

**OHIO COAL DEVELOPMENT OFFICE  
OHIO DEPARTMENT OF DEVELOPMENT**

**OHIO COAL RESEARCH CONSORTIUM (OCRC) – III  
YEAR 4 PROPOSALS SOLICITATION**

**Proposal Due Date: 3:00 p.m., Thursday, May 8, 2003**

**INTRODUCTION** - The Ohio Coal Development Office, an entity within the Ohio Department of Development (OCDO/ODOD), invites interested and qualified Ohio colleges and universities to submit proposals for the continuation of existing Ohio Coal Research Consortium-III (OCRC) projects or new Year 4 proposals that meet the Technical Goals and Objectives (see below) of OCRC-III, a four-year endeavor.

**OCRC BACKGROUND** -- The State of Ohio has long encouraged the economic and clean use of its vast reserves of coal and the jobs associated with its production and use. This support mainly is derived from OCDO. While primarily focused on larger-scale demonstration and deployment of near-to-term technologies, OCDO also supports applied research directed to improve the science and technology of chemical and physical processes involved in coal use. The involvement of Ohio universities and colleges serves a four-fold purpose, in rank order of importance: 1) to address technical problems being experienced today by Ohio coal end-users and improve technologies that enable continued or expanded use of Ohio coal; 2) to improve the environmental performance of coal-based technologies; 3) to generate innovative research in the field of coal use; and 4) to train a future supply of Ohio-based scientists and technologists in clean coal and emission control technologies.

The Ohio Coal Research Consortium (OCRC) was created in 1990. The initial effort involved four Ohio universities and was a five-year effort. The goal was to develop a base of fundamental knowledge to complement practical field experience from demonstration projects presently underway. Due to the technical and academic success of Consortium-I, it was decided to continue the Consortium. Historically, this is done in four-year blocks, wherein a researcher proposes a longer-term research effort. Then, each year a project's progress is reviewed to determine if the overarching Consortium's goals as well as the project's objectives are being met before funding is granted for the succeeding year. Therefore, funding is on a year to year basis, contingent upon project progress and current priorities. Numerous field interviews and reviews are performed by the members to determine and develop technical goals and objectives. Consortium members are expected to engage in mutually supporting, interacting projects towards a coordinated goal.

To date, the OCRC represents eleven years of university research, involving approximately 116 separate projects focused mainly on applied examinations related to SO<sub>2</sub>. Further, without losing focus on Ohio's special concerns with high-sulfur coal, special attention also has been given to other areas: air toxics control, carbon management, and coal gasification, the latter being a new area for the Consortium.

**CONSORTIUM STRUCTURE** -- The Ohio Coal Research Consortium is funded and overseen by the OCDO. Among the universities, one acts as the Consortium Administrator (CA). The CA responsibilities include, *inter alia*: receives and performs initial review of all quarterly reports. Receives and reviews invoices from all Consortium members and sends them as a package to

OCDO. Administers a small travel fund for various members of the Consortium to attend conferences for the purpose of presenting results/papers pursuant to Consortium work. The CA contracts with OCDO for the "prime" grant agreement, then subcontracts with each of the other schools involved in the Consortium. The current Consortium CA is Ohio University, Dr. David Bayless.

**OCDO** – OCDO provides guidance and direction to the OCRC and sets areas of research. It also receives and reviews the quarterly and final project reports, and reviews and pays the invoices submitted by the CA. OCDO and the CA arrange on-site tours, status and other meetings for the Consortium and related secretariat functions. OCDO arranges the annual review meeting of the Consortium Review Committee (CRC) to evaluate the previous year's work and the next year's project proposals.

**Steering Committee** -- Each participating school often has several professors involved in the OCRC. Each school selects from among its number one person to serve on a Steering Committee. This committee coordinates with the CA. Meetings or communications of the committee are generally called by the CA, although the Steering Committee members may request a coordination meeting/conference call with the CA.

**Consortium Review Committee (CRC)** -- The CRC is a group of individuals drawn from various fields of coal expertise. Among these include: electric utilities, coal producers, federal and state government, private research entities, private coal consultants and scientists. Each project is assigned one or two members from the CRC to act as mentors to the project, review it throughout the year and offer observations and advice.

