
Request for Applications

REVISION A 2/22/07

NORTHEAST SUN GRANT INITIATIVE

2007

COMPETITIVE GRANTS PROGRAM

DEADLINES

Letter of Intent: March 15, 2007

Full Application: April 30, 2007

Request for Applications

The Northeast Sun Grant Initiative Competitive Grants Program announces the availability of funds to support research, education and outreach projects in the strategic areas of Biologically-Based Fuels (BioFuels), Biologically-Based Power (BioPower), and Biologically-Based Products (BioProducts).

The Northeast Sun Grant Initiative (NE-SGI) expects to award up to \$985,000 in competitive grants this calendar year and seeks proposals from qualified institutions that address the three strategic goals elucidated in the 2004 NE-SGI Roadmap, e.g., BioFuels, BioPower and BioProducts. Each strategic goal has 4 enabling or overarching activities, Biomass Feedstock, BioProcessing, System Integration and Marketing/Policy/Economics that may be incorporated in any proposal. In 2007, Northeast Sun Grant Initiative will seek proposals with emphasis on Biofuels that show the potential for displacement of imported petroleum.

The Sun Grant mission is to focus the intellectual capacity of the region's land grant universities in partnership with the private sector to enhance national energy security through the development, distribution and implementation of bio-based energy technologies, promote bio-based diversification and environmental sustainability of the region's agriculture, and promote opportunities for bio-based economic diversification in rural communities in assisting the region and the nation move toward greater energy independence.

For more information and to review the NE-SGI Roadmap, see the following url:
<http://www.nesungrant.cornell.edu>

In addition to requesting Sun Grant funds, all proposals must include an additional 20% matching funds. Two types of applications are being sought:

Integrated Lead Proposals: Multi-investigator / multi-institutional / multi-disciplinary / multi-year proposals will be sought that address the above priorities while integrating research, education and outreach objectives. Integrated (research, education and outreach) proposals may seek up to \$600K (total Sun Grant dollars) with priority being given to 2-year proposals (1-4 years in duration possible).

Seed Proposals: Seed grants that address the above priorities will be provided to single investigators or small teams for up to \$100K (total Sun Grant dollars) (1-3 years in duration). Single or multi-component research, education and outreach proposals are appropriate.

Letters of intent and full proposals should be submitted through the online Webnibus System through a link on the Northeast Sun Grant Website at: <http://www.nesungrant.cornell.edu>. Letters of intent to apply are requested by March 15, 2007. Full proposals are due by 5 pm (Eastern), April 30, 2007. For full application guidelines, timetables, and additional information on submission, see section 4.

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This revised RFA (REVISION A 2/22/07) contains information regarding indirect charges (page 15).



FUNDING OPPORTUNITY DESCRIPTION

Legislative Authority Background

Authorized by Congress in 2004, the Sun Grant Initiative is a national network of land grant universities partnering to build a biobased economy. Sun Grant Institutions are charged with making significant advances in biobased industries for the benefit of America's farmers, rural communities, and the public at-large.

The Sun Grant Initiative is organized as a national network of land grant institutions in five regions. Serving as the five regional Sun Grant Centers are: Cornell University (Northeastern (NE)), The University of Tennessee –Knoxville (Southeastern (SE)), South Dakota State University (North Central (NC)), Oklahoma State University (South Central (SC)), and Oregon State University (Western (W)).

Authorization for creation of the Sun Grant Initiative Centers of Excellence competitive grants program was provided by the Sun Grant Research Initiative Act of 2003(1), introduced to the United States Congress by Senator Daschle and Senator Frist and authorized under Title IX, Sec. 9011 of the Farm Security and Rural Investment Act of 2002.

Federal funding for this competitive grants program was authorized in the Department of Transportation Federal Highway Bill (2005). The relevant language on page 18 of the bill states:

BIOBASED TRANSPORTATION RESEARCH- Funds will be made available through section 5101(a)(1) of the Biobased Transportation Research Act for each fiscal year 2006 through 2009, equally divided and available to carry out biobased research of national importance at the National Biodiesel Board and at research centers identified in section 9011 of the Farm Security and Rural Investment Act of 2002 (7 U.S.C. 8109).

Purpose and Priorities Background

The Northeast Sun Grant Initiative (NE-SGI) will support projects that address the region's need to increase the use of biologically-based resources for meeting the nation's fuel, energy and industrial chemical needs, and to catalyze the transition toward a bio-based economy.

Integrated Lead Project grant applications must demonstrate the use of an integrated approach of research, education, and outreach (Extension) to address the mission and goals of the NE-SGI. Federal funding for FY2007 competitive grants program is from the US Department of Transportation (DOT). All grant applications must explain how the proposed work contributes to the displacement of foreign oil through enhancement of the biobased economy.

