

National Geothermal Student Competition Rules

Background: The 2012 Geothermal Energy Student Competition, sponsored by the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy, is designed to support, inspire, and promote innovation, exploration, and entrepreneurship among the nation's younger student population. The Competition platform focuses on developing and advancing the next generation of geothermal energy exploration technology that can potentially unleash an infusion of reliable, cost-effective, and clean geothermal energy into our energy economy.

Background and Objectives: The National Geothermal Student Competition (NGSC) is designed to advance the understanding of geothermal energy as a resource for meeting the nation's energy needs. In support of this goal, the U.S. Department of Energy (DOE) initiated the NGSC to: expand university-level educational offerings in the area of geothermal; foster a cross-disciplinary approach to geothermal energy development; elevate the public profile of geothermal energy; and promote geothermal exploration and development in relatively undeveloped areas of the United States. Oak Ridge Institute for Science and Education managed is implementing this project with funding from the DOE.

Undergraduate and graduate student teams are challenged to conduct a professional-quality assessment of the Snake River Plain using exploration technologies to further geothermal power development of the Snake River Plain in Idaho. Research should be based on the analysis using one or more of the following exploration technologies: (1) geophysics, (2) geochemistry, (3) remote sensing; and (4) geology. Please note: faculty should be providing limited support. This is intended to be a student competition.

The Competition:

The U.S. Department of Energy's Geothermal Energy Student Competition is designed to support and highlight innovative approaches to exploring and harvesting geothermal energy in the United States. Student participants are drawn from colleges and universities across the country with significant research and/or programs dedicated to geothermal exploration. Teams are comprised of up to four students with the faculty mentor serving in the capacity of project advisor and coach. Student teams are provided with guidelines through the Competition website for submitting the applications along with the selection criteria/rubric employed during the review process. The competition will be conducted in two parts:

Phase I Top ten competitive applicants are selected and the winning teams, their mentors, and their schools are notified and advanced into Phase II of the competition. Teams entering Phase II all qualify for the \$10K stipend to defray the cost associated with equipment purchase, travel and other expenses incurred during the research cycle.

Phase II Teams are required to participate in monthly review meetings and submit regular reports documenting their progress. Phase II is completed when the Teams submit the required technical paper and present their findings to the team of expert judges at the Geothermal Council Capstone event. ORISE will manage all aspects of the competition including recruitment, program promotion, conducting an application review and coordinating Capstone judging panels, for the selection and award process.

Phase I:

1. Request for Proposal, Subcontract Award, and Performance

Requests for Proposals were sent to U.S. colleges, universities, and other post-secondary educational institutions expressing interest in taking part in the competition. Best Value Selection was used to select approximately 10 proposals with the intent of negotiating subcontract awards conduct the “National Geothermal Student Competition 2012-2013 Snake River Plain Assessment

2. Review Meetings: The following review meetings will take place during the period of performance:

- Introduction and orientation teleconference: April 09, 2012.
- Monthly conference calls: April 20, April 27, May 18, June 15, and July 13.

3. Project Plan, Due Date (2/10/12): Student teams are required to submit a brief plan that describes their overall approach to the project, including descriptions of proposed or actual collaborations with other departments, universities, or organizations. The plan will also identify which disciplines the Student teams is competing in and which types of geothermal topics they will consider.

4. Snake River Plain Geothermal Development Assessment Report, Due Date (TBD): A detailed, professional-level evaluation and analysis of the Snake River Plain site for development of one or all types of geothermal resources: hydrothermal, enhanced geothermal systems, and/or low-temperature. The report can focus on only one disciplinary aspect of such an assessment, or be a comprehensive evaluation report generally consisting, of the following sections:

- Introduction
- Overview of region
- Technical considerations
- Environmental considerations
- Social and cultural considerations
- Ownership considerations
- Infrastructure

5. Multi-Media Presentation, Due Date (TBD): Student teams Student teams shall make a presentation summarizing their report and their findings at a Final Forum attended by student teams. The presentations shall be made by representatives of Student teams in person in the 36th Annual Geothermal Resources Council Meeting in Reno, Nevada in September 30 – October 3, 2012 Santa Fe, New Mexico and other Student teams members and interested parties may be in attendance in person or by teleconference. Presentations can include but are not limited to Power Point, Video, Interactive Website, etc. Time: 20 minute presentation with an additional 10 minutes for questions

Phase II:

1. Competition, Judging and Awards: Student teams who have successfully completed Phase I, will be automatically entered into Part II of the competition, in which their project deliverables will be judged and scored. Judges will announce the 1st, 2nd, and 3rd place winners.

2. Judging Criteria:

Each deliverable will be evaluated based on the criteria below. The attached “Judging Rubrics” sheet

presents the detailed judging components for each task. Additionally, a small percentage of the overall score will be attributed to *reporting*.

