Board Action Area 2: Feedstock Production

The rapid growth of the biofuels industry has been driven by private sector innovation. To sustain that growth it is essential for the Federal government to work in partnership with the private sector to achieve improvements across feedstocks likely to be in use over the near- and longer-terms:

- **First generation** feedstocks include corn for ethanol and soybeans for biodiesel. These feedstocks are currently in use and their yields have been increasing.
- **Second generation** feedstocks consist of the residues or "left-overs" from crop and forest harvests. They show much promise for near-term adoption with the development of cellulosic conversion technologies.
- **Third generation** feedstocks are crops which require further R&D to commercialize, such as perennial grasses, fast growing trees, and algae. They are designed exclusively for fuels production and are commonly referred to as "energy crops". They represent a key long-term component to a sustainable biofuels industry.

Federal agencies are conducting R&D into high-yield biomass systems and dedicated energy crops that do not disrupt current production paradigms and sustain and enhance the critical natural resource assets required for their production (e.g., water, air, and soil). They are also developing dedicated bioenergy crops through traditional breeding and advanced biotechnology.

Next Steps

Interagency studies suggest that the U.S. has enough indigenous biomass available to meet the EISA targets. However, key activities need to take place in order to do so:

- Environmental implications and balance between food, feed, and fiber, need to be considered as use of first generation feedstocks (e.g., oilseeds and grain) increases. Environmental implications, such as the effect of feedstock production on soil, water and air quality, and market implications of increased production of feedstocks used for biofuels, for food, feed, and fiber, need to be considered as use of first generation feedstocks (e.g., oilseeds and grain) increases.
- Utilization of second generation feedstocks should sustain and enhance water and air quality and other ecosystem services. The availability and cost of these feedstocks need to be inventoried to qualify plant siting opportunities.
- Third generation feedstocks should be developed to increase drought and stress tolerance; increase fertilizer and water use efficiencies; and provide for efficient conversion.
- Improvements in the yields of all feedstocks will be necessary to support future targets.

Biomass R&D Board Actions

- The Board has commissioned an interagency feedstock working group to address feedstock availability and cost, sustainability, and greenhouse gas emissions from feedstock activities. The group initially delivered, in June 2008, a feedstock availability and cost study to provide perspective on likely feedstock costs associated with meeting biofuels production targets.
- Another feedstock working group will develop a long-term integrated feedstock research plan across the Federal government by December 2008 to promote enhanced coordination and collaboration.
- The Board will use this information to address the impact of current regulatory processes on the introduction of modified energy crops and to work with farmers and foresters to increase acceptance and introduction of new crops and trees.
- The Board also seeks greater collaboration with private sector researchers, academia, and state governments, as well as international partners and agencies not currently represented on the Board to ensure leveraging of existing funds. As a first step, Federal agencies including EPA, DOE, USDA and NSF will inventory their current partnerships in these areas in order to develop an engagement plan by November 2008.
- The Board will further promote interagency knowledge sharing by expanding the USDA-DOE scientist exchange program to include the NSF and other agencies in the near future.