Program Priorities: Only proposals that explicitly address the needs identified by the roadmap and steering committee (composed of regional scientists, engineers, economists, university administrators and stakeholders) will be considered for funding. Proposals must demonstrate value to the region and to stakeholders. Factors relevant to the priorities might address the following: 1) the potential quantity of fossil fuels replaced; 2) number of NE Sun Grant States to be potentially impacted by the project results; 3) number of farms or rural communities impacted; and 4) the potential for commercializing the technology.

The purposes of the Sun Grant Program are to:

- 1) Enhance national energy security through the development, distribution, and implementation of biobased energy technologies;
- 2) Promote diversification and environmental sustainability of agricultural production in the United States through biobased energy and product technologies;
- 3) Promote economic diversification in rural areas of the United States through biobased energy and product technologies; and
- 4) Enhance the efficiency of bioenergy and biomass research and development programs through improved coordination and collaboration between the Department of Agriculture and the Department of Energy, and the land-grant colleges and universities.

Definition of the specific priorities for the Northeastern Region Sun Grant States evolved through critical and intensive dialogue between the land-grant colleges and universities and other stakeholders in the Northeast Region including industry and government representatives. A regional workshop was held on April 25-27, 2004, in Buffalo, New York. Meeting participants at the Northeast Sun Grant Regional Workshop represented

each of the 14 states and the District of Columbia in the Northeast Sun Grant region. In addition to hearing presentations from leaders of the region's biobased industries, nine working group sessions enabled participants to meet, discuss and define specific research, education and outreach priorities for the region's competitive grants program. Moderators for the nine working group sessions presented each group's conclusions, comments and recommendations for the region's program priorities. The recommendations of the meeting participants were compiled in a Roadmap, which was reviewed and approved by the Region and is available in its entirety as a downloadable .pdf file at:

<http://www.nesungrant.cornell.edu/Roadmap.html>

The following summarizes the collective outcome of the working group session priorities adopted by the Northeast Sun Grant Initiative regional competitive grants program for research, education, and outreach. The priorities focus on 3 strategic areas and 4 enabling activity themes.

Strategic Area Descriptions

The Northeast Region Sun Grant priorities focus on 3 strategic areas: BioFuels, BioPower, and BioProducts. In 2007, Northeast Sun Grant Initiative will seek proposals with emphasis on Biofuels that show the potential for displacement of imported petroleum. Each proposal should include an economic justification and analysis as appropriate.

BioFuels

BioFuels are biomass resources that are used to displace fossil fuels for transportation. Ethanol, biodiesel, and hydrogen are the three principal biofuels under consideration.

BioPower

BioPower is the use of renewable biomass as a fuel to produce heat and electricity. Biopower production utilizes similar equipment and conversion technology, such as thermal gasification, as is used for petroleum-based fuels. The United States currently has 10 gigawatts of installed capacity.

BioProducts

BioProducts are chemicals and materials made from biomass resources that may traditionally be made from petroleum-based resources (e.g., biodegradable plastics and biobased industrial chemicals).

Enabling Activity Descriptions

Each of the strategic areas (BioFuels, BioPower, and BioProducts) has the following four enabling activities for Northeast Region's research, education, and outreach priorities:

Feedstock Development

The Northeast Sun Grant States have a widely varying terrain and climate, representing a wide range of biomass production opportunities. Laws defining renewable energy feedstocks vary from state to state within the region. For example, some state renewable energy programs do not recognize Biomass as a renewable energy source and some do not recognize Municipal Solid Waste (MSW) as a biomass feedstock because of the potential emissions challenges in burning raw MSW. However, for the purposes of this program, the biomass feedstocks identified collectively by the region include (but are not limited to) forest residues, mill residues, agricultural residues, dedicated energy crops, MSW/gas, urban wood and construction waste, and farm animal manure. Any biologically-based, chemically-organic feedstock that can be developed for the purposes of this program may be proposed.

In addition to traditional plant breeding and agricultural practices, new dedicated crops with specific properties or compounds may be engineered through genetic engineering approaches. Critical to the research agenda of the NE-SGI will be determining the environmental impacts of introducing and harvesting a specific feedstock. If crop residues are to be utilized, the amount of residue to return to the field must be determined to provide a sustainable system. New crop-specific technologies and equipment are needed that can simultaneously harvest the crop and return the optimal amount of residue to the field to replenish the soil. A rigorous inventory of potential biomass resources in the Northeast Region is needed, including waste streams from food processing, municipal solid wastes, animal wastes, and source-separated solid wastes. Existing databases might be combined with GIS mapping technologies to develop an updated and rigorous biomass resource audit for the Northeast Sun Grant States. For a complete listing of the feedstock development priorities envisioned by the region, refer to the Northeast Region Sun Grant Initiative Roadmap available in its entirety as a downloadable .pdf file at: <http://www.nesungrant.cornell.edu/Roadmap.html>

The Department of Transportation has identified the following topic areas as priorities for Biofuels Feedstock Development:

- Plant breeding and selection
- Agronomic practices for optimal sustainable yields
- Equipment technologies for sustainable harvests
- -Multiple land use issues/impacts for biofuel feedstock production (e.g., Agricultural production, Wildlife habitat, Soil and water conservation, Air quality, Global climate change)

Conversion Processes

Extracting valuable power, fuels, and products from biomass feedstocks requires a suite of conversion technologies. The specific conversion process used depends on the final product, the feedstock composition, the conversion equipment efficiencies, and public policy incentives. The conversion of biomass to an end product becomes more difficult when the feedstock composition varies in content of moisture, carbon, oil, or particle size. One approach for addressing issues of feedstock variability is pretreatment of feedstocks. Another approach is to develop conversion technologies that are more flexible with respect to feedstock composition and condition.

