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| Selected Project | City | State | Project Description | Proposed DOE Share (up to amount listed) |
| University of Wisconsin-Madison | Madison | WI | University of Wisconsin-Madison will assess a technology for characterizing and monitoring changes in the mechanical properties of rock in an EGS reservoir in three dimensions. The integrated technology will analyze data including seismic waveforms, ground deformation, specialized radar, and comparisons of well pressure, flow, and temperature to characterize the reservoir. | $2,999,578 |
| The Pennsylvania State University | University Park | PA | Pennsylvania State University will explore ways to assess both the characteristics and evolving state of EGS reservoirs prior to stimulation and during production. The project will help scientists analyze the permeability of reservoir fracture networks in order to understand evolving flow structure and to engineer thermal recovery systems. | $179,394 |
| The Pennsylvania State University | University Park | PA | Pennsylvania State University will focus on the processes governing fracture flow and energy production in EGS reservoirs and examine methods to manage and predict changes in permeability over their lifetimes. This will be accomplished by measuring properties of reservoir rocks to study the mechanisms of fluid-induced permeability and to develop acoustic methods to image fracture characteristics. | $745,514 |
| Lawrence Berkeley National Laboratory | Berkeley | CA | Lawrence Berkeley National Laboratory plans to develop a three dimensional fluid transport model using radon in order to better characterize fractures in geothermal reservoirs. LBNL will use the amount of radon in the water to calculate the size of the fracture the water travels through, a critical EGS parameter. | $915,663 |
| California State University Long Beach | Long Beach | CA | California State University Long Beach plans to evaluate hydraulic connectivity among geothermal wells using Periodic Hydraulic Testing (PHT). The principal is to create a pressure signal in one well and observe the responding pressure signals in one or more observation wells to assess the permeability and storage of the fracture network that connects the two wells. | $449,994 |
| Cornell University | Ithaca | NY | Cornell University will develop and test a chemical tracer procedure for modeling reservoir structure and predicting EGS thermal lifetime. If successful, this will provide reservoir operators with the ability to evaluate proposed reservoir management practices and to quantify the probability of successful deployment, including cost. | $475,836 |
| The Board of Regents of the University of Oklahoma | Norman | OK | University of Oklahoma will integrate several techniques for characterizing full-sized EGS reservoirs under realistic stress and temperature conditions, including simultaneous monitoring of acoustic emissions, fluid flow tracers, and changes in reservoir pore pressure and fluid/rock temperature. The proposed work will provide essential data and information to understand induced fractures, and will help improve reservoir performance. | $800,000 |
| Lawrence Berkeley National Laboratory | Berkeley | CA | Lawrence Berkeley National Laboratory plans to model and simulate an integrated technology using geophysical methods in combination with injection of carbon dioxide for purposes of well monitoring. The technology is designed to characterize fractured geothermal systems. | $250,000 |
| Los Alamos National Laboratory | Los Alamos | NM | Los Alamos National Laboratory will develop high-precision characterization techniques to model fluid-flow pathways in EGS reservoirs. This research will provide high-resolution, high-accuracy 3D models, and produce high-resolution images of fracture zones in EGS reservoirs. If successful, this research will provide a new technology for mapping and characterizing fluid-flow pathways in EGS reservoirs. | $1,000,000 |
| Array Information Technology | Greenbelt | MD | Array Information Technology will develop an integrated approach to assess the flow of injected fluid during EGS resource development. Array will monitor the system prior and during EGS injection, evaluate the fracture density and dimensions, and determine the fluid flow velocity in the activated fracture network. | $588,618 |
| Board of Regents, NSHE, obo University of Nevada, Reno | Reno | NV | University of Nevada, Reno will use a technique to detect interference between pairs of seismic signals in order to gain useful information about the subsurface. Existing and newly acquired seismic survey data will be used to compare data from this cost-effective, non-invasive, seismic exploration method with data from a comprehensive geoscience study of the geothermal system in Dixie Valley, Nevada. This proposed technology has the potential to enhance the ability to characterize subsurface fracture, stress and other physical reservoir properties at a variety of geothermal fields. | $464,077 |
| Sandia National Laboratories | Albuquerque | NM | Sandia National Laboratories will develop a system of nanoparticle-based chemical tags for EGS reservoirs. The gradual release of the unique tags will mark both the location of the reservoir and flow rates for above-ground assessment. This previously-unavailable information will provide engineers the ability to closely monitor many subsurface flows simultaneously, leading to production efficiencies, and will provide for longer term monitoring without interfering with active wells. | $800,000 |