



Ohio Coal Development Office
Ohio Coal Demonstration and Pilot Program Request for Proposals
(RFP)

RFP Number: DEVOCA1901

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| • Posting Date | January 4, 2019 |
| • Inquiry Period | January 4, 2019 – March 21, 2019 |
| • Full Proposals Due | March 28, 2019 |
| • Successful Projects Announced | May/June 2019 |
| • Estimated Project Start/Effective Date | July 2019 |

Submit Proposals to:

Ohio Development Services Agency
Ohio Coal Development Office
Attention: Ohio Coal Demonstration and Pilot RFP
77 South High Street, 26th Floor
Columbus, Ohio 43215

The RFP consists of six (6) sections totaling twenty-four (24) consecutively numbered pages and six (6) attachments. Please verify that you have a complete copy.

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SECTION I. OVERVIEW

A. Background

The Ohio Coal Development Office (OCDO) was created in 1984 to encourage, promote, and support the Ohio coal industry in the face of environmental regulations that were enacted in the 1960s and 1970s. The OCDO provides funding for project-based solutions for new and emerging regulations/challenges facing Ohio's coal industry, while also supporting emerging processes/demonstrations that will help ensure Ohio's coal resources are used effectively, efficiently, and in an environmentally acceptable manner.

The Coal Research and Development Fund (Ohio Revised Code Section 1555.15) is overseen by the Ohio Development Services Agency (ODSA) in accordance with state statute (Ohio Revised Code Sections 1551 and 1555). ODSA is assisted by the Coal Technical Advisory Committee (CTAC), which is comprised of members who serve in the public and private sectors that have a role or interest in the use, conversion, or study of Ohio coal.

The ODSA is issuing this Request for Proposals (RFP) to interested and qualified applicants to submit project proposals focused on expanding the use of Ohio coal in an environmentally acceptable and cost-effective manner. Emission-reducing, economical, and ultimately greater use of Ohio coal and/or its combustion products must be a result of the proposed project. Funds awarded through this RFP will be for projects located and for work conducted in Ohio that uses Ohio-mined coal.

Applicants are advised to stay current with the latest air, water, and solid waste regulations that impact electric generation, industrial coal-users, or coal by-products, and on the costs of meeting those regulations, so that projects remain relevant and viable.

B. Areas of Interest

ODSA is interested in developing or advancing technologies in the following areas:

- A. Development/deployment of advanced Ohio-coal-based power and fuel producing systems (e.g. integrated gasification combined cycle, oxy-combustion systems, chemical looping systems, supercritical carbon dioxide primary power, etc.) which will reduce carbon and other emissions and/or lower their cost of operation;
- B. Improved technologies applicable to Ohio coal combustion technology systems: to increase generating efficiency in order to significantly reduce carbon dioxide emissions that also reduce the fixed costs and/or variable operating costs, maintenance costs, or other means for existing and new systems; including: innovative heat rate improvements beyond current practices (such as neural networks, intelligent sootblowers, boiler feed pumps, air heater and duct leakage control, variable frequency drives, steam turbine blade path upgrades, economizer upgrades);
- C. Cost-effective carbon dioxide capture utilization and storage (that are the result of the combustion of Ohio coal or the use of Ohio coal) through improving capture technology and development of processes that are optimized and integrated systems for capture and utilization;
- D. Ohio coal technologies/processes that lower the cost of supplying the energy needs of Ohio's industrial complex;
- E. Cost-effective improved retrofit technologies to reduce emissions of criteria air pollutants, including sulfur dioxide, nitrogen dioxides/oxides, mercury and air toxins that are the result of the combustion of Ohio coal or the use of Ohio coal, including improvements to reduce parasitic loads of pollution control technologies;
- F. Improved technologies/processes that enable the more efficient conversion of Ohio coal to a chemical feedstock, liquid, commercial product/material (such as rare earth elements), or gas;

- G. Ohio coal combustion products: High volume fly ash and flue gas desulfurization utilization that reduces liability/disposal costs (excluding projects related to agricultural augmentation with FGD gypsum); These projects must clearly show the economic and annual usage volume advantages over current end uses for Ohio coal combustion products;
- H. Analysis of the potential impact on the Ohio coal industry of: 1) the increased electrification of the ground transportation sector and identification of opportunities to advance Ohio coal so that the state can optimize environmental and economic benefits, or 2) the integration of thermal or energy storage to ease intermittency inefficiencies and equipment damage that results from operating Ohio coal-fired electric generation units more flexibly and rapidly adjusting to cycling load demands;
- I. Technologies/processes consuming Ohio coal that allow electric generating units to operate more flexibly and rapidly adjust to cycling load demands that maximizes output efficiencies, and minimizes criteria air emissions; and
- J. Other projects, certified by the OCDO Director, as mission critical.

C. Eligibility

ODSA will award funds only to those that qualify as a “coal research and development project” as defined in the Ohio Revised Code (Section 1555) or as a “coal development facility” as defined in the Ohio Revised Code (Section 1551) and that are eligible under the Ohio Constitution (Section 15, Article VIII). Projects must currently be at a Technical Readiness Level (TRL) 2-8, at the time the application is submitted, as found in the Technology Readiness Levels Section I. D below (subject to the limitations found in Section II, Award Information) and projects must fall within one of the eligible Areas of Interest in Section I. B.

Persons (individuals and businesses) doing business in Ohio or educational or scientific institutions located in Ohio are eligible to receive funding under this RFP. Persons not presently doing business in Ohio are also eligible if the grants will be used to establish new businesses in Ohio. Funds received from ODSA must be used to construct eligible TRL 3-9 facilities in Ohio, cover operating costs of such eligible TRL 3-9 facilities in Ohio, and/or for support of project staff based in Ohio to complete eligible TRL 2-8 projects.

ODSA funds shall be used to test only Ohio coal and the products remaining from its use. Any testing on non-Ohio coal for comparison purposes may be done with the project Cost-Share funds.

Projects funded by ODSA must also have direct involvement (for projects that are currently TRL 5-8, at the time the application is submitted), or an advisory role (for projects that are currently TRL 2-4, at the time the application is submitted) from industry/end-user partners that utilize or plan to utilize Ohio coal. Financial and/or strategic partnerships with industry involvement should demonstrate increased likelihood that technology/results of the project are relevant to producers and/or end-users of Ohio coal, and/or have a pathway towards further development and eventual field deployment.

Project activities conducted outside of Ohio by project applicant and participants may be used as cost-share but must be directly related and integral to the completion of the project.

D. Technology Readiness Levels

A Technology Readiness Level (TRL) describes the current status, at the time the application is submitted, of a technology’s development toward commercialization that will use Ohio coal. Note, to be at a certain TRL, all of the descriptions must be met, at the time the application is submitted.

Current TRL	Definition	Description	Maximum Award Amount
1	Basic principles observed and reported	<u>Core Technology Identified</u> . Scientific research and/or principles exist and have been assessed. Translation into a new idea, concept, and/or application has begun.	Not Eligible
2	Technology concept and/or application formulated	<u>Invention Initiated</u> . Analysis has been conducted on the core technology for practical use. Detailed analysis to support the assumptions has been initiated. Initial performance attributes have been established.	\$100,000
3	Proof-of-concept validated	<u>Proof-of-Concept Validated</u> . Performance requirements that can be tested in the laboratory environment have been analytically and physically validated. The core technology should not fundamentally change beyond this point. Performance attributes have been updated and initial performance requirements have been established.	\$250,000
4	Proof-of-concept achieved in a laboratory environment	<u>Proof-of-Concept Achieved in a Laboratory Environment</u> . The technology components have been integrated to the extent practical (a relatively low-fidelity integration) to establish that key pieces will work together and validated in a laboratory environment. Performance attributes and requirements have been updated.	\$250,000
5	Technology components integrated and validated in a relevant environment	<u>Technology Validated in a Relevant Environment</u> . Technology component configurations have been validated in a relevant environment. Component integration is similar to the final application in many respects. Data sufficient to support planning and design of the next TRL test phase have been obtained. Performance attributes and requirements have been updated.	\$1,000,000
6	Pilot validated in a relevant environment	<u>Pilot Validated in Relevant Environment</u> . A pilot has been validated in a relevant environment. Component integration is similar to the final application in most respects and input and output parameters resemble the target commercial application to the extent practical. Data sufficient to support planning and design of the next TRL test phase have been obtained. Performance attributes and requirements have been updated.	\$1,000,000
7	System pilot validated in an operational system	<u>System Pilot Validated in Operational Environment</u> . A high-fidelity pilot, which addresses all scaling issues practical at pre-demonstration scale, has been built and tested in an operational environment. All necessary development work has been completed to support Actual Technology testing. Performance attributes and requirements have been updated.	\$2,500,000
8	Actual technology successfully commissioned in an operational system	<u>Actual Technology Commissioned</u> . The actual technology has been successfully commissioned for its target commercial application, at full commercial scale. In almost all cases, this TRL represents the end of true system development.	\$2,500,000
9	Actual technology operated over the full range of expected operational conditions	<u>Commercially Operated</u> . The actual technology has been successfully operated long-term and has been demonstrated in an operational system, including (as applicable) shutdowns, startups, system upsets, weather ranges, and turndown conditions. Technology risk has been reduced so that it is similar to the risk of a commercial technology if used in another identical plant.	Not Eligible

Glossary of Terms

Actual Technology: The final product of technology development that is of sufficient size, performance, and reliability – ready for use at the target commercial application. The technology is at Technology Readiness Levels (TRLs) 8–9.

Commissioning/Commission: The actual system has become operational at target commercial conditions and is ready for commercial operations.

Concept and/or Application: The initial idea for a new technology or a new application for an existing technology. The technology is at TRLs 1–3.

Core Technology: The idea, new concept, and/or new application that started the research and development (R&D) effort. Examples include: (1) a new membrane material, sorbent, or solvent; (2) new software code; (3) a new turbine component; (4) the use of a commercial sensor technology in more durable housing; or (5) the use of a commercial enhanced oil recovery technology to store CO₂. Typically, this is a project's intellectual property.

Fidelity: The extent to which a technology resembles its intended use in the target commercial application.

Integrated: The functional state of a system resulting from the process of bringing together one or more technologies or subsystems and ensuring that each function together as a system.

Laboratory Environment: An environment isolated from the commercial environment in which lower-cost testing is performed to obtain high-quality, fundamental data at earlier TRLs. For software development, this a small-scale, simplified domain for a software mockup.

Operational System: The environment in which the technology will be tested as part of the target commercial application.

Performance Attributes: All aspects of the technology (flux, life, durability, cost, etc.) that must be tested to ensure the technology will work at the target commercial application, including all needed support systems. It is likely that the performance attributes list will increase as the technology matures. Performance attributes must be updated as new information is received and formally reviewed at each TRL transition.

Performance Requirements: Criteria that must be met for each performance attribute before the actual system can be used at its target commercial application. These will be determined through consideration of technology test data, funding program goals, systems analysis, etc. Performance requirements may change over time, and it is unlikely that all of them will be known at a low TRL.

Pilot: A test apparatus necessary to thoroughly test the technology, integrated and realistic as much as practical, in the applicable TRL test environment.

Program: The funding program. The program goals will be used to judge project value and, in concert with systems analysis, will support acceptable performance requirements for the project. The funding program will also determine whether the system will be tested under one or several sets of target commercial applications.

Project: The funding mechanism for technology development, which often spans only part of the technology development arc. Some projects may contain aspects that lack dependence; these may have different TRL scores, but this must be fully justified.

Proof-of-Concept: Reasonable conclusions drawn through the use of low-fidelity experimentation and analysis to validate that the new idea – and resulting new component and/or application – has the potential to lead to the creation of an actual system.

Relevant Environment: More realistic than a laboratory environment, but less costly to create and maintain than an operational environment. This is a relatively flexible term that must be consistently defined by each program (e.g., in software development, this would be “beta testing”).

Target Commercial Application: This refers to one specific use for the actual system, at full commercial scale, which supports the goals of the funding program. A project may include more than one set of target commercial applications. Examples are:

1. Technologies that reduce the cost of gasification may be useful for both liquid fuels and power production.
2. Technologies that may be useful to monitor CO₂ storage in more than one type of storage site.

Technological Components Integrated: A test apparatus that ranges from (1) the largest, most integrated and/or most realistic technology model that can reasonably be tested in a laboratory environment, to (2) the lowest-cost technology model that can be used to obtain useful data in a relevant environment.

Technology: This includes R&D work on all technology aspects, both within and external to any given project, that must be done for the project’s core technology to translate into an actual system. It is likely that what comprises the technology will increase as the TRL score increases. This includes concepts and/or applications (TRLs 1–3), components and/or systems (TRLs 4–5), pilot in a relevant environment (TRL 6), high-fidelity pilot in an operational environment (TRL 7), and the actual technology (TRLs 8–9).

Technology Aspects: Different R&D efforts, both within and external to any given project. Examples include material development, process development, process simulation, contaminant removal/control, and thermal management.

Validated: The proving of all known performance requirements that can reasonably be tested using the test apparatus of the applicable TRL.

E. Review Process

ODSA will conduct technical reviews by its staff and its proposal review team, which is composed of independent, experienced coal professionals under contract with ODSA.

ODSA may find it necessary to seek additional information from an applicant to aid in the review. However, once a proposal is submitted, no supplements will be accepted, unless requested by ODSA. Be certain that the proposal is complete and correct before submission.

Based upon the scores that are received, applicants may be invited to make a short presentation before the Coal Technical Advisory Committee (CTAC) at the next scheduled meeting. The comments of the technical reviewers will be compiled and sent to applicants and the CTAC approximately two weeks before the next scheduled CTAC meeting. Subsequently, the CTAC will determine which proposals it recommends for funding and present those recommendations to the ODSA Director. ODSA will make any grant awards contingent upon full execution of a grant agreement and approval/release of funds from the Ohio Controlling Board.

SECTION II. AWARD INFORMATION

A. Estimated Funding

Approximately \$4.14 million in funding is available under this RFP.

B. Maximum Award Size

The maximum ODSA award for an individual project receiving funding under this RFP will be limited in accordance with the following parameters:

- \$2.5 million for projects that are currently at TRL 7-8, at the time the application is submitted
- \$1.0 million for projects that are currently at TRL 5-6, at the time the application is submitted
- \$250,000 for projects that are currently at TRL 3-4, at the time the application is submitted
- \$100,000 for projects that are currently TRL 2, at the time the application is submitted (Note: Limited to Area of Interest H only. Projects that are currently TRL 2, at the time the application is submitted, for other Areas of Interest will not be considered)

C. Cost-Share & ODSA Funding Limits

Applicants are required to contribute a reasonable amount of cash and/or in-kind funding. ODSA's contribution and maximum cost-share toward a project will be based on the anticipated risk and current technical readiness level, at the time the application is submitted, of the project. ODSA award limits are:

- Up to one-third of the total project cost of projects that are currently at TRL 7-8, at the time the application is submitted (not to exceed \$2.5 million from ODSA);
- Up to one-half of the total project cost of projects that are currently at TRL 5-6, at the time the application is submitted (not to exceed \$1 million from ODSA); Up to two-thirds of the total project cost of projects that are currently at TRL 3-4, at the time the application is submitted (not to exceed \$250,000 from ODSA); and
- Up to two-thirds of the total project cost of projects that are currently at TRL 2, at the time the application is submitted (not to exceed \$100,000 from ODSA).

For example: If the total project cost for a project that is currently at a TRL 3, at the time the application is submitted, is \$350,000, the maximum ODSA award/funding would be \$233,333 and the applicant would be required to cost-share a minimum of \$116,667.

If the applicant is not an industry/end-user, a commitment letter for projects that are currently TRL 2-4, at the time the application is submitted, must be provided by each industry/end-user partner that specifies their commitment to serve in an advisory role for the project.