Each spring, the CRC convenes to review the past year's progress of each project against its four-year plan and the overall goals of the Consortium, and to review the proposer's suggested work for the following year. Projects that have participated in the prior year are not guaranteed continuation into the next year; progress must be demonstrated. In particular, as was noticed in last year's RFP, by the completion of the third year of a given project, OCDO expects a peer reviewed paper to be published or a patent application to have been filed. This will be a major factor in consideration of continued funding for a fourth year. Fourth year proposals should include an appendix containing a copy of the published paper(s) and/or patent application or patent itself.

Further, the CRC has the authority to recommend modifications/alterations to a proposed project and its budget. The proposer must make any required revisions and return its modified proposal in sufficient time for the next meeting of OCDO's Technical Advisory Committee (TAC). A Report of the CRC Chair to the TAC is generated after the spring meeting, recording the CRC's review and recommendations on each project proposal.

This year, proposers of projects that are of interest to OCDO and the CRC will be invited to present to the CRC on or about **June 11 & 12, 2003** in Columbus. (Proposers and CRC members will be notified of final details and a venue later.) Presentations should be brief (approximately 10-12 minutes). Handouts of overheads or PowerPoint presentations for the CRC are required.

**OCDO Technical Advisory Committee (TAC) & ODOD Director** -- In accordance with OCDO's statute, every project proposed for funding must first be reviewed in a public meeting by OCDO's TAC. The CA and CRC Chair are present at the meeting, which usually takes place

in July. The CRC Chair presents the report. The TAC must vote as to whether or not it recommends funding of a program or project to the ODOD Director, who has final approval. Once the approval of the Director is received, OCDO enters into grant negotiations with the CA. These are usually completed by the end of August; therefore, it is incumbent upon the CA to be negotiating concurrently the subcontracts with the other OCRC members along with the prime grant in order to meet the start of the new school year (September).

*In any event, OCDO/ODOD reserves the right to accept or reject in whole or in part or seek modifications to any or all proposals if it is determined to be in the best interests of the State of Ohio to do so.*

**Leveraging of OCDO Funds** – Review of OCRC proposals will bear an expectation that the proposer has or is making an attempt to also acquire federal funds (or other private funds) for the project. A copy of any companion proposal(s) submitted to USDOE or other federal or private entity or funding program should be attached as an appendix to this proposal. The anticipated decision date and funding timeframe of companion proposals should be included. Proposals that contain a companion proposal will be evaluated much more favorably than those that have not attempted the same. (Note: If a proposal was submitted and the final decision was unfavorable, the attempt to leverage will be recognized regardless of the outcome.)

### **OCRC-III TECHNICAL GOALS & OBJECTIVES**

The technical goals and objectives are a part of the OCRC-III grant agreement and are set forth below. However, proposers are advised to keep current with the latest air emissions restrictions enacted/proposed by the US Environmental Protection Agency (USEPA) such that proposers' research and work will remain relevant to the ultimate end user. Proposers should exhibit an awareness of the requirements, including both practical economic and anticipated environmental restrictions end users will have to meet.

Additionally, the proposer must clearly demonstrate that the technology being studied can be practically applied and must supply some rudimentary estimates as to the economic cost and viability of the technology/process. All proposals must include and identify application details for the process being investigated with respect to a common, large scale (1000-1300MW), coal-fired power plant. **Attachment 1** contains typical operating ranges for large-scale plants. Specifically, for the process being investigated describe the anticipated location in the flue gas train and the appropriate range of temperatures, flue gas composition, residence times, etc. In the case of a process requiring more than 1" w.c. pressure drop (such as a membrane separation process), include details about the necessary fan capacity (or increase in fan capacity) present in a "typical" coal-fired power plant. Proposals should contain citations and specific information from accepted industry standards, such as those found in Babcock & Wilcox's **STEAM**, to corroborate the proposal's hypotheses. (It is acceptable for the technology to be aimed at a smaller scale plant (200-800MW), but the proposal should cite typical operating conditions found in such units as is required for the large units. Similarly, for projects directed at improved gasification or novel concepts, literature citations should be provided to the extent possible.)

In the area of air toxics, mercury, and to a lesser extent arsenic, are emerging as the air toxics of primary concern. NOx reduction is also a topic of Consortium III, but it is becoming apparent that utilities and power generators have already made significant investments in NOx control systems and it is unlikely that new university research on this topic will be applied for many years to come. Therefore, further work on NOx reduction will become of lower priority than

other program topics. As a continuation of a commitment to a four year consortium program, the **existing** NOx projects will be reviewed and considered to be of equal priority to the other research areas listed below. However, **new** NOx proposals will be considered as a lower priority.

