FINANCIAL ASSISTANCE
FUNDING OPPORTUNITY ANNOUNCEMENT

U.S. Department of Energy

Office of Biological and Environmental Research (BER)

GTL Bioenergy Research Centers

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Letter of Intent Due Date:	**12/05/2006**
Funding Opportunity Announcement Conference:	**Not Applicable**
Pre-Application Due Date:	**Not Applicable**
Application Due Date:	**02/01/2007 at 8:00 PM Eastern Time**

NOTE: NEW REQUIREMENTS FOR GRANTS.GOV

Where to Submit
Applications must be submitted through Grants.gov to be considered for award. You cannot submit an application through Grants.gov unless you are registered. Please read the registration requirements carefully and start the process immediately. Remember you have to update your CCR registration annually. If you have any questions about your registration, you should contact the Grant.gov helpdesk at 1-800-518-4726 to verify that you are still registered in Grants.gov.

Registration Requirements
There are several one-time actions you must complete in order to submit an application through Grants.gov (e.g., obtain a Dun and Bradstreet Data Universal Numbering System (DUNS) number, register with the Central Contract Registry (CCR), register with the credential provider, and register with Grants.gov). See http://www.grants.gov/GetStarted. Use the Grants.gov Organization Registration Checklist at http://www.grants.gov/assets/OrganizationRegCheck.doc to guide you through the process. Designating an E-Business Point of Contact (EBiz POC) and obtaining a special password called an MPIN are important steps in the CCR registration process. Applicants, who are not registered with CCR and Grants.gov, should allow at least 21 days to complete these requirements. It is suggested that the process be started as soon as possible.

IMPORTANT NOTICE TO POTENTIAL APPLICANTS: When you have completed the process, you should call the Grants.gov Helpdesk at 1-800-518-4726 to verify that you have completed the final step (i.e. Grants.gov registration).

Questions
Questions relating to the registration process, system requirements, how an application form works, or the submittal process must be directed to Grants.gov at 1-800-518-4726 or support@grants.gov. Part VII of this announcement explains how to submit other questions to the Department of Energy (DOE).

Application Receipt Notices
After an application is submitted, the Authorized Organization Representative (AOR) will receive a series of five e-mails. It is extremely important that the AOR watch for and save each of the emails. It may take up to two (2) business days from application submission to receipt of email Number 2. You will know that your application has reached DOE when the AOR receives email Number 5. You will need the Submission Receipt Number (email Number 1) to track a submission. The titles of the five e-mails are:

Number 1 - Grants.gov Submission Receipt Number
Number 2 - Grants.gov Submission Validation Receipt for Application Number
Number 3 - Grants.gov Grantor Agency Retrieval Receipt for Application Number
Number 4 - Grants.gov Agency Tracking Number Assignment for Application Number
Number 5 – DOE e-Center Grant Application Received

The last e-mail will contain instructions for the AOR to register with the DOE e-Center. If the AOR is already registered with the DOE e-Center, the title of the last e-mail changes to:

Number 5 – DOE e-Center Grant Application Received and Matched

This e-mail will contain the direct link to the application in IIPS. The AOR will need to enter their DOE e-Center user id and password to access the application.

VERY IMPORTANT – Download PureEdge Viewer
In order to download the application package, you will need to install PureEdge Viewer. This small, free program will allow you to access, complete, and submit applications electronically and securely. For a free version of the software, visit the following web site: http://www.grants.gov/DownloadViewer.

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Reference Material

Frazier, M. et al. 2003. "Realizing the Potential of the Genome Revolution: The Genomes to Life Program." *Science*, April 11, pp. 290-93.

Greene, N. et al. 2004. *Growing Energy: How Biofuels Can Help End America's Oil Dependence.* New York: National Resources Defense Council.

Mann, C. 2004. "Ethanol from Biomass," Memorandum to the National Commission on Energy Policy, Appendix IV.4e of NCEP report, Ending the Energy Stalemate: A Bipartisan Strategy to Meet America's Energy Challenges.

National Research Council of the National Academies. 2006. *Review of the Department of Energy's Genomics: GTL Program*. Washington, DC: National Academies Press.

Perlack, R. et al. 2005. *Biomass as Feedstocks for a Bioenergy and Bioproducts Industry: The Technical Feasibility of a Billion-Ton Annual Supply*. Oak Ridge National Laboratory.

U.S. Department of Energy, Office of Science. 2005. *DOE Genomics: GTL Roadmap: Systems Biology for Energy and Environment.* http://doegenomestolife.org/roadmap

U.S. Department of Energy, Office of Science. 2006. *GTL Bioenergy Research Centers White Paper.* http://doegenomestolife.org/centers/

U.S. Department of Energy, Office of Science. 2006. *Biomass to Biofuels Workshop Report:* http://www.doegenomestolife.org/biofuels/

PART I - FUNDING OPPORTUNITY DESCRIPTION

A. SUMMARY

The Genomics: GTL program (GTL) in the Office of Biological and Environmental Research (BER) of the Office of Science (SC), U.S. Department of Energy (DOE), is a systems biology research program with the mission goal of developing the science, technology, and knowledge base to harness microbial and plant systems for cost-effective renewable energy production, carbon sequestration, and environmental remediation. This Funding Opportunity Announcement (FOA) requests that the scientific community submit applications for the establishment of GTL Bioenergy Research Centers that develop novel biological solutions for the production of such fuels as cellulosic ethanol or hydrogen or for other groundbreaking bioenergy research with the potential to revolutionize biology-based energy production. This FOA describes the establishment of up to two multidisciplinary research and technology development Centers that will conduct comprehensive, integrated research and training programs in energy-related systems and synthetic biology. The Centers will involve diverse disciplines that could include genomics, microbial and plant biology genetics, proteomics, physiology, biochemistry, structural and computational biology, bioinformatics, and engineering. The FOA does not include funding for construction of new buildings. Each Center will be funded for up to $125 million over five years: $25 million in the first year for start-up costs and up to $25 million per year for operations during the subsequent four years. Proposals should focus on the development of a single research Center. DOE intends to fund up to two research Centers.

B. BACKGROUND

The imperative of reducing U.S. dependence on fossil fuels and imported oil has become increasingly urgent in light of growing economic, environmental, and national security concerns. Fossil fuels currently account for roughly 85 percent of U.S. energy consumption, while nearly 60 percent of the petroleum the nation consumes is imported. Renewable sources of energy—including biomass, hydroelectric, geothermal, wind, and solar—provide just 6 percent of energy consumed.

One of the most promising alternative sources is thought to be energy from biomass. In 2000, biomass energy surpassed conventional hydroelectric power as the nation's leading renewable source of energy. It now accounts for roughly 3 percent of energy consumed per year. However, most biomass energy today is produced by simply burning wood or plant matter. While the transformation of biomass into usable transportation fuel in the form of ethanol has steadily increased over the past 25 years, ethanol accounted for just 10 percent of biomass energy consumed in the U.S. in 2004, and just 0.3 percent of total annual U.S. energy consumption. Recent federal regulations requiring the increase of ethanol content in gasoline can be expected to accelerate ethanol production substantially. But current ethanol production in the United States, which primarily uses corn grain as a feedstock, is neither cost-effective nor energy-efficient and consumes large quantities of fossil fuels in the process. Transforming ethanol into a truly cost-effective alternative to gasoline has great potential to reduce petroleum consumption. However, this will require significant improvements to current production processes to both drive production costs down and minimize the use of natural resources.

Cellulosic ethanol—ethanol produced from plant fibers that today would otherwise be discarded or burned—can be cost-competitive with gasoline and could substantially reduce net CO_2 emissions from the transportation sector by more than 80 percent at no extra cost (Greene et al, 2004; Mann, 2004). Plants grown as feedstock for cellulosic ethanol recapture a majority of the atmospheric carbon dioxide that is emitted when the ethanol fuel is burned. A plentiful supply of

cost-effective cellulosic ethanol for the U.S. transportation sector would not only reduce dependence on petroleum imports and cut down on net carbon and toxic emissions; it would also provide a powerful boost to the nation's agricultural sector. It has been estimated that the United States would be capable of growing up to a billion tons of feedstock annually for cellulosic ethanol production (Perlack et al, 2005).

Developing an energy efficient and cost-effective method of producing cellulosic ethanol will require revolutionary breakthroughs in science and technology. It is unlikely to be achieved simply through incremental improvements in current industrial processes and production methods.

Several developments have converged in recent years to suggest that systems biology research into microbes and plants may be able to overcome critical roadblocks to cost-effective production of cellulosic ethanol and other renewable energy from biomass on a large scale. The ability to rapidly sequence the DNA of any organism is a critical but modest part of these new capabilities. Others include:

- the development of high-throughput techniques for the production and characterization of proteins;
- the emergence of a range of new instrumentation for observing proteins and other constituents of the cell;
- the rapid growth of commercially available reagents for protein production;
- the availability of technologies for high resolution imaging from the molecular to the cellular to the microbial community spatial scales;
- major advances in computational capability; and
- the continual progress in the development of these instruments and technologies within the national laboratory infrastructure, at universities, and in private industry.

All have decisively expanded capabilities for elucidating the mechanisms of living cells. In a sense, the challenge is to bring the most advanced available biotechnology research tools and methodologies—along with expertise spanning the biological and physical sciences—to bear on a range of microbes and plants with direct relevance to renewable energy production.

Most biological processes that produce usable energy start with solar energy captured via photosynthesis, a complex biochemical pathway in which solar energy is used to drive the chemical conversion of low-energy inorganic molecules such as water and carbon dioxide into energy-rich organic molecules. The organic products of photosynthesis are used to build biomass (proteins, fats, carbohydrates, and cellulose) and store chemical energy needed to drive cellular processes. The biomass of photosynthetic organisms can be used directly as a burnable fuel or converted to such other high-value energy carriers such as ethanol, hydrogen, biodiesel or methane.

At present, cellulosic ethanol appears to be the biofuel with the greatest near-term promise. But the same systems biology techniques applicable to the discovery of alternative methods of cellulosic ethanol production might also be used for the production of other biofuels—including hydrogen from sunlight, biodiesel, biofuels for aviation, and others.

The Department of Energy's Office of Science (SC) has played a major role in inspiring, supporting, and guiding the biotechnology revolution of the last twenty-five years. The DOE's Office of Health and Environmental Research, the precursor to SC's Office of Biological and Environmental Research (BER), was the first federal agency to provide directed funding to the Human Genome Project (HGP), and was one of the major participants in the sequencing of the

human genome. BER's GTL program, with its mission of systems biology research for renewable energy production, carbon sequestration, and environmental remediation, is the direct heir to the HGP.

The GTL program employs a systems approach to biology at the interface of biological, physical, and computational sciences to address DOE's energy, environment, and national security mission needs. Since 2000, the GTL program has operated by supporting relevant research at institutions across the nation, including research focused on the diverse biochemical capabilities of microbes and microbial communities, as they relate to potential biological solutions to DOE needs. The GTL program supports a mix of fundamental research, development of novel technological capabilities for biological research, and the development of research centers focused on biological solutions to energy and environmental challenges.

The development of a biotechnology based energy infrastructure requires a science base that will enable scientists to redesign specific proteins, biochemical pathways, and even entire plants or microbes. Understanding the biological mechanisms involved in these energy-producing processes will allow scientists and technologists to design novel bioenergy strategies. The purpose of the new Bioenergy Research Centers is to give greater impetus and focus to the effort to develop usable knowledge that will advance biotechnology-based strategies for biofuels production and ultimately lead to technologies deployable in the nation's energy economy (see the GTL Bioenergy Research Centers document at http://doegenomestolife.org/centers/).

The Bioenergy Research Centers will be the first two of four planned Centers, with Centers for systems biology research on environmental remediation and carbon sequestration planned for future years.

C. PURPOSE, OBJECTIVES, AND CENTER DEVELOPMENT REQUIREMENTS

Overview

The mission of the Bioenergy Research Centers will lie at the frontier between basic and applied science, and will maintain a focus on bioenergy applications. The purpose of the Department in funding the Centers will be to achieve real steps toward real solutions to the challenge of producing renewable, carbon-neutral energy. At the same time, it is desired that the Centers be grounded in basic research, pursuing alternative avenues and a range of high-risk, high-return approaches to finding solutions. To some degree, one key to the Centers' success will be the applicant's ability to develop the more basic dimensions of their research to a point that can easily transition to applied research.

The Centers will take a holistic, systems approach to biology at the interface of biological, physical, and computational sciences. The scientific problems to be addressed by the Centers are inherently interdisciplinary. Centers will require personnel with varied skills and expertise in areas that may include genomics, microbial and plant biology, genetics, analytical chemistry, physiology, biochemistry, structural and computational biology, bioinformatics, and engineering, among other possible areas.

In addition, especially in addressing what are believed to be the nearer-term approaches to renewable energy—for example, the problem of producing cellulosic ethanol on a cost-effective and energy-efficient basis—it will be critical for the Center's research team to understand in depth the current industrial-level roadblocks and bottlenecks that must be overcome in order to develop research directions that may resolve those obstacles. The Center's research team will

need to combine exceptional skill and creativity in general biotechnology research with cutting-edge expertise in the specific problems to be addressed, either by including researchers specializing in this field or developing strong partnerships and working relationships with the individuals and institutions, governmental and nongovernmental, that have been engaged in research on these or related problems.

Research Focus

DOE is committed to developing biological technologies that produce clean, renewable, carbon-neutral alternatives to fossil fuels. In order to achieve that goal, a significant increase in our fundamental understanding of the critical biological systems involved in biofuel production is necessary. The GTL Bioenergy Research Centers will conduct basic, genomics-based research on the structural and functional design of microbial and/or plant systems important in biofuels production. Fundamental data will be generated that will enable the Centers and the research community to model, predict and engineer relevant metabolic pathways in microorganisms and/or plants for more efficient production of biofuels and bioenergy resources. It is expected that Centers will develop innovative technologies to overcome existing hurdles in efficient biofuel production. Centers will possess, or have access to, the necessary analytical, imaging, structural and computational capabilities necessary for a systems approach to biofuels production.

DOE's top priority is to seek improvements in the production of liquid transportation fuels from biomass, with cellulosic ethanol as the most plausible near-term candidate (see report from the Biomass to Biofuels Workshop, convened by the Department of Energy, at http://www.doegenomestolife.org/biofuels). However, the Department is also interested in supporting innovative research efforts on other alternatives, such as conversion of solar energy to fuels, e.g. hydrogen, and basic research on other biofuel production, such as biodiesel or methane.

The Bioenergy Research Centers will serve as catalysts for bioenergy-related research supported by the broader GTL research program and will coordinate research efforts with other GTL-funded research projects and other programs within the DOE.

Infrastructure and Operation

Strategies for development of these research Centers may include renovation of existing buildings and leasing buildings. Awards resulting from this competition may include a total of up to $25 million for Phase I, Center Establishment, in costs to house the Research Center(s) (including a possible lease for the first five years of the project), to renovate Center laboratories as needed, and for research equipment and instrumentation. New buildings will not be constructed as part of these awards.

Centers may develop agreements with respect to access to major DOE scientific instrumentation and user facilities (such as synchrotron and neutron facility stations, whole genome sequencing, and supercomputing) on an as-needed basis rather than as an integral component of the initial Center request and budget since funding at DOE user facilities is determined and administered separately from this announcement.

Each Center must articulate a distinct identity as a GTL Research Center as well as its commitment for GTL research.

Annual operating costs supported by Center awards are anticipated to be up to $25 million per year, including indirect costs. It is anticipated that the Centers will be operational by early fiscal

year (FY) 2009, i.e., between October 2008 and January 2009 and that awards will be made for an initial five-year period. Successful applicants will be expected to justify the Center's annual operating costs.

Technical Capabilities and Instrumentation

Centers will need to include all needed technical capabilities the applicant considers necessary to implement their proposed approach such as, instrumentation for the production and characterization of proteins and other required materials, analytical chemistry, including specialties such as proteomics, instrumentation for characterization of microbial cells and microbial communities and plants, and bioinformatics and computation. Such technical capabilities are discussed in the GTL Bioenergy Research Centers White Paper at http://doegenomestolife.org/centers/ and the DOE Genomics: GTL Roadmap S*ystems Biology for Energy and Environment* at http://doegenomestolife.org/roadmap.

In order to carry out their research programs, the Centers will be expected to develop core capabilities in or have access to the necessary analytical, imaging, structural and computational capabilities requisite for the systems biology approach to biofuels production. A portion of the research Center may be devoted to developing new technological capabilities for overcoming challenges in systems biology research that cannot be addressed with currently available technologies and instrumentation. Research capabilities and resources to be accessed outside of the Bioenergy Research Center should be clearly identified.

Management

The Department of Energy's Office of Science recognizes that effective management of scientific facilities, programs, and projects is critical to the success of research. Centers must have well-designed management plans for the establishment of the Center as well as for Center operations. Plans should include provisions for coordination with other GTL research Centers and with other GTL-funded research projects. Management of the Center's initial establishment, research, technology development, research center resources (both personnel and physical resources), and scientific data are critical to the success of these research Centers and to their overall contribution to GTL program, the Office of Science, and the DOE mission.

In common with other major Office of Science supported programs, the Centers will be subject to regular and rigorous peer review of their scientific program and their management structure, policies, and practices.

Staffing

The research program of the Centers should be led by internationally-recognized scientists. A Center may be comprised of diverse institutions including DOE/NNSA national laboratories, academia and non-profit research institutes and the private sector.

In assembling their research teams, Centers should strive to achieve the synergies that arise when individuals with forefront expertise in different methodologies, technologies, disciplines, and areas of content knowledge tackle a problem together, overcoming impasses by attacking the issue from fresh angles and discovering novel solutions.

Quality Assurance and Information Management

Applicants will be expected to have sound quality assurance plans for all aspects of the Center's proposed programs. National and international standards for quality assurance for the different

categories of experimentation to be carried out in the Center should be identified and plans for qualifying for International Organization for Standardization (ISO) and other certifications should be described in the application.

Applicants should describe strategies that their Center would use for management of data including data generation, data quality, data standards, data storage and data sharing and how the Center would integrate the information it develops with that of other GTL research projects, as well as with other community reference databases. Centers are expected to contribute to and participate with the GTL working group on data management, and to adhere to the group's consensus on data sharing.

Deliverables / Benchmarks

The Centers will be conducting fundamental biological research and related technology development. However, the Centers are expected to have deliverables or benchmarks that help focus the objectives of the research to the proposed short, intermediate, and long term goals they are addressing.

Training

Centers should include educational/training programs for students, postdoctoral fellows and scientists. Onsite scientific staff as well as visiting researchers should be included in proposed, regularly available programs.

Research Integration and Coordination

Applicants should describe plans for integrating the results of their fundamental research and technology development with other GTL research centers and across the GTL program. Bioenergy Research Centers may require research and technology capabilities that are beyond the scope of their Center's skills and resources and they should develop plans for obtaining these additional capabilities, including collaboration with outside scientists. These may include scientists funded by the GTL program as well as those outside the GTL program, and the use of resources both at their home institutions as well as at other institutions.

Other considerations

DOE user facilities such as the DOE Joint Genome Institute (DOE-JGI) and the W. R. Wiley Environmental Molecular Sciences Laboratory (EMSL) at Pacific Northwest National Laboratory (PNNL) are considered foundational resources for the Genomics: GTL Program, serving as independent and collaborative resources for any and all research Centers funded by this announcement. Funding for activities at these DOE user facilities is determined and administered separately from this announcement and should not be included in the budget requests of applications to this announcement. It is, however, envisioned that the Bioenergy Research Centers will develop arrangements with DOE user facilities for capabilities such as whole genome sequencing, synchrotron light sources, and high-end computation.

PART II – AWARD INFORMATION

A. TYPE OF AWARD INSTRUMENT.

DOE may award either field work authorizations or cooperative agreements under this Funding Opportunity Announcement. A DOE field work authorization will be awarded to a successful DOE/NNSA Federally Funded Research and Development Center (FFRDC) contractor. A cooperative agreement will be awarded to any other successful entity including, but not limited to, universities, nonprofit organizations, and for-profit organizations.

B. ESTIMATED FUNDING.

Up to approximately $125,000,000.00 is expected to be available for each of the new award(s) under this announcement. Total estimated DOE funding available for each of the two Centers is as follows:

Cost Category	Anticipated DOE Funding
Phase I: Center Establishment	FY 2007: Up to $25 million will be awarded for the establishment and start-up of each Center
Phase II: Center Operation	FY 2008 - 2011: Approximately $80-$100 million for each Center for 48 months (i.e., up to $25 million per year for each Center) for research and development activities

In the event estimated Phase I costs are less than the anticipated funding level of $25 million, DOE may elect to authorize the use of the remaining Phase I funds for Phase II activities conducted in the first year.

C. MAXIMUM AND MINIMUM AWARD SIZE.

Ceiling (i.e., the maximum amount for an individual award made under this announcement): $125,000,000.

Floor (i.e., the minimum amount for an individual award made under this announcement): $ None

D. EXPECTED NUMBER OF AWARDS.

DOE anticipates making up to 2 awards under this announcement.

E. ANTICIPATED AWARD SIZE.

DOE anticipates that a single award will be in the $105,000,000.00 to $125,000,000.00 range for the total project period.

F. PERIOD OF PERFORMANCE.

DOE anticipates making up to two awards at award levels up to $25,000,000.00 per year for

up to five years.

PART III - ELIGIBILITY INFORMATION

A. ELIGIBLE APPLICANTS.

All types of domestic legal entities, including DOE/NNSA FFRDC Contractors, are eligible to apply. Other Federal agencies and their FFRDC contractors, and nonprofit organizations described in section 501(c)(4) of the Internal Revenue Code of 1986 that engaged in lobbying activities after December 31, 1995, are not eligible to apply.

B. COST SHARING.

Cost sharing is not required.

C. OTHER ELIGIBILITY REQUIREMENTS.

DOE/NNSA Federally Funded Research and Development Center (FFRDC) Contractors.

DOE/NNSA FFRDC applicants are eligible for an award under this announcement as a prime awardee or as a team member subject to the following guidelines:

Authorization for DOE/NNSA FFRDCs. The cognizant Contracting Officer for the FFRDC must authorize in writing the use of a DOE/NNSA FFRDC contractor on the proposed project and this authorization must be submitted with the application as part of the DOE/NNSA FFRDC Budget File. The following wording is acceptable for this authorization.

> "Authorization is granted for the _____ Laboratory to participate in the proposed project. The work proposed for the laboratory is consistent with or complementary to the missions of the laboratory, and will not adversely impact execution of the DOE/NNSA assigned programs at the laboratory."

Value/Funding. If the DOE/NNSA FFRDC contractor is proposed as the prime awardee, DOE/NNSA will directly fund the DOE/NNSA FFRDC contractor through the DOE field work authorization system. If the DOE/NNSA FFRDC contractor is proposed as the prime awardee with non-DOE/NNSA FFRDC team members, DOE/NNSA will directly fund the DOE/NNSA FFRDC contractor for work to be performed by both types of entities through the DOE field work authorization system. If the DOE/NNSA FFRDC contractor is proposed as a team member for a DOE/NNSA FFRDC prime awardee, DOE/NNSA will directly fund each DOE/NNSA FFRDC contractor portion of the work individually through the DOE field work authorization system. If the DOE/NNSA FFRDC contractor is proposed as a team member for a non-FFRDC awardee, the value of, and funding for the DOE/NNSA FFRDC contractor portion of the work will not be included in the award to a successful applicant but will be funded to the DOE/NNSA FFRDC contractor through the DOE field work authorization system.

Responsibility. The prime applicant, if successful, will be the responsible authority regarding the settlement and satisfaction of all contractual and administrative issues, including but not limited to, disputes and claims arising out of any agreement between the applicant and the DOE/NNSA FFRDC contractor if the latter is a team member.

Project Management Principles for Financial Assistance Awards in the Office of Science. DOE anticipates awarding either field work authorizations or cooperative agreements under this Funding Opportunity Announcement. A DOE field work authorization will be awarded to a successful DOE/NNSA FFRDC. If the successful applicant is a DOE/NNSA FFRDC or if a DOE/NNSA FFRDC is a team member, the FFRDC will be required to comply with any applicable project management requirements provided in DOE Order 413.3 and DOE Manual 413.3-1. If the successful applicant is not a DOE/NNSA FFRDC, the applicant will be required to comply with state-of-the-art project management systems and practices which will be negotiated as part of the development of any resultant cooperative agreement(s).

