Draft Work Plan Summary

Subgroup 6:
Indirect Effects of Other Fuels

Presented to the LCFS Expert Workgroup

April 8, 2010

Sacramento, CA

Subgroup 6 Membership

- John Courtis, ARB Staff
- Blake Simmons, Sandia (Subgroup Chair)
- Bob Larson, EPA (Subgroup Co-chair)
- Seth Myers, University of Missouri
- Wally Tyner, Purdue University
- Phil Heirigs, Chevron Global Downstream LLC
- Jesper Kløverpris, Novozymes A/S
- Paul Wuebben, South Coast Air Quality Management District

Subgroup 6 Overarching Principles

- All fuels have direct and indirect effects from an economic, resource, and carbon perspective as a function of scale and intensification
- Need to establish a fundamental understanding of potential indirect effects as a function of fuel type
- Need to have robust attribution of indirect effects, causality, and validated models to calculate carbon values
- Should not be limited solely to GTAP and GREET
- Analyses need to be data driven and vetted with empirical data sets whenever possible
- Carbon scoring under LCFS should include direct and indirect effects for all fuels

Task 1: Establish Criteria for Defining "Indirect Effects of Other Fuels"

- Non-land indirect effects should be included for all fuels under the LCFS scoring system
- Prepare a criterion for indirect effects not considered under GTAP and CARB WTW GREET-based models as a function of fuel type
- Identify alternative modeling approaches
- Identify potential changes to current fossil fuel mixes in CA as a function of time

Task 2: Develop a List of Indirect Effects to be Assessed

- Develop a prioritized list of possible indirect effects as a function of fuel type and scale
- Include non-corn ethanol biofuel pathways
  - Lignocellulosic biofuels
  - Algal biofuels
- Non-biofuel approaches – examples:
  - Gasoline/diesel
  - BEVs + Hybrids
  - Natural gas
  - Electricity
  - Hydrogen

Task 3: Identify Significant Gaps in Current Indirect Effect Analyses

- Evaluate current LCFS indirect effect scores
- Evaluate current modeling approaches in terms of assumptions and data sets
- Develop a list of gaps under the current approaches
- Develop a prioritized list of indirect effects as a function of fuel type

Task 4: Identify Available Data Sets and Models for Indirect Effects as a Function of Fuel Type

- Evaluate publically available, validated data sets
- Evaluate models capable of processing current data sets
- Determine suitability of current modeling approaches for LCFS
- Develop a prioritized list of targets in terms of data sets and models that should be considered by ARB for LCFS inclusion

Task 5: Develop a Long-Term Work Plan for the ARB and LCFS

- Establish goals and work plans associated with addressing gaps that are present
- Identify different modeling approaches
- Identify critical metrics/data sets
- Identify high-priority indirect effects for all fuels under the LCFS
- Establish suggested resources/research groups to carry out work plan

Subgroup 6 Milestones

	Goal	Deadline
Task 1	Establish Criteria for Defining Indirect Effects of Other Fuels	May 2010
Task 2	Develop a List of Indirect Effects to be Assessed	June 2010
Task 3	Identify Significant Gaps in Current Indirect Effect Analyses	July 2010
Task 4	Identify Available Data Sets and Models for Indirect Effects as a Function of Fuel Type	September 2010
Task 5	Develop a Long-Term Work Plan for the ARB and LCFS	October 2010

Initial List of Proposed Technical Advisors/Additional Resources

- Tiax (Mike Johnson or Jennifer Pont)
- Mark Delucci, UC-Davis
- Michael Wang, Argonne
- Patricia Monihan, UCS
- John Sheers, CEERT
- Dan Kammen, UC-Berkeley
- Robert Sawyer, UC-Berkeley
- Alan Lloyd, ICCT
- Jim McMahon, LBNL
- Dawn Manley, Sandia
- Heather Johnson, EBI
- Brooke Coleman, New Fuels Alliance
- Björn Pieprzyk, Energy Research Architecture
- Norbert Kortlüke, Energy Research Architecture
- Paula Rojas Hilje, Energy Research Architecture
- Other modeling groups at research institutions
- Experts in the field of indirect effects
- Energy sector experts