With international concern regarding the issue of global warming, carbon management--also referred to as the management of CO<sub>2</sub> and methane emissions--is receiving considerable attention from research groups worldwide. In this regard coal is a particular target and consequently of special concern to OCDO. Carbon management poses special challenges to the power production industry. In line with these concerns and this challenge, OCDO is including carbon management as a significant, if not major, effort in OCRC. Questions to consider include the suitability of depleted oil and gas fields, unminable coal seams, and deep sandstone formations in Ohio for sequestration of CO<sub>2</sub>. Also of interest are more economical processes for separation of CO<sub>2</sub> from flue gases, and chemical processes which yield hydrogen-rich fuels from Ohio coal (which could supply such apparatus as fuel cells) and carbon or carbon-based products for non-combustion uses.

OCDO is also interested in developing or advancing technologies related to coal-gasification. Proposals are sought regarding technologies that will facilitate gasification and the use of clean coal-derived gas, including but not limited to research regarding hot-gas particulate removal, hot-gas sulfur scrubbing, **production of hydrogen gas from coal**, and new gasification technology to reduce overall system costs. Among other things, such clean coal gas should be suitable for use in fuel cells.

#### **Goal A: Sulfur and nitrogen oxides emissions control.**

--Evaluate the potential of dry sorbent technologies for sulfur removal from high efficiency power generating systems.

--Address the issues pertinent to promotion of high-sulfur Ohio coals for advanced coal-based power generating technologies

--Quantify the fundamental physical/chemical mechanisms and kinetics of SO<sub>x</sub> and NO<sub>x</sub> removal processes.

#### **Goal B: Control of Mercury, Arsenic, and Selenium emissions.**

--Characterize the chemical and physical nature of Hg, As, and Se in flue gas, ash, PM<sub>2.5</sub> particulates, and scrubber sludges resulting from combustion of Ohio coals.

--Develop new, efficient and economical multifunctional sorbents for effective control of mercury, arsenic and selenium emissions.

--Quantify the fundamental physical/chemical mechanisms and kinetics of mercury, arsenic, and selenium removal processes.

--Address procedures to prevent or control PM<sub>2.5</sub> particle formation.

--Address procedures to capture PM<sub>2.5</sub> particulates.

### **Goal C: Evaluate CO<sub>2</sub> reduction methods which can be applied in Ohio.**

- Development of criteria for evaluation of the suitability of Ohio depleted oil and gas fields, unminable coal seams, and deep sandstone formations for sequestration or at least very long-term storage of CO<sub>2</sub>.
- Evaluation of the suitability of geologic formations in the vicinity of Ohio coal burning power plants for sequestration or long-term storage of CO<sub>2</sub>.
- Characterization of the possible chemical reactions between CO<sub>2</sub> and various minerals, especially those found in deep sandstone formations in Ohio.
- Characterization of the physical and chemical interactions between CO<sub>2</sub> and minerals found in depleted oil and gas fields and unminable coal seams in Ohio. Determination of the tendency for the long-term loss of CO<sub>2</sub> from such geologic formations in Ohio.
- Development of novel and less costly methods for separation of CO<sub>2</sub> from flue gas.
- Development of processes for producing and utilizing hydrogen enriched fuels from Ohio coals.
- Investigate ways to increase coal combustion efficiency.
- Development of materials that withstand higher combustion temperatures.
- Development of carbon sequestration techniques and/or carbon products.

### **Goal D: Coal Gasification Technologies**

- Development or advancement of low cost, high temperature particulate clean up from coal gas streams
- Development or advancement of low cost, high temperature H<sub>2</sub>S clean-up from coal gas streams
- Development or advancement of systems or sorbents for capture of mercury and other air toxics
- Development of membranes for separation of Hydrogen in coal gasification systems
- **Development of processes for production of hydrogen using coal**
- Computational Chemistry for reforming technology producing fuel cell grade hydrogen from methanol which was derived from coal.
- Development of direct utilization of coal in fuel cells.

