

# Oil & Natural Gas Technology

DOE Award No.: DE-FC26-03NT41779

## Quarterly Progress Report (7/1/07 – 9/30/07)

### Gas Storage Technology Consortium

Submitted by:  
The Pennsylvania State University  
The Energy Institute  
University Park, PA 16802

Prepared for:  
United States Department of Energy  
National Energy Technology Laboratory

October 12, 2007



Office of Fossil Energy

# Gas Storage Technology Consortium

Technical Quarterly Progress Report for  
July 1, 2007 – September 30, 2007

By

Joel L. Morrison  
and  
Sharon L. Elder

October 12, 2007

Work Performed Under DOE Cooperative Agreement DE-FC26-03NT41779

***Submitting Organization:***

The Pennsylvania State University  
The Energy Institute  
C211 Coal Utilization Lab  
University Park, PA 16802

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## ABSTRACT

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Gas storage is a critical element in the natural gas industry. Producers, transmission and distribution companies, marketers, and end users all benefit directly from the load balancing function of storage. The unbundling process has fundamentally changed the way storage is used and valued. As an unbundled service, the value of storage is being recovered at rates that reflect its value. Moreover, the marketplace has differentiated between various types of storage services and has increasingly rewarded flexibility, safety, and reliability. The size of the natural gas market has increased and is projected to continue to increase towards 30 trillion cubic feet over the next 10 to 15 years. Much of this increase is projected to come from electric generation, particularly peaking units. Gas storage, particularly the flexible services that are most suited to electric loads, is crucial in meeting the needs of these new markets.

To address the gas storage needs of the natural gas industry, an industry-driven consortium was created – the Gas Storage Technology Consortium (GSTC). The objective of the GSTC is to provide a means to accomplish industry-driven research and development designed to enhance the operational flexibility and deliverability of the nation’s gas storage system, and provide a cost-effective, safe, and reliable supply of natural gas to meet domestic demand.

This report addresses the activities for the quarterly period of July 1, 2007 through September 30, 2007. Key activities during this time period included:

- Notification letters issued;
- Negotiating subcontracts for the 2007 GSTC projects;
- Drafting and releasing a request for proposals;
- Distributing the 2005 project final reports;
- Preliminary planning for the 2007 GSTC Fall Meeting; and
- Outreach and communications.

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## **INTRODUCTION**

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Gas storage is a critical element in the natural gas industry. Producers, transmission and distribution companies, marketers, and end users all benefit directly from the load balancing function of storage. The unbundling process has fundamentally changed the way storage is used and valued. As an unbundled service, the value of storage is being recovered at rates that reflect its value. Moreover, the marketplace has differentiated between various types of storage services and has increasingly rewarded flexibility, safety, and reliability. The size of the natural gas market has increased and is projected to continue to increase toward 30 trillion cubic feet over the next 10 to 15 years. Much of this increase is projected to come from electric generation, particularly peaking units. Gas storage, particularly the flexible services that are most suited to electric loads, is crucial in meeting the needs of these new markets.

To address the gas storage needs of the natural gas industry, an industry-driven consortium was created – the Gas Storage Technology Consortium. The objective of the GSTC is to provide a means to accomplish industry-driven research and development designed to enhance the operational flexibility and deliverability of the nation’s gas storage system, and provide a cost-effective, safe, and reliable supply of natural gas to meet domestic demand. Consortium technology development is conducted in the general areas of well-bore and reservoirs, operations, mechanical, and salt caverns. Consortium members elect an executive council that is charged with reviewing projects for consortium co-funding. Proposals must address improving the production performance of gas storage and provide significant cost sharing. The process of having industry members develop, review, and select projects for funding ensures that the GSTC conducts research that is relevant and timely to the industry. Co-funding of projects using external sources of funding is sought to ensure that GSTC funds are highly leveraged.

## EXECUTIVE SUMMARY

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This report summarizes the important accomplishments during the period of July 1, 2007 through September 30, 2007. The GSTC was established under contract to The Pennsylvania State University from the U.S. Department of Energy (DOE), National Energy Technology Laboratory (NETL), in June 2004. The agreement provides the Pennsylvania State University with the overarching management responsibilities for the GSTC.

Key activities for this reporting period included the following:

### *Notification Letters Issued*

Project award or declination notification letters were issued for all projects presented at the 2007 Spring Meeting.