Teaming Arrangements and Ineligible Entities

Teaming partners must designate a lead organization. Applications must be submitted on behalf of the teaming partners by the lead organization as DOE will enter into a prime award relationship with the designated lead organization.

The definition of Eligible Applicants set forth above in subsection A. of Part III, applies to all parties involved in an application, including the lead organization that actually submits the application (prime applicant) and all other institutions involved in any way in the proposed center (team members or lower-tier applicants). DOE/NNSA FFRDC Contractors are the only types of FFRDC contractors eligible to apply. Therefore, other Federal agencies and their FFRDC contractors, and nonprofit organizations described in section 501(c)(4) of the Internal Revenue Code of 1986 that engaged in lobbying activities after December 31, 1995, may not be the lead applicant, team members, or lower-tier applicants; nor be involved in any way in the application. Likewise, only domestic entities may be involved in applications. Foreign entities are excluded from participation at any level by the statement on eligibility. This means that foreign entities may not be the lead applicant, team members, or lower-tier applicants; nor be involved in any way in the application, whether as a funded collaborator, partner, or as an unfunded scientific contributor to the project.

If an application is received that includes an ineligible entity, or an employee of an ineligible entity performing research activities as a funded collaborator, partner, or as an unfunded scientific contributor to the project, **it will be deemed non-responsive and returned without further review**. Note, however, that otherwise ineligible entities are not precluded from serving as vendors of materials, supplies, equipment and scientific and technical advisory services to a proposed center, if they are acting purely in that role. Scientific and technical advisory services allow for the provision of scientific and technical expertise without actually performing research activities; examples of such services include serving as members of advisory committees and technical peer review panels or participation in scientific workshops or conferences. In the event, Federal agencies and/or their FFRDC contractors provide materials, supplies, equipment or scientific and technical advisory services; DOE will fund such entities through an interagency agreement under the Economy Act.

PART IV – APPLICATION AND SUBMISSION INFORMATION

A. ADDRESS TO REQUEST APPLICATION PACKAGE.

Application forms and instructions are available at Grants.gov. To access these materials, go to http://www.grants.gov, select "Apply for Grants," and then select "Download Application Package." Enter the Catalog of Federal Domestic Assistance (CFDA) and/or the funding opportunity number located on the cover of this announcement and then follow the prompts to download the application package. NOTE: You will not be able to download the Application Package unless you have installed PureEdge Viewer (See: http://www.grants.gov/DownloadViewer).

B. LETTER OF INTENT AND PRE-APPLICATION.

1. Letter of Intent.

Potential applicants are requested to submit a letter of intent by Tuesday, December 5, 2006. This letter is to include a cover sheet containing the name and mailing address of the potential applicant institution, the planned title of the Center, the name and e-mail address of the Project Director/Principal Investigator, and a listing of the institutions that are expected to be involved in the planned application in addition to the lead institution submitting the letter of intent, and a five to six page narrative containing the following:

- An overview of the strategic plan, including the long term vision and goals for the proposed Center as well as the objectives for the initial five-year period of the project;
- An overview of the research plan; and
- An overview of the plans to provide laboratory and office space for the Center including estimated cost ranges, to the extent applicable, for leasing, renovation and equipment.

The letters of intent will be used to organize and expedite the merit review process. Failure to submit such letters will not negatively effect a responsive application submitted in a timely fashion. The letter of intent should be sent by E-mail to Ms. Joanne Corcoran at: joanne.corcoran@science.doe.gov and Mr. Marc Jones at: marc.jones@science.doe.gov.

2. Pre-application.

Pre-applications are not required.

3. Funding Opportunity Announcement Conference.

A conference will not be held for this funding opportunity announcement .

C. CONTENT AND FORM OF APPLICATION – SF 424.

You must complete the mandatory forms and any applicable optional forms (e.g., SF-LLL-Disclosure of Lobbying Activities) in accordance with the instructions on the forms and the additional instructions below. **Files that are attached to the forms must be in Adobe Portable Document Format (PDF) unless otherwise specified in this announcement**. Individual file sizes should not exceed 100 megabytes (Mb). Individual files that exceed 100 Mb should be separated into multiple documents with file names that clearly indicate the sequence of these files.

1. SF 424 - Application for Federal Assistance.

Complete this form first to populate data in other forms. Complete all required fields in accordance with the pop-up instructions on the form. To activate the instructions, turn on the "Help Mode" (Icon with the pointer and question mark at the top of the form).

2. Other Attachments Form.

Submit the following files with your application and attach them to the Other Attachments Form. Click on "Add Mandatory Other Attachment" to attach the Project Narrative. Click on "Add Optional Other Attachment," to attach the other files.

Project Narrative File - Mandatory Other Attachment.

The project narrative (see below for detailed contents) must not exceed 75 pages, including charts, graphs, maps, photographs, and other pictorial presentations, when printed using standard 8.5" by 11" paper with 1 inch margins (top, bottom, left, and right). A cover page and table of contents should be included at the beginning of the project narrative but may be excluded from the page limitation. Headers/footers containing page numbers and project titles/logos may be inserted within the required 1" margins. In addition to the contents of the Additional Material, Biographical Sketch and Budget Files, EVALUATORS WILL REVIEW ONLY THE NUMBER OF PROJECT NARRATIVE PAGES SPECIFIED IN THE PRECEDING SENTENCE. The font must not be smaller than either Arial 11 point or Times New Roman 11 point. Do not include any Internet addresses (URLs) that provide information necessary to review the application. A single format, consistent with standard practices, should be used for the references throughout the application. References should be placed in a single list at the end of the project narrative. References are not subject to the aforementioned page limitation. See Part VIII.D. for instructions on how to mark proprietary application information. Save the information in a single file named "Project.pdf," and click on "Add Mandatory Other Attachment" to attach.

The contents of the project narrative are specified in order to ensure that the merit reviewers have the necessary information to conduct proper evaluations. All project narratives are to use the following outline.

I. Overview of the Project Plan. This section must not exceed five pages and should provide a clear, substantive overview summarizing the vision for the proposed Center including:

- Clearly stated short, intermediate, and long term goals of the Center;
- The strategy for developing and operating the Center;
- How the various research components will be integrated; and
- How the research program will address needs/gaps in bioenergy research.

II. Research and Development Program. Applicants should provide detailed information on their plans for:

- Proposed research objectives and research programs designed to provide science that is in the forefront in the area of bioenergy research during the initial project period;
- Proposed deliverables and benchmarks, including an explanation as to how the deliverables and benchmarks will ensure that research remains focused on the proposed short, intermediate and long term goals and the approach to measuring performance against the stated benchmarks;
- Potential scientific and technical obstacles to achieving the research objectives during the initial project period and approaches to be used to overcome them;
- Proposed approach to shifting research directions in response to promising developments;
- Development and operation of the proposed Center;
- How the proposed research will contribute to reaching the goals of the DOE Bioenergy program;
- Planned programs for education, outreach, and training;
- Plans for external collaborations and partnerships including DOE user facility collaborations, if applicable;
- Proposed access to existing research space and instrumentation and facilities at the host institution and its partners;
- Access to analytical, imaging, structural and computational capabilities for the systems approach to biofuels production including access to research capabilities and resources outside of the Center;
- Performance monitoring systems to be utilized to ensure the Center is established within the proposed scope, cost and schedule;
- How the proposed Center relates to the broader Genomics: GTL program including disciplinary components of the research plan and how they will be integrated with other components of the Genomics: GTL program; and
- How the proposed Center relates to existing and planned research programs at the host institution.

III. Organization and Staffing Plan. Applicants should provide information on their plans for:

- Management of the Center, including a well-designed management plan describing the proposed project management of the establishment and operation of the Center;
- Overview of the scientific and technical expertise in the relevant research disciplines required for the Center;

- Organizational structure: roles and responsibilities of key personnel and means of providing external oversight and guidance for scientific and technical direction and approval of the research program;
- Relevant scientific and technical expertise and experience of key personnel in the research disciplines needed for project success;
- Relevant scientific and technical expertise and experience of the proposed Center staff in the research disciplines needed for project success including any plans for collaboration with outside scientists funded by the GTL program;
- Relevant experience of key personnel in project, program, and personnel management for projects of comparable magnitude and of diverse teams of science and technical professionals;
- Major needs and recruiting strategy for additional scientific and technical personnel including new senior staff;
- Availability of the Project Director and key personnel, including the analysis of their potential involvement in other major projects and a discussion of their current and potential future time commitments; and
- Other issues related to organization and staffing, if any.

IV. Quality Assurance and Information Management Plan. Applicants should provide information on their plans for:

- Quality assurance systems and plans to be implemented within the Center including national and international standards for quality assurance for the different categories of experimentation to be carried out in the Center and plans for qualifying for ISO and other certifications;
- Planned approach to data management including data generation, data quality, data standards, data storage, data sharing and the organization of data systems for the proposed Center;
- Integration of information developed through the Center's activities with information management systems of the Genomics: GTL program as well as with other community reference databases;
- Contribution to, participation with, and adherence to the GTL working group's consensus on data management and data sharing; and
- Other issues related to informatics, if any.

ADDITIONAL MATERIAL FILE (not included in Project Narrative page limits above)

The Additional Material File must not exceed 35 pages for items (1), (2), (3), and (4). There is no page limit on the number of pages for item (5), other than that each letter may not exceed one page. A cover page and table of contents should be included at the beginning of the additional material file but may be excluded from the page limitation. Attach the (1) Environment, Safety and Health (ES&H) and Security Approaches, (2) Center Siting, Acquisition, Design and Development Plan, (3) Funding Plan, (4) Project Timetable, and (5) Letters of Commitment from Key Personnel and Team Members, in a self-contained document that clearly identifies each of these five separate requirements. Save this information in a single file named "AddMaterial.pdf" and click on "Add Optional Other Attachment" to attach.

Environment, Safety and Health (ES&H) and Security Approaches. Applicants should provide information on:

- The approach for handling environment, safety and health, and security issues and assuring environmental compliance during Center establishment and research and development activities;
- Procedures for ensuring security, including access to data stored on Center computers;
- The ES&H compliance history of the applicant over the last five years (e.g. EPA and state environmental notices of violation, OSHA citations, status of any resulting action plans); and
- Any anticipated environmental permit requirements, including NEPA, for the proposed Center, and proposed schedule for compliance with environmental permits and NEPA requirements.

Center Siting, Acquisition, Design and Development Plan

Discuss the plans for locating the proposed Center. This includes identification of the site or sites where the major activities of the Center will take place and how the site(s) will be acquired (use of space provided by the host institution(s), leased space, or combinations of these and other options) and prepared for use by the Center. The application should describe the proposed size, conceptual layout, and development strategy (including summary-level scope, schedule and cost estimates including alteration and/or renovations for the space, i.e., the estimated cost to build out the space) for the space needed to house and support the research program identified in the narrative. Plans for acquisition of major equipment and instrumentation (items costing $1 million or more) should be included.

Funding Plan

Discuss strategy for development of funding for the proposed Center including, but not limited to, cost sharing and DOE funding.

Project Timetable

This section should outline as a function of time, year by year, all the major activities or phases of the proposed Center. The successful applicant must use this project timetable to report progress.

Letters of Commitment from Key Personnel and Team Members

Letters of commitment signed by key personnel, including their level of time commitment to the project, should be included in this section. In addition, letters of commitment are required from each organization participating as a team member. Letters of commitment from organizations participating as team members must be signed by the person authorized to commit the organization to a legally binding agreement. Multiple key personnel representing the same institution may sign the same letter of commitment, as applicable. Each letter of commitment is limited to one page.

BIOGRAPHICAL SKETCH FILE

Provide a biographical sketch for the Project Director and each key person proposed, including subawardees and consultants if they meet the definition of key person. A key person is any individual who contributes in a substantive, measurable way to the execution of the project. Save all biographical sketches in a single file named "bio.pdf" and click on "Add Optional Other Attachment" to attach. The biographical information for each person must not exceed 2 pages when printed on 8.5" by 11" paper with 1 inch margins (top, bottom, left, and right) with font not smaller than Arial 11 point and must include:

Education and Training. Undergraduate, graduate and postdoctoral training, provide institution, major/area, degree and year.

Professional Experience: Beginning with the current position list, in chronological order, professional/academic positions with a brief description.

Publications. Provide a list of up to 10 publications most closely related to the proposed project. For each publication, identify the names of all authors (in the same sequence in which they appear in the publication), the article title, book or journal title, volume number, page numbers, year of publication, and website address if available electronically.

Patents, copyrights and software systems developed may be provided in addition to or substituted for publications.

Synergistic Activities. List no more than 5 professional and scholarly activities related to the effort proposed.

Project Summary/Abstract File.

The project summary/abstract must contain a summary of the proposed activity suitable for dissemination to the public. It should be a self-contained document that identifies the name of the applicant, the project director/principal investigator(s), the project title, the objectives of the project, a description of the project, including methods to be employed, the potential impact of the project (i.e., benefits, outcomes), and major participants (for collaborative projects). This document must not include any proprietary or sensitive business information as the Department may make it available to the public. The project summary must not exceed 1 page when printed using standard 8.5" by 11" paper with 1" margins (top, bottom, left and right) with font not smaller than Arial 11 point. Save this information in a file named "Summary.pdf," and click on "Add Optional Other Attachment" to attach.

SF424A Excel, Budget Information – Non-Construction Programs File for Phases I and II

The detailed budgets for Phase I, Center Establishment, and Phase II, Center Operation, are required to be submitted with your application using the SF 424A Excel, "Budget Information – Non Construction Programs" form on the Applicant and Recipient page at http://grants.pr.doe.gov. You must provide a separate budget for each year of support requested and a cumulative budget for the total project period. If funds are being

requested for both Phases I and II in a single budget year, a separate annual budget must be submitted for each Phase for that particular funding period. You may request funds under any of the Object Class Categories as long as the item and amount are necessary to perform the proposed work, meet all the criteria for allowability under the applicable Federal cost principles, and are not prohibited by the funding restrictions in this announcement (See Part IV, G). Save the information in a single file named "SF424A.xls" and click on "Add Optional Other Attachment" to attach.

Budget Justification File

You must justify the costs proposed in each Object Class Category/Cost Classification category (e.g., identify the level of effort devoted to the project for each of the key persons and personnel categories in number of months/hours, i.e., calendar, academic, summer months, as appropriate, and the estimated costs for each person or category; provide a list of equipment and cost of each item; identify proposed subaward/consultant work and cost of each subaward/consultant; describe purpose of proposed travel, number of travelers and number of travel days; list general categories of supplies and amount for each category; and provide any other information you wish to support your budget). Provide the name of your cognizant/oversight agency, if you have one, and the name and phone number of the individual responsible for negotiating your indirect rates. If cost sharing is proposed, provide an explanation of the source, nature, amount and availability of any proposed cost sharing. Save this information in a single file named "Budget.pdf" and click on "Add Optional Other Attachment" to attach.

Subaward Budget File(s)

Separate subaward budgets, i.e., annual budget for each year and a cumulative budget for the entire project, must be provided for each subawardee that is expected to perform work estimated to be more than $100,000 for any year of the project. If funds are being requested for both Phases I and II in a single budget year, separate annual itemized budgets must be submitted for each Phase for that particular funding period. Use the SF 424 A Excel for Non-Construction Programs. These forms are found on the Applicant and Recipient Page at http://grants.pr.doe.gov. Save each Subaward budget in a separate file. Use up to 10 letters of the subawardee's name (plus.xls) as the file name (e.g. UnivofXY.xls or JonesLab.xls) and click on "Add Optional Other Attachment" to attach.