**ELIGIBILITY** -- This solicitation is limited to colleges and universities located within the state of Ohio. Causes for rejection without detailed review (in no particular order) include, but are not limited to:

- applicant is not of an Ohio college or university;
- proposal is not received by the Thursday May 8, 2003, 3:00 p.m. submission deadline;
- proposal does not contain Attachments 1 and 2, and an original signature by an authorized school authority;
- proposed work is outside the topic area of this solicitation;
- proposed work is too broad and not focused;
- proposal fails to meet the solicitation format requirements;
- proposal duplicates other work by EPRI, USDOE, USEPA or others;
- projects that have participated in the prior year must demonstrate progress;
- by completion of the third year of a given project, a peer-reviewed paper should be published (or submitted for publication with a decision pending) or a patent application should be filed;
- proposed work and associated budget is not feasible or reasonable;
- proposal has not sought to leverage other matching funds;
- proposed budget does not meet the required cost share;
- budget otherwise fails to conform to requirements set forth in this solicitation;
- proposed work does not appear that it will result in practical or timely solutions in the marketplace;
- projects which have not yielded a peer reviewed publication or patent application by the completion of the third year of research shall not receive further funding;
- project is not sited in Ohio.

**PROPOSAL FORMAT** -- The total length of the proposal is not limited, but overly elaborate proposals and presentations are discouraged. Detailed, logically sequenced work tasks, reasonable budget and clarity are expected, especially as they pertain to the Statement of Work. The project should cover the period from September 1, 2003 through August 31, 2004.

The following items must be included in the proposal.

--A **Cover Page**, comprising **Attachment 2**. Complete all sections of Attachment 2 and attach it as the top page of the proposal.

--An **Executive Summary**. This section must not exceed three pages, and must summarize the specific work to be accomplished in Year 3 of Consortium III, the expected results (project goals and anticipated achievements), and justification for the work. The executive summary must **not** contain any trade secret information, as it will be released to the public.

--A detailed discussion of the **Objective(s) and the Project Plan** for the proposed project. This section must include the following:

- A discussion of the remaining two year plan for this effort.
- A literature review.
- A clear statement of how this research can enhance the use of Ohio coal.

- A clear statement of how this research could be applied at a power plant, including specific application details (such as temperatures, residence times, and physical locations within the flue gas exhaust path.)
- A general description and justification of the importance of the overall 4-year work, with an emphasis on work of Year 4 for existing projects or Year 1 of new proposals.

--A very detailed, logically sequenced **Statement of Work** (SOW) for Year 4 of Consortium III. The SOW must contain the following:

- An outline of Year 4 of Consortium III project objectives and project tasks.
- A description of the tests to be run and data collection techniques to be used, and anticipated targets or goals to be achieved.
- A clear description of the quality assurance/quality control procedures to be followed.
- The sequence and timeline (Gantt chart) for initiating and completing the tasks and/or phase(s).
- A clear description of the targets and anticipated accomplishments of the proposed work.
- Appropriate charts, graphs, diagrams and line drawings.

--A listing of the **Personnel** to be involved in the project, along with their responsibilities. Identify the Principal Investigator, who will be the person directly responsible for the completion of the project within the grant agreement's parameters, including adherence to the SOW and project budget. Include pertinent portions of the *curriculum vitae* (CV) of the Principal Investigator and other major project personnel. No one CV should exceed three pages.

--A Consortium III Year 4 project **Budget** (important--see the Funding section, below). The budget must be presented by line-item (personnel, supplies, equipment, travel, etc.) Proposers must use **Attachment 3**. Additional sheets may be included in order to clarify the budget if necessary. The budget must specify the portions to be paid by OCDO and the proposer's cost-share. Include an Equipment List and justification for each piece of equipment to be purchased.

- **FUNDING:** It is anticipated that approximately a dozen projects (+/-) will be funded. Special consideration in awarding funding will focus on programs that offer collaboration among different colleges within individual universities and among different universities. Collaboration offers the potential for many synergistic gains in research accomplishments. This has proven so in past programs and is strongly encouraged in OCRC-III. Special consideration will also be given to projects that use OCDO funding to leverage federal or private third-party matching funds. The proposal should specifically state whether or not third party funding is included in the proposed project, and include a copy of proposals made to third parties in an appendix.

The Consortium Review Committee will evaluate and recommend projects on a merit and priority basis.

--No single year's project shall exceed \$80,000 in funding from OCDO. Those projects seeking less than the maximum amount will be viewed more favorably.

--All OCRC participants are required to contribute a minimum of 25 percent of the Consortium III Year 4 Total Project Cost (TPC). The TPC shall be computed based upon the total project budget, including contributions from OCDO, the school, and any other contributing organizations. Proposers are strongly encouraged to seek additional sponsorship from organizations such as the U.S. Department of Energy, the Electric Power Research Institute, and others.