If the applicant is not an industry/end-user, a commitment letter for projects that are currently TRL 5-8, at the time the application is submitted, must be provided by an industry/end-user partner that specifies their direct involvement in the project, as evidenced by being a cost-share participant.

Commitment letters must be provided for each cost-share participant that is identified in the budget for all projects.

Commitment letters may not be more than two (2) pages. Commitment letters must adhere to the guidelines outlined in [Attachment 3](#) and the following parameters:

- Be submitted on the letterhead of the participant(s);
- Include the name of the applicant and title of the proposal;
- Briefly state the nature of the collaboration;
- State the duration of the collaboration;

- State the resources the participant(s) is/are committing to the proposed project;
- State how the proposed project will contribute to the strategy of the participant(s);
- State the specific amount of the commitment that matches the cost-share amount on the corresponding budget;
- State the source of the commitment;
- State when the committed resources will be available to the applicant; and
- Be dated and signed by a representative of the participant(s) with the authority to make the cost-share commitment.

Other letters are allowed but only if they come from a committed end-user who has a commercial interest in, and can anticipate commercial benefit from, the results of the proposed project. These other letters must describe the anticipated benefit and what advice and support the committed end-user will be providing in the way of market opportunities, knowledge of competing technologies, technological and/or commercial hurdles for the proposed project, and parallel and supportive efforts. Letters from committed end-users may not be more than two (2) pages and may not include appendices or attachments. General support letters are not allowed. Any such letters submitted will be removed from the proposal and not transmitted to the external evaluation team.

Projects that are anticipating cost-share to come from pending applications from other funding sources must:

- Include a complete copy of the application that is pending with the other funding source;
- Include a link to the other funding source's solicitation;
- List the date when funding decisions are expected from the other funding source;
 - This date must be within 3 months of when OCOD funding decisions are expected to be made;
- Notify OCDO when the other funding source makes their selection, and if the applicant is not selected, the applicant must immediately withdraw from consideration their pending application with OCDO;

D. Host Site

The proposal must also contain a letter from an appropriate authority of the potential host site, stating that if this proposal is selected for funding, then the entity authorizes this unit/station as the host site. This letter should also note the estimated in-kind contribution the host site entity will be making to the project. Specifically, this does not include the value of the facility, but rather any labor costs, maintenance costs, etc., that are anticipated to be paid by the host site over the course of the facility's operations.

E. Expected Number of Awards

ODSA expects to make approximately six (6) awards under this RFP.

F. Period of Performance

Grants will cover project activities that will be performed for a period of twelve (12) to twenty-four (24) months.

F. Estimated Award Date

Funding is expected to be announced in May/June 2019. Please see Section I. E. for additional details about the review process.

G. Funding Details and Restrictions

Restrictions include, but are not limited to the following:

1. Equipment is defined as tangible non-expendable personal property purchased directly by the applicant that is necessary to complete the project and has a useful life of more than one (1) year OR that has an acquisition cost of more than \$1,000 per unit.
2. Personnel expenses are limited to: W-2 employee compensation at the applicant's regular rates.
3. Travel in project budgets is limited to cost-share and will not be eligible for reimbursement from ODSA. All cost-share travel must be directly necessary to complete the project, such as travel to the project site, or travel to a participant. Travel for conferences will not be eligible to be counted as cost-share. Travel expenses counted as cost-share, must be for permissible travel expenses and the costs must be reasonable and consistent with the applicant's established written travel policy. In the absence of an established written policy regarding travel costs, the rates and amounts established under General Services Administration (GSA) must apply to travel cost-share under this award. International travel will not be eligible for counting as cost-share.
4. Supply costs in the project budget are limited to cost-share and will not be eligible for reimbursement from ODSA funds. All supply cost-share is defined as: tangible expendable personal property that is purchased directly by the applicant that is necessary to complete the project with a per unit acquisition cost of less than \$1,000 AND that has a useful life of less than one (1) year.
5. Tuition waivers and tuition support at Ohio colleges and universities must be necessary to complete the work and shall be for students who are currently or will be enrolled at the college/university during the project period.
6. Other charges, such as postage, gases, maintenance/service contracts, phone, lab fees, rental fees, standards off-the-shelf software, etc. are limited to cost-share and will not be eligible for reimbursement from ODSA.
7. Contractual expense must be necessary to complete the project and are defined as any service agreement or contract that is made between an outside entity and the applicant that completes any portion of the project. Copies of executed contracts/service agreements must be submitted with the proposal or prior to reimbursement of any contractual expense billed to ODSA.
8. Indirect charges cannot exceed the applicant's most recent federally approved indirect rate and must only be charged on direct expenses billed to ODSA. Indirect charges on cost-share will not be eligible for reimbursement by ODSA. Indirect charges on cost-share can only be eligible for counting as cost-share.
9. No pre-award, proposal preparation or grant negotiation costs are eligible for reimbursement with ODSA funds, nor countable as cost-share, no expenses for lobbying before or during the grant agreement period are eligible for reimbursement with ODSA funds.
10. Awards are dependent upon the issuance of Coal Development General Obligation Bonds by the state of Ohio. ODSA can only make awards when the State of Ohio's Treasurer has deposited sufficient monies in the Coal Research and Development Fund from those General Obligation bond proceeds.

SECTION III. APPLICATION INSTRUCTIONS

A. Proposal Submission Format and Requirements

Submission format and requirements include:

- One (1) original paper copy marked as "Original," three (3) additional paper copies marked "Copy", and one (1) CD containing both an unlocked PDF and a word file of the proposal, sent to:

**Ohio Development Services Agency
Ohio Coal Development Office
Attention: Ohio Coal Demonstration and Pilot RFP
77 South High Street, 26th Floor
Columbus, Ohio 43215**

- Proposals must be received at the location specified above by 5 p.m. of the last day proposals are accepted.
- Proposals may not be submitted by fax or email.
- Proposals are to be submitted on 8.5 x 11-inch paper.
- Margins must not be less than $\frac{3}{4}$ of an inch on all sides.
- Font must be 11-point or larger with no more than six (6) lines per inch.
- All pages must be numbered consecutively using the format —Page [#] of [total number of pages] (e.g., Page 2 of 25).
- The proposal title and applicant name must appear at the bottom of each page.
- Proposals should not include color figures that cannot be understood when photocopied in black and white.
- Proposals must be stapled once in the upper left-hand corner and must not be bound.
- Proposals must include the required proposal summary sheet and application (Attachment 1), cover letter, the project budget summary (Attachment 2), all other required forms and responses to all questions found in Attachment 5.

Applicants are advised there will be no opportunity to correct mistakes or deficiencies in proposals after the submission deadline. Further, incomplete or late proposals will not be scored. It is the applicant's responsibility to ensure timely submission of a complete proposal. ODSA is under no obligation to consider a proposal which is incomplete or is submitted after the RFP deadline. No supplementary or revised materials will be considered after the scheduled date for submission unless specifically requested by ODSA.

All information submitted in response to this RFP shall be public information unless a statutory exception exists which would exclude the information from being released to the public. All proposals submitted will become the property of ODSA and any information submitted in response to this RFP will not be returned to the applicant.

ODSA reserves the right to:

- Accept or reject any and all proposals;
- Reissue the RFP requesting new proposals from qualified applicants;
- Waive or modify minor irregularities in proposals received;
- Negotiate with applicants, within the requirements of the RFP, to best serve the interests of the state of Ohio;
- Require the submission of modifications or additions to proposals as a condition of further participation in the selection process;

- Fund any proposal in full or in part;
- Adjust the dates for whatever reason it deems appropriate; and
- Request additional information/clarification from applicants to assist in the review process.
- Request certain applicants to make a presentation to staff and reviewers.

B. Communication

Prospective applicants may make inquiries or seek clarifications regarding this RFP at any time during the inquiry period listed in the RFP Calendar of Events. To make an inquiry, prospective applicants must use the following process:

1. Access the State Procurement web site at <http://www.ohio.gov/procure>.
2. From the Navigation Bar at the top, select “for Suppliers”.
3. Under the title “Bid Opportunities”, select “All Opportunities”.
4. Enter the RFP Number found on Page 1 of this document as the “Document/Bid Number”.
5. Click the “Search” button.
6. Select this RFP.
7. On the document information page, click the “Submit Inquiry” button.
8. On the document inquiry page, complete the required “Personal Information” section by providing the following:
 - a. First and last name of the prospective applicant’s representative who is responsible for the inquiry;
 - b. Name/Company/Business of the prospective applicant;
 - c. Representative’s business phone number; and
 - d. Representative’s e-mail address.
9. Type the inquiry in the space provided, making certain to include the following:
 - a. A reference to the relevant part of this RFP;
 - b. The heading for the provision under question; and
 - c. The page number of the RFP where the provision can be found.
 - d. Enter the Security Number.
10. Click the “Submit” button.

Prospective applicants submitting inquiries will receive an immediate acknowledgement by email that their inquiry has been received. **The prospective applicant who submitted the inquiry will not receive an email response to the question but will need to view the response on the State Procurement web site where it will be posted for viewing by all prospective applicants.**

Prospective applicants may view inquiries using the following process:

1. Access the State Procurement web site at <http://www.ohio.gov/procure>.
2. From the Navigation Bar at the top, select “for Suppliers”.
3. Under the title “Bid Opportunities”, select “All Opportunities”.
4. Enter the RFP Number found on Page 1 of this document as the “Document/Bid Number”.
5. Click the “Search” button.
6. Select this RFP.
7. On the document information page, click the “View Q & A” button to display all inquiries with responses submitted to date.

ODSA will try to respond to all properly posed inquiries within 48 hours, excluding weekends and state holidays. ODSA will not respond to any inquiries received after 8 a.m. on March 21, 2019. Prospective applicants who attempt to seek information or clarifications verbally will be directed to reduce their questions to writing in accordance with the terms of this

RFP and state purchasing policy. No other form of communication is acceptable and use of any other form of communication or any attempt to communicate with ODSA staff or any other agency of the state to discuss this RFP may result in the applicant being deemed ineligible. This includes: no applicant, participant(s), or others acting on their behalf contacting any CTAC member, or ODSA's external evaluators for this RFP during the Proposal Period regarding this RFP (other than through the approved inquiry process identified above). The Proposal Period is considered to be the date of release for this RFP through the date of the ODSA award. Existing grantees responding to this RFP are expected to limit their contact to those ODSA staff with whom they ordinarily interact regarding the administration of Coal Office programs.

If an applicant, participant or others acting on their behalf makes prohibited contact, ODSA, in its discretion, may subject an applicant/proposal to elimination from the RFP process.

C. Causes for Rejection

Only projects that meet all the requirements of the program as stated herein will be considered for funding. Due to the competitiveness of the program, not all eligible projects will receive awards. ODSA reserves the right to reject any and all proposals, without incurring liability of any kind. Incomplete proposals will be automatically rejected without review.

Other specific causes for rejection without additional review include, but may not be limited to:

1. Project is not a "coal research and development project" or "coal development facility" or "coal technology" (as required by Article 8, Section 15 of the Ohio Constitution and defined in chapters 1551 and 1555 of the Ohio Revised Code);
2. Project does not benefit Ohio coal;
3. Project does not use Ohio coal;
4. Project is not located within Ohio or research is not conducted in Ohio;
5. Applicant is ineligible for ODSA funding;
6. The applicant failed to meet all requirements of a previous loan or grant agreement from ODSA or other agency of the state of Ohio;
7. The applicant owes outstanding taxes or other debt to the state of Ohio;
8. The applicant is neither an entity that is actively registered with the Ohio Secretary of State nor an Ohio institution of higher education that has an approved academic program;
9. The applicant is not able to sustain the project financially;
10. The applicant's team does not have the technical capability to sustain the project;
11. The proposal represents a duplication of effort previously completed or currently underway by another organization (work must not duplicate efforts previously sponsored by U.S. EPA, U.S. DOE, Electric Power Research Institute, or others);
12. The proposal is for a commercially guaranteed, "off-the-shelf" technology for its normal, usual use (however, application of an existing technology in a new, unique, improved manner may be considered);
13. Duplicate application; or
14. Any major exceptions to conditions of the grant award that cannot be resolved quickly.

D. Financial and Trade Secret Information

Any information submitted with the proposal, which the applicant believes is a trade secret as that term is defined in Ohio Revised Code Section 1331.61 or financial or commercial information under Ohio Revised Code Section 122.36, must be conspicuously designated as such and may be treated accordingly.

ODSA has the authority and responsibility to protect and keep confidential trade secrets and other financial or commercial information. In the event the materials or data submitted are deemed by

ODSA to consist of trade secrets or other financial or commercial information, then only those portions of the document will be protected from disclosure by ODSA.

It is sole responsibility of the applicant to conspicuously mark such items as a trade secret or financial or commercial information. Attach a summary sheet in your proposal that lists each page that includes such information and the number of occurrences of such information on that page.

The public abstract must not contain any trade secret or financial or commercial information.

SECTION IV. PROPOSAL CONTENT

This section describes the basic requirements for proposals submitted to ODSA.

The proposal must not exceed 30 pages. Evaluators will only review the first 30 pages of the proposal. ODSA proposals must include the following four sections:

- A. Summary Information
- B. Technical Proposal
- C. Management and Budget
- D. Marketability Discussion

Specific requirements for these sections are set forth below. The proposal must be typed, paginated, contain a table of contents, and contain attachments as discussed below.

Appendices to the proposal are to be utilized to validate information within the proposal and should not be utilized as an extension for information required to be addressed in the proposal. Information submitted in the appendices, the cover letter, or in forms required in Attachment 1, 2 and 5 will not count toward the 30-page limit of the proposal.

A. Summary Information

This section of the proposal must include three elements:

1. Proposal Summary. Attachment 1 must be completed and attached as the top page of the proposal summary. An authorized representative of the applicant must sign Attachment 1. An original signature, not a stamp, is required. Attachment 1 does not count toward the page limit.
2. Cover Letter. All proposals must also include a cover letter that:
 - a. Affirms that this proposal does not represent a duplication of effort;
 - b. Certifies that the applicant does not owe: (i) any delinquent taxes to the state or a political subdivision of the state; (ii) any moneys to the state or a state agency for the administration or enforcement of any environmental laws of the state; and (iii) any other moneys to the state, a state agency or a political subdivision of the state that are past due, whether the amounts owed are being contested in a court of law or not.
 - c. Acknowledges that the applicant is not in arrears for federal, state or local taxes of any type, and that there are no outstanding liens, levy, lawsuits or investigations of any type pending against the applicant.

If such a certification and/or acknowledgement cannot be provided, the applicant must provide detailed information explaining such delinquent tax, lien, levy, lawsuit, or investigation (as an appendix). The cover letter will need to identify and the appendix will need to fully describe any material litigation to which the applicant is currently a party regarding coal or any type of coal technology over the last three (3) years. The appendix will also need to include a list and describe litigation brought or threatened against the applicant by existing or former clients over the past five (5) years regarding coal or coal technology.

An authorized representative of the applicant must sign the cover letter. An original signature, not a stamp, is required. The cover letter does not count toward the page limit.

3. Public Abstract. A public abstract of approximately 500 words must be included. The abstract must contain the project objective, the specific technology/technique to be studied, a description of the project (including the size and location), the type(s) and tonnage per year of Ohio coal to be used, the applicant and participant(s), the project duration, the total cost and the anticipated contributions of the applicant and each of the project participant(s). This abstract

may be released to the public in whole or in part at any time. It is therefore required that the abstract contain no trade secret data or confidential business information.