Budget for DOE/NNSA Federally Funded Research and Development Center (FFRDC) Contractor, if applicable

If a DOE/NNSA FFRDC contractor is to perform any portion of the work, you must provide a DOE Field Work Proposal in accordance with the requirements in DOE Order 412.1A, Work Authorization System. This order and a sample of the DOE Field Work Proposal (FWP) form are available at http://grants.pr.doe.gov. For purposes of satisfying this requirement, applicants are required to submit the DOE FWP face and budget pages (pages 1 and 2 of the sample form) with the application as part of this DOE/NNSA FFRDC Budget file. Furthermore, the information requested in blocks 1. through 15. and 17. through 19. of the sample FWP must be furnished with the application. The remainder of the information requested in blocks 16., 20., and 21. of the sample form will be required to be submitted through ePMA by the successful applicant after selection. In addition, include the required cognizant Contracting Officer

approval authorizing the participation of the FFRDC as described in Part III.C.. This information is required in addition to the budgetary information described above (SF 424A Excel - Budget Information - Non-Construction Programs File for Phases I and II, Budget Justification File, and Subaward Budget File(s)). Use up to 10 letters of the FFRDC name (plus.pdf) as the file name and click on "Add Optional Other Attachment" to attach.

Certifications and Assurances for Use with SF 424 File.

You must complete and provide the "Certifications and Assurances for Use with SF 424" form on the Applicant and Recipient Page at http://grants.pr.doe.gov. Submission of an electronic application through Grants.gov constitutes the submission of a signed document. Type the name of the person reponsible for providing the certifications and assurances in the signature block and save as a pdf file. Do not submit a scanned copy of the form. Name the file "Certs.pdf," and click on "Add Optional Other Attachment" to attach.

Commitment Letters from Third Parties Contributing to Cost Sharing.

If a third party, (i.e., a party other than the organization submitting the application) proposes to provide all or part of any proposed cost sharing, you must provide a letter from the third party stating that it is committed to providing a specific minimum dollar amount of cost sharing. The letter should also identify the proposed cost sharing (e.g., cash, services, and/or property) to be contributed. Letters must be signed by the person authorized to commit the expenditure of funds by the entity. Provide this information in a single file named "CLTP.pdf" and click on "Add Optional Other Attachment" to attach.

3. SF-LLL Disclosure of Lobbying Activities.

If applicable, complete SF- LLL. Applicability: If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the grant/cooperative agreement, you must complete and submit Standard Form - LLL, "Disclosure Form to Report Lobbying."

Summary of Required Forms/Files

Your application must include the following documents:

Name of Document	Format	File Name
SF 424 - Application for Federal Assistance	PureEdge Form	N/A
Other Attachments Form: Attach the following files to this form:	PureEdge Form	N/A
Project Narrative File	PDF	Project.pdf
Additional Material File	PDF	AddMaterial.pdf
Biographical Sketch File	PDF	Bio.pdf
Project Summary/Abstract File	PDF	Summary.pdf
SF424A Excel, Budget Information – Non-Construction Programs File	Excel	SF424A.xls
Budget Justification File	PDF	Budget.pdf
Subaward Budget File(s) if any	Excel	See Instructions
Budget for DOE/NNSA Federally Funded Research and Development Center (FFRDC) Contractor, if applicable	PDF	See Instructions
Certifications and Assurances for Use with SF 424 File	PDF	Certs.pdf
Commitment Letters from Third Parties Contributing to Cost Sharing File, if applicable.	PDF	CLTP.pdf
SF-LLL Disclosure of Lobbying Activities, if applicable.	PureEdge Form	N/A

D. SUBMISSION FROM SUCCESSFUL APPLICANT.

The successful applicant must submit the information listed below not later than _15___ calendar days after notification of selection. Successful applicants who fail to provide the information within the required time period may be eliminated from further consideration. Furthermore, DOE reserves the right to request additional or clarifying information from the successful applicant for any reason deemed necessary.

What to submit	Required Form or Format
Designated Responsible Employee for complying with national policies prohibiting discrimination. Provide organization name, project title, DOE application tracking number and the name, title, and phone number of Designated Responsible Employee for complying with national policies prohibiting discrimination (See 10 CFR 1040.5).	No special format. E-mail information not later than 15 calendar days after selection to: vicki.phillips@ch.doe.gov
Representation of Limited Rights Data and Restricted Software	Use form on Applicant and Recipient Page at http://grants.pr.doe.gov. E-mail this representation not later than 15 calendar days after selection to vicki.phillips@ch.doe.gov
Environmental Evaluation Notification Form. You must complete and submit this environmental questionnaire. NOTE: The NEPA process must be completed prior to taking any action on the proposed project that could have adverse environmental effects or that would limit the choice of reasonable alternatives.	This form and instructions are available at http://www.ch.doe.gov/offices/ACQ/docs/ E-mail the completed Environmental Evaluation Notification form not later than 15 calendar days after selection to vicki.phillips@ch.doe.gov

E. SUBMISSION DATES AND TIMES.

1. **Pre-application Due Date.** Pre-applications are not required.

2. **Application Due Date**.

   Applications must be received by February 1, 2007, not later than 8:00 PM Eastern Time. You are encouraged to transmit your application before the deadline. APPLICATIONS RECEIVED AFTER THE DEADLINE WILL NOT BE REVIEWED OR CONSIDERED FOR AWARD.

F. INTERGOVERNMENTAL REVIEW.

This program is not subject to Executive Order 12372 – Intergovernmental Review of Federal Programs.

G. FUNDING RESTRICTIONS.

Cost Principles**.** Costs must be allowable in accordance with the applicable Federal cost principles referenced in 10 CFR Part 600.

Pre-award Costs**.** Recipients, other than DOE/NNSA FFRDC's, may charge to an award resulting from this announcement pre-award costs that were incurred within the ninety (90) calendar day period immediately preceding the effective date of the award, if the costs are allowable in accordance with the applicable Federal cost principles referenced in 10 CFR Part 600. Recipients must obtain the approval of the Contracting Officer for any pre-award

costs that are for periods greater than this 90-day calendar period prior to incurrence of such costs.

Pre-award costs are incurred at the applicant's risk. DOE is under no obligation to reimburse such costs if for any reason the applicant does not receive an award or if the award is made for a lesser amount than the applicant expected.

H. OTHER SUBMISSION AND REGISTRATION REQUIREMENTS.

1. Where to Submit.

APPLICATIONS MUST BE SUBMITTED THROUGH GRANTS.GOV TO BE CONSIDERED FOR AWARD. Submit electronic applications through the "Apply for Grants" function at www.Grants.gov. If you have problems completing the registration process or submitting your application, call Grants.gov at 1-800-518-4726 or send an email to support@grants.gov.

2. Registration Process.

You must COMPLETE the one-time registration process (all steps) before you can submit your first application through Grants.gov (See www.grants.gov/GetStarted). **We recommend that you start this process at least three weeks before the application due date**. It may take 21 days or more to complete the entire process. Use the Grants.gov Organizational Registration Checklists at http://www.grants.gov/assets/OrganizationRegCheck.doc to guide you through the process. IMPORTANT: During the CCR registration process, you will be asked to designate an E-Business Point of Contact (EBIZ POC). The EBIZ POC must obtain a special password called a "Marketing Partner identification Number" (MPIN). When you have completed the process, you should call the Grants.gov Helpdesk at 1-800-518-4726 to verify that you have completed the final step (i.e. Grants.gov registration).

3. Application Receipt Notices

After an application is submitted, the Authorized Organization Representative (AOR) will receive a series of five e-mails. It is extremely important that the AOR watch for and save each of the emails. It may take up to two (2) business days from application submission to receipt of email Number 2. You will know that your application has reached DOE when the AOR receives email Number 5. You will need the Submission Receipt Number (email Number 1) to track a submission. The titles of the five e-mails are:

Number 1 - Grants.gov Submission Receipt Number
Number 2 - Grants.gov Submission Validation Receipt for Application Number
Number 3 - Grants.gov Grantor Agency Retrieval Receipt for Application Number
Number 4 - Grants.gov Agency Tracking Number Assignment for Application Number
Number 5 – DOE e-Center Grant Application Received

The last email will contain instructions for the AOR to register with the DOE e-Center. If the AOR is already registered with the DOE e-Center, the title of the last email changes to:

Number 5 – DOE e-Center Grant Application Received and Matched

This email will contain the direct link to the application in IIPS. The AOR will need to enter their DOE e-Center user id and password to access the application.

Part V - APPLICATION REVIEW INFORMATION

A. CRITERIA.

1. Initial Review Criteria.

Prior to a comprehensive merit evaluation, DOE will perform an initial review in accordance with 10 CFR 605.10(b).