--OCDO will fund equipment necessary to complete the work up to 50 percent of its actual cost. Upon successful completion of the project, title to the equipment will be granted to the school. The proposer may count the other 50 percent of the equipment's cost toward cost share.

--OCDO shall fund up to two/ninths of the academic year base salary for the Principal Investigator. Faculty compensation during the academic year is not an allowable cost. One Principal Investigator (PI) per project as funded by OCDO is preferred, but up to two are allowed. If more are desired under OCDO funding, then one must replace another ("switch out") at appropriate times during the project to accommodate a third such that no more than two are ever funded by OCDO. Otherwise, unlimited additional faculty may be funded by the participating school and/or by a third-party funder and counted toward the required cost share.

--Graduate student costs shall be at school's regular rates for the appropriate level of the student.

--Travel in the project budget (as opposed to the CA budget) should be limited to actual travel necessary to complete the project (example: a car trip between one school and another in order to collaborate on research, a trip to a "quarterly" meeting). Do not include travel to conferences to present papers, as that is included in the CA Administration budget. (However, please note in your proposal if you intend to present at a conference, as it will help in the preparation of the Administration budget.) With the possible exception of Canada (with strong justification), no international travel will be reimbursed by OCDO. All travel shall be in accordance with State of Ohio travel reimbursement rates.

--Overhead charges shall be kept to a minimum. However, overhead charges may be used as part of an institution's cost share commitment, provided that federally approved, auditable overhead rates are used. Overhead charges, if any, to OCDO cannot--in any case--exceed the school's federally negotiated rate for research.

**AWARD DELIVERABLES** -- Following approvals and execution of legal agreements as noted above, some of the basic requirements of the grant and subcontracts are as follows:

--Quarterly status reports, describing technical progress, must be prepared covering the time periods September 1 - November 30; December 1 - February 28; March 1 - May 31. These reports must be completed according to a format to be specified in the grant agreement, and failure to submit them in a timely manner will result in termination of the project.

--Financial reports, in a standard OCDO format, must be submitted summarizing the project financial status, including actual project expenditures to date, and grantee cost share. These should be submitted with periodic invoices. Invoices must be submitted quarterly, for time periods corresponding to the project performance period. All invoices must bear sufficient documentation to back up both charges to the grant and the total cost share expended.

--**NOTE WELL:** If invoices are not submitted within 90 days of the close of a quarter, the school shall forfeit the funds for the period. Such forfeited funds may, however, count towards the school's project cost share.

---Administrative reports, indicating project employment and cost projections, and an end-of-the-calendar year, one-page project abstract for use in the OCDO Coal Agenda, must be submitted.

--An annual project abstract must be submitted by the end of the year for inclusion on OCDO's internet page. (A letter and format will be sent to you in November.)

--Project quarterly reports and comprehensive final reports (covering the period from September – August) will be submitted to OCDO and the Consortium Administrator, including one hard or paper copy and an Adobe Acrobat PDF file. The format of the reports will be specified in the project grant agreements.

--Proposers should plan to attend up to three mandatory meetings with the full OCRC throughout the year to present the progress to date on their project, to collaborate with others in the OCRC, and to review various on-site demonstration projects.

--Each school shall execute a payment agreement with OCDO that enables the State of Ohio to receive a commercially reasonable portion of any revenue stream (via the sale, lease, license, etc.) derived from the work supported by OCDO funds

**TRADE SECRET INFORMATION** -- All information submitted in response to this RFP shall be public information unless it is determined to be "trade secret," as it is defined by Section 1333.61 of the Ohio Revised Code. Any information submitted with the proposal, which the proposer deems a trade secret shall be treated accordingly, if the information is determined to be a trade secret under the laws of the State of Ohio. In the event the proposer submits trade secret information, it is the proposer's sole responsibility to conspicuously identify and mark only those lines, diagrams, etc. or portions of the document containing such information. Entire proposals or entire pages so marked cannot be deemed as confidential.

**PROPOSAL SUBMISSION REQUIREMENTS** -- Eighteen (18) paper copies of the complete proposal and one Adobe Acrobat PDF copy on a floppy disk or CD (**zip drives are no longer acceptable**) shall be submitted to:

Mr. Bob Brown  
Ohio Coal Development Office  
Ohio Department of Development  
POB 1001, 25<sup>th</sup> Floor  
77 S. High Street  
Columbus, OH 43216-1001

Phone: 614/466-6538  
Email: [bbrown@odod.state.oh.us](mailto:bbrown@odod.state.oh.us)

The Adobe Acrobat PDF file shall be single spaced, justified, and size 10 Times New Roman or equivalent font.