B. Technical Proposal

This section must include the following:

1. Project Objective. The specific technical objective(s) of the proposed project, its expected results and overall benefits to Ohio coal, to the environment, to the user and/or ratepayer, and to the state-of-the-art, must be clearly and logically detailed. State and explain the targeted technology area that this project covers and explain the potential for increased use/markets for Ohio coal (in tons per year) because of this process or technology.
2. Technology Readiness Discussion. Provide a detailed discussion of the current technology readiness level (TRL), at the time the application is submitted, of the proposed project, including a thorough discussion of technical achievements and environmental performance to date that clearly links the project and the TRL description-based activities. Note, to be at a certain TRL, all of the description must be met. Prior applicable work must be summarized, with information on the size, the conditions of operation, and duration of testing. Summarized, but sufficiently detailed data and test results from such work must be included (failure to include hard data from such prior work will jeopardize a proposal's chances for selection). This discussion must also identify all of the performance attributes that will be tested during the project, including the known performance attributes and their performance requirements. Include an explanation of how the performance requirements were determined. Describe the performance attributes that will be tested during the project and the test equipment that will be procured/built using project funds. Support with any pertinent techno-economic analysis previously performed.

Define the TRL that is anticipated at the end of the project and describe how the project objectives will meet the TRL description if the project is successful. Explain why the project end point sets the best foundation practical for the next phase of work.

3. Technical Approach. The proposal must contain a full description of the technology or technique(s) of the proposed project. At a minimum, the detailed technical discussion must contain:
 - a. Process flow diagrams;
 - b. Energy and mass balances;
 - c. Equipment layout schematics;
 - d. General and unique design specifications;
 - e. A detailed description of quality assurance/quality control procedures to be followed in the project;
 - f. A detailed description of the monitoring and sampling procedures to be followed; and
 - g. A discussion of procedures for establishing baseline data, where appropriate.

The proposal must include a discussion of the unresolved technical, economic and environmental factors that are proposed for investigation in this project, and the target goals this project anticipates reaching. This must include a discussion of the wastes or products generated by the process, and their disposal or reuse. The identified specific technical risks inherent in the project must be described, along with a discussion of the specific evaluation criteria for determining their resolution.

Finally, this section must include a discussion, where appropriate, of the scale-up required in order to move to a larger-sized application. The market commercialization significance of data

(technical performance, environmental and economic) obtained in this project should be discussed.

4. **Statement of Work.** A detailed statement of work is critical to a successful review of a proposal. This is a logically sequenced, detailed step-by-step presentation of the project phases and their work tasks, including major milestones that are necessary in order to successfully complete the work. It is also the basis for negotiations of the grant agreement, should the proposal be accepted for funding. Thorough, complete statements of work will hasten this process and therefore the project's start date.

For **each** of the phases, the following must be specified:

- a. The quantified goal and objective(s) and the general nature of the work to be performed, including the location and the responsible entity(ies);
- b. The sequence and timeline (Gantt) chart showing the tasks, phases and significant milestones, by month. (Describe these as "Month 1," "Month 2," not "November," "December.") The timeline/Gantt chart should show all work tasks and all reporting deliverables, including a draft final report due 60 days prior to the Project Completion Date, and a revised final report by the Project Completion Date;
- c. A detailed description of the major tasks which comprise the phase, and, where applicable, a description of the diagnostic and data collection equipment and techniques which are part of the task. Test matrices should be included where appropriate;
- d. A discussion of the evaluation parameters that are proposed for assessing the results and success of the work in the phase;
- e. A description of the deliverables and accomplishments resulting from the completion of the phase; and
- f. The estimated cost of the phase.

C. Management and Budget

This section of the proposal must include the following elements:

1. **Project Participants.** All participants in the proposed project must be identified. For each, the institution or company name, address, contact person, telephone number and email address must be specified. The role and extent of participation of each entity, both technical and financial, including all participants and sub-contractors must be described.
2. **Project Personnel.** The proposal must include for the applicant and each of the participants, key project personnel, their general duties and responsibilities, and their qualifications relative to this project (e.g., résumé or *curriculum vitae*). Extensive *curriculum vitae* are discouraged.
3. **Project Management Experience and Capability.** The experience (including results) of the prime sponsor with projects involving similar or related technologies or techniques, and other projects of similar complexity and technology readiness level must be described. This should include relevant experience in the development of commercial technologies, including the validation of technologies in laboratory and/or operational environments. Applicants must describe the capability of their organization to manage a project or technology of the technology readiness level and complexity proposed technically, fiscally and financially, as well as to ultimately market it commercially.
4. **Detailed Project Budget.** All applicants and participants are expected to provide significant and meaningful cost-share. The budget discussion must describe the type and amount of participation of the applicant and each participant and conform to the cost-share guidelines outlined in Attachment 3: Cost-Share Guidelines. To the extent that in-kind contributions (such

as existing equipment) are included, the source, percentage of use in the project, date of acquisition, original cost, present value and depreciation status must be included. Zero value must be ascribed to fully amortized or expensed facilities and equipment.

The Project Budget Summary format shown in Attachment 2 must be used. The budget must be prepared in line-item (e.g., personnel, overhead, equipment, supplies, etc.) detail. A second budget must also be prepared by task or sub-task detail. ODSA will not reimburse a fee or a profit. Attachment 2 will not count toward the page limit.

Attachment 2 also includes an Estimated vs. Actual OCDO Quarterly Cash Draw projection that must have the estimated portion completed by the applicant. ODSA requires this of all its projects in order to have sufficient cash on hand and so that the state can better manage its overall bond debt. Invoices are paid on a cost reimbursable basis, so cash projections must closely integrate with the project time line and overall project budget.

A budget narrative/justification section must be included describing the following:

- a. Personnel costs from the applicant and participant(s) that will be charged to ODSA and/or provided as cost-share;
 - b. Fringe benefit rates and what all it includes and who it is applied to from the applicant and participant(s) that will be charged to ODSA and/or provided as cost-share;
 - c. Equipment list and justification for each piece of equipment to be purchased by the applicant and/or participant(s) charged to ODSA and/or provided as cost-share;
 - d. Description of the expected supplies required to complete the project that will be counted as cost-share;
 - e. Contractual expenses explaining the services/companies involved in the project that will be charged to ODSA and/or provided as cost-share;
 - f. Travel charges that are going to be counted as cost-share, including the number of expected trips, the purpose of those trips and the basis for the travel budget;
 - g. For Ohio colleges and universities: tuition waivers/tuition support that includes a brief description of the students and their expected tasks that will be charged to ODSA and/or provided as cost-share;
 - h. Other costs that are going to be counted as cost-share be clearly defined and listed up front (postage, lab fees, liquids & gases, phone, rental fees, etc.);
 - i. Indirect rates: including the indirect rate percentage(s) and which budget categories the indirect rate applies to and which budget categories are excluded from indirect charges, and a copy of the latest approved indirect rate from a federal agency.
5. Financial History. If the applicant is other than an institution of higher learning, an electronic copy of certified financial statements for the past two (2) years must be included as a PDF on the CD submission. Electronic copies of financial statements for the past two (2) years also must be included as a PDF on the CD submission for each participant to the project, if other than an institution of higher learning. Paper copies of financial statements should not be included.
6. Audit. An electronic copy of the latest financial audit for the applicant must be included as a PDF on the CD submission. Paper copies of audits should not be included.

D. Marketability

This section of the proposal must include the following:

1. Environmental, Health and Safety Aspects. This section must contain a discussion of the anticipated environmental benefits of the proposed project, including a comparative risk

assessment to currently available technology. This comprehensive discussion should address not only the current phase of the project, but also subsequent commercial applications. The following topics should be included in the discussion:

- a. Identification of hazardous or toxic gaseous, liquid or solid substances integral to the process, and the safeguards proposed for their containment and ultimate disposal.
 - b. The compatibility of the proposed process with existing and anticipated environmental laws and rules.
 - c. Identification of all process products, their classification with respect to environmental and health and safety rules, and methods proposed for their disposition.
 - d. Compatibility of the technology/technique with other emission control technologies and the anticipated emission reduction performance when combined with such technologies.
2. Technology/Process Economics. The anticipated cost of the commercial application of the technology or process must be estimated, in dollars per ton of pollutant reduced at the source (power plant or other end producer/user). Product or reuse credits and energy efficiency improvement credits, where applicable, should be specifically identified. The calculated costs should be compared to competing existing or emerging technologies. Also, where appropriate, the levelized busbar cost (mills/kilowatt-hour) must be estimated. All cost-estimation assumptions and procedures must be clearly detailed.
3. Applicability to Ohio Coal Industry. The proposal must include a quantified discussion of the proposed technology's marketability and commercialization, particularly in Ohio; explain how the technology's application will benefit the Ohio coal industry, and how it will affect the continued and increased use of Ohio coal on an estimated tonnage per year basis. Items to be discussed include the following:
- a. Description of competing technologies and fuels that will be displaced by the proposed technology, including cost comparisons of the technologies.
 - b. Potential total market geographic distribution of the market, with particular emphasis on Ohio. Specific attention should be given to Ohio's end users, and to existing Ohio sources using high-sulfur Ohio coal, identifying equipment types amenable for retrofit or repower applications with this technology.
 - c. Expected technology characteristics that will facilitate commercial plant construction, such as use of shop fabrication, modular construction, siting flexibility, etc.
 - d. Projected penetration of the proposed technology into the market described above, including a time-phased estimate in terms of relative penetration (percent) and absolute penetration (e.g., tons of Ohio coal per year, MW_e generated per year, etc.).
 - e. Discussion of how the Clean Air Act and other federal and state air quality rules and regulations will affect the commercial adoption of the technology.
 - f. Types of Ohio coal that can be commercially utilized by this technology and the potential increase in the use of Ohio coal in tons per year.
 - g. Characterization of the energy or fuel product (if applicable).
 - h. Amount and characteristics of products and by-products, and how they will affect the marketability of the technology.
 - i. Discussion of the applicant's and participant's marketing plan for the technology.
4. On-going Commitment to Ohio Coal Use. The proposal must include a description of the long-term commitment to Ohio coal at the host site, including estimated life of the unit and anticipated annual tonnage of Ohio coal to be used.

SECTION V. CRITERIA FOR SELECTION (not ranked in order of importance)

A. Technical

- Clarity and specificity of objective(s). The proposal has clearly stated objectives; the objectives are well defined and realistic and will advance the state-of-the-art; the objectives are likely to be achieved in a cost-effective manner.
- Technical merit. Proposal thoroughly and clearly discusses significant technical issues and/or risks/opportunities associated or anticipated with this technology or process; a thorough background discussion is provided describing the technology's development to date; the project will build upon and not duplicate prior work; the level of proposed scale-up is appropriate and not over-reaching. Sufficient technical support is provided to substantiate a high probability of success; the technology is not "off-the-shelf" or commercially guaranteed for the particular application for which it is proposed;
- Statement of work. The proposal contains a very clear, detailed, logically sequenced statement of work with specific performance targets or ranges and identified QA/QC methods; the project will be completed in a reasonable time frame.
- Environmental performance. The project identifies significant environmental issues associated with its commercial use; the technology is superior in environmental performance to competing technologies; valid performance claims are presented; the technology will meet or exceed requirements of the Clean Air Act and other appropriate laws and regulations; the technology addresses a current or anticipated environmental issue; related issues such as by-products, parasitic power use and associated ancillary costs are addressed; the project identifies and includes any necessary permitting and provides sufficient time in project for same.

B. Financial/Experience

- Reasonableness of the budget. The budget is reasonable for the tasks proposed and the applicant is financially stable and has sufficient depth of resources to support the project. The project cost and relative investment by the state of Ohio is commensurate with the risk undertaken by the state. The applicant and participant(s) bear an appropriate share of the risk.
- Cost-share. Applicant itself bears a significant portion of the project's total cost, with cash and, where appropriate, in-kind contributions and the ratio of ODSA funds to private and other public contributions (cash and in-kind) is not excessive and is within limits established in Section II C of this RFP.
- Technical and management competence. Applicant and participant(s) key personnel have relevant experience and depth and possess the capability both corporately and in personnel knowledge/ability to ensure the project is properly managed (technically and financially), engineered, constructed, operated, documented and reported within budget. The project team has sufficient technical, managerial and marketing capabilities and skills to undertake a project of this magnitude. The company has enough depth of personnel, funding, and resources to handle a project of this scale, especially if unforeseen problems arise.

C. Marketability

- Applicability to Ohio. This project/technology is applicable to Ohio coal-consuming facilities or is a technology/process likely to increase the use of Ohio coal as a fuel or feedstock; there is likelihood of near-term adoption in the marketplace for the project.
- Cost-effectiveness. Application of the technology is likely to meet or exceed environmental requirements as established by current and expected law and regulation at an economically competitive cost compared to currently available and/or emerging technologies. The applicant identifies the cost or credit associated with byproduct disposal or sale. The applicant

demonstrates a clear understanding of the economic issues that must be addressed in the technical development.

- Business/marketing plan. Given the technology readiness level, an appropriate business/marketing plan is presented. The applicant demonstrates knowledge of: 1) Ohio and the overall market (including constraints), 2) how their project will advance Ohio coal, and 3) how to penetrate the market. Clear steps/plans are presented to commercialize the technology. The applicant has experience in commercialization of new technologies and presents evidence of same.
- Increased use of Ohio coal. The technology will increase the use of Ohio coal.

Ohio Coal Development Office – Ohio Coal Demonstration and Pilot Program Proposal Evaluation Sheet

This evaluation sheet is for use by the Ohio Coal Demonstration and Pilot Program RFP Project Review Team.

A total of **100 points** is available when scoring each submitted proposal, allocated according to the following:

Each section of scoring is based on a scale of 0 to 5, where 0=unacceptable, 3=average, and 5=excellent. For the total score, the weighting factors for each of the individual sections are combined out of a total of 100 points.

Score		Weighting Factor		Weighted Score		Maximum Score
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Technical (32.5 Points)

1.	Clarity and specificity of objective(s)		x	1.0	=		5
2.	Technical merit		x	2.0	=		10
3.	Statement of work		x	1.5	=		7.5
4.	Environmental performance		x	2.0	=		10

Financial/Experience (30 Points)

5.	Reasonableness of the budget		x	2.0	=		10
6.	Cost-share		x	2.0	=		10
7.	Technical and management competence		x	2.0	=		10

Marketability (37.5 Points)

8.	Applicability to Ohio		x	2.0	=		10
9.	Cost-effectiveness		x	1.5	=		7.5
10.	Business/marketing plan		x	2.0	=		10
11.	Increased use of Ohio coal		x	2.0	=		10

Weighted Total Score

100

SECTION VI. FUNDING AGREEMENT REQUIREMENTS

Basic requirements of a grant agreement from ODSA include, but are not limited to the following:

A. Royalty/Payment Agreement

Part of the grant agreement is a royalty/payment agreement. For each and every technology, equipment, and/or process that is funded under this solicitation, ODSA will be paid, over an extended period of time, a commercially reasonable portion of gross revenues, including but not limited to those revenues derived from the sales of equipment, services or patents, equipment leases or a portion of royalties and licensing fees. Such payment is in recognition of the risk the state of Ohio takes in granting these funds and is used to help defray principal and interest payments of Ohio's Coal Development General Obligation Bonds.

B. Award Deliverables

1. Status reports, describing technical progress, must be prepared quarterly according to a prescribed format and received by ODSA no later than ten (10) calendar days after each calendar quarter during the grant period.
2. Invoices and financial reports must be submitted quarterly summarizing the project financial status, including actual expenditures to date, and grantee cost-share. All invoices must bear sufficient documentation to validate both charges to the grant and the total cost-share expended.
3. Milestone plans and reports may be required for ODSA approval prior to initiating work for particular phases of a project.
4. An end-of-year project abstract must be submitted annually.
5. A comprehensive draft final report is due 60 days prior to the project completion date, with the revised final report due by the project completion date. Both are subject to review and comment prior to acceptance.
6. Note carefully: failure to meet certain reporting deadlines may result in financial penalties to the grantee.

C. General Terms and Conditions for Project Awards

1. Grant agreements, must be construed, interpreted and the rights of parties determined in accordance with laws of the state of Ohio.
2. All information, data, materials, patents, copyrights and royalties developed under grant awards belong to the state of Ohio unless negotiated otherwise in the applicable agreement.
3. The state's "Buy Ohio Policy" requires that competitive grant and contract solicitations by state of Ohio agencies provide preference for Ohio-based applicants and for work that will be done within Ohio. This shall carry through the grant to any bid for work and/or services made by the grantee.
4. Expenses for travel, including lodging and meals that counts towards the cost-share, must not exceed amounts in accordance with Ohio Administrative Code 126-1-02, as updated from time to time (the "Expense Rule") and Grantee agrees that it shall not count as cost-share any items that are deemed to be "non-reimbursable travel expenses" under the Expense Rule, whether by the Grantee or their respective employees or agents. International travel will not be eligible to count toward cost-share.
5. The awardee must agree to comply with all federal, state and local laws and regulations in the conduct of work performed on the project and be responsible for obtaining any and all permits required to install and operate the project.
6. The awardee must not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, disability, or age and shall take affirmative action to ensure that applicants are employed and that employees are treated during such employment without regard to race, sex, national origin, disability or age.

7. The awardee must perform the project in the manner set forth in its statement of work, and for not more than the amount set forth in the proposal.
8. If the host site is a state-owned facility and the project will involve construction, then the awardee shall bid the construction work in accordance with Ohio Department of Administrative Services procedures.
9. An awardee may be subject to a financial audit by the state of Ohio only as it pertains to the project for which it received ODSA funds.

D. Grant Agreement Procedure

ODSA projects are overseen in accordance with the terms and conditions of a grant agreement, which is entered into after project approval by the ODSA.

ODSA's standard grant agreement template is included as part of this RFP (Attachment 6). Also included are all of the Exhibits that are attached to a final Agreement ("Agreement") and become as legally binding as the Agreement itself. Any applicant is advised to review all of these documents prior to submitting a proposal to ODSA.

By submitting a proposal to ODSA, the applicant agrees to accept the terms and conditions contained in ODSA's grant agreement template and all of its attached exhibits, unless requests for specific exceptions are made in its proposal to ODSA.

Please note: ODSA understands that the grant agreement template is a model and it may be necessary to make minor modifications to meet the needs of individual projects. By identifying possible changes in the template early, ODSA hopes to significantly expedite the grant process.

E. Obligations to the State; Compliance with Laws

Grant Agreements will require Grantees to comply with all applicable federal, state, and local laws in the performance of the Project. Grantees must accept full responsibility for payments of all unemployment compensation, insurance premiums, workers' compensation premiums, all income tax deductions, social security deductions, and any and all other taxes or payroll deductions required for all employees engaged by Grantees on the performance of the work authorized by the Grant Agreements.



Indicate the current technology readiness level (TRL) of the project:

Current TRL	7	8
Current TRL	5	6
Current TRL	3	4
Current TRL	2	

ODSA ID #

-PF-

 (Leave blank)

List the expected TRL at end of the project ____ (2-9)

Proposal Summary Sheet and Application

1. Project Title				
2. Applicant Entity				
Mailing Address				
City/State/Zip				
Authorized Signature		Title		
Participant Entity				
Mailing Address				
City/State/Zip				
Authorized Signature		Title		
3. Primary Contact Person		Title		Email address
Phone		Fax		
Alternate Contact Person		Title		Email address
Phone		Fax		
4. Project Location (full address)				
Applicant Entity Location (if different than mailing address)				
5. Proposed Start Date		Duration		
			months	
6. Does the proposal contain proprietary or trade secret information? (yes/no)		If you answered Yes, you must list pages on which proprietary or trade secret information is contained on.		
7. Type(s) of Ohio coal to be used		Sulfur & ash content		
8. Technology to be used				
9. Primary application(s) of the technology				
10. Project Size (indicate units of measure)				

11. Budget Summary

	Name	Dollar Contribution	Percentage of Total
	ODSA *		
Applicant **			
Participant 1 **			
Participant 2 **			
Participant 3 **			
Participant 4 **			
Total Project Cost			

*Be sure funding request meets ODSA Funding Limitations Section requirements.

**Identify by name each participant.

12. Cost-Share Breakout

	Name	Cash	In-kind	Total
Applicant				
Participant 1				
Participant 2				
Participant 3				
Participant 4				

13. Area(s) of Interest

- A. Development/deployment of advanced Ohio coal-based power and fuel producing systems (e.g. integrated gasification combined cycle, oxy-combustion systems, chemical looping systems, supercritical carbon dioxide primary power, etc.) which will reduce carbon and other emissions and/or lower their cost of operation;
- B. Improved technologies applicable to Ohio coal combustion technology systems: to increase generating efficiency in order to significantly reduce carbon dioxide emissions that also reduces the fixed costs and/or variable operating costs, maintenance costs, or other means for existing and new systems; including: innovation heat rate improvements beyond current practices (such as neural networks, intelligent sootblowers, boiler feed pumps, air heater and duct leakage control, variable frequency drives, steam turbine blade path upgrades, economizer upgrades);
- C. Cost effective carbon dioxide capture utilization and storage (that are the result of the combustion of Ohio coal or the use of Ohio coal) through improving capture technology and development of processes that are optimized and integrated systems for capture and utilization;
- D. Ohio coal technologies/processes that lowers the cost of supplying the energy needs of Ohio's industrial complex;
- E. Cost-effective improved retrofit technologies to reduce emissions of criteria air pollutants, including sulfur dioxide, nitrogen dioxides/oxides, mercury and air toxins that are the result of the combustion of Ohio coal or the use of Ohio coal; including improvements to reduce parasitic loads of pollution control technologies;
- F. Improved technologies/processes that enable the more efficient conversion of Ohio coal to a chemical feedstock, liquid, commercial product/material (such as rare earth elements), or gas;
- G. Ohio coal combustion products: High volume fly ash and flue gas desulfurization utilization that reduces byproduct liability/disposal costs (excluding projects related to agricultural augmentation with FGD gypsum); These projects must clearly show the economic and annual usage volume advantages over current ends uses for Ohio coal combustion products;
- H. Analysis of the potential impact on the Ohio coal industry of: 1) the increased electrification of the ground transportation sector and identification of opportunities to advance Ohio coal so that the state can optimize environmental and economic benefits or 2) the integration of thermal or energy storage to ease intermittency inefficiencies and equipment damage that results from operating Ohio coal-fired electric generation units more flexibly and rapidly adjusting to cycling load demands;
- I. Technologies/processes consuming Ohio coal that allow electric generating units to operate more flexibly and rapidly adjust to cycling load demands that maximizes output efficiencies, and minimizes criteria air emissions; and
- J. Other projects, certified by the OCDO Director as mission critical.

PROPOSAL SUMMARY INSTRUCTIONS

Fully complete Sections 1 through 13 of the **three-page Proposal Summary**; **do not leave any blank** sections. If a line is not applicable to your project, enter "N/A" on that line.

ODSA ID #. Leave blank. This will be completed by ODSA.

List the current technology readiness level (TRL) of the proposed project, at the time the application is submitted. The level listed must meet all the descriptions found in Section I, subsection D, Technology Readiness Levels of the RFP.

List the expected TRL at the end of the project. The expected TRL should meet all the descriptions for that level.

1. **Project Title:** Self-explanatory.
2. **Applicant Entity:** This is the entity with which ODSA will enter into legal agreement and to which funds will be granted should the project be selected. It will be the entity responsible for insuring the project is conducted fully, efficiently, and in a timely manner. The applicant agency must be located in or doing business in the State of Ohio. An authorized agent of the applicant agency must endorse the project's submittal by signing the first copy of this attachment (the remaining copies may bear photocopy of the signature).

Participant Entity: The application may have one or more entities supporting, participating, or contributing to the project. They should be identified and that entity's endorsement of its participation verified by the original signature of an authorized agent on the first copy of this attachment (the remaining copies may bear a photo of the signature).

3. **Primary Contact Person:** List the name, title, telephone, fax number, and email address of a person ODSA may contact should it have any questions about the project/proposal. All correspondence will be addressed to this individual.

Alternate Contact Person: List an alternate contact should the primary contact be unavailable.

4. **Project Location:** Identify the address(s), city, county, and state in which the project will be performed.

Applicant Entity Location: Identify the city, county, and state in which the applicant entity is located.

5. **Proposed Start Date:** List the project's proposed start date.

Project Duration: List the number of months it is expected to take to complete the project, including completion and submittal of a draft final report, which will be reviewed, and a subsequent revised Final Report, pursuant to the review.

6. **Proprietary Information:** State whether or not proposal contains proprietary or trade secret information. If it does, identify the pages where such information is contained (those pages must also be clearly marked to pinpoint the proprietary or trade secret information).
7. **Ohio Coals:** Identify the type(s) of Ohio coals to be used in the project. Example: Pittsburgh #8. Include the approximate sulfur and ash content of the coals to be used.
8. **Technology to be Used:** Give a brief description of the technology or technologies to be incorporated.
9. **Application(s):** Describe the primary application of the technology.
10. **Project Size:** Identify the size of the project in common, clearly understood terms. For a post-combustion process, for example, the size may be in MW_e of capacity or in ACFM; for by-products

projects, size may be in terms of the tons of by-product handled per day; for air toxics projects, the size may be in terms of the capacity of the unit or flue gas cleanup device tested.

11. **Budget Summary:** Enter dollar amount requested of ODSA, and the percentage of the total project cost that amount represents.

Enter the amount the applicant is going to contribute; this amount may represent cash or in-kind contribution, or a combination thereof. Enter the applicant's percentage of cost-share.

Enter the amount a participant is going to contribute, either in cash, in-kind services, or a combination thereof. If there is more than one participant, add their contributions together and enter it on this line. Enter the participant's percentage of cost-share.

Add the amounts from ODSA, applicant, and participant(s), and enter the sum for total project cost. Add the percentages of the same three entities to be sure they total 100 percent.

12. **Cost-Share Breakout:** Enter the name of the applicant and each participant. Denote the amount of cash and in-kind contribution each is pledging toward the project. The Total column for each must equal the amounts entered into the Dollar Contribution column in number 11, Budget Summary.

13. **Area(s) of Interest:** Select the most appropriate from the list of Area(s) of Interest targeted under this solicitation (identified in Section I: Overview of the RFP) that your proposal/project is applying under.



Exhibit A-3, Project Budget Summary

	ODSA	Applicant	Participant 1	Participant 2	Participant 3	Participant 4	Total
Personnel							
Fringe							
Equipment							
Supplies	NA						
Travel	NA						
Contractual							
Tuition							
Other (postage, gases, lab fees, rental fees, etc.)	NA						
Indirect							
TOTAL							

Identify the name of the applicant and each of the participant(s) in the appropriate column above. Break out the budget by line item for both ODSA requested funds and for each cost-share contributor.

Project Budget by Task

	ODSA	Applicant	Participant 1	Participant 2	Participant 3	Participant 4	Total
Task 1							
Task 2							
Task 3							
Task 4							
Task 5							
Task 6							
Task 7							
Task 8							
Task 9							
Task 10							
TOTAL							

Identify the name of the applicant and each of the participant(s) in the appropriate column above. Break out the budget by task for both ODSA requested funds and for each cost-share contributor.

Exhibit B, Form B-1

Estimated vs. Actual OCDO Quarterly Cash Draw			
Request #	Invoice Period (Date-Date)	Estimated Draw Amount (\$)	Actual Request Amount (\$)
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
31			
32			
33			
34			
35			
36			
37			
38			
	Total		

Cost-Share Guidelines

Grantee will adhere to the Cost-Share requirements set forth in this Attachment governing the identification and use of resources other than Grant Funds for eligible expenses of the Project. The Cost-Share amount may be provided in cash or in-kind. Contributions to the Cost-Share amount may be as follows:

- A. Cash contributions counted against the Cost-Share amount includes eligible expenses of the Project (1) incurred to perform activities in direct support of the Project during the Project Period; (2) charged to resources of Grantee or of a subgrantee or subcontractor engaged by Grantee on the Project, and (3) documented in grant accounts or in the grant-related financial books and records of the subgrantee or subcontractor, as the context requires. Cash contributions to the Cost-Share amount include resources other than Grant Funds provided by a third party to Grantee, a subgrantee or subcontractor, or to a parent organization specifically for the use or support of Grantee, a subgrantee or a subcontractor, which are actually used to perform Project activities.
- B. In-kind contributions to the Cost-Share amount include the value of goods and/or services which are an eligible expense of the Project (1) supplied by Grantee, a subgrantee, subcontractor or other third party during the Project Period, (2) received by Grantee, a subgrantee or subcontractor during the specific period to which the cost sharing or matching requirement applies and used by Grantee, a subgrantee or subcontractor to perform activities in direct support of the Project, but (3) which are not separately accounted for by Grantee in the grant accounts or by a subgrantee or subcontractor in its respective grant-related financial books and records.

General Conditions and Restrictions:

- A. Contributions to the Cost-Share amount must be for eligible expenses consistent with the scope of work and must be accessible to verification and audit.
- B. Contributions to the Cost-Share amount must provide direct support for the Project. Expenditures that provide coincidental benefits to or support for the Project may not be counted against the Cost-Share amount. All resources counted against the Cost-Share amount must be necessary and reasonable considering the Project objectives and the activities to be performed as part of the Project.
- C. Contributions, whether cash or in-kind, may not be counted against the Cost-Share amount if the same resources are used to satisfy the cost-share requirement of any other funding program.
- D. Contributions of financial support, both cash and in-kind, included as part of the Project's Cost-Share amount must be made between the Effective Date of the Grant Agreement and the Project Completion Date.
- E. Grantee may request Grantor approval of financial support for the Project that does not meet the cost-share requirements set forth above. Any such request shall be made by Grantee in writing, and such financial support may be counted against the Cost-Share amount only if and to the extent approved by Grantor in writing prior to the contribution of such financial support. Grantor may give or withhold approval within its discretion.

F. Value of contributed goods and services.

- 1.) Services are contributed to a Project (*i.e.*, donated services) when an individual employed by the contributor of the donated services works to perform Project activities without charge to Grantee, a subgrantee, or subcontractor. The value of donated services will be an amount equal to the individual's regular rate of pay from the contributor of the individual's services, including fringe benefits up to 30 percent of base pay, for the period of time during which the individual performs Project activities *provided that* the individual whose services are contributed performs functions for Grantee, a subgrantee, or subcontractor equivalent to the services for which the individual is compensated by the contributor.
- 2.) The value of supplies and materials contributed to the Project will be an amount equal to the fair market value of such supplies and materials at the time they are contributed to Grantee, a subgrantee, or subcontractor. Grantee shall provide documentation supporting its determination of the fair market value of such supplies and materials.
- 3.) In-kind contributions may include use of equipment and/or space (facilities) which are necessary and reasonable for the Project. The value of the use of equipment and/or space (facilities) will be an amount equal to its fair rental value of the equipment and/or space at the time it is contributed to Grantee, a subgrantee, or subcontractor. Grantee shall provide documentation supporting its determination of the fair rental value of such equipment and/or space (facilities).
- 4.) In-kind contributions may include transfer of ownership to equipment, buildings, and/or land which are necessary and reasonable for the Project. The value of any such equipment, buildings, and/or land will be an amount equal to its respective fair market value at the time the equipment, buildings, and/or land is contributed to Grantee, a subgrantee, or subcontractor. Grantee shall provide documentation supporting its determination of the fair market value of such equipment, buildings and/or land.

G. Documentation of all contributions to the Cost-Share amount must identify the source of the contribution and its address, state the value of the contribution (whether made in cash or in-kind), and provide as to any in-kind contribution a reasonably detailed description of the method of valuation of such contribution.

H. Grantee shall maintain in its records related to the Project documentation sufficient to verify all Project costs and contributions claimed as part of the Cost-Share amount, including the supporting documentation for valuation of in-kind contributions. Cost-share documentation will be subject to inspection and audit as provided in the Grant Agreement.

I. Certification of Cost-Share:

- 1.) The method and frequency of reporting contributions to the Cost-Share amount, whether made in cash or in-kind is the same as financial reporting for the Grant Funds.
- 2.) Grantee must identify cash and in-kind contributions to the Cost-Share amount in its financial reports to Grantor.
- 3.) Grantee shall maintain during the Project Period an itemized list of in-kind contributions to the Cost-Share amount. Grantee shall make such list available to Grantor for review upon request.

- J. Modification of Cost-Share guidelines: Grantor may revise the Cost-Share guidelines from time to time. Any changes to the Cost-Share guidelines shall be effective upon delivery of written notice to Grantee and shall apply prospectively.

- K. Leveraged costs, which are costs that might indirectly contribute towards the knowledge base or other ancillary benefit but is not necessary to the project, will not be considered eligible Cost-Share.



Useful Resources

Websites that provide information coal and on coal combustion products are listed below (this is not intended to be an exhaustive listing).

American Coal Ash Association

<http://www.aca-usa.org/>

American Coal Council

<http://www.americancoalcouncil.org>

Carbon Utilization Research Council

<http://www.curc.net/>

Coal Combustion Products Program- Ohio

<https://ccp.osu.edu/>

Electric Power Research Institute

<http://www.epri.com/>

International Energy Agency Coal Research

<http://www.iea-coal.org.uk/>

National Mining Association

<http://www.nma.org>

Ohio Coal Association

<http://www.ohiocoal.com>

Ohio Innovation Exchange

<https://www.ohioinnovationexchange.org/>

U.S. Department of Energy

<http://www.doe.gov>

U.S. DOE Energy Information Administration – coal site

<http://www.eia.gov/coal/>

U.S. DOE National Energy Technology Laboratory

<http://www.netl.doe.gov/>

World Coal Association

<http://www.worldcoal.org/>

Required On-Line Registrations, Forms and Questions

Please ensure that the applicant entity is registered with the Supplier Portal (formally known as Ohio eSupplier) or complete the appropriate Supplier Portal on-line registration as a New Supplier. Both are provided [here](#). Applicants for ODSA funding are considered to be Suppliers for the purposes of this registration.

- For New Suppliers, you will need to complete the "Start Registration" option. To complete the on-boarding process you will need the following documents:
 - Scanned copy of your hand-signed W9 form
 - Banking information (Bank Name, Routing number, Account number)
 - Full remit to address
- For Existing Suppliers, please use the "Find My Business" option to:
 - Confirm your company has registered as a supplier with the Supplier Portal

Please list the Entity # for the applicant entity showing that they are actively registered with the Ohio Secretary of State, found [here](#). Entity #:

If the applicant entity is not actively registered with the Ohio Secretary of State, please confirm that the applicant entity is an Ohio institution of higher education that has an approved academic program, found [here](#). Yes:

Please include in your application to ODSA a copy of your Ohio Bureau of Workers' Compensation (BWC) Certificate

Please answer the following questions. False answers may result in the state of Ohio withdrawing any and all offers of financial assistance. The status of each applicant will be verified with the Ohio Department of Taxation and the Ohio Environmental Protection Agency.

FINANCIAL LIABILITY

ODSA will not give financial assistance of any type to an applicant or company with outstanding financial obligations to the state or to an Ohio community or with outstanding environmental issues. The status of each applicant will be verified with the Ohio Department of Taxation and with the Ohio Environmental Protection Agency. Does the applicant and property owner (if different from applicant):

Does the applicant and property owner (if different from applicant):

1. Owe any delinquent taxes to the state of Ohio, any state agency, or a political subdivision of the state?

Yes: No: If Yes, explain:

2. Owe any monies to the state of Ohio or to a state agency for the administration or enforcement of the environmental laws of the state?

Yes: No: If Yes, explain:

3. Owe any past-due monies to the state of Ohio, a state agency, or a political subdivision of the state?

Yes: No: If Yes, explain:

4. Have any existing tax liens by the state of or a political subdivision of the state?

Yes: No: If Yes, explain:

5. Have a state loan on which it has defaulted?

Yes: No: If Yes, explain:

PRIOR LEGAL ACTIONS

Have the applicant (or user), related companies, or any of their respective officers:

1. Been convicted of a felony?

Yes: No: If Yes, explain:

2. Been convicted of or enjoined from any violation of state or federal securities law?

Yes: No: If Yes, explain:

3. Been a party to any consent order or entry with respect to an alleged state or federal securities law violation?

Yes: No: If Yes, explain:

4. Been a defendant in a civil or criminal action?

Yes: No: If Yes, explain:

Please complete the following Ohio EPA Information Form for locations where ODSA funded-work will be conducted. If multiple project addresses are involved with the project, please complete a new row for each separate project address location.

Applicant	Applicant Address (Street, City, State, Zip)	Applicant County	Project Address (Street, City, State, Zip) <i>*Only if Different from Applicant Address</i>	Project County

OHIO COAL RESEARCH AND DEVELOPMENT GRANT AGREEMENT TEMPLATE

Grantee:				Grant Control No.:	
Address:					
City:		State:		Zip:	
Contact:		Email:		Phone:	
Project City:			Effective Date:		
Project County:			Project Completion Date:		
Cost-Share	\$				

This Grant Agreement (the “Agreement”) is made and entered into by and between the **State of Ohio, Development Services Agency**, (“**Grantor**”) and **Grantee** to set forth the terms and conditions upon which Grantor will provide financial assistance to Grantee, and Grantee will use the financial assistance to undertake, the Ohio Coal Research and Development project further described in the Project Application Form (the “**Application**”) submitted by Grantee to the Grantor (the “**Project**”). This Agreement includes Grantee’s Application, which is not attached but is incorporated by this reference, and the “Scope of Work” attached hereto as Exhibit A.

1. Project Funding.

(a) State Grant. Grantor has determined that Grantee’s Application and the activities included therein meets the requirements of a coal research and development project pursuant to Ohio Revised Code (“**ORC**”) Chapter 1555. Grantor hereby grants to Grantee funds in the lesser amount of _____ and No/100 Dollars (\$) or _____ percent (___%) of the total cost of the Project (the “**Grant Funds**”) to be used for the sole and express purpose of undertaking and completing the Project. Grantee shall undertake and complete the Project substantially as described in Exhibit A. Grantee may not use the Grant Funds for any purpose other than completion of the Project.

(b) Availability of Other Funds. It is a condition to the award of Grant Funds that Grantee provides additional funds from other non-Grantor sources to pay Project costs in excess of the Grant Funds. Grantee represents and warrants to Grantor that Grantee has obtained such additional funds or that Grantee has a binding commitment for such additional funds and, with the exercise of reasonable diligence, will have obtained such additional funds no later than the time such funds will be required to pay Project costs as and when such costs are incurred and payable. No Grant Funds will be disbursed to reimburse Project costs unless and until Grantee documents to Grantor that the Project costs have been incurred and that related costs have been paid.

(c) Tax Consequences. Grantee acknowledges that the Grant Funds may be subject to taxation. Grantee is solely responsible for any taxes that may be assess on the Grant Funds by any taxing authority.

2. Payment of Grant Funds.

(a) Disbursement. Subject to the final payment outlined in Section 2(d), Grantor shall disburse the Grant Funds to Grantee on a reimbursement basis in proportion to the ratio of required Cost-Share. Grantee shall submit to Grantor, for review and approval, requests for reimbursement detailing expenditures which have then been incurred by Grantee in accordance with the Project budget included in Exhibit A, subject to the allowance provided in subsection (i) and (ii) below. Grantee shall submit

reimbursement requests on forms provided by Grantor on a quarterly basis. Grantor shall be the sole judge of the adequacy of reimbursement requests. All expenses to be reimbursed with Grant Funds shall be supported by contracts, invoices, vouchers, paid receipts and other documentation as appropriate to evidence the costs incurred by Grantee to perform the work described in Exhibit A. Grantee shall submit to Grantor, such documentation necessary to substantiate a reimbursement request.

- (i) Subject to paragraph (ii) below, Grantee shall have discretion to reallocate an amount not greater than 10% of the Grant Funds, in the aggregate, among budget line items otherwise funded in whole or in part with Grant Funds, and any such reallocation shall be considered by Grantor to be consistent with the Project budget. In the event Grantee makes a budget alteration as permitted by this paragraph, Grantee shall submit with its request for reimbursement a revised Project budget reflecting the alteration. Any changes to the Project budget beyond the scope of this paragraph, including, without limitation, alterations that add budget line items or total, cumulatively with prior alterations, more than 10% of the Grant Funds may be effected only by amendment of this Agreement as provided in Section 16 (e).
- (ii) If actual allowable indirect costs are less than those budgeted and funded under this Agreement, Grantee may use the difference to pay additional allowable direct costs incurred prior to the Project Completion Date. If at the completion of the Project the Grantee's share of total allowable costs (*i.e.*, direct and indirect), is less than the total costs reimbursed, Grantee must refund the difference. Grantee is expected to manage its indirect costs. Grantor will not amend an award to Grantee solely to provide additional funds for changes in indirect cost rates. Grantor recognizes that the inability to obtain full reimbursement for indirect costs means Grantee must absorb any underrecovery. Such underrecovery may be allocated as part of Grantee's required cost sharing, if any.

(b) Permissible Expenses. Travel Cost-Share expenses is limited to certain transportation and lodging expenses. Travel expenses counted as cost-share, must be for permissible travel expenses and the costs must be reasonable and consistent with the applicant's established written travel policy. In the absence of an established written policy regarding travel costs, the rates and amounts established under General Services Administration (GSA) must apply to travel cost-share under this award. International travel will not be eligible for counting as cost-share. Unless expressly authorized under Exhibit A, any travel expenses will not be costs eligible to count as Cost-Share subject to this Section (2)(b). No pre-award, proposal preparation or grant negotiation costs are eligible for reimbursement or to count as Cost-Share. No expenses for lobbying before or during the project period are eligible for reimbursement or to count as Cost-Share.

(c) Invoices. Grantee must submit quarterly invoices to Grantor. Grantor shall disburse Grant Funds, in accordance with Section 2(a) of this Agreement, to Grantee contingent upon the following conditions:

- (i) Grantee will invoice Grantor by fully completing and submitting to Grantor the Request for Payment, which is attached hereto as Exhibit B. Each invoice must include documentation of expenditures which total the amount requested by the invoice. Each invoice will also set forth Grantee's Cost-Share expended to date and must have documentation verifying Grantee's cost.
- (ii) Grantee shall also generate and attach the Form B-1 to the invoice and a Request for Payment. This is the Grantee's Estimated vs. Actual OCDO Quarterly Cash Draw. It is included in Exhibit B. Form B-1 must show in graph form, annotated with numbers, the estimated quarterly cash draw from the Grantor projected over the life of the project and the actual cash draw through the date of the current invoice. Grantor requires this in order to have sufficient

cash on hand to support its full census of projects and so that the State can better manage its overall bond debt.

(iii) With the first Request for Payment, Grantee must also include the signed addendum attached hereto in Exhibit D and the signed Royalty/Payment Agreement attached hereto in Exhibit C for each subcontractor involved in the Project as required in Section 5(d) of this Agreement.

(iv) Grantee must timely file all required reports prior to the approval and payment of an invoice. Failure to submit timely reports may result in the withholding of Grant Funds and subject to penalty under Section 8 (g) of this Agreement.

(d) Final Payment. A final payment in the amount of \$____, representing 10 percent of the total amount of this grant (but not to exceed \$200,000.00), will be retained and be contingent upon approval by Grantor of an acceptable Final Report and all other Project Work Tasks and Deliverables set forth in Application as performed or submitted by Grantee.

3. Grant Funds Not Expended. If the Grant Funds are not expended by Grantee in accordance with the terms and conditions of this Agreement or within the time period set forth in this Agreement, the award of the Grant Funds shall cease and Grantor shall have no further obligation to disburse the Grant Funds. Grantor shall also have no obligation to disburse any amount of the Grant Funds that exceeds the eligible costs of the Project actually incurred by Grantee. If Grant Funds have been paid to Grantee and Grantor determines that Grantee has not performed in accordance with the terms and conditions of this Agreement, Grantee shall return such improperly expended Grant Funds within 30 days after demand by Grantor. In the event that Grantee does not submit any requests for reimbursement by the Grant Expiration Date (as such date may be extended as provided in Section 4) and/or the Project is affirmatively abandoned by Grantee, this Agreement shall be null and void without any further action by the parties and neither party shall have any obligation under this Agreement.

4. Agreement Deadlines and Term.

(a) Project Completion. Grantee shall complete the Project not later than the Project Completion Date set forth on the first page of this Agreement. If Grantee anticipates that the Project will not be completed by the Project Completion Date, Grantee must request an extension of time to complete the Project at least 60 days before the scheduled Project Completion Date. It will be within the sole discretion of Grantor to grant or deny such extension of time.

(b) Term of Agreement. This Agreement shall be in effect from the Effective Date set forth on the first page of this Agreement through the first quarterly reporting date which is at least one year after the Project Completion Date (the "**Expiration Date**"), unless it is terminated earlier as provided in Section 12 (collectively, the "**Term**"). Grantee acknowledges that the Term may extend beyond the Expiration Date for purposes of reporting by Grantee and monitoring by Grantor of the results of the award of Grant Funds if a royalty agreement is in place that extends beyond this timeframe, and that Grantee's obligation to file any delinquent reports survive the expiration or earlier termination of this Agreement.

5. Project Performance.

(a) Basis for Grant Award. Grantor has approved an award of financial assistance to Grantee to induce Grantee to undertake and complete the Project with the goal of discovery of new technologies, equipment, processes or the demonstration or application of existing technologies, equipment or processes to enable the conversion or use of Ohio coal as a fuel or chemical feedstock in an environmentally acceptable manner thereby enhancing the marketability and fostering the use of Ohio's vast reserves of coal; to assist in the financing of coal research and development and coal research and development

projects or facilities for persons doing business in Ohio and educational and scientific institutions located in Ohio; to create or preserve jobs an employment opportunities or improve the economic welfare of the people of Ohio; or to assist and cooperate with such persons and educational and scientific institutions in conducting coal research and development to achieve the objectives of the Ohio Coal Development Office (OCDO). Accordingly, Grantee's performance obligations under this section are essential terms of this Agreement.

(b) Maintenance and Safekeeping. Grantee shall provide for the security and safekeeping of all items obtained through this grant, and shall insure that the facility or project be maintained and kept in good condition and repair and in accordance with Ohio law and local ordinances where applicable.

(c) Royalty. Subject to Grantor's satisfaction that the agreement and payments referred to in this Section, will not cause the interest on the Coal Development General Obligation Bonds to become subject to federal income taxation, Grantor shall require Grantee to pay a reasonable royalty or portion of the income or profits arising out of the developments, discoveries, inventions, or improvements, including patents or copyrights which result in whole or in part from coal research and development projects conducted under this Agreement as authorized under Ohio Revised Code §1555.03(D). Alternatively, the Grantee may buy out this royalty obligation by reimbursing to the Grantor a sum three times the Grant Agreement amount as set forth in Section 1(a) above. Any such royalties or payments will be pursuant to the "Royalty/Payment Agreement" between Grantor and Grantee, which is attached hereto as Exhibit C.

