

## STATEMENT OF CONSIDERATIONS

### ADVANCE CLASS WAIVER OF PATENT RIGHTS FOR TECHNOLOGY DEVELOPED UNDER THE FUNDING OPPORTUNITY ANNOUNCEMENT, "RECOVERY ACT: GEOTHERMAL TECHNOLOGIES PROGRAM." DE-FOA-0000109; W(C)-2009-016

This advance class waiver will expedite implementation of the American Recovery and Reinvestment Act of 2009 ("Recovery Act") and is intended to apply to inventions of all current and future recipients awarded under the first and second topic areas of the Funding Opportunity Announcement (FOA), "*Recovery Act: Geothermal Technologies Program*," regardless of tier, except recipients eligible to obtain title pursuant to P.L. 96-517, as amended, and National Laboratories.

Under this FOA, the U.S. Department of Energy's (DOE) Geothermal Technologies Program (GTP) is continuing its partnership with the geothermal community by providing federal assistance for the research, exploration, demonstration, and development of geothermal energy throughout the United States. This three-topic FOA will focus on areas associated with geothermal energy as outlined in the Energy Independence and Security Act of 2007 (EISA), Sections 613 and 616. This FOA will also address section 931(a)(2)(C) of the Energy Policy Act (EPA) of 2005. The funding is being made available through the Recovery Act.

The intent of the first topic area is to validate innovation exploration technologies to reduce upfront exploration risk in geothermal development. Validation will be done by utilizing innovative methods to identify undiscovered geothermal resources and confirming geothermal resource capacity by drilling and characterizing geothermal exploration wells. Each project under this topic area may consist of up to three phases and must include drilling of at least two wells. The first phase is directed to resource evaluation including utilizing innovative exploration technologies to identify a potential geothermal resource, define a drilling target within the field and optimally site confirmation wells to access that target. The second phase is directed to drilling the wells and conducting appropriate evaluations, sampling, and studies to characterize the geologic environment contacted by the wells. The third phase is directed to well testing and assessment activities including acquisition/rental of appropriate well and surface equipment for an extended flow test, appropriate logging, sampling and monitoring of the testing, interpretation of the test data, integration of the well-test results with the previous geological, geothermal, and hydrological models, validation of innovative exploration technology/method, and final assessment of the site capacity for heat extraction from the geothermal resource. This phase also includes estimating capacity (in MWe) of the wells and overall geothermal reservoir by an independent expert, selected by DOE.

The intent of the second topic area is to technically and economically demonstrate energy production (*i.e.*, electricity generation or direct use) from nonconventional geothermal resources. Specifically, the second topic area is directed to the development and commercial application of energy production from the following subtopic areas: (a)

low-temperature geothermal fluids at temperatures between 150-300° Fahrenheit, (b) geothermal fluids coproduced from productive, unproductive, or marginal oil or gas wells, and (c) geopressured gas resources that show potential for economic recovery of heat, kinetic energy, or gas.

Each of the first two subtopic areas may be composed of three phases. The first phase includes conducting a feasibility study to ensure that energy can be produced economically at the site, designing or engineering the equipment necessary for energy production, and characterizing the target geothermal resource. The first phase activities also includes obtaining the necessary and appropriate site engineering studies, appropriate feasibility studies to determine whether the demonstration can be replicated, and analysis regarding design or adaptation of existing technology for site specific circumstances or conditions. The second phase includes procuring and installing the equipment necessary to harness geothermal energy and for reporting data on capital costs. The third phase includes operating the geothermal energy facility for a minimum of two years and reporting on its economic, performance, and operating characteristics.

The third subtopic area, geopressured gas resources, may be composed of two phases. The objective of the first phase is to complete the detailed engineering, architectural, and technical plans needed to support construction of new designs including any unfinished elements of the preliminary engineering or feasibility study. Regulatory and environmental permitting must also be completed prior to the end of this phase. The second phase includes constructing and operating the geopressured production facilities that show potential for economic recovery of heat, kinetic energy, or gas resources from geopressured resources.

Referring now to the last and third topic area under this FOA, the primary focus of this topic area is the collection of technical geothermal and institutional data in support of the National Geothermal Data System (NGDS). Specifically, the purpose of the third topic area is to develop, collect, and maintain data for the United States (*i.e.*, the 50 states, the District of Columbia, and the territories and commonwealths of the U.S.) for the NGDS in order to make geothermal data available to the public and reduce the risk associated with the initial stages of geothermal project development. This additional funding will accelerate data system development and populate critical geothermal site attribute information such as temperature at depth, seismicity/microseismicity, fracture maps, drilling data, permeability data, well logs, geophysical surveys, etc. The data system will be inclusive of all types of geothermal resources such as hydrothermal, geopressured, Enhanced Geothermal Systems, geothermal fluids coproduced with oil or gas, etc. It will also utilize information from existing USGS geothermal resource assessments and DOE funded R&D projects.

35 awards have been or will be awarded under the first and second topic areas of this FOA. The prime recipients include 14 large businesses, 2 Indian/Native American tribal governments, 7 non-profit organizations (including 6 institutions of higher education), 8 domestic small businesses, 2 foreign small businesses and 2 local or state governments.

In addition to the foregoing prime recipients, each prime recipient may be teamed with one or more subrecipients. It is anticipated that each of the teams will develop an appropriate allocation of patent rights among the recipients to facilitate the commercial development of the respective technical areas forming the subject matter of each award, taking into account the provisions of the Bayh-Dole Act.