2. Merit Review Criteria.

Applications will be evaluated by a Merit Review Panel using the criteria listed below. Following completion of the merit review, a team comprised of Federal officials will review the applications and the Merit Review Panel evaluations, summarize the Merit Review Panel's independent evaluations of, and recommendations regarding, the applications submitted, and recommend the application of the program policy factors, as appropriate.

Applications will be subjected to formal merit review and will be evaluated against the following criteria, which are listed in descending order of importance as set forth in 10 CFR Part 605.10(d) (http://www.science.doe.gov/grants/605index.html). Included within each criterion are the detailed questions that reviewers should consider.

a. Scientific and/or technical merit of the project

- Will the Center research programs provide science that is in the forefront in the area of bioenergy research during the initial project period?
- Is the Research and Development program for the proposed Center well focused on its stated short-, intermediate-, and long-term goals?
- Are the deliverables and benchmarks proposed to ensure the research remains focused on the stated goals and the approach to measuring performance against the stated benchmarks adequate and appropriate?
- What is the likelihood that the applicant can overcome key scientific and technical challenges and shift research directions in response to promising developments?

b. Appropriateness of the proposed method or approach

- Are the strategy and plan for the development and operation of the proposed Center, including plans for external oversight and guidance for the scientific and technical direction and approval of the research program, scientifically and technically appropriate?
- Does the research program proposed by the applicant adequately address research needs/gaps in bioenergy and is the research program likely to contribute to reaching the proposed short, intermediate, and long term goals?
- Are the applicant's plans for education, outreach and training in the proposed Center appropriate?
- Are the plans for external collaborations and partnerships reasonable and appropriate?
- Is the plan for quality assurance appropriate for the proposed Center?

- Is the planned approach to data management robust, scalable and appropriate for the mission of the proposed Center and the information management needs of the Genomics: GTL program?

c. Competency of the applicant's personnel and adequacy of the proposed resources

- Is the proposed access to existing research space, instrumentation and facilities at the host institution and its partners likely to meet the needs of the proposed Center?
- Is there adequate access to analytical, imaging, structural and computational capabilities to ensure a successful systems biology approach to biofuels production including access to research capabilities and resources outside of the Center?
- Are the applicant's performance monitoring systems adequate to assure Center is established within the scope, cost and schedule of the proposal?
- Do the applicant's key personnel have a proven record of research in the disciplines needed for success in this project?
- Does the proposed Center staff possess adequate experience and expertise in the research disciplines required for project success?
- Do the applicant and the applicant's senior leadership team members for the Center have proven records of success in project, program, and personnel management of diverse teams of science and technical professionals and for projects of comparable magnitude?
- Is the plan for recruiting additional scientific and technical personnel reasonable and appropriate?

d. Reasonableness and appropriateness of the proposed budget

- Is the requested budget for developing the proposed Center appropriate, including the costs of acquiring and preparing the space to house the Center and the equipment and instrumentation to be acquired for it?
- Is the plan for acquiring and preparing the space to house the Center cost-effective?
- Is the requested operating budget for the proposed Center reasonable for the planned scientific program?

e. Environment, safety and health and security considerations

- Is the approach for handling environmental, safety and health and security issues appropriate?
- Does the approach assure environmental compliance during Center establishment and research and development activities?
- Does the applicant have a strong history of compliance with ES&H requirements?

Other Selection Factors

The selection official will consider the following program policy and management factors in the selection process:

- Diversity of research activities that will lead to new and expanded options for clean, renewable, and carbon-neutral alternatives to fossil fuels;
- Integration of the proposed Center with other components of the Genomics: GTL program;
- Strategy for developing synergies between this new Center and existing institutional infrastructure and science;
- Potential to be recognized as an international research Center that sets new standards for management of research;
- Potential to attract the pre-eminent scientists and managers required to accelerate the solutions needed to create a new bioenergy paradigm while demonstrating sound financial stewardship;
- Strategy for development of funding for the Center including, but not limited to, cost sharing and DOE funding; and
- Total amount of DOE funds available.

B. REVIEW AND SELECTION PROCESS.

1. Merit Review.

Applications that pass the initial review will be subjected to a formal merit review and will be evaluated based on the criteria codified at 10 CFR Part 605.10(d) as set forth in Part V.A.2. of this FOA as well as the additional criteria set forth in subparagraph e. of Part V.A.2.. DOE may, as part of the merit review process, seek clarifications in writing or schedule meetings between representatives of one or more applicant(s) and members of the merit review panel, in order that the panel members may receive clarifications to their questions about the contents of the most meritorious applications.

2. Selection.

The Selection Official will consider the merit review recommendation, Federal official's review, program policy factors, and the amount of funds available. As part of the selection process, DOE reserves the right to seek clarifications from those applications deemed to have the highest scientific merit in order to facilitate the selection process.

3. Discussions and Award.

The Government may enter into discussions with the selected applicant for any reason deemed necessary, including but not limited to: (1) the budget is not appropriate or reasonable for the requirement; (2) only a portion of the application is selected for award; (3) the Government needs additional information to determine that the recipient is capable of complying with the requirements in 10 CFR Part 600; and/or (4) special terms and conditions are required. Failure to resolve satisfactorily the issues identified by the Government will preclude award to the selected applicant.

C. ANTICIPATED NOTICE OF SELECTION AND AWARD DATES.

DOE anticipates notifying the applicant selected for award in June 2007 and making an

award in September 2007 or earlier.

Part VI - AWARD ADMINISTRATION INFORMATION

A. AWARD NOTICES.

1. Notice of Selection.

DOE will notify the applicant selected for award. This notice of selection is not an authorization to begin performance. (See Part IV.G with respect to the allowability of pre-award costs.)

Organizations whose applications have not been selected will be advised as promptly as possible. This notice will explain why the application was not selected.

2. Notice of Award.

If the selected applicant is a non-FFRDC, a Notice of Financial Assistance Award issued by the Contracting Officer is the authorizing award document. It normally includes, either as an attachment or by reference: 1. Special Terms and Conditions; 2. Applicable program regulations, if any; 3. Application as approved by DOE/NNSA; 4. DOE assistance regulations at 10 CFR Part 600, or, for Federal Demonstration Partnership (FDP) institutions, the FDP terms and conditions; 5. National Policy Assurances To Be Incorporated As Award Terms; 6. Budget Summary; and 7. Federal Assistance Reporting Checklist and Instructions, which identifies the reporting requirements.

If the selected applicant is a DOE/NNSA FFRDC contractor, DOE/NNSA will fund the DOE/NNSA FFRDC contractor through the DOE field work authorization system.

DOE/NNSA FFRDC contractors participating as team members will be funded directly by DOE/NNSA through the DOE field work authorization system.

B. ADMINISTRATIVE AND NATIONAL POLICY REQUIREMENTS.

1. Administrative Requirements.

The administrative requirements for DOE grants and cooperative agreements are contained in 10 CFR Part 600 (See: http://ecfr.gpoaccess.gov), except for grants made to Federal Demonstration Partnership (FDP) institutions. The FDP terms and conditions and DOE FDP agency specific terms and conditions are located on the National Science Foundation web site at http://www.nsf.gov/awards/managing/fed_dem_part.jsp.

2. Special Terms and Conditions and National Policy Requirements.

Special Terms and Conditions and National Policy Requirements.
The DOE Special Terms and Conditions for Use in Most Grants and Cooperative Agreements are located at http://grants.pr.doe.gov. The National Policy Assurances To Be Incorporated As Award Terms are located at http://grants.pr.doe.gov.

Intellectual Property Provisions.
The standard DOE intellectual property provisions applicable to the various types of applicants are located at http://www.gc.doe.gov/techtrans/sipp_matrix.html.

Statement of Substantial Involvement.

Either a cooperative agreement or DOE field work authorization may be awarded under this program announcement. If the award is a cooperative agreement, the DOE Contract Specialist and DOE Project Officer will negotiate a Statement of Substantial Involvement prior to award.

DOE Subcontract Consent.
DOE reserves the right to require the awardee to obtain written approval of the Contracting Officer prior to placement of any subcontract(s).