Proposals must be received by or before Thursday, 3:00 p.m., May 8, 2003. THERE WILL BE NO TIME EXTENSIONS. Faxes and emails will not be accepted. Promptness is important, as

the proposals will be mailed by OCDO to the CRC by 12:00 p.m. the next day so that they may begin their review.

**OTHER GENERAL REQUIREMENTS** -- All costs incurred in the preparation of the proposal and negotiation of subsequent legal agreements shall be borne by the proposer. OCDO shall not contribute in any way including cost share to the cost of the preparation of the proposal.

At any point during the selection process, OCDO (which includes the CRC) reserves the right to request additional information to assist in the review process, and the proposer may be asked to provide additional information/clarification.

All proposers must acknowledge in writing in the cover letter whether or not their school is in arrears for federal, state, or local taxes of any type, and that there are no outstanding liens, levies, lawsuits or investigations of any type pending against their organization. If such an acknowledgment cannot be provided, the proposer must provide detailed information explaining such lien, levy, lawsuit, or investigation. The proposer shall state in writing whether or not its school has an affirmative action program and written affirmative action plan. The cover letter and Attachment 1 must bear the original signature of an authorized authority of the school.

**Evaluation and Selection Criteria** – It is the policy of the OCRC that all financial assistance is awarded through a merit-based selection process, which means a thorough, consistent and independent examination of applications based on pre-established criteria by persons knowledgeable in the field of the proposed project.

**Criterion 1: The overall merit of the proposed project.** (Maximum 45 points) The research represents a significant contribution to expanding the base of knowledge in the defined focus area. The proposed approach is innovative and represents a significant departure from state-of-the-art approaches to the described problem. An awareness of the state-of-the-art in related areas of coal research is demonstrated.

**Criterion 2: The stated objectives and probability of achieving those objectives.** (Maximum of 40 points) The application clearly addresses a problem, concept or question described within the research areas A, B, C, and D defined above. A well defined, logical statement of work is provided to effectively address the technical issues. An approach is described that is scientifically sound and well planned and current methods (or methods adequate to solve the problem) are used in the investigation.

**Criterion 3: The facilities or specialized equipment and techniques available to the applicants to meet the project objectives.** (Maximum of 15 points)

**Criterion 4: Leveraging of cost sharing funds from industry or government sources.** (Maximum of 15 points) One goal of the OCRC program is that OCRC support will be used as cost share in proposals submitted to other sources of government and industrial funding. The university would be expected to maintain its cost share at 25% (or greater) of OCDO's contribution to the project. The outside funds would be used to either expand the program or reduce OCDO's contribution to the project. Companion proposals must be attached as an appendix to demonstrate the attempt to leverage third party funding.

**Criterion 5: Publication of research in peer reviewed journals or applications for patents.** (Maximum of 10 points.) It is expected that by the end of the third year of a given project that a

paper has been submitted to a peer reviewed journal for publication and/or a patent application has been filed. None of the current projects have been with OCRC for a full three years. However, abstracts of any publications or patent applications resulting from current projects should be attached to the proposal.

**Criterion 6: Lower priority of NOx projects.** (Maximum of 15 negative points) In this the last year of Consortium III, current NOx Projects will receive zero negative points. However, in consideration of changing goals of OCDO and the lower priority of NOx work as discussed above, new NOx projects will receive up to 15 negative points. Consideration will be given to the novelty of the proposed concept and the possibility that the proposal might lead to a much improved NOx reduction system over concepts currently being adopted and installed by power generators.

**Criterion 7: Collaborative projects.** Projects that are collaborative efforts between different colleges within individual universities and/or among different universities will receive a maximum of 10 points.

## **SCHEDULE**

- Proposals due to OCDO (Attn: Bob Brown) by 3:00 p.m. Thursday May 8, 2003
- Proposals packaged and mailed to CRC by 12:00 p.m., Friday May 9, 2003.
- CRC review meeting in Columbus, 6/11/03 & 6/12/03
- Proposal (budget) revisions & CRC Chair's report due 7/4/03
- TAC meeting, 7/25/03 (tentative)
- Grant agreement between OCDO & OU negotiated; sub-agreements between OU and other schools CONCURRENTLY negotiated during August
- Year 4 projects to start, 9/1/03