The conversion of biomass to energy and useful products can be accomplished through thermochemical conversion processes, or bioconversion processes such as enzymatic and microbial conversion. Thermochemical conversion process research is needed to optimize the efficiency of co-firing, gasification, pyrolysis and thermal depolymerization process systems. Enzymatic conversion issues include prospecting for novel enzymes with useful properties, protein engineering and enzyme reactor engineering. Microbial conversion process research can address issues at the microbial-community level, such as anaerobic digestion issues, or at the microbial-monoculture level for the development of biocontrol products or hydrogen production. Metabolic engineering of organisms may lead to more efficient production of microbial products, or increased microbial activity under challenging thermal environments. Research is needed in bioreactor engineering, microbial ecology engineering, ecological engineering and proteomics. Conversion processes research priorities for the Northeast Region include (but are not limited to) refining and developing improved separation technologies, improving the efficiencies of biomass conversion, such as optimizing microbial fermentation processes, analyzing and developing small scale distributed conversion systems. For a complete listing of the conversion process priorities envisioned by the region, refer to the Northeast Region Sun Grant Initiative Roadmap available in its entirety as a downloadable .pdf file at: <http://www.nesungrant.cornell.edu/Roadmap.html>

The Department of Transportation has identified the following topic areas as priorities for Biofuels Conversion Processes:

- Conversion efficiency
- Cost of production
- Enzymatic conversion
- Thermo-chemical conversion

Systems Integration

Building a biobased industry in the United States will require integration of many individual sectors. For example, feedstocks must be harvested and then packaged for transport to a processing facility. Location of the feedstock source close to the

processing facility will increase efficiency. The processing facility will probably need to grade, sort and mix incoming feedstocks. The feedstock materials will be processed to extract the highest value and waste streams from this processing might be utilized at a second facility for power generation. Products from the first facility and power from the second facility need to be distributed to markets and customers. This network of material and energy flow resembles an industrial ecology, where the resources (feedstocks) are optimized by integrating the entire industrial process, minimizing the waste generated (energy and materials) at each step of the process, and maximizing the reuse of waste at each step of the process.

Research at the systems level should identify and address aspects of an industrial ecology. Modeling tools are needed for systems optimization. Databases for system modeling and analysis are needed as tools for researchers. A cost database is needed to provide reliable estimates of the cost of various parts of the production system, and values of various products produced by the system. An analysis is needed of energy use or energy audit of the system and its products. The flow of labor requirements and job creation estimates for the various technology improvements are needed, linking economic development issues to systems integration. Environmental impact and life cycle analyses are needed for the various feedstocks, conversion processes, and systems.

Systems integration research priorities for the region include (but are not limited to) developing efficient harvesting, storage, and transportation systems and equipment, analyzing material and energy flow models beyond state boundaries) using GIS or other advanced tracking mechanisms, performing analyses of the region's biobased power production strengths, weaknesses, opportunities, and threats (SWOT analysis), demonstrating process integration and synergy in small farm-scale biorefineries to optimize economic, social, and environmental returns (the triple bottom line). For a complete listing of the systems integration priorities envisioned by the region, refer to the Northeast Region Sun Grant Initiative Roadmap available in its entirety as a downloadable .pdf file at:

<http://www.nesungrant.cornell.edu/Roadmap.html>

The Department of Transportation has identified the following topic areas as priorities for Biofuels Systems Analysis:

- Industrial ecology
- Feedstock transport, delivery and storage
- Biofuel transport and delivery infrastructure
- Environmental Impact
 - Life cycle emissions
 - Greenhouse gas emissions
 - NOX emissions
 - Carbon flow models
 - Energy input and output

Marketing, Economics and Policy Issues

Marketing is important in the creation of new technologies that will support a new national industry. Emerging technologies must communicate their value to potential users and identify potential markets. As markets develop there will be pressure on suppliers to make continuous improvements in their products and services. Companies must continually assess the value of current markets and if necessary enter new markets for growth or even survival. Marketing expertise will assist researchers to identify additional potential markets (such as Agri-tourism or other nonagricultural markets) as the industrial ecology of a biobased economy evolves. Social acceptance of new products or processes and of potential state or federal subsidy programs will need to be evaluated.