Each award of this FOA may be in the form of a grant or a cooperative agreement. The minimum cost share varies by topic area. Specifically, for the first topic area, the minimum cost share is 20% for phase 1 and 50% for phases 2 and 3. However, using the Secretary's statutory authority, under the Recovery Act, to reduce cost share requirements, a recipient may propose cost share as low as 10% for phase 1 and 25% for phases 2 and 3. For the second topic area, the minimum cost share is 50% of the total project cost. However, using the Secretary's statutory authority, under the Recovery Act, to reduce cost share requirements, a recipient may propose cost share as low as 25% for the second topic area. For the third topic area, there are no cost share requirements. For Indian Tribes or Tribal Energy Resource, the cost share may be waived in full for any of topic areas or phases.

It is the purpose of this class waiver to vest title to the parties' inventions under the first and second topic areas with the recipients, regardless of tier, in a fashion enabling them the expediently commercialize the various technologies. Accordingly, DOE will waive the Government's title to subject inventions under the first and second topic areas, other than inventions made by Bayh-Dole recipients pursuant to P.L. 96-517, as amended, or National Laboratories, to the respective recipient or other recipients as may be designated by the parties agreeing to the terms of this waiver.

This class waiver does not apply to inventions under the third topic area. In view of the nature of the work to be performed, the limited number of recipients, and the lack of cost share requirement for the third topic area, a class waiver for inventions under the third topic area is not warranted. However, the exclusion of the third topic area from this class waiver does not preclude a recipient under the third topic area from requesting a waiver of patent rights in its favor as set forth by DOE patent waiver regulations at 10 CFR Part 784.

This advance class waiver of the Government's rights in inventions is subject to the usual Government license, march-in rights, and preference for U.S. industry provisions set out in 35 U.S.C. 202-204. The class waiver also includes the attached U.S. Competitiveness clause, paragraph t, which requires that products embodying any waived invention or produced through the use of any waived invention be manufactured substantially in the United States unless the recipient demonstrates to the satisfaction of DOE Field Patent Counsel, with the concurrence of the cognizant DOE program, that it is

not programmatically or commercially feasible to do so. Field Patent Counsel, for good cause shown in writing, may grant a deviation from this U.S. Competitiveness clause in advance of contracting. The recipient further agrees to make the above condition binding on any entity acquiring rights to any waived invention, including subsequent assignees or licensees. Should the recipient or other such entity receiving rights in any waived invention undergo a change in ownership amounting to a controlling interest, then the waiver, assignment, license, or other transfer of rights in the waived invention is suspended until approved in writing by DOE.

The grant of this class waiver is not expected to have any adverse effects on competition or market concentration. Rather, the waiver should support DOE Strategic Theme 1, Goal 1.1. (Energy Diversity) of increasing national energy options, reducing vulnerability to disruptions, and increasing flexibility of the market to meet U.S. needs. In any event, if a recipient who has obtained title is not making reasonable efforts to utilize a waived invention, DOE can exercise march-in rights.

This advance class waiver shall apply to each of the recipients under the teaming arrangements for the first and second topic areas upon the Contracting Officer's written notice to Field Patent Counsel that the recipient is obligated to provide cost sharing as set forth in the applicable Funding Opportunity Announcement, and shall remain in effect for so long as such cost sharing is maintained over the term of the agreement.

In addition to the above, all recipients under the first and second topic areas of this FOA, other than recipients which are domestic small businesses or non-profit organizations under P.L. 96-517, as amended, or National Laboratories, shall give DOE written notice of their acceptance of the terms and conditions of this class waiver prior to entering into any agreement incorporating the terms of this waiver. Except as otherwise specifically approved by DOE Patent Counsel, a recipient's acceptance of an agreement under this award, at any tier, shall constitute that recipient's notice to DOE of its acceptance of the terms and conditions of this class waiver.

In the event a recipient which is a member of a teaming arrangement does not participate in subsequent phases of its project, the remaining recipients in that recipient's team shall retain, as a minimum, a royalty-free, nonexclusive license throughout the world, with the right to grant sublicenses, in each subject invention held by such recipient pursuant to this class waiver, except as otherwise approved by DOE Field Patent Counsel. However, in no event will recipients eligible to obtain title pursuant to P.L. 96-517, as amended, or National Laboratories be required to license other recipients its subject inventions.

Considering the foregoing, and in view of the statutory objectives to be obtained and the factors to be considered under DOE's statutory waiver policy, all of which have been considered, it has been determined that this class waiver as set forth above will best serve the interest of the United States and the general public. It is recommended that the waiver be granted.

[REDACTED]  
Glen R. Drysdale  
Patent Counsel  
Golden Field Office

Date: 5/14/10

Based upon the foregoing Statement of Considerations, it is determined that the interests of the United States and the general public will best be served by a waiver of the United States and foreign patent rights as set forth herein, and, therefore, the waiver is granted. This waiver shall not affect any waiver previously granted.

CONCURRENCE:

[REDACTED]  
[REDACTED] Wall, Program Manager, *Acting*  
Geothermal Technologies Program

Date:

5/13/2010

APPROVAL:

[REDACTED]  
~~Paul A. Gottlieb~~  
Assistant General Counsel for  
Technology, Transfer, and  
Intellectual Property, GC-62

Date:

5/14/10

(1) U.S. COMPETITIVENESS

The Contractor agrees that any products embodying any waived invention or produced through the use of any waived invention will be manufactured substantially in the United States unless the Contractor can show to the satisfaction of the DOE that it is not commercially feasible to do so. In the event the DOE agrees to foreign manufacture, there will be a requirement that the Government's support of the technology be recognized in some appropriate manner, e.g., recoupment of the Government's investment, etc. The Contractor agrees that it will not license, assign or otherwise transfer any waived invention to any entity unless that entity agrees to these same requirements. Should the Contractor or other such entity receiving rights in the invention undergo a change in ownership amounting to a controlling interest, then the waiver, assignment, license, or other transfer of rights in the waived invention is suspended until approved in writing by the DOE.