NEW YORK STATE DEPARTMENT OF AGRICULTURE AND MARKETS
NEW YORK STATE ENERGY RESEARCH AND DEVELOPMENT AUTHORITY

REQUEST FOR PROPOSALS
for
Construction of a Cellulosic Ethanol Pilot Production Facility

INTRODUCTION

The New York State Department of Agriculture and Markets, in cooperation with the New York Energy Research & Development Authority, collectively the "Grantors", invites proposals for developing and constructing a pilot-scale facility in New York State to produce ethanol from lignocellulosic biomass feedstocks.

The Grantors will make up to $20 million available to as many as four (4) proposers or teams of proposers that successfully demonstrate the technical, financial, business, and organizational capability to construct a pilot-scale lignocellulose-to- ethanol facility and use the information derived from its operation to develop a commercial-scale production facility.

Proposals should conform to the format and content specified in this RFP. Proposals ***MUST BE RECEIVED*** by the Department of Agriculture and Markets Division of Fiscal Management by 4:30 p.m. EST on **September 20, 2006**. Applicants, not delivery services or other intermediaries, are responsible for the timely submission of proposals. Faxed and e-mailed proposals will not be accepted. Proposals delivered after the scheduled date and time will be returned to applicants and not considered for funding. Envelopes should be clearly marked: "RFP - Cellulosic Ethanol Pilot Facility". Applicants should submit ten (10) copies of each proposal plus a completed and signed Checklist for Proposal Eligibility and Completeness.

Proposals must be submitted to:

Lucy Roberson, Director
Division of Fiscal Management
NYS Department of Agriculture and Markets
10B Airline Drive
Albany, New York 12235

QUESTIONS CONCERNING THE RFP

All questions about requirements contained in this RFP must be submitted in writing (facsimile or e-mail will be accepted) to:

Thomas Lindberg, First Deputy Commissioner

NYS Department of Agriculture and Markets
10B Airline Drive
Albany, NY 12235
Phone: (518) 457-2771
Fax: (518) 457-3087
E-mail: Thomas.lindberg@agmkt.state.ny.us

GOALS AND OBJECTIVES

The goal of this RFP is to construct a facility capable of producing transportation-grade ethanol from cellulosic feedstocks in New York State within two years and to operate the facility for a minimum of three years. The RFP will help facilitate a process to bring current pilot-scale cellulosic ethanol production to commercial scale, resulting in:

- The development of at least one, and preferably more, commercial-scale cellulosic ethanol production facilities in New York State;
- The creation of jobs and economic activity from the production of cellulosic ethanol;
- The development of cellulosic ethanol feedstocks grown in New York, with resulting jobs and economic activity in the agricultural and/or forestry industries and increased productivity and utilization of New York agricultural and/or forest lands; and
- The commercialization of technology developed at New York colleges, universities, and/or businesses based in New York State.

BACKGROUND AND PURPOSE

Production of ethanol from lignocellulose represents an opportunity for biomass-based renewable fuels to contribute towards a significant reduction in the amount of petroleum the United States consumes for transportation fuels. The conventional method of producing ethanol is through the fermentation of sugars into alcohol and can be made from a variety of feedstocks, such as sugar cane and sugar beets, food processing wastes, and starch-based crops like corn, which is the dominant source for existing U.S. production. Emerging technologies also exist that can produce ethanol from abundant cellulosic feedstocks through biological or thermal processes.

Using these technologies, cellulosic ethanol can potentially be made from any plant material, including dedicated energy crops like switchgrass or willow, agricultural and forestry residues, clean wood and wood wastes, pulp and paper mill wastes or extracts, and non-recyclable paper. This greatly expands the potential volume and regional availability of feedstocks, provides opportunity to use lower-value feedstocks that are not used for food production, and can significantly lower the amount of energy needed to produce ethanol relative to the energy it provides.

Cellulosic ethanol is currently produced at pilot levels, and while several companies around the world have announced commercial production plans, it is only currently produced on a commercial scale by a company in Canada. In order for cellulosic ethanol to become commercially viable and have a role in displacing petroleum use, feedstock production, logistical, and technical barriers need to be overcome. Many of these barriers to commercial production can be analyzed and addressed through pilot scale production.

Several New York institutions are currently conducting research in the extraction of sugar from sources such as wood and grass and fermentation to ethanol, including some universities that are regional research centers or national leaders of research. In addition, several companies and research institutions are currently conducting research to produce fuels and byproducts from thermal gasification/catalytic reforming processes. Furthermore, New York has as much as 2 million acres of marginal or underutilized agricultural land that would be ideal for growing dedicated energy crops like willow or switchgrass, and an additional 16 million acres of private forestland, which could provide feedstocks for cellulosic ethanol production and new markets for farmers and landowners. New York is also home to one of the largest, consumer-ready transportation markets in the world, making it an ideal location for the research, commercialization, and marketing of cellulosic ethanol.

Development of this new, high technology-based industry would create jobs and economic activity in rural New York built around biomass resources. It would create new markets for farmers and private landowners, and incentives to use farm and forest lands more productively. It would also produce fuels and other products made from renewable resources here in New York, replacing petroleum that is imported, and support jobs and economic activity in New York.

The Grantors believe it is in the interest of the people of New York State to develop these technologies and this new industry in New York State. In order to attract and leverage the private and federal investment needed to begin commercializing the technology being developed at New York institutions, New York State needs to play a leadership, risk-sharing, and funding role. The funding to develop a pilot-scale cellulosic ethanol production facility provided through this RFP is the first manifestation of that role.

PROGRAM REQUIREMENTS

Applicant Eligibility

Eligible applicants include private corporations, public benefit corporations, not-for-profit corporations, and colleges and universities. The proposer or proposing team must demonstrate through the proposal the necessary financial resources, technical expertise and access to adequate facilities to complete the project. A private corporation in a position to implement the commercialization plan must be a significant part of a team, preferably as the proposer.

Number of Awards

Up to four awards may be made under this solicitation, depending on the size of the awards. The maximum amount of an award is $20 million and the minimum amount is $5 million.

Project Eligibility

To be considered eligible, the proposed project must include the design, construction, commissioning and three-year operation of a pilot facility for the production of transportation-grade ethanol from cellulosic feedstocks. Production of at least 1 million gallons per year of ethanol is preferred but not required for the maximum award of $20 million. Proportional levels of ethanol production are preferred for lower award levels. The facility may also, in addition, produce other liquid transportation fuels, biobased chemicals, substitutes for petroleum-based feedstocks and products, and energy in the form of electricity or useful heat. The project must include all processing steps necessary to convert the eligible feedstock into ethanol.

Feedstock Eligibility

For purposes of the RFP, "lignocellulosic feedstocks" may include a wide range of possible materials available in New York, including, but not limited to, wood chips, forest wastes and residues, clean wood and wood wastes, pulp and paper mill wastes or extracts, non-recyclable paper, waste timber or lumber, grasses or other agricultural crops grown for energy, and agricultural and/or food processing wastes and residues. Biomass components specifically grown for food, such as starch (corn) or protein (soybeans), including animal feed, are not eligible feedstocks, unless the project is employing a non-food, non-feed component of that crop as a feedstock. Proposals based upon the utilization of municipal solid waste will not be accepted.

Stage of Technology Development

To support the RFP's ultimate goal of development of a commercial cellulosic ethanol facility, proposals must demonstrate that the pilot facility will be operational within two years and will be operated for an additional three years. The pilot facility must also be scaled, designed, and operated to provide the engineering, cost, and performance data necessary to build a commercial-scale facility. Additionally, through a detailed commercialization plan, proposals must outline the financial, business, and market strategy, and proposing team capability, to successfully commercialize the technology used at the proposed pilot facility. Therefore, proposals must focus on demonstration and commercialization of cellulosic ethanol production technology, rather than research and development. While some research and development, such as efforts to improve unit operations, reduce costs, and optimize system performance, is expected to be part of the project, proposals should already be beyond basic research and development.

Project Cost Sharing

Grant funds awarded under this RFP may only be used for construction of a cellulosic pilot facility. Design, engineering, equipment, permitting, legal, and other costs associated with construction and commissioning of the pilot facility are eligible costs. Costs associated with

constructing any building housing the pilot plant and the operation and maintenance of the facility are not eligible for funding. As discussed below, these costs can be considered as part of the cost share requirements.

Applicants must provide at least a verifiable 50 percent of the total cost to design, construct, commission, operate the facility for three years and decommission the facility, if necessary. As a portion of the at least 50 percent cost sharing, proposers must provide at least 25 percent of the costs associated with the construction of the facility within two years and 100 percent of the funds necessary to operate and maintain the facility for three years after commissioning and 100 percent of the cost to decommission the facility, if necessary. Cost sharing can be in the form of cash, in-kind services, or other resources including indirect and overhead costs. Indirect and overhead expenses offered as a match must be directly related to the proposed project and shall not exceed 5 percent of requested funding. Other New York State funds may not be used as matching funds for the 25 percent of the proposer's cost-sharing associated with the construction of the facility.

PROPOSAL FORMAT

The proposal must be in the format outlined below. In addition to the items listed in this section, it is recommended that the proposer review the Proposal Evaluation section of the RFP to ensure that adequate information is provided to accurately evaluate the proposal.

1.0) Cover Letter and Abstract

- Proposers shall submit a cover letter on company letterhead that references this RFP, provide a brief summary of the technology, target feedstocks, plant outputs, plant location, total project cost and requested funds, and other information pertinent to the project.

- Proposers should describe teaming and partnering arrangements and their ability to perform services that meet the overall goals and objectives of the project they are proposing.

- The cover letter must also include firm name, address, telephone and fax number, e-mail address, contact person, year that the firm was established, and type of firm (partnership, corporation, sole proprietor, etc.). The cover letter must be signed by a person with the authority to enter into a contract with the Grantors.

2.0) Project Description

2.1) Provide an overall description of the proposed project through the design, construction, commissioning and first three years of operation. Present a clear statement of the goals and objectives of the project and all pertinent cost and performance targets to achieve commercialization. Describe your strategy to achieve them.

2.2) Provide a detailed description of the pilot facility, including:

- Adequate background on the technology being used to convert the feedstocks into ethanol, including a description of any necessary storage and pre-treatment of the feedstock. To the extent possible, objective, third-party confirmation that the technology is feasible from a technical perspective should be included.

- The type, amount, and availability of feedstocks to be used. Include information on the ability to procure sufficient quantities of feedstock for the pilot facility within the target price range.

- Location of the proposed pilot facility. Discuss siting, pollution control, and permitting issues for the pilot facility.

- Estimate production quantities and disposal costs for all product and waste streams at both pilot and commercial scale.

- Other pertinent information to fully describe the pilot facility.

2.3) The pilot facility must be designed and operated to provide the engineering, cost and performance data necessary to build a commercial-scale facility.

- Explain how your project would be expected to result in the commercial production of ethanol, and other products, from cellulosic feedstocks.

- Discuss the scale relationship between the size and cost of the proposed pilot plant and that required for a commercial-scale plant. If the minimum size of a commercial-scale plant is greater than 10 times the size of the pilot facility, justify the scale-up.

- Discuss all performance and cost targets to achieve in order for commercialization to proceed.

3.0) Financial Requirements and Capabilities

Provide an estimate of the capital investment you will need to construct and operate the pilot facility for three years following commissioning. Discuss any specific financial requirements, and all funding sources.

- Proposers must demonstrate that they have sufficient financial resources to perform the proposed work and can provide the required cost-sharing for the project. Indicate sources of financial support describing the relationship between the Proposer and any other parties that intend to financially participate in the project.

- Discuss whether and the extent that expected revenues from the sale of ethanol and other products will be part of the operating cost structure of the project.

- Include letters of commitment, detailing involvement and financial contribution, signed by a person authorized to contractually obligate the organization, for all participating organizations and cost-sharing parties. Absence of letters of commitment or support will be interpreted as the proposer not having commitment or support from those parties. As mentioned previously, funding provided through this RFP can only be used for capital expenditures. As a portion of the at least 50 percent cost sharing, proposers must provide at least 25 percent of the costs associated with the construction of the facility within two years and 100 percent of the funds necessary to operate and maintain the facility for three years after commissioning and 100 percent of the cost to decommission the facility, if necessary.

4.0) Commercialization Plan

- A one-to-two page assessment of Strengths, Weaknesses, Opportunities, and Threats analysis for the proposed project.

- Overall Time Line to Begin Commercial Operations -- Based on successful operation of the pilot plant facility, describe the overall timeline you envision to begin commercial operations. Include all key events and milestones for success. Identify financing, feedstock source, product quantities, waste quantities and disposal methods, permitting requirements, strategic distribution and marketing partnerships, and other business or technical barriers and risks that need to be overcome for successful commercialization.

- Describe the overall structure of the organization that will be needed in order to transition the results from operation of the pilot facility to the construction and operation of a commercial-scale facility.

5.0) New York Benefits

- Describe how the proposed efforts benefit New York. Proposals should include estimates of potential environmental and economic benefits, including jobs, associated with operation of the pilot facility and estimate the benefits of a commercial-scale facility.

6.0) Proposer Qualifications

- Identify all key personnel. Attach one-page resumes that highlight relevant and recent experiences of key personnel who will be directly involved with the project.

- Attach an organizational chart listing all team members, including the project manager and any subcontractor capabilities and experience. Indicate the respective

roles and responsibilities and provide budgets associated with key personnel and key deliverables.

- Identify the individual who will be the Project Manager for the project. Provide examples of how the Project Manager has managed similar projects in the past proposal.

- Teaming arrangements and partnerships are encouraged. Briefly describe each organization proposed to carry out the required work and the qualifications and experience of each participating organization. Demonstrate how the individual and combined expertise of the proposing team will enable successful completion of this project. For each entity participating in the project, describe the specific new resources that will be committed to this project and how these resources will facilitate achieving the goals of the project.

7.0 Statement of Work

The Statement of Work is the primary contractual document that outlines work activities and required performance. It delineates each step or procedure required to accomplish the project goals. Therefore, each action should be identified, indicating who will perform it, how it will be performed, time line, milestones and intended result and any alternative strategies should a milestone not be achieved. Identify specific and measurable deliverables that define success. Add as many tasks and subtasks as necessary to describe all activities needed to achieve the goals and objectives of the project. Be specific as to when, where, with whom, and how the work is to be performed and identify who will perform the work. Identify deliverables by task. Identify and quantify performance targets as they relate to specific project objectives and tasks. These are the means by which success of the project will be measured and evaluated. It is also suggested that proposers carefully examine the evaluation criteria in this RFP in order to discern the most favorable content for proposals.

The Statement of Work must, at a minimum, include sections on:

7.1) Task 1 Project Management - Plan a kickoff meeting, annual meetings, and a wrap-up meeting if appropriate. State how activities will be coordinated among the proposer and its partners, subcontractors, and the Department.

7.2) Task 2 Project Reporting - The Contractor will submit quarterly reports throughout the duration of the project, a Commissioning Report at the completion of the commissioning of the pilot facility, and a Final Report after three years of operation.

- Quarterly Reports, at a minimum, should summarize progress, include performance metrics, explain budget-to costs variances, report on

difficulties/set-backs, and present plans to resolve problems and restore project progress. Quarterly Reports will be submitted by the 15th of the month following the reporting period, and should be organized by task and/or function as outlined in the Statement of Work.

7.3) Tasks 3, 4, 5, etc. Pilot Plant Design, Construction, Commissioning and Operation - Clear and definitive tasks should be presented that describe the activities and the parties responsible to:

- Bring the pilot facility from design through to commissioning. These tasks must include a discussion of siting and permitting requirements
- Commission the pilot facility to verify that the facility operates within the design parameters.
- Operate the pilot facility to collect the engineering, performance and cost data necessary to design, construct and construct a commercial-scale facility. Include testing and monitoring plans, system optimization and cost reduction plans.
- Develop and implement a management plan to operate the facility. These tasks must include a discussion of feedstock procurement, waste disposal, product sales, quality control, and other tasks necessary to successfully operate the pilot facility.

7.4) Last Task - Decommissioning Plan - Clearly describe the tasks necessary to decommission the pilot plant facility at the end of the project or at any point during the project should performance and cost data indicate that the technology is not ready for commercial scale-up. Otherwise describe what will be done with the facility at the end of the project.

8.0 Schedule

Present a realistic schedule for the project, with a starting point and duration for each task and subtask in the Statement of Work. Consider establishing task completion milestones/targets on the basis of number of months after contract commencement/project start.

9.0 Budget / Funding

The budget will be used as part of the contract to indicate the financial obligations of all parties.

- Provide a detailed budget for the construction phase, three year operation phase, and decommissioning phase that clearly identifies the source and use of funds for the facility and any contingencies.

- Include a detailed budget for each task in the Statement of Work and for contingencies, and the source of funds to meet the budget.

- Identify the expected revenues from the sale of products generated from the operation of the facility and the use of those funds to cover Task budgets.

PROPOSAL EVALUATION

Proposals that meet requirements of this solicitation will be reviewed and ranked for technical merit, reasonableness of cost and cost sharing, qualifications of the team, ability to complete the project successfully, and commercialization potential based on the criteria below. Significant deficiencies by a proposer will directly impact the evaluation of the project and the likelihood of an award. In addition, final rankings may be based on programmatic and management considerations. All references to the "proposer" below apply to the proposer and any additional Team members.

Basic Requirements

The Grantors reserve the right to eliminate from further consideration any proposal deemed to be substantially or materially non-responsive to the requests for information contained herein and further reserves the right to eliminate from further consideration any proposal that does not meet the following basic requirements as outlined below:

- Project goals and objectives must be clearly linked to the construction and operation of a pilot plant facility that converts cellulosic feedstocks primarily to ethanol and promotes the goal of commercial-scale ethanol production in New York State. Production of at least 1 million gallons per year of ethanol is preferred but not required for the maximum award of $20 million. Proportional levels of ethanol production are preferred for lower award levels. Proposers must demonstrate that the proposed project strategies and activities will accomplish their goals and objectives.

- The proposal must be complete and responsive to all solicitation requirements.

Sufficient cost sharing commitments to provide at least a verifiable 50 percent of the total cost to design, construct, commission, operate the facility for three years and decommission the facility, if necessary. As a portion of the at least 50 percent cost sharing, proposers must provide at least 25 percent of the costs associated with the construction of the facility within two years and 100 percent of the funds necessary to operate and maintain the facility for three years after commissioning and 100 percent of the cost to decommission the facility, if necessary. Cost sharing can be in the form of cash, in-kind services, or other resources including indirect and overhead costs. Indirect and overhead expenses offered as a match must be directly related to the proposed project and shall not exceed 5 percent of requested funding. Other New York State funds may not be used as

matching funds for the 25 percent of the proposer's cost-sharing associated with the construction of the facility.

Projects meeting the basic requirements above will be evaluated based on the criteria specified below.

Qualitative/Quantitative Criteria

A. Overall Proposal Quality - Is the Scope of Work comprehensive, realistic, and consistent with the goals and objectives of the proposal for all phases of the project?

B. New York State Benefits - Will this proposal result in new and expanded business and an increase in employment in New York? What is the magnitude of these benefits and the reasonableness of the estimates?

C. Scientific and Technical Basis of Proposal. This criterion rates the quality of the statement of work, project goals, commercial application concepts and structure, and the potential for the proposal to achieve these goals. This criterion will consider items or activities including, but not limited to:

- The rationale for the choice of this proposed technology and its potential to be commercialized. Is it a technology that uses resources and feedstocks generally available in New York?

- The strength of the intellectual property position.

- Likelihood of success. A high probability that the pilot facility will provide the engineering, performance and cost data necessary to design and construct a commercial-scale facility that can be economically competitive. If the minimum size of a commercial-scale plant is greater than 10 times the size of the pilot facility, did the proposers adequately justify the scale-up?

- Presentation of a clear statement of work that outlines the steps necessary to design, build, operate and decommission the pilot plant facility.

D. Personnel Expertise. This criterion rates the quality of the proposing team.

- Does the proposer and/or team demonstrate prior experience in the area of work proposed?

- Does the proposal clearly indicate the inherent role of each team member in the proposed activities? How experienced is the team in working with the relevant stakeholders?

- How complementary are the skills and background of the team members? Are team experience and qualifications appropriate for carrying out the project as proposed? Does the team demonstrate a balance of technical, business, communications, administrative, and marketing expertise?

- Does the proposal adequately identify and address appropriate stakeholders?

- Are the plans for collaboration and interaction among the project participants reasonable and comprehensive, and do they describe how this will be implemented on a regular basis over the proposed term of the project?

- Are the physical, scientific, technological, and commercial resources available at the collaborating institutions and organizations available and sufficient to carry out the project?

- Are there firm commitments from team members?

E. Commercialization Plan. This criterion rates the quality of the project goals, an understanding of the commercial application concepts and structure, and the potential for the proposal to achieve these goals.

- The quality of the analysis of the strengths, weaknesses, opportunities and threats of the proposed activities.

- The quality of the analysis of key events and milestones necessary to transition project results to a commercial-scale, economically successful facility.

- The reasonableness of the plan to procure feedstocks from New York State sources.

F. Budget and Schedule

- Are significant project milestones identified? How effective are the proposed milestones in ensuring project success? Are the milestones adequately detailed and quantifiable? Are realistic alternatives outlined in the event the milestones are not achieved?

- Are the budget and schedule for proposed activities and deliverables reasonable and comprehensive (e.g., budgeted costs match the scope of planned activities)?

- Can the effort be financially supported by the proposer or team in a straightforward, reasonable and realistic manner? Does the proposal contain Financial Letters of Commitment to cover the operation of the facility for 3 years following construction?

G. Cost Sharing - To what degree are Department funds leveraged by proposer cost sharing?

H. Other - Other programmatic and management factors deemed appropriate by the Department. The Commissioner shall, to the extent feasible, ensure the equitable geographic distribution of grant awards to rural areas and other areas of the State.

Attachment A - Standard Clauses for All State Contracts

Attachment A, which is posted on the Department's website at www.agmkt.state.ny.us where this RFP can be found, contains standard clauses which are required in all State contracts. Attachment A will be a part of any contract awarded under this RFP, and successful applicants will be responsible for complying with the terms and conditions contained therein. Instructions on completing all parts of Attachment A are contained in the Introduction. Applicants must also complete New York State Department of Taxation and Finance Contractor Certification Form ST220, included as a PDF file on the website.