### *2007 GSTC Subcontracts Negotiated*

The subcontracts for three of the projects selected for funding during last quarter have been successfully negotiated. The RGD X-ray Technology Well Bore Inspection and Assessment – A Feasibility Study: *Gas Technology Institute* is still in progress.

### *Request for Proposals*

The GSTC administration drafted and released a request for proposals, due October 25, 2007. The period of performance for the new projects will be January 1, 2008 – December 31, 2008.

### *2007 GSTC Fall Meeting*

Plans are underway for the fall technology transfer workshop and the hearing of all proposals received in response to the request for proposals. During this quarter the GSTC administration secured a meeting site and drafted preliminary plans.

### *2005 Project Final Reports*

The 2005 projects ended December 31, 2006. Six reports have been received, approved, and are posted in the “members only” portion of the GSTC website. A paper copy and a compact disc the final reports were distributed to all 2005 full members in this quarter.

### *Communications*

The *GSTC Insider* e-newsletter was released in July 2007.

## **EXPERIMENTAL**

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A description of experimental methods is required by the DOE for all quarterly technical progress reports. In this program, Penn State is responsible for establishing and managing an industry-driven underground gas storage consortium. Technology development research awards are made on a competitive basis. Technical reports from the individual researchers are required to contain experimental discussion sections and are submitted to consortium members and the DOE for review. Therefore, this section is not applicable to the Penn State contracted activities.

## **RESULTS & DISCUSSION**

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This report addresses the activities for the reporting period from July 1, 2007 through September 30, 2007. Key activities during this time period included:

- Notification letters issued;
- Negotiating the subcontract awards for projects awarded during the last quarter;
- Drafting and releasing a request for proposals;
- Distributing the 2005 project final reports;
- Planning for the 2007 GSTC Fall Meeting; and
- Outreach and Communications.

## **GSTC ADMINISTRATION**

### **Notification Letters Issued**

Award notification and declinations letters were issued for all projects presented at the 2007 Spring Meeting.

### **2007 GSTC Subcontracts Negotiations**

The subcontracts for three projects awarded during the last reporting period have been successfully negotiated. The project period of performance will be August 1, 2007 to July 31, 2008. The RGD X-ray Technology Well Bore Inspection and Assessment – A Feasibility Study: *Gas Technology Institute* is still in the negotiation process.



## **Request for Proposals**

The GSTC administration drafted and released a request for proposals for proposals due October 25, 2007. The period of performance will be January 1, 2008 to December 31, 2008. All proposals received will be heard at the 2007 GSTC Fall Meeting, Portland, OR on November 6-7, 2007. The RFP was distributed to the GSTC list serve as well as being posted to the GSTC website. Notice was also sent to members of the American Gas Association and the Petroleum Technology Transfer Council, and appeared in the PTTC Tech Alert e-news.

## **TECHNOLOGY TRANSFER/ OUTREACH**

### **2007 GSTC Fall Meeting**

Preliminary meeting plans were drafted for the 2007 GSTC Fall Meeting on November 6-7, 2007 at the Hotel Vintage Plaza, Portland, OR. The meeting will be an opportunity to hear technology updates from 2006 and 2007 projects. In addition, all proposals received in response to the RFP will be scheduled to give a PowerPoint presentation, followed by a question and answer session.

### **2005 Project Final Reports Released**

The 2005 projects ended December 31, 2006. A paper copy and a compact disc of six of the final reports were distributed to all 2005 full members, in July 2007. All completed reports are available in the “member’s only” section of the GSTC website. The New Comprehensive Inventory Analysis Tool, *Schlumberger*, was extended until June 30, 2007. During this quarter, this report along with the project software was received and is ready to be distributed. There is one report still outstanding - Scale Remediation Using Sonication: Pre-Commercial Test Project, *TechSavants, Inc.*

### **Communications**

The *GSTC Insider* electronic newsletter was released in July 2007. This newsletter was distributed to the GSTC list serve as well as being posted to the GSTC website. During the upcoming quarter, another newsletter will be drafted.

The notice “Funding Opportunity: Proposals for DOE-Supported Gas Storage Technology Consortium due Oct. 25<sup>th</sup>” appeared in the PTTC Technology Connections Tech Alert, September 18, 2007 e-news.