The use of bio-industrial processes to add value to traditional agricultural commodities has great potential to impact the demand for agricultural commodities and to increase farm commodity prices and farm incomes. However, any change in production technology has the potential to induce substantial social and economic consequences for both producers and society. Increased demand for selected agricultural commodities might be expected to increase commodity price. Such price increases likely will stimulate production of that commodity perhaps by inducing producers to switch land from production of other crops (and thus reducing supply and increasing price of the substituted crops) or inducing additional (perhaps marginal, environmentally fragile) land into production. Land prices may be bid upward. The combined effect of these changes could result in increased cost of food and fiber to society. If new bio-industries are located in rural communities near the production of the agricultural feedstock, these rural communities may benefit from increased employment and a heightened tax base, but also may face substantial costs for infrastructure development to support the industry or realize other unintended social impacts. Research is needed to address this broad range of issues.

A “Markets” database for the Northeast Region is needed so that researchers can focus technology development in areas with the greatest market demand. For example, databases on the northeast power market, transportation fuels market, industrial chemicals and enzyme markets, including domestic and foreign markets are important. Economic analysis on the availability of capital, the influence of interest rates, the influence of bond initiatives to finance biorefineries in the northeast, are important to the Sun Grant Initiative. Economic analyses are needed for potential or case-study job creation from new energy technologies. Another issue needing study is the cost and benefit (economic and social) of the development of infrastructure to support distributed energy technologies. Scale economy issues need to be addressed to determine the limiting resources of a rural industrial ecology model in the northeast region.

Marketing, economics and policy issues research priorities include (but are not limited to) developing models of the circulation of currency in the local bioeconomy, reviewing

current policies for land use preservation and use of marginal lands, analyzing the regional bioeconomy's influence on the environment and on job creation, assessing the impact of the variability of laws and regulations between states on the bioeconomy. For a complete listing of the marketing, economics and policy issues priorities envisioned by the region, refer to the Northeast Region Sun Grant Initiative Roadmap available in its entirety as a downloadable .pdf file at:

<http://www.nesungrant.cornell.edu/Roadmap.html>

The Department of Transportation has identified the following topic areas as priorities for Biofuels Economics, Marketing and Policy:

- Economics and policy analyses
- Impacts on food, feed and fiber markets

Education and Outreach

Cross-cutting to all of the above mentioned research and development priorities is education and rural-development outreach. Pioneering the transition to a biobased economy includes a strong commitment to educating the future workforce. The Northeast Sun Grant educational programs expect to impact the future of education and industry in many positive ways. The science modules and innovation competitions will help educate today's youth in the basics of science and math while simultaneously instilling an appreciation for the environment, the importance of renewable energy sources, and the importance of strong communities. The support of scholarships, fellowships and internships for students and teachers will help build a strong core of future researchers and engineers working in the area of biobased industries. The involvement of industry partners with the educational programs will improve the communications between industry and universities, and will increase the function of universities to solve real-world problems. Outreach priorities include (but are not limited to) enhancing public familiarity and exposure to biobased industries and sustainability concepts to create more informed producers, processors, consumers and decision makers. Outreach information should be research-based and coordinated with the most current state of technology development.

For a complete listing of the Education and Outreach priorities envisioned by the region, refer to the Northeast Region Sun Grant Initiative Roadmap available in its entirety as a downloadable .pdf file at:

<http://www.nesungrant.cornell.edu/Roadmap.html>

The Department of Transportation has identified the following areas as priorities for Biofuels Education and Outreach:

- e-Extension (eXtension) activities (see <http://about.extension.org/>)
- Rural development outreach

Northeast Priorities Matrix

To assist grant applicants in incorporating proposed research, education and outreach activities into the collective vision represented by the Northeast Regions Priorities, a matrix of “strategic areas” and their “enabling activities” is presented. A typical project application may cover one box of the matrix, or multiple boxes, combined into a single project. Lead projects should propose integrated research, education and outreach activities. Lead Projects will likely encompass multiple boxes, or all boxes within an enabling activity (row) or strategic area (column) in an integrated (research, education and outreach) application. Seed projects may be limited to a single box but could benefit from additional aspects being investigated. To assist reviewers, it is recommended applicants identify how the proposed project fits within this matrix.

Northeast Region Priorities Matrix for planning proposed research, education and outreach.

	Strategic Areas		
Enabling Activities	BioFuels	BioPower**	BioProducts**
Feedstock Development			
Conversion Processes			
Systems Integration			
Marketing, Economics and Policy Issues			

For a complete listing of the research, education and outreach priorities envisioned by the region, refer to the Northeast Region Sun Grant Initiative Roadmap available in its entirety as a downloadable .pdf file at: <http://www.nesungrant.cornell.edu/Roadmap.html>

**In 2007, the source of Federal funding for Sun Grant is from the US Department of Transportation (DOT). In 2007, NE-SGI will seek proposals with emphasis on Biofuels that show the potential for displacement of imported petroleum. Proposals in the emphasis areas of BioPower or BioProducts also are appropriate if they show a strong potential for displacement of imported transportation-petroleum-fuels or support a part of the industrial ecology to make production of a biofuel more economically feasible. That is, BioProducts (or BioPower) research is a relevant research area if, for example, the specific bioproduct (or biopower) is a biofuel production waste stream making the economics of producing the biofuel more feasible.