(d) Subcontractors. At Grantee's election, Grantee may subcontract portions of work or activities under the Agreement. However, Grantee shall provide copies of any executed subcontracts of Grantee which pertain to this Project. All subcontracts of Grantee shall be bound by the terms of this Agreement and the Grantee shall cause the terms of this Agreement to be incorporated by reference into all such subcontracts, and all Subcontractors under this Agreement are required to sign the Grant Agreement Addendum attached hereto as Exhibit D, except for subcontractors that sign a pre-approved terms and conditions agreement that has been found to be materially similar to the terms of this Agreement by Grantee. Except those subcontracts for which no intellectual property is being developed or acquired for the Grantee, all Subcontractors under this Agreement are required to sign a "Royalty/Payment Agreement" attached hereto as Exhibit C. In any event, Grantee will be solely responsible for performance of work and activities set forth herein.

(e) Ohio Coal Provision. Grantor's funds shall be used to test only Ohio coal and the products remaining from its use. Any testing on non-Ohio coal for comparison purposes may be done with the project Cost-Share funds.

6. Technology and Job Creation.

(a) Technology or Materials. If the award of Grant Funds is based on a commitment to use innovative technology or materials, Grantee shall use the technology or materials described in the Application.

(b) Commercialization. Grantee must use its best efforts to commercialize and market its coal technology systems or process to increase the environmentally sound, cost-effective use of Ohio coals. Grantee may use an affiliate to meet this obligation. The technology, system or process shall be deemed to be commercially viable upon the installation, or manufacture and sale, lease or licensing by Grantee, its successors, assignees, lessees, or licensees, anywhere in the world, of a system or process, or generation

of any revenue, which is substantially based upon information developed in the course of the work performed under this Agreement.

(c) Energy Performance. If the award of Grant Funds is based on a commitment, to yield the energy benefits, the Grantee shall achieve the energy benefits described in the Application. Grantee shall report information necessary for Grantor to evaluate the Project against the Energy Commitment during Measurement Period. Failure of the Project to achieve the Energy Commitment shall not be a breach of this Agreement provided that the Project is completed in accordance with the Application.

(d) Job Creation. While the primary focus of the award is the discovery of new technologies, equipment, processes or the demonstration or application of existing technologies, equipment or processes to enable the conversion or use of Ohio coal as a fuel or chemical feedstock in an environmentally acceptable manner thereby enhancing the marketability and fostering the use of Ohio's vast reserves of coal, as described in the Application, one of the secondary goals is the creation of jobs as a result of the award. Grantees are required to report any job creation or retention in their final project report.

(e) Notice of Change. If Grantee intends to sell or otherwise transfer its interests in the Project, or sell or transfer any equipment for which the purchase price was reimbursed in whole or in part with Grant Funds prior to the Expiration Date, Grantee shall give Grantor written notice of such intended action at least five business days prior to implementation unless Grantee is expressly prohibited by applicable law from giving such notice. If prior notice is prohibited by law, Grantee shall notify Grantor in the most expeditious manner possible at the time such intended actions are implemented. Vacancies created by resignation or other termination of employment of individual employees shall not require notice under this Section 6 (e) if Grantee anticipates filling such vacancies within a reasonable time and in the ordinary course of its business.

(f) Remedy. If Grantee fails to satisfy its obligations under this Section 6 during the Term, Grantor may require Grantee to pay to Grantor, as liquidated damages for such breach, an amount equal to the amount of the Grant Funds disbursed to Grantee under this Agreement. Grantor may, based on Grantor's assessment of market conditions and such mitigating factors regarding Grantee and its operation of the Project as Grantor deems relevant, waive all or a portion of the liquidated damages amount. Grantee shall pay any damages claimed within 30 days after written demand by Grantor. If Grantee fails to undertake the Project, in accordance with paragraph (b) of Section 12 of this Agreement, Grantor may reduce or cancel the award as Grantor determines appropriate considering the nature and extent of deviations from the Application.

7. Non-Discrimination.

(a) Minority Hiring Goal. Grantee shall make a good faith effort to employ minority persons in the completion of the Project in the same percentage as the average percentage of minority persons who reside in the county in which the Project is located and any contiguous Ohio counties.

(b) Equal Employment Opportunity. Grantee shall not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, disability, age, military status or ancestry. Grantee shall ensure that applicants for employment are considered for employment, and that employees are treated during employment, without regard to their race, religion, color, sex, national origin, disability, age, military status or ancestry. Grantee will incorporate the requirements of this paragraph in all of its contracts for any of the work undertaken on the Project (other than subcontracts for standard commercial supplies or raw materials), and Grantee will require all of its contractors for any part of such work to incorporate such requirements in all subcontracts for such work.

8. Reporting.

(a) Quarterly Status Reports. Quarterly Status Reports must be submitted by Grantee to Grantor no later than ten calendar days after each calendar quarter. Quarterly Status Reports must be prepared pursuant to Grantor's "Status Report Format," which is attached hereto as Exhibit E. Quarterly Status Reports must be accompanied by color photographs of the project, as appropriate. Whenever a Milestone Report, described below, and a Quarterly Status Report are due during the same Quarterly, the Milestone Report may supplant the Quarterly Status Report.

(b) Project Completion. Grantee shall notify Grantor promptly in writing when the Project is completed. Thereafter, Grantor shall review the completed Project. Notice of Project completion and Grantor review shall be conditions to disbursement of the Grant Funds. Grantee must submit to Grantor a comprehensive draft of the Final Project Report no less than 60 days prior to the Project Completion Date. The Final Report shall be prepared pursuant to Grantor's "Final Report Format Guidelines" which are attached hereto as Exhibit F. Upon review, Grantor may accept the draft as submitted or may return comments to the Grantee within 30 days in order to correct any errors, modify the report for greater clarification, or provide greater description of the project and its results. Should the Final Report need modification, supplementation or further explanation after Grantor has reviewed it, Grantee must modify, correct, supplement, or explain such questioned portions of the Final Report and submit it to the Grantor prior to the Project Completion Date. Grantee shall submit to Grantor copies of the comprehensive Final Report as follows: two bound copies, one loose-leaf single sided copy; one copy on CD in Adobe, portable document format (pdf).

(c) Alternative Funding Sources. The Grantee is encouraged to explore existing, planned, or possible relationships with other research and development programs, including those sponsored by the State of Ohio. If any additional funding may be obtained from any of these programs, the Grantee is encouraged to pursue funding, technical and/or other assistance. If any additional assistance is pursued or received, Grantee will inform Grantor in writing of such assistance through its Quarterly Status Reports to the Grantor.

(d) Annual Project Abstract. Upon execution of this Agreement and each succeeding September 30 under this Agreement, Grantee will complete a brief Annual Project Abstract of the Project for inclusion on Grantor's internet web page for general public distribution. The Annual Project Abstract shall be prepared in the manner displayed in the Annual Project Abstract Format, which is attached hereto as Exhibit G. It is expressly understood that the Annual Project Abstract will not replace or supplant any other required report. In the event Grantee sells, assigns, leaves or otherwise transfers the rights to the technology or process resulting from the Project to a third party, Grantee will be responsible for insuring that this reporting requirement becomes a part of the subsequent agreement between Grantee and the third party.

(e) Project Meetings. Grantee shall provide Grantor reasonable advance notice of any Project review or Project management meetings and permit Grantor's participation by attendance or conference call when possible. To the extent possible, Grantee shall schedule such meetings in Ohio.

(f) Signature and Costs. Grantee (if Grantee is an individual) or the chief executive officer, chief financial officer, or other officer of Grantee authorized to sign tax returns on behalf of Grantee (if Grantee is an entity) shall certify by his or her signature of each report required by this Section 8 that the information reported by Grantee is true, complete and correct.

(g) Remedy. If Grantee fails to submit any required report and such breach continues uncured for more than 30 days, Grantor may recover, and Grantee shall pay, as liquidated damages for the breach, an amount equal to \$500 for each month or part of a month that the report is past due.

9. Records Maintenance and Access.

(a) Maintenance of Records. Grantee shall establish and maintain for at least three years after the Expiration Date or any earlier termination date its records regarding this Agreement, the Grant Funds and the Project, including, but not limited to, financial reports, job creation and retention statistics, and all other information pertaining to Grantee's performance of its obligations under this Agreement. If any audit, dispute or litigation is then pending, however, Grantee shall maintain such records as may be relevant to such matter until it is finally resolved.

(b) Inspection and Copying. At any time during normal business hours within 24 hours prior written notice, Grantee shall make available to Grantor, its agents or other appropriate State agencies or officials at Grantor's expense all books and records directly related to this Agreement, the Grant Funds and the Project which are in the possession or control of Grantee, including, but not limited to, records evidencing employment at the Project site. Grantor, its agents and other appropriate State agencies and officials may review, audit and make copies of such books and records, and any such inspection of books and records will be undertaken in such a manner as not to interfere unreasonably with the normal business operations of Grantee. Grantee shall, at its own cost and expense, segregate records to be made available for inspection pursuant to this Section 9(b) from Grantee's other records of operation.

(c) Accounting Format. All moneys paid to Grantee under the terms of this Agreement and any interest earned by Grantee thereon must be deposited in a separate account upon the books and records of Grantee. Grantee must keep all records in a manner that is consistent with generally accepted accounting principles. The documentation in support of each action in the accounting records shall be filed in such a manner that it can be made readily available. All disbursements from the account established pursuant to this section 9(c) shall be for obligations incurred in the performance of this Agreement after the Project Starting Date, and shall be supported by contracts, invoices, vouchers, and other data, as appropriate, evidencing such disbursements. Grantor will review and consider accepting federal audits in lieu of requiring a state audit where applicable.

10 Publicity.

(a) Use of Name. Neither party may use the name of the other in any form of advertising or promotion or otherwise without the prior written consent of the other Party, which consent shall not be unreasonably withheld or delayed. All press statements and other publicity proposed to be given by one party mentioning the other or referring to this Agreement or any materials, ideas or performance data developed under this Agreement shall be first reviewed by the other party before release. Such materials will be provided, reviews performed and comments made in a timely manner.

(b) Acknowledgements. All written materials, including all reports, papers, published articles, promotional pieces, newsletters, press releases and other printed materials referencing this project and its work shall credit Grantor's participation in the project by name as "Ohio Development Service Agency."

(c) Technical Forums. For all projects, Grantee agrees to make presentations in various technical forums sponsored by the Grantor or similar entities, such as federal agencies or credible conference organizers. For those larger projects involving construction of a significant apparatus, Grantee and Grantor shall conduct a technology transfer open house to help promote the awareness and adoption of the technology, unless it is mutually determined that such an open house will not meet the intended goal.

11. Adherence to State and Federal Laws and Regulations.

(a) General. Grantee shall comply with all applicable federal, state, and local laws in the

performance of Grantee's obligations under this Agreement, the completion of the Project and the operation of the Project as long as Grantee has any obligation to Grantor under this Agreement. Without limiting the generality of such obligation, Grantee shall pay or cause to be paid all unemployment compensation, insurance premiums, workers' compensation premiums, income tax withholding, social security withholding, and any and all other taxes or payroll deductions required for all employees engaged by Grantee in connection with the Project, and Grantee shall comply with all applicable environmental, zoning, planning and building laws and regulations.

(b) Ethics. Grantee, by its signature on this document, certifies: (1) it has reviewed and understands the Ohio ethics and conflict of interest laws including, without limitation, Ohio Revised Code §§ 102.01 *et seq.*, §§ 2921.01, 2921.42, 2921.421 and 2921.43, and §§ 3517.13(I) and (J), and (2) will take no action inconsistent with those laws, as any of them may be amended or supplemented from time to time. Grantee understands that failure to comply with the Ohio ethics and conflict of interest laws, is in itself, grounds for termination of this Agreement and the grant funds made pursuant to this Agreement and may result in the loss of other contracts or grants with the State of Ohio.

(c) Conflict of Interest. No personnel of Grantee, contractor of Grantee or personnel of any such contractor, and no public official who exercises any functions or responsibilities in connection with the review or approval of any work completed under this Agreement, shall, prior to the completion of such work, voluntarily or involuntarily acquire any personal interest, direct or indirect, which is incompatible or in conflict with the discharge or fulfillment of his or her functions or responsibilities with respect to the completion of the work contemplated under this Agreement. Grantee shall immediately disclose in writing to Grantor any such person who prior to or during the term of this Agreement, acquires any personal interest involuntarily or voluntarily. Grantee shall cause any such person who, prior to or after the execution of this Agreement, acquires any personal interest, involuntarily or voluntarily, shall immediately disclose his interest to Grantor in writing. Thereafter, such person shall not participate in any action affecting the work under this Agreement unless Grantor determines that, in light of the personal interest disclosed, his or her participation in any such action would not be contrary to the public interest.

(d) Outstanding Liabilities. Grantee represents and warrants to Grantor that Grantee does not owe: (1) any delinquent taxes to the State of Ohio or a political subdivision of the State of Ohio; (2) any moneys to the State of Ohio or a state agency for the administration or enforcement of any environmental laws of the State of Ohio; and (3) any other moneys to the State of Ohio, a state agency or a political subdivision of the State of Ohio that are past due, whether or not the amounts owed are being contested in a court of law.

(e) Falsification of Information. Grantee represents and warrants to Grantor that Grantee has made no false statements to Grantor or any of its employees or agents in the process of obtaining the award of Grant Funds. Grantee acknowledges that any person who knowingly makes a false statement to obtain an award of financial assistance may be required under Ohio Revised Code § 9.66(C) to repay such financial assistance and shall be ineligible for any future economic development assistance from the State of Ohio, any state agency or a political subdivision. In addition, any person who provides a false statement to secure economic development assistance may be guilty of falsification, a misdemeanor of the first degree, pursuant to Ohio Revised Code § 2921.13(F)(1).

(f) Prevailing Wage. [Reserved, but not applicable to this Agreement.]

(g) Public Records. Grantee acknowledges that this Agreement and other records in the possession or control of Grantee regarding the Project are public records under Ohio Revised Code § 149.43 and are open to public inspection unless a legal exemption applies. Grantee's non-public financial information provided in connection with the application for and award of Grant Funds made pursuant to this

Agreement is exempt from disclosure under a specific exception to the public records law set forth in §4928.62(D) of the Ohio Revised Code. Grantee's non-public trade secrets or other proprietary information provided in connection with the application for award of Grant Funds made pursuant to this Agreement is exempt from disclosure under a specific exception to the public records law set forth in §1551.35 and 1555.17 of the Ohio Revised Code. The parties acknowledge that it is Grantee's sole responsibility to conspicuously mark those passages, diagrams, formulas, and other intellectual property, that it deems to be trade secret as defined in Ohio Revised Code §1333.61 on any and all materials it submits to Grantor.

12. Default and Remedies.

(a) Default. Grantee shall be in default of this Agreement if Grantee fails to perform any of its obligations under this Agreement and such failure to perform continues uncured for more than 30 days after written notice (a "Default Notice") from Grantor. During the 30 day cure period, Grantee shall incur only those obligations or expenditures pre-approved by Grantor that are necessary to enable Grantee to continue its operations and achieve compliance with the terms and conditions of this Agreement. Grantee shall also be in default of this Agreement if Grantee is in default of any other agreement between Grantor and/or the Director of Grantor and Grantee and such default continues beyond any applicable period of cure or grace.

(b) Remedies. Following a default by Grantee, Grantor may exercise one or more of the following remedies:

(i) Discontinue Disbursements. If the Grant Funds have not been fully disbursed, Grantor may terminate any and all of Grantor's obligations under this Agreement, including the obligation to make further disbursements of Grant Funds.

(ii) Demand Repayment of Grant Funds or Liquidated Damages. Under the circumstances described in Section 3 of this Agreement, demand repayment of Grant Funds improperly expended and under the circumstances described in Sections 6, and 8 of this Agreement, demand liquidated damages as provided in Sections 6(f), 8(h), respectively. Grantee shall not be required to refund Grant Funds or pay liquidated damages in an amount that exceeds the Grant Funds awarded.

(iii) Other Legal Remedies. Pursue any other legal or equitable remedies Grantor may have under this Agreement or applicable law.

(c) Property Ownership. All items purchased by Grantee are and will remain the property of Grantee, except in the event that Grantee does not faithfully perform all the terms and conditions of this Agreement. In the event Grantee does not faithfully perform all the terms and conditions of this Agreement, Grantee will reimburse Grantor a sum of money in the same proportion as Grantor's actual Grant Funds in the project, computed on the value of the items kept by Grantee, or, if such items are disposed of, the sum of money due to Grantor shall be computed on the basis of revenues derived from the disposition of any items (such as but not limited to property and equipment) acquired after the Project Effective Date.

(d) Remedies Cumulative. No remedy provided to Grantor under this agreement or otherwise by law or in equity is exclusive of any other available remedy. No delay or omission by Grantor in exercising any right or power accruing upon any default shall impair any such right or power or be construed as a waiver, and each such right or power may be exercised from time to time as often as may be deemed by Grantor to be expedient.

(e) Early Termination. Grantor may also terminate this Agreement if Grantee (i) defaults under

another Agreement between the Grantor and/or the Tax Credit Authority and Grantee, (ii) admits Grantee's inability to pay its debts as such debts become due, (iii) Grantee commences a voluntary bankruptcy, (iv) an involuntary bankruptcy action occurs against Grantee which remains undismissed or unstayed for 60 days, (v) Grantee fails to meet the minimum funding requirements under the Employee Retirement Income Security Act or other such employee benefits plan, or (vi) Grantor has reason to believe Grantee has ceased operations associated with the Project. The events permitting early termination by Grantor shall be considered a default by Grantee and subject to the remedies available under paragraph (b) of Section 12 of this agreement.

(f) Effects of Termination. Within 60 days after termination of this Agreement following any default, Grantee shall provide Grantor with a final report setting forth the total expenditure of the Grant Funds by Grantee and the status of the Project at the time of termination. The final report shall be signed and certified in the same manner as the reports required by Section 8 of this Agreement. This reporting obligation shall survive the termination of the Agreement.

(g) Proportional Reduction. Upon determination by Grantor that Grantee has failed to comply with the investment and Cost-Share requirements set forth in the Application, Grantor may proportionally reduce the amount of grant funds due Grantee and require a refund of the amount of Grant Funds which exceed the proportion attributable to the level of performance achieved.

(h) Grantor's Expenses. Grantee shall reimburse Grantor for all expenses, including, without limitation, reasonable attorneys' fees, in connection with the enforcement of this Agreement.

13. Indemnification.

Grantee shall indemnify and hold harmless Grantor, the State of Ohio and their officials, employees and agents from any and all third party liability, loss, claim, damage, cost and expense occurring during performance of this Agreement, to the extent caused by Grantees negligence or willful misconduct.

Grantor shall be responsible for its ability or inability to use project results

In no event shall Grantee be liable for any consequential, special, or indirect damage.

Grantee will provide a high standard of professional service on a best efforts basis. However, Grantee, as a provider of such services, cannot guarantee success; thus GRANTEE MAKES NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY, FOR ANY REPORT, DESIGN, ITEM, SERVICE, OR OTHER RESULT TO BE DELIVERED UNDER THIS AGREEMENT.

14. Certification of Funds.

None of the rights, duties and obligations of the parties under this Agreement shall be binding on either party until all statutory provisions of the Ohio Revised Code including, without limitation, §126.07, have been complied with, and until such time as all funds have been made available and are forthcoming from the appropriate state agencies.

15. Notice.

Grantee must designate a Project Manager, who must be an employee of Grantee or an employee of its affiliate, and who will oversee the conduct of the Project activities at Grantee's offices or the Project site, and will be the primary person responsible for reporting in a timely manner to Grantor. At Grantee's

election, Grantee may also designate an Administration Manager, who will be an employee of Grantee, and who will oversee administrative matters such as invoicing. The Grantor shall also designate a Project Manager and a Fiscal Manager, who shall be the persons to whom the Grantee's Project Manager submits reports and shall be responsible for monitoring the Project's progress. Any notice or report required or permitted to be given under this Agreement shall be deemed to have been sufficiently given for all purposes if mailed by first class certified or registered mail or sent by commercial delivery to the following addresses of the parties or to such other address as either party may hereafter furnish by written notice to the other party.

If to Grantor:

Ohio Development Services Agency
77 South High Street, 26th Floor
Columbus, Ohio 43215
ATTN: Ohio Coal Development Office

If to Grantee:

To the attention of the Grantee at the address identified on the first page of this Agreement.

With a copy to the Chief Legal Counsel of the Ohio Development Services Agency

16. Miscellaneous.

(a) Governing Law. This Agreement shall be governed by the laws of the State of Ohio as to all matters including, but not limited to, its validity, construction, effect and performance.

(b) Forum and Venue. Grantee irrevocably submits to the non-exclusive jurisdiction of any federal or state court sitting in Columbus, Ohio, in any action or proceeding arising out of or related to this Agreement, Grantee agrees that all claims in respect of such action or proceeding may be heard and determined in any such court, and Grantee irrevocably waives any objection it may now or hereafter have as to the venue of any such action or proceeding brought in such court or that such court is an inconvenient forum. Nothing in this Agreement shall limit the right of Grantor to bring any action or proceedings against Grantee in the courts of any other jurisdiction. Any actions or proceedings by Grantee against Grantor or the State of Ohio involving, directly or indirectly, any matter in any way arising out of or related to this Agreement shall be brought only in a court in Columbus, Ohio.

(c) Entire Agreement. This Agreement, including its exhibits and documents incorporated into it by reference, constitutes the entire agreement and understanding of the parties with respect to its subject matter. Any prior written or verbal agreement, understanding or representation between the parties or any of their respective officers, agents, or employees is superseded and no such prior agreement, understanding or representation shall be deemed to affect or modify any of the terms or conditions of this Agreement.

(d) Severability. Whenever possible, each provision of this Agreement shall be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Agreement is held to be prohibited by or invalid under applicable law, such provision shall be ineffective only to the extent of such prohibition or invalidity, without invalidating the remainder of such provisions of this Agreement.

(e) Amendments. Subject to the permitted budget revisions under Section 2(a) of this Agreement, this Agreement may not be amended or modified except upon such terms as both parties may agree in a writing executed by authorized representatives of each party.

(f) Forbearance Not a Waiver. No act of forbearance or failure to insist on the prompt performance by Grantee of its obligations under this Agreement, either express or implied, shall be construed as a

waiver by Grantor of any of its rights under this Agreement or applicable law.

(g) Ohio-Based Services. Grantee agrees that, using its best efforts to the fullest extent possible, it will procure and use Ohio-based services, equipment and supplies for the Project and will report on same in its Quarterly Status Reports.

(h) Pronouns. The use of any gender pronoun shall be deemed to include the other gender, and the use of any singular noun or verb shall be deemed to include the plural, and vice versa, whenever the context so requires.

(i) Headings. Section headings contained in this Agreement are inserted for convenience only and shall not be used in construing this Agreement.

(j) Assignment. Neither this Agreement nor any rights, duties, or obligations of Grantee pursuant to this Agreement shall be assigned by Grantee without the prior express written consent of Grantor, which shall not be unreasonably withheld. Any purported assignment not made in accordance with this paragraph shall be void.

(k) Liability. Nothing stated in this Agreement shall be construed to create a joint venture, partnership, or agency between the parties hereto; nor constitute a commitment or guarantee on the part of either party to discharge, assume or bear any responsibility, guarantee or liability for acts or omissions of any other person or entity, except where expressly set forth under the Ohio Revised Code or Federal Law; nor its officers, employees or agents of any party hereto. Neither is any party hereto authorized to transact any business or undertake any agreement, contract, representation or warranty in the name of or on behalf of the other.

(l) Binding Effect. Each and all of the terms and conditions of this Agreement shall extend to and bind and inure to the benefit of Grantee, its successors and permitted assigns.

(m) Survival. Any provision of this Agreement which, by its nature, is intended to survive the expiration or other termination of this Agreement, including, without limitation, any indemnification obligation, shall so survive and shall benefit the parties and their respective successors and permitted assigns.

(n) Grantor's Authorized Representative. Grantor's Authorized Representative shall be the Director of the Ohio Development Services Agency (the "Director"), or such individual authorized by the Director in writing.

(o) Counterparts: PDF Accepted. This Agreement may be executed in any number of counterparts, each of which when so executed shall be deemed to be an original and all of which taken together shall constitute one and the same agreement. Copies of signatures sent by facsimile transmission or provided electronically in portable document format ("PDF") shall be deemed to be originals for purposes of execution and proof of this Agreement.

Signature: Each of the parties has caused this Grant Agreement to be executed by its authorized representatives as of the dates set forth below their respective signatures effective as of the Effective Date:

Grantee:

Grantor:

**State of Ohio
Development Services Agency**

David Goodman
Director
Ohio Development Services Agency

By: _____

By: _____

Printed Name: _____

Printed Name: _____

Title: _____

Title: _____

Date: _____

Date: _____

Attachments:

- Exhibit A: Scope of Work, Milestone Plan/Gantt Chart, Budget
- Exhibit B: Request of Payment, Form B-1
- Exhibit C: Royalty Payment/Agreement
- Exhibit D: Addendum to the Ohio Coal Research and Development Grant Agreement
- Exhibit E: OCDO Project Quarterly Status Report Format
- Exhibit F: OCDO Final Report Format
- Exhibit G: OCDO Annual Project Abstract

1. Scope of Work

Provide a detailed scope of work for the project.

2. Milestone Plan/Gantt Chart

Provide a milestone plan/Gantt chart that incorporates all reporting deliverables as well as the work activities of the project. Present timeline starting with “Month 1, Month 2,” etc. Do not list calendar months. A milestone narrative of the plan shall also include the following information:

A. A **detailed description of each of the tasks** to be performed during the phase. The task descriptions shall be accompanied by documentation, as appropriate, of equipment or material needs, test procedures, analytical procedures, evaluation parameters, design specifications, etc;

B. A **statement of the timeline for each of the tasks;**

C. A concise but thorough **description of the objective** to be met by the proposed work in the phase and expected outcomes;

D. List expected decisions that will be needed from Grantor – based upon the accomplishments completed in this phase. Present arguments for and against continuation of the project; and

E. Where applicable, a brief description and discussion of how and why there is a need for revision of the Scope of Work to be accomplished in the remaining phases of the project.

3. Budget

Include both Grant Funds and Cost-Share funds, displayed as discrete contributions to the Project listed by budget category.

NOTE: This page is meant as a checklist/tool for individuals preparing these materials that will comprise Exhibit A. It is not and will not become a part of the Grant Agreement

Estimated vs. Actual OCDO Quarterly Cash Draw			
Grant #			
Request #	Invoice Period (Date-Date)	Estimated Draw Amount (\$)	Actual Request Amount (\$)
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
31			
32			
33			
34			
35			
36			
37			
38			
	Total	\$0.00	\$0.00

ROYALTY/PAYMENT AGREEMENT

This Royalty/Payment Agreement (the "Agreement") is entered between the State of Ohio, Development Services Agency ("Grantor"), located at 77 South High Street, 29th Floor, Columbus, Ohio 43215 and - _____ ("Company"), located at _____.

BACKGROUND INFORMATION

A. Grantor and the Company have entered into a Grant Agreement identified as Grant Agreement No. _____, entitled _____ ("Grant Agreement") which will provide or has provided support to the development of new Technologies, Equipment and/or Processes as defined below. This Royalty/Payment Agreement (Payment Agreement) is entered into as a result of the requirements set forth in Section 5(c) of the Grant Agreement.

B. This Royalty/Payment Agreement is subject to the Grantor's satisfaction that royalty or other payments to the Grantor will not cause the interest on the Coal Development General Obligation Bonds to become subject to federal income taxation.

C. In accordance with the terms of the Grant Agreement, the Company has agreed to make payments and/or to contract with its subcontractors to make payments as agreed upon and set forth in this Payment Agreement in the event that the Company and/or any of its Subcontractors to the Grant Agreement commercialize or otherwise generate revenue from the Demonstration Technology, Equipment and/or Process which were developed as the result of the assistance provided by Grantor during the term of the Grant Agreement.

D. It is understood by the parties that the Company will execute a similar Payment Agreement with any subcontractor or subcontractors to the Grant Agreement and such royalties/payments that are derived from the subcontractors shall be paid directly to the Grantor. Further, where appropriate, the term "Company" shall also apply to subcontractors under the Grant Agreement and this Agreement.

E. The parties to this Agreement desire to set forth the terms of all royalties and payments in this Agreement.

STATEMENT OF THE AGREEMENT

In consideration of the covenants herein set forth, the parties hereby agree as follows:

1. Definitions. For the purposes of this Payment Agreement, the following terms shall have the prescribed meanings:

Demonstration Technology, Equipment, and/or Process: Each and every new technology, equipment, invention, process and/or unique modification/alteration that results from research and work occurring under and/or by reason of the Grant Agreement as well as any and all new materials and/or processes developed by research and work occurring under and/or by reason of the Grant Agreement, whether patented or not. (*If applicable to this project* - At present, this includes the following patents that may or will be affected by activities occurring by reason of the Grant Agreement: Nos. _____.) It is specifically understood and agreed that any

future application or applications for new patent or patents that in any manner utilize research and work occurring under and/or by reason of the Grant Agreement are included in this definition.

Gross Revenues: This term includes, but is not limited to, any and all financial amounts and the value of goods and services whether received directly or indirectly by the Company or a subsidiary of the Company or an entity in which the Company has an interest as the result of or by reason of the sale, lease or licensing of Demonstration Technology, Equipment, and/or Process, in whatever form or use, and applications wherein Demonstration Technology, Equipment, and/or Process are used, designed, leased, sold, licensed, furnished, installed or exported by the Company, pursuant to or under rights owned by the Company now or in the future.

2. Term of this Agreement. This Agreement shall become effective on the effective date of the Grant Agreement. This Agreement shall survive the term of the Grant Agreement and shall be effective for the longer of a period of 20 years or for the life of any patent obtained for any Demonstration Technology, Equipment and/or Process, including any patent extensions, resulting directly from the assistance provided by the Grant Agreement.

3. Royalty/Payment Obligation. The parties hereto acknowledge that, in exchange for the Grantor assuming part of the financial risk in the development of Demonstration Technology, Equipment, and Process under the Grant Agreement, the Company and/or its subcontractors shall pay the Grantor royalties and payments as calculated in Section 4 of this Payment Agreement. For each and every Demonstration Technology, Equipment, and/or Process developed under the Grant Agreement, whether patented or not that generates gross revenues in any manner, the amount of the Company's and/or its subcontractor's obligation shall be calculated upon gross revenues as heretofore defined.

4. Amount of Royalty/Payment Obligation. The Company shall pay the Grantor an amount equal to:

Five percent (5%) of the Gross Revenues generated from the sale or lease of any and all equipment or items manufactured, fabricated or assembled directly incorporating or employing, the licensing and/or use in whatever form of Demonstration Technology, Equipment, and/or Process;

Alternatively, the Company may buy out this royalty obligation by reimbursing to the Grantor a sum three times the Grant Agreement amount set forth in Section 1(a) of the Grant Agreement.

5. Ownership of Other Technology. It is understood that the Company and subcontractors to the Company are the sole owners of their respective existing background technology, patents, disclosures, trade secrets, drawings, computer programs, design standards, and process technology. The Grantor shall have no rights of any kind in reference to any technology developed prior to or outside the term of the Grant Agreement. However, the Grantor shall have rights to subsequent technology developments that are substantially based upon the work that occurred under the Grant Agreement.

6. Schedule of Payments. The Company shall make, and contract with each of its subcontractors to make, annual payments to the Grantor in the amounts as calculated under the terms of paragraph 4 of this Payment Agreement. Payment for any given year is due on March 31st of the following year. Payments shall be in the form of a check made payable to: "State of Ohio Coal R&D Bond Debt Service."

7. Annual Reporting Requirements. The Company shall submit, and contract with each of its subcontractors to submit, a written report, not later than March 31st of each year, directly to the Grantor, or its successor, which shall pertain to and cover the previous one-year period and shall include the following:

A. Both the total dollar amount charged for and actually received for any and all sales and/or leases of equipment and items manufactured, fabricated or assembled as a result of commercialization of each and every Demonstration Technology, Equipment, and/or Process developed under the Grant Agreement;

B. Quantities and descriptions of the equipment and/or items sold and/or leased;

C. Both the total dollar amount charged and actually received in the form of fees for the licensing and/or use, in whatever form, of each and every Demonstration Technology, Equipment, and/or Process developed under the Grant Agreement.

D. Quantities and/or descriptions of transactions under which fees referred to in subparagraph C above occurred. The actual cost of expenses to file and maintain a patent on the Demonstration Technology, Equipment and/or Process during the year.

E. The amount being remitted to the Grantor.

If no such activity occurred during the annual period, the Company/Subcontractor shall submit a report so stating. After the first 10 years, if the Company/subcontractor has had no gross revenues for a consecutive 3 year period of time, the Company/Subcontractor may cease its annual reporting to the Grantor. If, however, after that period of time the Company/Subcontractor receives revenues, the payment and reporting requirements shall resume.

8. Failure to Submit Annual Reports. If the Company fails to submit the required Annual Report required in Section 7 of this Agreement and such breach continues uncured for more than 30 days, Grantor may recover, and Grantee shall pay, as liquidated damages for the breach, an amount equal to \$500 for each month or part of a month that the report is past due.

9. Final Report. At the completion of the 20 year term or the applicable period as defined in paragraph 2 of this Payment Agreement, a comprehensive final summary report from the Company/Subcontractor shall be submitted to the Grantor listing each year's activities and total payments, including those years where no activity or payment took place (this may be in the form of a descriptive cover letter and spread sheet).

10. Records, Access, and Maintenance. The Company shall establish and maintain, and contract with each of its subcontractors to establish and maintain, for at least five years from the termination of its subcontract, such records as are required by the Grantor, including but not limited to, financial reports, and all other relevant information. The records required by the Grantor with respect to any questioned cost, audit disallowances, litigation or dispute between the Grantor and the Company or its subcontractors shall be maintained for the time needed for the resolution of said question. In the event of early termination of this Payment Agreement and/or of any given subcontract, or if for any other reason the Grantor shall require a review of the records related to the Demonstration Technology, Equipment and/or Process, Company shall, at its own cost and expense, segregate all such records related to the project from its other records of operation, and Company agrees that it shall contract with each of its subcontractors to do so as well.

11. Audits and Inspections. At any time during normal business hours and upon written notice and as often as the Grantor may deem necessary, Company shall make available to the Grantor (or its designee) for examination by appropriate state agencies or officials all of its records with respect to matters covered by this Payment Agreement and shall permit the Grantor or its agents to audit, examine and make excerpts or transcripts from such records. Further, Company agrees that it shall contract with each of its subcontractors to do so as well.

12. Liability. Neither party shall be liable to the other for any indirect, incidental, special or consequential damages arising from any cause whatsoever, including, without limitation, lost profits, loss of use of capital or revenue, loss of use of equipment, cost of replacement equipment, or damages suffered by customers of the Company whether such liability is based upon or arises under contract, tort, negligence, strict liability, extra contractual liability, or otherwise.

13. Miscellaneous.

A. Governing Law. This Payment Agreement shall be governed by the laws of the State of Ohio as to all matters, including but not limited to matters of validity, construction, effect and performance.

B. Forum and Venue. All actions regarding this Agreement shall be foruned and venued in a court of competent subject matter jurisdiction, in Franklin County, Ohio.

C. Entire Agreement. This Payment Agreement constitutes the complete understanding of the parties and merges and supersedes any and all other discussions, agreements and understandings, either oral or written, between the parties with respect to the subject matter hereof.

D. Severability. Whenever possible, each provision of this Payment Agreement shall be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Agreement is held to be prohibited by or invalid under applicable law, such provision shall be ineffective only to the extent of such prohibition or invalidity, without invalidating the remainder of such provisions of this Agreement.

E. Notices. All notices, consents, demands, requests and other communications which may or are required to be given hereunder shall be in writing and shall be deemed duly given if personally delivered or sent by United States mail, registered or certified, return receipt requested, postage prepaid, to the addresses set forth hereunder or to such other address as the other party hereto may designate in written notice transmitted in accordance with this provision.

1). In case of the Grantor, to:

Ohio Development Services Agency
Ohio Coal Development Office
77 South High Street, 26th Floor
Columbus, OH 43215

With copy to Chief Legal Counsel

2). In case of Company, to:

F. Amendments or Modifications. Either party may at any time during the term of this Payment Agreement request amendments or modifications. Requests for amendment or modification of this Payment Agreement shall be in writing and shall specify the requested changes and the justification of such changes. The parties shall review the request for modification in terms of the regulations and goals

relating to the Payment Agreement. Should the parties consent to modification of the Payment Agreement, then an amendment shall be drawn, approved, and executed in the same manner as the original agreement.

G. Pronouns. The use of any gender pronoun shall be deemed to include all the other genders, and the use of any singular noun or verb shall be deemed to include the plural, and vice versa, whenever the context so requires.

H. Headings. Section headings contained in this Payment Agreement are inserted for convenience only and shall not be deemed to be a part of this Agreement.

I. Assignment. Neither this Payment Agreement nor any rights, duties, or obligations described herein shall be assigned or subcontracted by Company without the prior express written consent of the Grantor.

J. Counterparts: PDF Accepted. This Agreement may be executed in any number of counterparts, each of which when so executed shall be deemed to be an original and all of which taken together shall constitute one and the same agreement. Copies of signatures sent by facsimile transmission or provided electronically in portable document format (“PDF”) shall be deemed to be originals for purposes of execution and proof of this Agreement.

Signature: Each of the parties has caused this Royalty/Payment Agreement to be executed by its authorized representatives as of the dates set forth below their respective signatures effective as of the Effective Date:

Grantee:

Grantor:

**State of Ohio
Development Services Agency**

David Goodman
Director
Ohio Development Services Agency

By: _____

By: _____

Printed Name: _____

Printed Name: _____

Title: _____

Title: _____

Date: _____

Date: _____

ADDENDUM TO THE OHIO COAL RESEARCH AND DEVELOPMENT GRANT AGREEMENT

This Addendum to the Ohio Coal Research and Development Grant Agreement (the "Addendum") is entered into as of _____, 20__, by and between [Grantee] (the "Grantee") and _____ (the "Subcontractor").

Background Information

A. The Grantee entered into a Ohio Coal Research and Development Grant Agreement with the State of Ohio, Development Services Agency (the "Department"), effective _____ with Grant Control Number _____ (the "Grant Agreement").

B. As a condition of the Grant Agreement, all subcontractors of Grantee, involved in the Project and performing work or activities under the Agreement, are required to be bound by the terms of this Grant Agreement and the Grantee is required to cause the terms of this Agreement to be incorporated by reference into all subcontracts.

Provisions

In consideration of the foregoing and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties agree as follows:

1. The Subcontractor will be bound by the terms and conditions of the Agreement between Grantee and the Department.

The parties have executed this Addendum as of the day and year set forth above.

GRANTEE:

Name: _____

Title: _____

Date: _____

SUBCONTRACTOR:

Name: _____

Title: _____

Date: _____

OCDO PROJECT QUARTERLY STATUS REPORT FORMAT

On the Grantee's letterhead, provide the following information on the first page of the report:

1. Project Title
2. Grant Agreement Number
3. Author(s) of the Report
4. Telephone Number of Author(s)
5. Email Address of Author(s)
6. Status Report Number
7. Reporting Period (start date and end date)

The body of the report shall briefly but thoroughly discuss the following items:

I. Describe the **work performed and results obtained during** the reporting period. Provide your best estimate of the **percentage of the project which has been completed** through the period. In the narrative, make reference to applicable sections of the Statement of Work and/or the Milestone Plan/Gantt Chart from the Grantee's application, as well as Section III of your previous Status Report. Include highlights of the noteworthy results and pertinent test or design data, along with a discussion of the extent to which the data meet expectations. Also include a discussion of how the results affect the overall project, and how the results may have changed from those which were anticipated.

II. Cite any **problems or circumstances** (e.g., equipment malfunctions, delivery delays, unanticipated expenditure, etc.) which have or will impede or accelerate timely progress and anticipated results or result in failure to meet project completion date. Indicate whether there are any **anticipated problems with the project budget**, and in particular, **with Grantor's portion of the project budget**, as set forth in the Grant Agreement. Include a description of each problem along with a discussion of how the problem was or will be handled. State whether or not such problems will impede the timely progress and anticipated results of the project.

III. Outline the **work to be performed** over the next Reporting Period. Include, as appropriate, supporting information such as planned or anticipated meetings with cosponsors, subcontractors or project advisory groups, planned test matrices, etc.

IV. Describe any pursuit or receipt of funding for the project from any Ohio research and development programs, or any federal research and development programs. If funding was available, but not pursued, please explain why these available funds were not pursued.

OCDO FINAL REPORT FORMAT

Final Report -- Project Final Reports are very important documents. They must be stand-alone pieces that completely detail the project from start to finish, something someone with no prior knowledge of the effort can pick up and completely follow. Further, they must be written in grammatically correct English. Additionally, to further OCDO's technology transfer efforts, these reports (with the exception of any proprietary/trade secret data) are routinely submitted to the National Technical Information Service and other places for addition to libraries and computerized data bases. These papers bear not only the OCDO's, your organization's and your name, but are indicative of the quality of work OCDO and your organization support and the caliber of work you produce.

Trade Secrets The Grantee must fully describe all aspects of the project such that they can be followed and verified by the Grantor. However, be assured that the Grantor is prohibited from disclosing any information that is deemed to be a trade secret as defined in Ohio Revised Code §1333.61. It is the Grantee's sole responsibility to identify and CONSPICUOUSLY MARK on each page those phrases, equations, diagrams or other data that the Grantee has determined to be a trade secret. Wholesale marking of a document as "Confidential" is not applicable; the report must be redacted line by line on only ONE copy of the total number of copies of the Final Report due to the Grantor. Alternatively, trade secret information may be incorporated into an appendix to the Final Report, which must also be marked "trade secret."

The following shall be construed by the Grantor as the minimum information required in the Final Report. The Grantee should include any additional information deemed pertinent to fully and thoroughly report on the project.

Cover

The cover of the document shall bear the:

- A. Project title;
- B. Name, address, and telephone number of the Grantee;
- C. Name and title of the Project Manager;
- D. Term, "Final Report;"
- E. Grant Agreement Number;
- F. Statement, "This project was funded in part by the Ohio Development Services Agency;"
- G. Date of the document's submission to the Ohio Coal Development Office;
- H. Period of Performance;
- I. Statement, "This report [does/does not] contain Trade Secret/Proprietary Information."

At the Grantee's discretion, the cover of the document may also bear the names of:

- J. Significant other employees or project investigators of the Grantee which the Grantee wishes to credit;
- K. Other contributing project participants.

Disclaimer

Grantee shall include a disclaimer immediately after the cover page, which shall read as follows. For projects with multiple participants, all participants may be included in the disclaimer:

“DISCLAIMER”

This report was prepared by (Grantee) with support in part by a grant from the Ohio Development Services Agency. Neither the State of Ohio nor any of its agencies, nor any person acting on behalf of the State:

1. Make any warranty or representation, express or implied, with respect to the accuracy, completeness, or usefulness of the information contained in this report, or that the use of any information, apparatus, method, or process disclosed in this report may not infringe privately-owned rights; or
2. Assume any liabilities with respect to the use of, or for damages resulting from the use of, any information, apparatus, method or process disclosed in this report.

Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring; nor do the views and opinions of authors expressed herein necessarily state or reflect those of the State of Ohio or its agencies.

NOTICE TO JOURNALISTS AND PUBLISHERS: Please feel free to quote and borrow from this report, however, please include a statement noting: “Funding for this project was provided, in part, through the Ohio Development Services Agency.”

Report Abstract

A summary paragraph that describes the impact of the project on Ohio coal use.

Table of Contents

The Final Report shall include a table of contents, including major section headings, illustrations, tables, charts, any addenda, appendices and supporting documentation, and identifying their location by page number.

Executive Summary

The Executive Summary shall:

- A. Summarize the project results;
- B. Specifically state whether the project proceeded as anticipated or achieved expected results;
- C. Describe the implications of the project's results on the near future commercialization of the technology or process and estimate the timetable for same;
- D. Identify the cost of this technology or process in terms of dollars per ton of sulfur dioxide, nitrogen oxide, and/or other pollutants removed, and dollars per ton of coal;
- E. Describe the wastes and byproducts generated by the process, methods for their disposal or reuse, and estimated waste disposal costs on a dollar per ton of sulfur dioxide and nitrogen oxides or other emissions removed, and on a per ton of coal basis;
- F. Estimate/quantify the effects of this project on Ohio coal use and/or by-products reuse;
- G. Briefly describe anticipated next steps following this project, including technical and commercial/marketing, including identification of who potentially would participate in taking such steps.

Full Report

The Full Report shall include, at a minimum, the following information:

Introduction

- A. A "problem statement," including the general background or concern(s) which led to the project and proposal;
- B. The overall objective of the Grantee's total program, and the specific objective(s) of the work performed under this grant (i.e., a brief discussion of what was expected to be learned, accomplished or proven, technical and economic targets to be achieved in this project);
- C. A brief discussion of the involvement and contributions of other participants.

Technical Discussion

- D. A description of the technology or process;
- E. If applicable, a description of the plant/work site setup and how this project fits into it;
- F. The approach taken to meet the project objectives;
- G. A detailed description of the actual procedures used or work performed to obtain project results;
- H. A description of any problems or breakthroughs encountered during the course of the project;
- I. Detailed project results and analysis of same in comparison to the project's original target performance goals, including a discussion of the implications of these results;
- J. A description of all waste and byproducts, including their chemical components, generated by the process, an estimate of the quantity of same, and a description of the relationships between material input (sulfur in coal, ash in coal, sorbent, etc.) and the material outputs using a material balance or similar method;
- K. A discussion of the options for costs, handling, disposal, or reuse of the wastes and byproducts;
- L. Documentation/calculations/assumptions used to determine A through G in the Executive Summary.

Marketing/Commercialization Discussion

- M. Describe who/what the market is for this project's technology/process, extent of the opportunities for application, and the anticipated marketing/commercialization program;
- N. Discuss the potential market for use of the byproducts from technology/process;
- O. Characterize how the project's results will affect the speed with which the marketplace will incorporate the technology/process;
- P. Calculate the effects of these results on near-term increased use of Ohio coal, include estimated tonnages and timetables;
- Q. List any jobs that have been created or retained as a result of the project;
- R. Compare with similar competing technologies or processes the costs of sulfur dioxide, mercury nitrogen oxides, and other criteria pollutants removed, or--for coal emission reducing processes--the costs of sulfur, mercury, ash, or other criteria pollutant removal, both in dollars per ton of coal and dollars per ton of pollutant removed;
- S. Describe immediate next steps, both technical and marketing, including a technology maturation plan that explains the work needed to attain the next TRL;
- T. Develop/describe a marketing plan of action for this technology.

Final Budget Summation

- U. A table noting the total project budget by major category and contributions of all participants, including Grantee;

V. A table detailing by line items the expenditure of Grantor funds on this specific project.

Appendices

Appendices shall be included, as appropriate, containing technical, analytical and test data, equipment/material specifications, technical drawings, and/or other information the Grantee deems necessary to fully describe the project and to verify the project's results.