### **Planned Activities for Next Reporting Period**

During the next quarter the GSTC will:

- Continue to negotiate the subcontract for the one remaining 2007 GSTC project;
- Finalize plans and host the 2007 GSTC Fall Meeting;
- Secure a training location, identify a date, and schedule a workshop for The New Comprehensive Inventory Analysis Tool, *Schlumberger* and Gas Storage Field Deliverability Enhancement and Maintenance: and Intelligent Portfolio Management Approach, Phase II, *West Virginia University* projects.
- Begin the mentoring team conference calls for 2007 projects;
- Identify projects to begin January 2008;
- Solicit nominations for five Executive Council seats;
- Invoice membership for FY2008;
- Draft another online newsletter; and
- Continue to update the GSTC web site.

### **CONCLUSIONS**

During this reporting period, the GSTC negotiated the subcontracts for three of the 2007 projects. A paper copy and a CD of the 2005 final reports for six projects were distributed to full members. The GSTC administration secured a meeting site and drafted preliminary plans for the 2007 Fall Meeting. The GSTC drafted and released a request for proposals, due October 25, 2007. Through these efforts, the GSTC continues to improve and better serve the gas storage industry.

### **REFERENCES**

A listing of referenced materials is required by the DOE for each quarterly technical progress report. However, this technical progress report for the GSTC did not utilize any reference materials during this reporting period.

**APPENDIX**

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APPENDIX A – Request for Proposals

**APPENDIX A**  
**Request for Proposals**

The  
Gas Storage Technology Consortium

**Request for Proposals  
For 2007**

**Submission Deadline:  
October 25, 2007 (5:00 pm EST)**

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# 2007 REQUEST FOR PROPOSALS

## FOR THE GAS STORAGE TECHNOLOGY CONSORTIUM

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### **APPLICANT ELIGIBILITY**

Competition is open to all current Full and University Members of the Gas Storage Technology Consortium (GSTC). The GSTC Executive Council will not review proposals without a fully executed membership agreement in place. New memberships are accepted throughout the year. Membership information and applications can be found on the GSTC website at <http://www.energy.psu.edu/gstc>. Proposals received from members whose dues are not current, or whose membership agreement is not fully executed will be returned without review.

University employees eligible to serve as principal investigators for proposals submitted to the consortium are:

- Full-time regular tenure-track or regular faculty, and;
- Persons with the title of Research Assistant, Associate, Scientist or Senior Scientist.

### **INSTITUTION COMMITMENT**

Each proposal must be signed by an official of the company or university who is authorized to commit the company/institutional resources to the project. The name of the Applicant's authorized official shall be entered in the appropriate space shown on the cover page (Attachment B).

### **RESEARCH FOCUS AREAS**

The mission of the GSTC is to assist in the development, demonstration and commercialization of technologies to improve the integrity, flexibility, deliverability, and cost-effectiveness of the nation's underground natural gas/hydrocarbon storage facilities. Projects selected for funding will be based on those that best accomplish the Consortium goals. Proposals in this funding cycle are being solicited from GSTC Full and University Members in the following focus areas:

#### ***Mechanical***

Examples include, but are not limited to, investigations that address pipe and well casing integrity, the improvement of downhole leak detection, the development of new casing evaluation tools, the development/ evaluation of advanced metallurgy/ materials for use in well casing and casing repairs, cement bonding, delta-temperature effects on casing, use of "smart pipe" concepts for well casing, corrosion mitigation and quantification, removal

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techniques for scales, fines, salts, asphalts, and techniques to remediate damage through stimulation/ recompletion/ workover of existing wells.

### ***Well-bore and Reservoir***

Examples include, but are not limited to, investigations that address reservoir characterization, consider new approaches to modeling of gas cycling and inventory verification, develop techniques to maintain and improve injectivity and deliverability, and expand existing aquifers and reservoirs.

### ***Operations***

Examples include, but are not limited to, investigations that address handling of produced water, techniques to minimize/mitigate water encroachment, cost effective multiphase wellhead measurement systems, design criteria for facility sizing to meet variable demand, and best practices associated with product quality shipped/delivered. In addition, applied research into the development/ evaluation of low-cost salt inhibitors to mitigate salt precipitation within the reservoir, well, and pipeline systems are being sought.

### ***Salt Cavern***

Examples include, but are not limited to, investigations that address salt cavern stability and growth rates, interconnectivity and best practices techniques for management of caverns.

The four previous focus areas and their corresponding examples are to be used as general guidelines for applicants; however, the GSTC Executive Council and industrial membership have identified the following topics as their funding priority areas:

**Funding Priority Area: Improved Downhole Diagnostic Tools**– to develop, test, deploy new cost-effective innovative technology to improve underground natural gas storage well reliability; to improve operator ability to accurately identify potential storage field and piping system problem areas; and to improve predictive ability of operators to plan scheduled maintenance by reducing downtime and cost to deliver improved storage performance. Examples include:

- Pipe and cement integrity,
- Pipe corrosion and coating diagnostics,
- Take sidewall cores in small diameter casing (down to 4.5 inches),
- Improved method of obtaining downhole pressures, and
- Innovative methods for pipe removal.

