Draft Work Plan Summary

Subgroup 2:
Issues Related to Co-Product Credits

Presented to the LCFS Expert Workgroup
April 8, 2010
Sacramento, CA

Subgroup 2 Membership

- Alan Glabe, ARB Staff
- Philip Heirigs, Chevron (Subgroup Chair)
- Paul Hodson, European Commission
- Stephen Kaffka, U.C. Davis
- Don O’Connor, (S&T)\textsuperscript{2}
- Mark Stowers, POET, Inc.
**Subgroup 2 Overarching Principles**

- All recommendations and analyses coming from this effort need to be data driven.
- All co-products have the capacity to move into different markets over time.
- The investigation should not be limited to solely GTAP and GREET.
- This Work Plan should be considered a “living document.”

**Task 1: Identify Methodologies and Inputs Used to Assess Co-Product Impacts in ARB’s Current Carbon Intensity Estimates and those Used in Other Researchers’ LCA Modeling**

- Identify the baseline set of assumptions and methodologies used to estimate co-products effects in both GTAP and GREET for both biofuels and petroleum fuels.
- This review will be expanded to include a more extensive literature review of available co-products estimates prepared by various researchers in the field.
- Also included in this task will be a review of current methodologies used to allocate co-product credits in lifecycle analyses (e.g., displacement vs. allocation) along with the pros and cons of the various approaches.
## Task 2: Identify, Prioritize, and Analyze Issues Related to Co-Product Impacts that can be Addressed in the Short-Term

**High Priority Issues:**
- Diet substitution effects/displacement ratios for co-products used in animal feed.
- Consistent treatment of co-products between GTAP and GREET.
- Special issues in co-products related to soy oil (e.g., negative crushing margins in GTAP).
- Co-product treatment for other virgin oils used in the manufacture of biofuels (e.g., canola).

**Other Issues:**
- New and expanded uses of existing co-products.
- How well GTAP is doing on substitution effects.
- How are co-products valued, especially as opportunities of using them change over time.
- Displacement of petroleum based products with bio-based co-products.
- Marginal use/impact of co-products coming out of biofuels production.
- Consistent approach in dealing with co-products as it relates to land use and direct emissions.
- Issue of double-counting between GTAP and GREET.
- Consistent methodologies between biofuel and petroleum co-products – is that possible or even desired?

## Task 3: Identify, Prioritize, and Highlight Research Needs for Co-Products Issues that should be Evaluated in the Long-Term

**High Priority Issues:**
- New co-products.
- Integrated bio-refineries and co-products.

**Other Issues:**
- New and expanded uses of existing co-products.
- How are co-products valued, especially as opportunities of using them change over time.
- Displacement of petroleum based products with bio-based co-products.
Task 4: Meetings and Reporting

- The subgroup will hold at least one, and possibly two, conference calls a month.
- Progress reports will be presented at the monthly EWG meetings.
- We anticipate several face-to-face meetings during this effort to discuss specific issues where technical experts outside the subgroup have been invited to participate.
- A summary report of our findings will be prepared at the conclusion of this effort.

Schedule/Timeline

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Invited Technical Advisors/Additional Support

• Animal Nutritionists
• Feed Industry Experts
• Treatment of Co-Products in GTAP