ELIGIBILITY INFORMATION

Eligible Applicants

Principal investigators must be employed by an eligible institution (see below). Principal investigators and key personnel must demonstrate competency to implement and complete a project, provide fiscal accountability, prepare project reports and demonstrate a willingness to share information with researchers and other interested parties.

Eligible Institutions

Only land-grant (1862) institutions and 1890 and 1994 institutions in the Northeast Region Sun Grant States are eligible to submit an application. The 19 Land Grant Institutions in the Northeast Sun Grant States are: University of Connecticut, Connecticut Agricultural Experiment Station (at New Haven), Delaware State College, University of Delaware, University of the District of Columbia, University of Maine, University of Maryland Eastern Shore, University of Maryland College Park, University of Massachusetts, Massachusetts Institute of Technology, Michigan State University, University of New Hampshire, Rutgers The State University of New Jersey, Cornell University, The Ohio State University, Pennsylvania State University, University of Rhode Island, University of Vermont, West Virginia University, and West Virginia State College.

Individuals, businesses, non-profit entities, or educational institutions may participate through partnership with a land grant or 1890 or 1994 institution. Partnership between Northeast Region land grant institutions and small businesses, not-for-profit organizations, or other colleges and universities is encouraged.

Matching Funds Requirement

Successful Northeast Sun Grant Initiative Program Applicants must demonstrate 20% matching-funds. Grantees may provide matching funds through in-kind contributions,

including faculty salaries, facilities, or from state, local, not-for-profit or private matching funds. No federal funds may be used as matching funds. Funds requested for technology development/implementation projects with industry or business partnerships will be given preference during the selection process if a match greater than 20% is provided.

Cost match calculation example

For example, an institution requesting \$100,000 in NE-SGI funds must provide a 20% cost match, or \$20,000. The total budget of the proposal will be \$120,000 (i.e., \$100,000 in requested funds plus \$20,000 cost-match funds).

Reporting Requirements

Quarterly reports (1-page) and annual reports are required from all successful applicants and must be submitted in writing to the Northeast Sun Grant Institute of Excellence. Annual reports also must be presented to the NE-SGI Steering Committee, other investigators, and interested parties (from government and industry) at a yearly NE-SGI Principal Investigators symposium.

It is important to disseminate information from NE-SGI funded projects. At least one product of significance, i.e. Experiment Station report, Extension bulletin or white paper is required for all funded projects. Ideally, at least one peer-reviewed article would result from NE-SGI funded research. Investigators must acknowledge USDOT and NE-SGI in all publications and presentations.

Each proposal should include a budget item for PI travel to the annual symposium for presentation of results. PI participation in this meeting is required.

For multi-year projects, an acceptable annual report is required for continuation of funds.



AWARD INFORMATION

Available Funding

The amount of funding available for the Northeast Sun Grant Initiative Competitive Grants Program FY-2007 is \$985,000. Funds from the Department of Transportation (DOT) have been authorized through FY 2011 and are appropriated from Congress annually. Continuation of funding beyond 2007 (i.e., for 2008 – 2011) depends upon receipt of funds by NE-SGI from DOT.

Two types of projects are proposed for funding: larger “Lead Projects” and smaller “Seed Projects”. The NE-SGI 2007 funds (\$985,000) will be utilized as follows: Approximately 1/3 toward fundamental research, 1/3 toward deployment of new technologies, and 1/3 toward all other projects at the discretion of the Steering Committee. The 20% matching funds requirement leverages an additional \$197,000 for the competitive grants program.

Integrated* Lead Projects

Lead projects are multi-investigator, multi-institution, multi-year, integrated activities that address the priorities set forth in the NE-SGI Roadmap. These research, education and outreach activities may be eligible for funding up to \$600 K (total NE-SGI dollars) with priority given to 2 year projects (1 to 4 year in duration possible).

Seed Projects

Seed Projects are single investigator or small team proposals that seek to build individual or institutional capacity. Seed projects will be considered up to \$100 K (total NE-SGI dollars) (1 to 3 years in duration possible).

* Definition of INTEGRATED ACTIVITIES: Projects that include research, education and outreach activities.



APPLICATION AND SUBMISSION

Submission Dates and Times

Letter of Intent (requested by not required to apply) due: **March 15, 2007**

Grant Application proposals are due: by 5 pm (Eastern), **April 30, 2007**

Method for Submitting an Application

All Letters of Intent and Full Applications must be submitted electronically via the online Sun Grant Webnibus Proposal Management System (an online proposal application and review system). No other submission type will be accepted. The online system can be entered and exited as many times as needed. Information saved on the system will be available upon reentry into the system and project team members may review materials online. Project team members should log onto the system well in advance of the due date to register with the system and to become familiar with the proposal forms and process.