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## **AWARDS**

Awards will be made on an annual basis. Subcontracts will be issued from The Pennsylvania State University to the successful applicant. The period of performance for this 2007 funding cycle will be from January 1, 2008 to December 31, 2008. Members will be permitted to submit future proposals to extend the proposed work; however, this must be performed on a year-to-year basis.

If additional documentation is required prior to issuance of a subcontract, a delay in submission of the January 1 start date may occur.

## **SUBMISSION**

The deadline for receipt of GSTC proposals is **October 25, 2007 by 5 PM (Eastern Standard Time)**. Proposals received after the deadline will be returned to the applicant. Applicants are to submit one original, twelve copies of the proposal, and one electronic copy in PDF format. The full proposal and a separate copy of the public abstract should be saved in PDF format on a CD or ZIP disk and submitted with the paper copies.

In addition to the proposal, each applicant is required to provide the GSTC Membership a nominal 20-minute presentation at the GSTC Fall Meeting which will be held in Portland, Oregon on November 6-7, 2007. The 20-minute presentation will consist of a 15-minute presentation focused on the technical and budget aspects of the proposed project and 5-minute question and answer session. **The presentation is due at the time of the proposal submission.** The presentation format should be either in the form of an electronic PowerPoint presentation or in the form of overhead transparencies. The proposal packet should be submitted to the following address:

Mr. Joel L. Morrison  
Director, Gas Storage Technology Consortium  
The Pennsylvania State University  
C-211 Coal Utilization Laboratory  
University Park, PA 16802-2323

If funded, the applicant will be required to provide the GSTC membership with an annual presentation in 2008 at the GSTC fall technology transfer meetings in addition to the required reporting requirements.

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## **PROPOSAL FORMAT**

Proposals should be formatted to fit standard 8 x 11" letter size paper with 1" margins, single-spaced, using 12 point font and be consecutively numbered at the bottom on each page.

## **SECTIONS OF THE PROPOSAL**

The proposal shall consist of the following sections in order.

***Proposal Checklist*** See Attachment A

The proposal checklist is required to ensure the proposal submittal is complete and that the applicant is eligible for Consortium funding consideration.

***Public Cover Page*** See Attachment B

The cover sheet along with the public Executive Summary will be distributed to the GSTC membership as part of the proposal evaluation process.

***Table of Contents*** One (1) page maximum

***Public Executive Summary*** One (1) page maximum

Provide a one-page summary of the proposed research. The executive summary should not contain any propriety or business sensitive data because summary will be distributed to the GSTC membership along with the proposal cover sheet. An electronic copy of the executive summary is required. The summary will be posted to the GSTC and/or program sponsor websites if the Consortium funds the proposal. The summary should be written in the third person and include a statement of objectives and methods to be employed. It should be informative to other persons working in related fields and understandable to a scientifically or technically literate lay reader.

***Technology Overview*** One (1) page maximum

The technology overview section of the proposal enables the applicant to discuss how their proposed technology is different from existing technology that may be available within the industry. At a minimum the following should be discussed:

- Is the technology covered by existing patents, and if so, what are they; and
- How does the proposed technology differ from existing technology?

***Project Description*** Five (5) page maximum

The main body of the proposal should outline the plan of work, including the broad design of activities to be undertaken. At a minimum, the following should be discussed:

- Statement of the problem;
- Has the proposed work, or a portion of the proposed work, been funded elsewhere;
- Objectives and expected significance of the research;
- Statement of the work plan;

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- Relation of the proposed work to comparable work in progress;
- Description of available facilities and major items of equipment available for the work; and reference citations.

***Project Schedule***                      One (1) page maximum

A plan which establishes the time schedule for accomplishing the work. The plan should include major milestones of the project in bar chart format and should cover the complete period of performance.

***Anticipated Results***                      Two (2) page maximum

Discuss how the project will improve the integrity, flexibility, deliverability, and cost-effectiveness of the nation's underground natural gas/hydrocarbon storage facilities. Discuss the commercial viability of the proposed project. Identify specific groups in the commercial sector that may use the project results.