C. REPORTING.

Attached to this FOA is a Federal Assistance Reporting Checklist and Instructions (Attachment A), which includes reporting requirements that may be required if a cooperative agreement is awarded. In addition, for informational purposes, DOE anticipates requiring at least quarterly reports for purposes of tracking schedule, costs, and performance to ensure implementation of appropriate project controls. However, DOE reserves the right to negotiate reporting requirements after selection but prior to award.

PART VII - QUESTIONS/AGENCY CONTACTS

A. QUESTIONS.

Questions regarding the content of the announcement must be submitted through the "Submit Question" feature of the DOE Industry Interactive Procurement System (IIPS) at http://e-center.doe.gov. Locate the program announcement on IIPS and then click on the "Submit Question" button. Enter required information. You will receive an electronic notification that your question has been answered. DOE/NNSA will try to respond to a question within 3 business days, unless a similar question and answer have already been posted on the website.

Due to the time required to conduct research and provide complete and accurate answers to questions, DOE is requesting that all questions be submitted through IIPS no later than noon (CDT) January 22, 2007. DOE will not be responsible for responding to questions submitted after the designated time on January 22, 2007.

Questions relating to the registration process, system requirements, how an application form works, or the submittal process must be directed to Grants.gov at 1-800-518-4726 or support@grants.gov. DOE/NNSA cannot answer these questions.

B. AGENCY CONTACT.

Name: Vicki L. Phillips
E-mail: vicki.phillips@ch.doe.gov
FAX: 630-252-5045

PART VIII - OTHER INFORMATION

A. MODIFICATIONS.

Notices of any modifications to this announcement will be posted on Grants.gov and the DOE Industry Interactive Procurement System (IIPS). You can receive an email when a modification or an announcement message is posted by joining the mailing list for this announcement through the link in IIPS. When you download the application at Grants.gov, you can also register to receive notifications of changes through Grants.gov.

B. GOVERNMENT RIGHT TO REJECT OR NEGOTIATE.

DOE reserves the right, without qualification, to reject any or all applications received in response to this announcement and to select any application, in whole or in part, as a basis for negotiation and/or award.

C. COMMITMENT OF PUBLIC FUNDS.

The Contracting Officer is the only individual who can make an award or commit the Government to the expenditure of public funds. A commitment by other than the Contracting Officer, either explicit or implied, is invalid.

D. PROPRIETARY APPLICATION INFORMATION.

Patentable ideas, trade secrets, proprietary or confidentional commercial or financial information, disclosure of which may harm the applicant, should be included in an application only when such information is necessary to convey an understanding of the proposed project. The use and disclosure of such data may be restricted, provided the applicant includes the following legend on the first page of the project narrative and specifies the pages of the application which are to be restricted:

"The data contained in pages _____ of this application have been submitted in confidence and contain trade secrets or proprietary information, and such data shall be used or disclosed only for evaluation purposes, provided that if this applicant receives an award as a result of or in connection with the submission of this application, DOE shall have the right to use or disclose the data herein to the extent provided in the award or required by law. This restriction does not limit the government's right to use or disclose data obtained without restriction from any source, including the applicant."

To protect such data, each line or paragraph on the pages containing such data must be specifically identified and marked with a legend similar to the following:

"The following contains proprietary information that (name of applicant) requests not be released to persons outside the Government, except for purposes of review and evaluation."

E. EVALUATION AND ADMINISTRATION BY NON-FEDERAL PERSONNEL.

In conducting the merit review evaluation, the Government may seek the advice of qualified non-Federal personnel as reviewers. The Government may also use non-Federal personnel to conduct routine, nondiscretionary administrative activities. The applicant, by submitting its

application, consents to the use of non-Federal reviewers/administrators. Non-Federal reviewers must sign conflict of interest and non-disclosure agreements prior to reviewing an application. Non-Federal personnel conducting administrative activities must sign a non-disclosure agreement.

F. INTELLECTUAL PROPERTY (IP) DEVELOPED UNDER THIS PROGRAM.

Patent Rights. The government will have certain statutory rights in an invention that is conceived or first actually reduced to practice under a DOE award. 42 U.S.C. 5908 provides that title to such inventions vests in the United States, except where 35 U.S.C. 202 provides otherwise for nonprofit organizations or small business firms. However, the Secretary of Energy may waive all or any part of the rights of the United States subject to certain conditions. If teaming arrangements are created among a prime recipient and other team members, DOE intends for each member of the team to own its subject inventions, and for jointly-invented subject inventions to be owned by the joint inventors.

Rights in Technical Data. Except as may be otherwise expressly provided or directed in writing by the DOE Patent Counsel, DOE shall have ownership of and unlimited rights in technical data first produced under the Agreement. Delivery or third party licensing of proprietary software or data developed solely at private expense will not normally be required except as necessary to operate the Centers or as specifically negotiated in a particular agreement to satisfy DOE's own needs or to ensure the commercialization of technology developed under a DOE agreement. Applicants should understand that certain information arising out of the Centers will be made publicly available consistent with DOE policy (e.g. gene sequences, protein sequences, high-throughput protein production protocols, and unique research resources).

G. NOTICE OF RIGHT TO REQUEST PATENT WAIVER.

Subject to Paragraph F above, applicants may request a waiver of all or any part of the rights of the United States in inventions conceived or first actually reduced to practice in performance of an agreement as a result of this announcement, in advance of or within 30 days after the effective date of the award. Even if such advance waiver is not requested or the request is denied, the recipient will have a continuing right under the award to request a waiver of the rights of the United States in identified inventions, i.e., individual inventions conceived or first actually reduced to practice in performance of the award. Any patent waiver that may be granted is subject to certain terms and conditions in 10 CFR 784.

H. NOTICE REGARDING ELIGIBLE/INELIGIBLE ACTIVITIES.

Eligible activities under this program include those which describe and promote the understanding of scientific and technical aspects of specific energy technologies, but not those which encourage or support political activities such as the collection and dissemination of information related to potential, planned or pending legislation.

I. REAL PROPERTY.

With respect to the use, management, and disposition of all real property, 10 CFR Part 600.132 shall be applicable to cooperative agreements with institutions of higher education, hospitals, and other nonprofit organizations; 10 CFR Part 600.321 shall be applicable to cooperative agreements with for-profit organizations; and it is anticipated that the terms and conditions of the respective management and operating contract shall apply to awards to DOE/NNSA FFRDC contractors.

J. ENVIRONMENTAL AND REGULATORY REQUIREMENTS.

The Office of Science (SC) expects Center start-up and operation to have the same integrity and to be as state-of-the-art as the science that is expected to result from the research supported by SC that is conducted in the Centers. Applications to site the Centers, therefore, should demonstrate that consideration of ES&H risks and issues is an integral component of the early planning for the Centers. Early identification of ES&H risks and issues can alleviate problems that can affect people and the environment, as well as affect the cost, schedule and management of the Centers from their establishment through their research operations. SC, therefore, will consider ES&H criteria, as described in Part V.A.2.e. among its merit review criteria to support demonstration of early ES&H planning. This will provide an early screening of potential issues and problems, as well as provide a measure of the capability of the applicant in providing for sound ES&H planning as part of the project. SC requires that its state-of-the-art research facilities “start clean and stay clean” with respect to ES&H.

K. COMPLIANCE WITH THE NATIONAL ENVIRONMENTAL POLICY ACT (NEPA).

DOE will comply with the requirements of NEPA and its implementing regulations (10 CFR 1021 and 40 CFR 1500-1508) prior to taking any action on the proposed project that could have adverse environmental effects or that would limit the choice of reasonable alternatives. After selection, an environmental critique and synopsis will be prepared under 10 CFR 1021.216 to assist in developing the agreement with the institution with the preferred site for the Center. This synopsis will be incorporated, as appropriate, into any future site-specific NEPA documentation that may be prepared to evaluate the potential environmental consequences of the proposed Center at the preferred site provided by the Host Institution. Should an Environmental Assessment (EA) or an Environmental Impact Statement (EIS) be required, the successful applicant will be required to interact with DOE and provide up-to-date technical details during the NEPA process.

L. AVAILABILITY OF FUNDS

Awards resulting from this Funding Opportunity Announcement are subject to the availability of appropriated funds.

ATTACHMENT A

FEDERAL ASSISTANCE REPORTING CHECKLIST AND INSTRUCTIONS