Online certification – Proposal sign-off sheet: The PI must make the application package available to approvers at his/her institution and all approvers must be able to log into the online system. Prior to proposal submission all PI's and CO-I's must certify agreement with the proposal package content. In addition, Department Heads, Deans, Directors, Department Accountants, College business accountant, and other Authorized Representatives (as appropriate for your institution) also must certify agreement with the proposal package content. Clicking the **Certify Approval** link will substitute for signatures on the application package sign-off sheet.

Registration for online submission

Northeast region applicants must register online for an account to access the Northeast Sun Grant Webnibus application system. Instructions for registration and access to the Webnibus system for northeast region applicants are located on the Northeast Sun Grant website: <http://www.nesungrant.cornell.edu>

At the Sun Grant Webnibus site you will be asked to input your email address and contact information. A password will be randomly generated and emailed to the email address you provide. You can change your password after you log-in with the password sent to your email address.

Content and Format of Application

Letter of Intent Content and Format

Applicants are strongly encouraged to submit a Letter of Intent (LOI) to apply, but are not required for FY-2007 applications because of the limited time between announcement and application deadline this year. The Letter of Intent is limited to 4000 characters and should contain:

- 1) Descriptive title for the proposed project;
- 2) Names of key personnel and their institutions;
- 3) Brief statement of the proposed project objectives;
- 4) Estimated amount of requested funds.

The letter of intent is not binding on the content of the proposal. The letter of intent will be used as an administrative tool for receipt and processing of applications. There will be no prescreening of applications or feedback provided to applicants based on the letters of intent to apply.

Letters of Intent to apply should be addressed to Dr. Larry P. Walker, Director of the Northeast Sun Grant Institute of Excellence, and should be submitted through the online Webnibus system link available at <http://www.nesungrant.cornell.edu>.

Creating an online editable letter of intent/proposal file

The Project PI must create a file for the Letter of Intent/Project Proposal that can be edited by other team members that the PI specifically identifies through the online Northeast Sun Grant Webnibus system. To create an editable Letter of Intent/Proposal File, the PI should click on "Create New Proposal/Letter of Intent" from the Main Menu. Then follow the online instructions to create the file. You may wish to use a word processing software program to create and edit your letter and then copy and paste it into the online box (4000 character limit).

CREATING A NEW EDITABLE LETTER OF INTENT/PROPOSAL FILE

Title: Input a descriptive title for your project.

Call: Select: FY 2007 Northeast Sun Grant Initiative from the pull down menu.

Start Date: Input an estimated start date for your proposed project. Most projects are expected to begin around July 1, 2007.

End Date: Input the estimated end data for your proposed project.

Click on the "Create Proposal/Letter of Intent" button to access the Letter of Intent.

Grant Application Content and Format

The components of the full proposal are to be entered into the online proposal system by registering for an account and following the directions for each form on the Sun Grant Webnibus site. It is recommended to prepare your proposal sections using word processing software and then follow the online directions. Many elements can be copy and pasted to the online boxes. The project narrative section is uploaded as a separate file.

Online submission of the full proposal must include:

- A. Title/Cover Page:** Follow the online instructions to complete the title page. The information on the title/cover page includes the Call: (NE-SGI-2007) the project title, proposed project period, principle or lead investigator and the lead institution, Co-PIs, Total funds requested from NE-SGI, Total cost-share funds, sources of cost share and a list of collaborators. A cover page is generated from the online form.

- B. Abstract** – Follow the online instructions to complete the proposal abstract. The abstract should be a brief (200 words or less) summary of the project.

- C. Budget**– Follow the online instructions to complete the proposal budget. Each proposal must include a detailed budget for each year of the requested support and a budget form that summarizes total project costs for the duration of the proposed activity. Successful applicants must provide a 20% cost-match. For example, an institution requesting \$100,000 in funds from NE-SGI must provide a 20% cost-match or \$20,000. The total budget of the proposal will be \$120,000 (\$100,000 requested plus \$20,000 matching funds). Funds requested for technology development or implementation projects with industry or business partnerships will be given preference during the selection process if a match greater than 20% is provided.

INDIRECT COSTS. Institutions may charge indirect costs at their institution's federally negotiated rate or 25% of Total Direct Costs (TDC), whichever is less. Another way to calculate the allowed indirect costs and obtain the same value would be 20% of the total requested amount (before matching funds). In-kind as well as un-recovered indirect charges (i.e., the difference between the negotiated federal rate and the 25% TDC rate) may be used as part of the matching funds.

An example is provided below.

For example, for an institution requesting \$100,000 from NE Sun Grant:

FUNDED BY NE SUN GRANT	
Total Direct Costs (TDC) =	\$ 80,000
Indirect Costs (25% of TDC)=	\$ 20,000
Total of NE-SGI funds =	\$100,000
MATCHING FUNDS (20%)*=	\$ 20,000
TOTAL PROJECT BUDGET =	\$120,000

*Matching funds are to be monitored by applicant's institution, but confirmed to Cornell.