***Previous GSTC-Funded Projects***                      One (1) page maximum/ project

If the applicant has been awarded GSTC-funding in previous years, the applicant is required to provide a brief summary of those projects for review. The summary for each project should not exceed one page and should contain the following:

- Project title
- Total level of funding (GSTC funding and applicant cost share)
- Description of how it has benefited the U.S. underground natural gas storage industry.
- List of companies and key contact information for those using the previously funded project results.

***Budget***                                      See Attachment C

The submission of a reasonable budget is an important part of the proposal. Your budget may request funds under any of the categories listed on Attachment C, as long as the item and amount are considered necessary to perform the work. Proposed equipment expenditures are permitted; but their purchase must be justified. Ownership of the equipment vests with the Pennsylvania State University and is reported to DOE on an annual basis. It is expected that the participants will already have most of the necessary permanent equipment to conduct the research. The majority of the funding is intended to support research activities. Permanent equipment purchases are discouraged and will be considered during the proposal evaluation. After approval by the Executive Council, but prior to purchase, written approval must be obtained by the Department of Energy for purchase of equipment items that have a life of 2-years or more and a cost of \$5,000 or more.

***Cost-Share Commitments***

A minimum of 40% cost-share is required for each project that is selected by the GSTC for funding. The 40% cost-share is calculated as 40% of the proposed project (i.e. the sum of the recipient's allowable cost-share and the GSTC share equals the total allowable

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costs of the project). Cost-share, which may be in the form of cash and third party in-kind, is acceptable as part of the match provided it meets the following criteria:

- Are verifiable, necessary and reasonable for proper and efficient accomplishment of the project;
- Are incurred within the project performance period. Previously expended research development, or exploration costs are unallowable.
- Are not included as contributions for any other federal project, are not paid by the Federal Government under another award, and otherwise allowable in accordance with Federal cost principles and DOE regulations governing cost sharing.
- The value of patents and data contributed to the project is unallowable as cost sharing.
- The value of salaries or wages of 1<sup>st</sup> party personnel directly involved in the project are allowed as cost share.

All cost-share commitments must be supported by appropriate documentation. Third parties proposing to provide all or part of the required cost share must include a letter from the third party stating its commitment to provide a specific minimum dollar amount of cost-share. The letter should also identify the type of proposed cost share (e.g., cash, services) to be contributed. Letters must be signed by the person authorized to commit the expenditure of funds and be provided in PDF format. Failure to provide appropriate documentation can result in the proposal being returned without review.

### ***Biographical Sketches***

One (1) page per person maximum

Vitae of key personnel involved in the project must be included and should include educational background, professional experience, research interest, honors, professional activities and relevant publications.

### ***Letters of Support***

Letters of support from outside sources are encouraged, but not mandatory.

## **TREATMENT OF PROPRIETARY INFORMATION**

Information deemed as priority or confidential should not be part of the proposal nor required presentation.

## **PROPOSAL EVALUATION PROCESS**

The GSTC Executive Council will review and recommend projects for GSTC funding. The GSTC Director will notify all applicants within thirty (30) days of the GSTC Executive Council meeting, by letter, of the final decision regarding their proposals. The decision of the GSTC is final and not subject to reconsideration or appeal.

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## **ADDITIONAL INFORMATION**

Additional questions should be forwarded to the GSTC Director. Questions should be submitted via e-mail to [gstc@ems.psu.edu](mailto:gstc@ems.psu.edu) or contact Mr. Joel Morrison at (814) 865-4802.

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## **ATTACHMENT A – PROPOSAL PACKET CHECKLIST**

I certify that:

- I am a current Full member of the GSTC
- I am a current University member of the GSTC

Project Title: \_\_\_\_\_

Principal Investigator (PI): \_\_\_\_\_

To assure that your application is complete, please complete and paper clip (one copy only) the proposal packet checklist to the cover sheet of the original (signed) copy of the proposal. Be sure the following items are included in the following order.

