

# GOVERNOR BESHEAR'S EXECUTIVE TASK FORCE ON BIOMASS AND BIOFUELS DEVELOPMENT IN KENTUCKY

## Findings and Conclusions

### ***Task 1: Validate Kentucky's biomass production capabilities within a sustainable environment.***

1. Current biomass production capabilities are estimated at 12-15 million tons per year with minimal land use changes.
2. Biomass production capabilities by 2025 are estimated at 25 million tons per year, but could involve land use changes of approximately 2 million acres, or 15% of Kentucky's farmland.
3. To minimize land use changes, advances in biotechnology must occur that improve biomass adaptability so that marginal and reclaimed lands become productive, and that increase current biomass yields on all lands.
4. Kentucky currently has no standards for biomass sustainability, resulting in diverse opinions of sustainability definitions. Actions on sustainability standards at the federal level may pre-empt Kentucky's interests unless the Commonwealth develops its own standards and becomes active in the federal process.
5. The Task Force concludes that 25 million tons of biomass per year produced within a sustainable environment with minimal land use changes is feasible by 2025.

### ***Task 2: Validate Kentucky's potential biomass demand.***

1. As carbon dioxide becomes a regulated greenhouse gas, Kentucky's cost of electricity is at high risk unless supplemented by renewable energy.
2. Kentucky' geography and climate give it an advantage for meeting a portion of base load generation with biomass.
3. 15 million tons of biomass in Kentucky by 2025 for the production of over 2000 megawatts of renewable electricity, or 18% of total generation, is a feasible means of reducing electricity cost risks associated with carbon management.
4. It is unlikely that demand for biomass for the production of electricity in Kentucky will materialize without the adoption of Renewable Portfolio Standards at the federal and/or state levels. The adoption of a federal standard alone may not be enough to develop in-state demand for biomass for production of electricity; therefore policies at the state level may also be needed to complement a federal standard.

5. Demand in Kentucky for 10 million tons of biomass by 2022 for the production of 700 million gallons of liquid transportation fuels is being driven by mandates created by the Federal Renewable Fuels Standard.
6. The Task Force concludes that the potential demand in Kentucky for biomass is 25 million tons of biomass per year by 2025.

**Task 3: *Evaluate biomass transportation and logistics opportunities, and recommend a course of action.***

1. Transportation and logistics for 25 million tons of biomass will likely be centered upon a combination of up to 100 collection and densification facilities along with some distributed processing.
2. While some biomass will move directly from producers to processors by truck, the large volumes will require access to both rail and barge.
3. Supply chain ownership is a critical consideration in the development of a biomass transportation and logistics system.

**Task 4: *Evaluate the status of energy crop and forestry biotechnology and genetics, and recommend a plan of action that allows biotechnology to support biomass production.***

1. The sustainable production of 25 million tons of biomass per year cannot occur without significant improvements in yield and adaptability of biomass.
2. Kentucky's educational institutions to date have sponsored minimal research into genetic and productivity improvements for biomass.
3. It is desirable that public-private partnerships be developed that leverage existing research and reduce the time to commercialization.

**Task 5: *Evaluate available business structures in Kentucky, including structures that allow direct producer ownership, and formulate plans of action that allow adequate capitalization of a new biomass industry.***

1. Keeping the biomass supply chain ownership with producers is one of the most effective methods of retaining the rural economic benefits of biomass development.
2. Business structures that utilize producer-owned cooperatives and partnerships have been the most successful means of creating economic prosperity throughout small Midwestern communities.

3. The ability to pool producers' funds through closed cooperatives is an effective method for capitalization of production, densification, handling and processing systems.
4. In general Kentucky is unfamiliar with closed cooperative structures.

**Task 6: *Facilitate economic impact analysis of the effect of a biomass and biofuels industry on Kentucky.***

1. The development of a biomass and biofuels industry in Kentucky can create significant economic activity in every community of the Commonwealth.
2. It is estimated that biomass and biofuels production can generate over \$3.4 billion of net output annually along with almost 14,000 jobs, much of which will be concentrated within rural communities statewide.
3. The development of a 25 million ton per year biomass and biofuels industry will require capital investments in excess of \$10 billion.
4. Successful development will require some level of public-private partnerships.