D. Budget Justification/ Budget Narrative: Follow the online instructions to complete a detailed budget narrative. If consulting or collaborative arrangements are included in the proposal, these arrangements should be carefully explained and justified. Letters of intent or other evidence should be provided that collaborators involved have agreed to render these services. The online budget justification forms provide the following sections (not to exceed 1000 characters each):

- 1) Personnel;
- 2) Equipment (items \geq \$5000);
- 3) Expendable supplies and minor equipment;
- 4) Travel;
- 5) Other (subcontracts, consultants, computer time, publications, GRA tuition, F&A charges, etc.);
- 6) Contributing organizations (Please use the format: "Organization: contribution type and amount").

E. Proposal Narrative – The proposal narrative can be completed in a word processing software and then uploaded into the Webnibus system. All pages in the project narrative should be numbered, and should be single spaced, with at least one-inch margins. Proposals are not to exceed 15 pages. Text of the proposal narrative should be prepared using Times Roman or similar type face and using a font no smaller than 12 pt. Proposals not conforming to this format will be returned without review.

1. **Executive Summary (1 page maximum):** Provide a brief description of the problem to be addressed, project objectives, expected deliverables and a description of the effort to be undertaken in terms that can be understood by a diverse audience including the general public, university personnel, stakeholders and various public and private organizations.

2. **Problem Statement (3 page maximum):** Each proposal should fully state the need for the activity and the approach to be used. Lead Projects should integrate research, education and outreach to validate new technologies investigated and developed. Project teams should include faculty with interests in research, technology development and outreach. Describe why current technologies and practices are inadequate and how the proposed approach will assist in the region's efforts to develop bioenergy and bioproducts capacity. Review all ongoing or completed work (local/regional/national) that is relevant. Provide adequate references to describe the current status of the area of research and/or educational effort and justification for the proposed project. Address the specific needs identified in this solicitation, identify the relative importance of the strategies being proposed, and describe the potential applicability of the proposed approach to other regions. ***For Integrated Lead Project Proposals only:*** Project teams should include faculty and stakeholders with interests in research, technology development and outreach.
3. **Objectives and anticipated accomplishments (2 page maximum):** Provide clear, concise, complete, and logically arranged statements of the specific research, education or outreach aims of the proposed effort along with details of the anticipated accomplishments. In all proposals, the objectives should delineate both the proposed aims and any results anticipated, and how the results will be disseminated through an outreach strategy.
4. **Approach/Procedures (3 page maximum):** Describe how each of the stated objectives will be reached. Include appropriate experimental design and experimental units, reference methods to be used and appropriate statistical analysis. For all proposals, describe how the project will be managed, particularly how coordination between the research and outreach components will be achieved and maintained. Provide detailed plans for the evaluation of the project and how successful impacts and outcomes will be measured, including economic assessments if appropriate. Where possible include evaluation objectives with specific impact indicators that will be used to measure the success of the effort. ***For Integrated Lead Project Proposals only:*** The degree of collaboration should be specifically addressed in the proposal.

5. **Implementation and Evaluation Plan (2 page maximum):** Proposals should describe how the technologies (should they be successful) will be implemented and utilized. In addition, and where appropriate, each proposal should include a plan on evaluation of the technologies developed and interactions with the private sector in increasing utilization. ***Proposals must include a timetable or spreadsheet that demonstrates the step by step progression of the research and outreach effort proposed, with appropriate milestone dates.***
6. **Literature Cited:** As appropriate.
7. **Cooperative Units Involved / Collaborative Agreements: *For Integrated Lead Project Proposals only:*** Identify each institutional unit involved or contributing to the project. For each partnering unit, provide the name and contact information. Clearly define the roles and responsibilities of each institution or unit participating. If the project includes consulting, collaborative, or subcontractual arrangements, such arrangements should be fully explained and justified. In addition, evidence should be provided that the collaborators involved have agreed to render these services, such as a letter in intent from the individual or organization.
8. **Key Personnel (1 page maximum):** Identify all key personnel in the proposed project, their specific roles and the percentage of time that will be committed to the effort.

In addition to the listing of Key Personnel and roles, each team member should complete the **online Biosketch** that contains current and up to date vita (not to exceed 2 pages each). The online **Biosketch information for each team member** includes input boxes for:

- a. **Complete contact information**
- b. **Education (< 500 characters)**
- c. **Employment (< 1000 characters)**
- d. **Professional recognition(< 500 characters)**
- e. **Publications (< 2000 characters)** Include a listing of your most relevant publications.
- f. **Students/Post-docs supervised (< 500 characters)**
- g. **Current and Pending support.** Identify any current and pending support of the PI's and/or Co-PI's that is pertinent or related to the proposed work. Include project title, Sponsor, Period of support, time

commitment, and amount of award. Mention areas of overlap with current proposal, if any.