- \_\_\_\_\_ Public Cover page completed and signed by PI and authorized representative
- \_\_\_\_\_ Public Executive Summary (one page maximum)
- \_\_\_\_\_ Technology Overview (one page maximum)
- \_\_\_\_\_ Project Description (five page maximum)
- \_\_\_\_\_ Project Schedule (one page maximum)
- \_\_\_\_\_ Anticipated Results (two page maximum)
- \_\_\_\_\_ Previous GSTC-Funded Work (one page maximum/ project)
- \_\_\_\_\_ Budget (Using Attachment C budget template)
- \_\_\_\_\_ Cost-Share Commitment Letters
- \_\_\_\_\_ Biographical Sketches (one page/ person maximum)
- \_\_\_\_\_ Letters of Support
- \_\_\_\_\_ One signed original copy, twelve copies, and one electronic copy of the proposal in PDF Format are due to the GSTC Consortium no later than 5:00 PM (EST) on October 25, 2007
- \_\_\_\_\_ One electronic copy of the Public Executive Summary in PDF Format
- \_\_\_\_\_ Proposal presentation (15 minute presentation, PowerPoint encouraged)

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**ATTACHMENT B – PROPOSAL COVER SHEET**

Proposal Submitted to: Mr. Joel Morrison  
Director, Gas Storage Technology Consortium  
The Pennsylvania State University  
C-211 Coal Utilization Laboratory  
University Park, PA 16802-2308

Proposal Deadline: October 25, 2007 (5:00 PM EST)

Date of Submission \_\_\_\_\_

Title of Proposal: \_\_\_\_\_  
\_\_\_\_\_

Company Name: \_\_\_\_\_

Principal Investigator: \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_ Email \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Other Participants: \_\_\_\_\_

Amount Requested from GSTC \$ \_\_\_\_\_

Cost Share Commitments Cash \$ \_\_\_\_\_  
(Minimum 40% Required)

In-Kind \$ \_\_\_\_\_

Total Project Costs \$ \_\_\_\_\_

Submitted by:

Approved by:

\_\_\_\_\_  
Signature of PI

\_\_\_\_\_  
Authorized Representative

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# **ATTACHMENT C – BUDGET**

Name of PI: \_\_\_\_\_

	<u>REQUESTED GSTC</u>	<u>COST-SHARE</u>
<u>Salaries and Wages</u> List individually all personnel identified in the proposal. Include title and percent of effort NOTE: The use of undergraduate and graduate students is encouraged, and appropriate. The basis for proposed percent of effort or labor hours should be identified (historical hours, engineering estimates).	\$ _____	\$ _____
<u>Fringe Benefits</u>	\$ _____	\$ _____
<u>Materials and Supplies</u> List types required and estimated costs. NOTE: State whether amounts proposed are based on catalog prices or other cost estimating.	\$ _____	\$ _____
<u>Equipment</u> Items exceeding \$5,000 and 1 year's useful life are defined as permanent equipment. List item and dollar amount for each amount. Justify and/or provide quotation.	\$ _____	\$ _____
<u>Travel (see Note 4)</u> State the type and extent of travel and its relation to the project. Itemize by destination and estimated costs.	\$ _____	\$ _____
<u>Publication/Information Dissemination</u> Estimate costs of documenting, preparing, publishing and sharing research findings. Show estimates.	\$ _____	\$ _____
<u>Other Direct Costs</u> Itemize and justify. (*See note below)	\$ _____	\$ _____
_____	\$ _____	
_____	\$ _____	
<u>Facilities and Administration (F&amp;A)</u> Specify current rate(s) and base. Note: A copy of the negotiated agreement should be included with the proposal. If none exists, a disclosure of the contents of the rate should be made.	\$ _____	\$ _____
TOTALS	\$ _____	\$ _____

**Attach up to two additional pages of justification covering all items.**

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**\*NOTES:**

- 1) If more than 5% of project cost is from GSTC funding the contracting organization must be a Full or University Member of the GSTC.
- 2) Subcontracts included in proposal (third party agreements) to current consortium members must be less than 50% of the requested GSTC funding. Budgets and work statements from each subcontractor, in the format above, must be included in proposal.
- 3) Fees or profits will not be paid on any award resulting from this solicitation. Nor can fee or profit be considered as cost-sharing.
- 4) The GSTC is planning to host two technology transfer workshops in 2008. Recipients of GSTC funding are required to provide a presentation on the status of their project at these meetings if requested. The costs of attending these GSTC technology transfer meeting are to be included in the travel budget.

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## **National Energy Technology Laboratory**

626 Cochrans Mill Road  
P.O. Box 10940  
Pittsburgh, PA 15236-0940

3610 Collins Ferry Road  
P.O. Box 880  
Morgantown, WV 26507-0880

One West Third Street, Suite 1400  
Tulsa, OK 74103-3519

1450 Queen Avenue SW  
Albany, OR 97321-2198

2175 University Ave. South  
Suite 201  
Fairbanks, AK 99709

Visit the NETL website at:  
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Customer Service:  
1-800-553-7681

