

Contact: Diana Gonzalez

REQUEST TO ESTABLISH NEW CENTER AT IOWA STATE UNIVERSITY
BIOBASED INDUSTRY CENTER

Action Requested: Consider approval of the request by Iowa State University to establish a Biobased Industry Center as part of the Bioeconomy Institute.

Executive Summary: The proposed Biobased Industry Center (BIC) will focus on the economic, social, business, environmental, sustainability, and policy dimensions of the biobased industry. A number of factors have contributed to biobased industry expansion – rising crude oil and fuel prices, increasing instability and risk in the world's major oil producing areas, growing U.S. dependence on foreign energy sources, expanding ecological and health impacts of fossil fuel use, and revitalization of rural America. This proposal was reviewed by the Board Office and the Council of Provosts and is recommended for approval. Creation of the Center requires Board of Regents approval, as stated in the Board of Regents Policy Manual §6.08, because the Center will require an annual institutional commitment of \$250,000 or more. This request addresses the Board of Regents Strategic Plan priorities (2.0) to “provide needed service and promote economic growth” and (3.0) to “discover new knowledge through research, scholarship, and creative activities.”

Background:

- ◇ **Center Objectives.** The proposed Center has five general objectives.
 - Evaluate the potential economic impacts of biofuels and biobased products for reducing dependence on petroleum and improving energy security and independence.
 - Evaluate the economic cost of biomass and waste-based biofuels and biobased products, the net carbon impacts of substituting biobased products for fossil fuels, and sustainable feedstock management practices that protect land and water resources.
 - Assess the national and global impacts on agriculture, food prices and adequacy in different regions of the world, and environmental impacts of bioeconomy expansion.
 - Assess job creation and other economic impacts on rural communities, regions, and the nation resulting from biobased industry expansion.
 - Evaluate energy policies, their impacts on the energy and biobased industries, and the infrastructure needs and constraints of biobased industry expansion.

- ◇ **Relationship to Bioeconomy Initiative.** In 2002, ISU established the Bioeconomy Initiative to organize faculty and staff to advance the use of biorenewable resources in the production of chemicals, fuels, materials, and energy. The proposed Center addresses the following areas of the University's Strategic Plan – Research, Creating Knowledge; Education, Sharing Knowledge; and Outreach, Applying Knowledge.

- ◇ Relationship to Bioeconomy Institute. The proposed Center will provide the mechanism to integrate and coordinate the business, economics, social, policy, and environmental dimensions of biobased industry research into the Institute. This organizational structure is expected to bring together faculty from different disciplinary backgrounds, including engineering and the sciences to work with social science and business faculty to solve challenges and develop opportunities for the biobased industry. This structure is designed to encourage academic units and centers across campus to become engaged in the proposed Center's programs, allowing new multidisciplinary research teams to assemble as opportunities emerge.
- ◇ Relationship to other centers. There are no related centers at other Regent universities. There are science-based centers, such as the Center for Biocatalysis and Bioprocessing at the University of Iowa, whose focus is on pharmaceuticals biotechnology, and the National Ag-Based Lubricants Center at the University of Northern Iowa, whose focus is on developing biobased lubricants. Neither of these centers covers the social science, business, and policy dimensions of the biobased industry; agriculture or biomass feedstock production; or biomass processing. The Bioeconomy Institute and the proposed Center will collaborate with the University of Iowa and the University of Northern Iowa in areas of common interest.
- ◇ Unique role of Iowa State University. Based on a study prepared for the "Four Corners Project," it was determined that ISU is uniquely positioned to lead the other Regent universities as well as institutions in the other states that comprise the four-corners region (Iowa, Missouri, Kansas, and Nebraska). ISU has the global modeling and applied science research capabilities that address the global economic and carbon impacts of bio-energy policies, especially with respect to agriculture, forestry, and other feedstocks, as well as in processing and conversion to bio-energy. However, the study did identify collaboration possibilities with other institutions, including the University of Iowa, to leverage existing strengths.
- ◇ Need for the proposed Center. The following factors underpin the need for the proposed Center:
 - Energy independence and security;
 - Sustaining the global climate and improving environmental quality;
 - Sustaining the local, state, national, and global economies;
 - Identifying and evaluating appropriate policies to sustain and enhance the welfare of rural communities, and the state, national, and global economies.
- ◇ Personnel. The proposed Center will be administered under the auspices of the Bioeconomy Institute and its director. The proposed Center's executive team will include acting co-directors of the proposed Center who will be responsible for research programs and operations of the proposed Center until the first Director/Endowed Chair of Energy Economics is named; a program coordinator; and a coordinator of industry relations.

Approximately 20 faculty will be affiliated with the proposed Center. These faculty are housed in departments of Logistics, Operations, and Management Information Systems; Finance; Community and Regional Planning; Agricultural and Biosystems Engineering; Mechanical Engineering; Chemical and Biological Engineering; Civil, Construction, and Environmental Engineering; Sociology; Economics; and Natural Resource Ecology and Management.

- ◇ Industry Advisory Board. The proposed Center's Industry Advisory Board will include industry and non-profit representatives. The Board will meet with the Center's executive team and participating faculty semi-annually to review the strategic plan, research priorities, proposed projects, research progress, and related issues.
- ◇ Facilities. The majority of the affiliated faculty will be housed in existing facilities. Administrative support staff will be housed in the new ISU renewable fuels building on the ISU campus. This dedicated facility will house biorenewables activities in a single building. It includes the proposed Center, the Bioeconomy Institute, a proposed NSF Engineering Research Center in Biorenewable Chemicals, and teaching and laboratory space for an expanded set of biorenewables courses.
- ◇ Equipment. No equipment purchases are planned.
- ◇ Expected need. The proposed Center is expected to be in existence through 2030. By then, a transformation within the biobased industry is expected to have occurred. It is expected that cellulosic-based fuels will provide a significant portion of the liquid fuel demand in the U.S., integrated biorefineries will be common place, and there will be less need for new government polices to help maintain industry profitability. The proposed Center will be discontinued prior to 2030 if industry financial support diminishes. The proposed Center will be reviewed on a regular schedule by the Vice-President for Research and Economic Development to ensure that the Center is meeting its goals.
- ◇ Costs and funding sources. The cost of the proposed Center is expected to be approximately \$900,000 for each of the first three years to support research, education and outreach initiatives, and administrative costs. Planned income includes \$430,000 from annual industry commitments to the proposed Center to support biobased industry studies. Corporate partners represent a broad spectrum of the biobased industry and will serve on the Industry Advisory Board, collaborate on setting research priorities, and participate in semi-annual board meetings. The balance of funds will come from ISU internal support and a corporate gift of \$1.5 million to the ISU Foundation to establish a Chair in Energy Economics. Other corporate gifts and contracts for the Bioeconomy Institute programs identify the proposed Center as a partner or closely aligned affiliate of the Bioeconomy Institute. Government research support may also contribute to Center sustainability.