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Draft Work Plan for the Subgroup on "Comparative and Alternative Modeling Approaches"

Work to be done:

I. Identify a reasonable (but likely not exhaustive) set of models in use today which could be used to evaluate the land use impacts of expanded biofuel production

II. Evaluate strengths and weaknesses in model design

   a. Rely heavily on available assessments and modeling systems, for example the on-going work by the JRC on behalf of the EC and near term work by Lifecycle Associates examining alternative model applications and systems dynamics approaches
   b. Unlikely we will be able to do original research in the time and resources available although we may have a contract mechanism and $ available if we identify specific near term work

III. Determine what are the key parameters that impact results; focus model assessment on how models handle these parameters

   a. Also pass this information along to the subgroup looking at uncertainty for their consideration
   b. Have identified a couple of likely sources of high-quality information

IV. Evaluate case studies and empirical assessments to help validate model results and select model(s)
   a. Might be able to supplement existing work with additional regional assessments of, for example, how oil price changes impact land use change from biofuel (biofuel production as a function of oil prices)
   b. Similarly, “hot spot” modeling analysis could supplement “global” modeling by focusing modeling attention on areas where biofuel production could have largest GHG impact (e.g., impacts on tropical forests); again could be useful to “uncertainty” subcommittee
   c. Evaluate different models with empirical case studies to validate their approach and sensitivity

V. Provide recommendations to CARB on areas to improve existing modeling including options for alternative models

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Limits to our work

Does not seem possible to do much new research; e.g., run the models to see how they respond differently, as this would take too much time

We are going forward assuming that recommendations must also consider that models need to be publically available to assure transparency. However, we will not restrict our investigation to only those models currently publically available and other models may provide useful information / insight. Also, possible that a model not currently publically available can be made so.

While we will address modeling options for quantifying specific biofuel impacts, we also discussed whether it would be within the scope of this work group and of interest to CARB to have this subgroup also consider non-quantitative approaches for qualifying fuels, for example, setting decision rules that prohibit / allow fuels based on their likely impact in particularly sensitive areas (akin to what the Roundtable on Sustainable Biofuels is considering). Such restrictions could stand on their own or could be used to complement any lifecycle quantification by focusing quantification on only those eligible biofuel sources. However, we are not clear whether such a change in program structure can be considered or whether it is of sufficient importance to CARB now for this subgroup to devote time to this option. *(Michelle Manion has offered to prepare a short write-up on this option).*

Concern expressed whether we will be providing useful information to CARB upon which they can act or will our end up more of a background assessment.

Schedule for completing work.

Step I Identify models by end of May

Step II Evaluate strengths and weaknesses by end of June

Step III Down-select and develop a recommended list of different modeling approaches for the ARB to consider for long-term research projects by September

Timing for additional steps TBD

Additional Resources (potential) (*please add more)*

JRC
Virginia Dale / Keith Klein
Rich Plevin

For California and biofuel crop production, work by Steve Kaffka and the California Biomass Collaborative on land use for purpose-grown biofuel feedstock production.

Systems dynamics modeling work done by Sandia National Laboratories

Modeling work carried out by Jim McMahon at UC-Berkeley