Vita/Biosketch for individual team member's are not counted in the 15 page limit for proposals.

- F. List of potential reviewers.** Please follow the online instructions to list up to six potential reviewers.
- G. Conflicts of Interest** – Follow the online instructions to complete the COI form. If there are apparent/potential conflicts of interest please provide a list and a statement.
- H. Assurance Forms and Signature Pages** – Online certification of the proposal package is completed through the online PROPOSAL SIGN-OFF SHEET. The Proposal sign-off sheet must be completed by each PI and Co-I, not the Authorized Organizational Representative. If there is an assurance issue, your assurance officer also will need to sign-off on the form. Completed institutional signature pages should be uploaded as attachments to the proposal system.

Where to Submit Application

Full Proposals are DUE by 5 pm (Eastern), April 30, 2007

All proposals must be submitted electronically. Instructions for online submission are available in this request for applications, on the Sun Grant Webnibus System website, and through the Northeast Sun Grant Website. <http://www.nesungrant.cornell.edu>

Contact Persons

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REVIEW PROCESS AND CRITERIA

General review process description

Successful applications must demonstrate strength in technical merit, feasibility, compliance with DOT requirements for 20% matching funds, and balance of Sun Grant research, education and outreach priorities portfolio. The proposal review is a 4-step process.

The **NE-SGI Institute of Excellence** will review all proposals for compliance with DOT 20% matching funds requirement. All proposals that meet this requirement will be forwarded to the Technical Review Panel.

The **Technical Review Panel** will consist of up to 6 scientists, engineers, economists, stakeholders and educators from the region (and beyond) to review relevance to the stated goals of the NE-SGI, fit, technical merit, feasibility and ability to achieve the proposed outcomes. Proposal applicants will have the opportunity to suggest reviewers through the Webnibus on-line proposal management system. The Technical Review Panel will meet and make a recommendation to the Steering Committee.

The NE-SGI **Steering Committee** will meet following the Technical Review and DOT-Compliance Verification, to review the final selection of proposals for funding.

The list of proposals selected by the Steering Committee for funding will be forwarded to a **Federal Agency Review Panel** for review.

The Steering Committee Chair/Grants Process Manager will present the results with a recommendation to the full Steering Committee, for final review and approval. The Steering Committee will notify the Northeast Sun Grant Institute of Excellence of its recommendations for funding, including the level and duration of awards, in order that subcontracts can be prepared through Cornell University.

Evaluation Criteria

The following evaluation criteria will be utilized in reviewing grant proposal submissions.

EVALUATION CRITERIA	Lead Projects	Seed Projects
I. Program Priorities		
A. Importance and value to the region	10	15
B. Feasibility and cost/benefit	10	15
II. Appropriate objectives, design & methodology	25	30
A. Degree of interdisciplinary collaboration	5	
B. Degree of multi-organizational collaboration	5	
C. Degree of multi-state collaboration	5	
D. Degree of integration (research, extension, outreach)	5	
E. Evaluation plan	5	10
III. Professional competence of project team	10	10
IV. Appropriateness of the implementation plan	10	10
V. Appropriateness of budget	10	10
TOTAL	100	100

The NE-SGI will seek to fund a portfolio of research, education and outreach projects to address the bioenergy development priorities of the region. Projects deemed of equivalent merit and quality may be selected on the basis of their relevance to meeting the priority needs of the region.



AWARD ADMINISTRATION

Administrative Program Management

The Administrative program management will be handled by the Northeast Sun Grant Center of Excellence. Contracts and payments for the awards will be written and distributed from Cornell University. Reports and reviews will be collected and maintained by Cornell University. The Steering Committee alone is responsible for selection of the awards and determination of funding priorities for the region.

Award Notice

Notification of awards will come from Cornell Northeast Sun Grant Institute of Excellence. Notification is expected to be made by June 15, 2007.

Access to Proposal Reviews

Written reviews will be provided to the Institute of Excellence for each proposal. The review forms will be maintained by the Institute of Excellence at Cornell University for the benefit of PI's that may request feedback on their proposal. The proposal reviews for a project will be returned to the Program Director for the project.

Investigator Reporting Requirements

An annual report of progress must be submitted by each funded project to be considered for continuation of funding. In addition, each proposal should include a budget item for PI travel to an annual symposium for presentation of results. PI participation in this meeting will be mandatory. The Northeast Sun Grant Institute of Excellence at Cornell will organize the annual regional symposium.

Continuation of funding

Continuation of funding beyond the first year will be determined by first year performance (as reported in written reports and presented at the annual symposium) and will be dependent upon appropriation of funds by Congress for 2008-2011 and receipt of funds from DOT by NE-SGI.



NORTHEAST SUN GRANT INSTITUTE OF EXCELLENCE

**2007 COMPETITIVE GRANTS PROGRAM
REQUEST FOR APPLICATIONS**

WEBSITE: <http://www.nesungrant.cornell.edu>

EMAIL: nesungrant@cornell.edu