- a) **Project Plan (10%):** Items that will be considered: clarity of project approach and objectives; team structure; practicality of achieving objectives within the project timeframe and with the resources available to the team; potential to contribute to future geothermal curricula and research activities; uniqueness of technical approach; and degree to which the project will contribute to new knowledge in the Snake River Plain site.
- b) **Snake River Plain Geothermal Development Assessment Report (55%):** Teams will be evaluated based on the following factors:
 - Organization, clarity and completeness. The papers should be suitable for publication. Teams are not expected to publish reports as part of this project but are free to do so on their own initiative.
 - Progress in meeting objectives as defined in Project Plan and/or demonstration of what was done to systematically address questions/problems identified.
 - Teams are encouraged to be innovative, while setting realistic goals. Credit is awarded for both the approach and the effort made to find data and answers.
 - Team structure – student driven project.
 - Potential to contribute to future geothermal curricula and research activities.
- c) **Multimedia Presentation (25%):** The intent of the National Geothermal Student Competition is to enrich student's geothermal energy education to support expansion of the geothermal interests, exposure, and opportunities in the geothermal industry. As such, students should be the main presenters during the Final Forum and points will be deducted if professionals or professors present. In addition, attendance in person to the final forum was stated in the RFP and is expected. The main judging criteria evaluate whether the presentation is clear and concise; it is creative and out-of-the box; work is successfully and clearly summarized leaving no questions as to the results, their meaning, and their impact on the geothermal industry; results uncover future areas of geothermal exploration; presenter is professional. Enthusiasm, camaraderie, and professionalism are highly encouraged.
- d) **Reporting (10%):** Teams will be evaluated based on attendance of at least one team representative to the monthly update conference calls, the completion of the one page project summary document (template found on the NGSC website), and the completion of the pre and post student evaluations for each student member (e-mailed to ORISE).

Media Release Form: All team members will need to sign a media release form.

Competition Awards

The top three teams (2 students per team) will receive travel, lodging, meals & incidental expenses, and registration costs paid for to attend the 36th Annual Geothermal Resources Council Meeting in Reno, Nevada in September 30 – October 3, 2012.

Judging Rubrics

Date: _____
 Presenter: _____

EVALUATION CHECKLIST FOR PROJECT

Application No.: _____
 Project Title: _____
 Applicant: _____
 Topic: _____

INSTRUCTIONS

Rate each component of the presentation and provide specific feedback in the comment section below.

Phase I Scoring Rubric

Project Plan		SCORE
		50
10	Clarity of project approach and methodology	
10	Uniqueness and feasibility of technical approach	
10	Marketing potential and other performance metrics	
10	Knowledge of Snake River Plain exploration challenges and identification of potential risk to project success	
10	Potential degree to which the project will contribute to new knowledge of the Snake River Plain area	

Phase II Scoring Rubric

Assessment Report		55.0
Content		
10	Professionalism of report	
10	Degree to which the project expanded knowledge of the Snake River Plain	
10	Degree to which the project contributed to potential new research in the Snake River Plain	
10	Degree to which the project was student driven	
10	Potential to contribute to future geothermal curricula and research activities	
10	Validity of technical approach	
10	Project successfully achieved all the goals set out in the project plan	
Multimedia Presentation		25.0
Presentation		
10	The presenter introduced him/herself	
10	The purpose of the presentation was clearly stated	
10	There was a clear beginning, middle, and end to the presentation	
10	Transitions between the beginning, middle, and end were smooth	
10	Critical points were emphasized throughout the presentation	
10	Creativity of presentation	
10	Successfully summarized the completed work	
10	A summary was provided at the end of the presentation	
10	The instructional media were appropriate to the content	
Style		
10	Questions were answered clearly; the presenter demonstrated an understanding of the question	
10	The presenter demonstrated confidence in him/herself and knowledge of the topic	

10	The presenter spoke loudly and clearly
10	The presenter maintained eye contact with the audience
10	The presenter used appropriate body language and facial expressions
10	The presenter used appropriate language

Reporting – Updates on Project Progress		20.0
10	A team representative was present for all scheduled meetings/conference calls	
10	Utilization of ORISEORISE Web site (post team pictures and names, field trip pictures, etc.)	
10	Team met project deliverables 1 (Project Plan) on time	
10	Team met project deliverables 2 (Report) on time	
10	Team met project deliverables 3 (Media Presentation) on time	
10	Completed Word document, to be used for press releases, which includes names, objective, and findings	
10	Team members completed the pre and post student evaluation/questionnaire	
Total Score		100.0

Comments

Provide constructive criticism for the presenter. Please share some examples of: **Presentation Strengths**

Areas for Improvement: