

# Subcommittee Breakouts

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DRAFT



## Needs:

- Funding mechanisms for long term trials and to continue to take advantage of existing trials rather than re-starting the trial process.
- Long term measurement of greenhouse gasses from various and emerging feedstock. NEON? NSF.
- Evaluation on Agave crops (e.g. sissal) for semi-arid lands that do not compete with food crops.

## Critical Questions:

- Is there a dataset on land use outside current agriculture that measures use to identify land that is underutilized? (Does it exist?)
- Where is the land that can be used for 2<sup>nd</sup> generation feedstocks? Include ownership details.

## Indirect Effects

- Analysis on the indirect effects across all fuel types. Should include future fuel sources including fossil fuel oil (e.g. tar sands, deep sea oil).



## Woody Biomass

- Need assessment on potential of cropping some full grown forest in eastern forest.
  - Take into account carbon sequestration practices
  - Critical Questions:
    - Where will this be beneficial to overall greenhouse gas balance and local economies?
    - What management practices will be optimal in achieving these goals?

## Productivity

- Need to examine quarantine facilities and the process of importing germplasm for breeding purposes to improve productivity of energy crops.
- When native species have been bred as feedstocks, strategies should be employed to ensure that pollen does not reach wild communities of the same species.

# Feedstock Recommendation Ideas



## Algae and other organisms

- Techno/economic engineering analysis for algae including LCA and environmental analysis.

## Improving Biomass Logistical Systems

- Linking feedstocks to end uses is critical to determining the optimum system.
- System tools to prioritize effort and optimize logistics from harvest to delivery.

# Sustainability Recommendation Ideas



- Consider beginning, middle, and end of process:
  - Beginning – corn ethanol
  - Mid – technology transition
  - End – renewable fuel nation
- What is the plan for using 36 billion gallons of ethanol?
- Why is there no implementation pathway for cellulosic ethanol?
- *Encourage research that will enable oil refineries to become biorefinery compatible???*
- *Not (yet) a consensus—how well do interests of oil refiners coincide with larger societal interests in providing sustainable oil alternatives?*

# Sustainability Recommendation Ideas



- Because of changes in Congress and the federal budget, we must ask what happens to the industry because of possible budget changes.
- Contingency planning for the industry that has been expecting particular budgets.
- Need clarity on the priorities of agencies.
- What are redundancies?
- Where are the most viable areas and venues for research?

# Sustainability Recommendation Ideas



- In past, government provided infrastructure so commerce could happen.
  - Transcontinental railroad
  - Interstate highway system, etc.
- What is comparable role today?
- How can the government make a truly sustainable program?
- Timeline of decision making has to match R&D timelines and commercialization timelines

# Sustainability Recommendation Ideas



## Biodiversity and invasive species

- Think about invasive species definition in a regional way, not national borders.
- Can't be sustainable unless we think regionally and assess globally
- System of systems model
- Need research/data collection on genetic engineering and breeding on species that can outcompete others. Local, regional, and global level examination.
- Biodiversity, competitiveness, and environmental role
  - It doesn't take much to throw things out of balance
  - Research should examine unintended consequences.
  - Want engineered plants to make better biofuels but don't want future generations to have to live with unintended consequences.

# Sustainability Recommendation Ideas



- What is infrastructure necessary for FFVs and blender pumps to create a sustainable market for ethanol?
- What is the critical mass number of blender pumps and flex fuel vehicles, nationally and by state, in order to match demand potential with RFS2 mandate?
- What is the timeline to get there?
- Need 50% vehicle and fueling penetration to be able to say there is an unlimited market
- What is the number of blender pumps and FFVs that could still allow the market to flourish?
- Currently, what is the timeline to get to 50% vehicle and fueling penetration?



## Revisions Required

### Market Creation – Vehicles

- Agencies and Departments should be advised to harmonize vehicle emission, diagnostic and fuel economy test procedures for all commercial biofuel blend levels; low-level, mid-level, and high-level, based on the known physical properties of the blends. Required test fuels should match commercially available fuels to protect consumer interests. Immediate rule making should be undertaken to incorporate E10 fuels as emission and fuel economy test fuels (MATCH WAIVER) with appropriate accommodation for their fuel properties. Certification fuels should be reviewed as time goes on to adjust the certification fuels to reflect commercially relevant blends.

### Market Creation – Non-Vehicle End Use Devices

- Research should be undertaken to understand the design requirements of establishing a minimum biofuel blend capability in non-vehicle end use devices (marine, outdoor power equipment, other).
  - This should follow the vehicle fuel waiver.

# Conversion Recommendation Ideas



- Todd Werpny agreed to take on the role of second co-chair for this subcommittee.
- The committee discussed several issues that relate to the BR&D TAC Charter. We noted that Item 2.2. charges the full committee with responsibilities related to solicitations and funding, but that information provided to the committee on these issues has been somewhat limited. In view of this we recommend that a presentation be made to the full committee at the next quarterly meeting on the full solicitation and award process for both grants and loan guarantees. This presentation should preferably include:
  - 1) Who writes the solicitation
  - 2) Distribution of the solicitation
  - 3) Process for choosing reviewers
  - 4) Review process
- In relation to needs in the area of conversion, the committee recommends that one or more qualified speakers be invited to provide an overview of catalyst-based conversion technologies for production of drop-in replacement hydrocarbon biofuels as a first step in identifying research needs on this topic.
- Information obtained from these presentations will provide a useful basis for making recommendations for 2011 by the end of the year.