as far as I am aware.
7. US EPA in their analysis of indirect land use mentions converting land for growth of feedstock(s) related to biofuels. Conversion of land has and will continue to take many forms and a) what the use and management of the land was/is will have an impact on GHG emissions, and b) how that land will be managed in the future. In addition, land use change has and will be driven by economic/market factors with biofuels among them, but certainly not entirely. Also, US EPA doesn't really acknowledge that land conversion has taken place in the past. A perfect example of the indirect land use scenario that at least somewhat refutes their position involves the USDA Conservation Reserve program (CRP) in which cropland were retired due to one or more environmental considerations. When these land s were retired, new land was need to make up shortfalls in feed grains, oilseeds, and small grains, which would have resulted in new GHG emissions.
8. There appears to be no mention or allocation of an energy and GHG emissions credit for glycerin produced through the transesterification process.
9. The US EPA assumes a fair percentage of new lands will come directly from South America and in particular the felling of tropical rainforest. This cannot be made as a blanket assumption.
10. The Intergovernmental Panel on Climate Change (IPCC) specifically suggested GHG emissions resulting from agricultural practices be limited to those from fertilizers and decomposing residues and not include those from nitrogen fixation in the soil due to a

number of scientific factors. Since soybeans add nitrogen to the soil and the fact that the manufacture of nitrogen fertilizer is highly energy (and GHG emission) intensive, a credit for this should be given for this energy and environmental benefit. This to my knowledge was not done.

11. The time frames of 30 and 100 years with discount rates leave themselves open to many criticisms based on a) using economic factors for chemical compounds seems out-of-place, and b) the fact that even minor changes in input assumptions such as soil type(s) and their previous uses can have a major effect throughout not only the 30 year period, but much greater through the 100 year time span. Small changes in initial assumptions and data can have major implications throughout the time periods proposed.
12. Use of satellite imagery to quantify land use change has been shown to be inaccurate in identifying patterns related to deforestation and has high errors associated with its use in identifying areas not in production as cropland and with pasture and fallowed lands. This has a major impact on land use allocation and for specific economic and market-driven purposes related to them.

Conclusions

The US EPA rule for future biofuels production, and especially biodiesel, has some serious flaws that without a doubt need to be addressed and corrected through the application of sound science. Specifically, the reliance upon one or two published papers is not adequate to base a national rulemaking on as well as not allowing sufficient time to respond or refute findings, assumptions, etc.

With respect to biodiesel, there are a few major areas that should be addressed by the industry and presented to US EPA such as the co-product credit for glycerin and the fixation of nitrogen. Addressing these two areas may decrease life-cycle GHG emissions significantly. The value of soybeans in cropping rotations needs to be quantified from an energy and environmental perspective as well.