Testimony

Walter S. Snyder

on

H.R. 3709
‘‘Geothermal Production Expansion Act’’

Mr. Chairman and members of the Subcommittee, I am Walter S. Snyder, Director of the Intermountain West Geothermal Consortium (IWGC), Director of the National Geothermal Data System (NGDS), and Professor of Geology at Boise State University. I appreciate the opportunity to provide comments on H.R. 3709, the "Geothermal Production Expansion Act" from the perspective of a geoscientist.

The summary statement is that H.R. 3709 is a reasonable and necessary modification of Geothermal Steam Act of 1970, capturing the intent of the Energy Policy Act of 2005, the geoscientific and engineering realities of geothermal resources, and that helps to reduce the financial risks and therefore increase the development of the much needed geothermal resources.

Geothermal resources are first and foremost complex geologic entities. At the level of individual resources, which is the target of H.R. 3709, this geoscience and engineering complexity dictates that our predictive capability of the aerial extent of these resources is necessarily difficult. However, as our geoscientific and engineering knowledge grows about the unique configuration of each geothermal resource being studied, we may discover the need to follow that resource into adjacent lands. H.R. 3709 facilitates this expansion and acknowledges the need to do so without undo risk to investments that have been expended on the initial leases.

Geothermal and petroleum resources are quite different. Oil and gas systems are the result of very large scale processes that create regional scale folding and faulting of the earth's crust. These folds and faults are necessary to produce oil and gas fields. Whereas the details of each oil and gas field are critical to their production, overall the fields tend to be tens to hundreds of square miles in size. This is in contrast to geothermal resources. Geothermal systems are much more related to, indeed are the high-level modern counterparts for the hydrothermal systems that have produced our nation's mineral deposits. Whereas regional scale processes are necessary to provide the framework for the development of geothermal resources, the resources themselves are necessarily smaller-scale, localized features, typically covering only a few to perhaps 10 square miles. Therefore, geothermal systems are significantly different from oil and gas systems and consequently the lease process should similarly be different.

Also, the surface manifestation of a geothermal resource, for example the existence of a hot spring and the associated alteration of surrounding rock, does not necessarily reflect the position and geometry of the subsurface geothermal plumbing system. This plumbing system may extend laterally away from the obvious surface expression for several miles. H.R. 3709 allows developers with a 'valid discovery' to step out from the initial leases to capture the natural extension of the original system.

To be able to fully and economically utilize geothermal resources, we must better understand the geological, geophysical, geochemical, and hydrologic nature of these complex systems and the consequent complex engineering challenges. The H.R. 3709 explicitly recognizes these challenges and the investments that must be made to overcome them at each geothermal site. At the national and regional scales, our existing geologic knowledge is insufficient for an accurate assessment of the nation's overall geothermal resource potential, but this knowledge is growing. To find new resources, and importantly, to increase the productivity of known resources, and bring these resources online and sustain them, we must progressively improve our ability to fully delineate and characterize natural and engineered geothermal resources through improved scientific and engineering methodology and understanding. That is, we must continue to conduct the basic research that is required to develop this crucial natural and renewable resource, which is the goal of the IWGC. In addition, we must make sure that the plethora of data pertinent to finding, developing and bringing geothermal resources online are readily available for explorationists, developers, investors and managers of our lands and natural resources. This latter issue is the goal of the DOE-funded National Geothermal Data System (NGDS).

In summary, there is broad consensus that we need to increase the contribution of renewable energy resources to our nation's energy portfolio. It is the scientific and engineering aspects of these natural resources, overprinted by financial issues that determine the viability of any given resource. It follows therefore, and as the bill notes, that it is important to allow those who have invested substantial capital and made high risk investments be able to secure a discovery of geothermal energy resources by being able to acquire noncompetitive leases in adjacent areas. Although my expertise lies with the science, it is clear to me that this is the correct vision since it is private industry that will bring our nation's geothermal resource online. It is my belief that H.R. 3709 is an important step for geothermal energy to more rapidly expand its role in our nation's energy portfolio.

Thank you

Walter S. Snyder
Director National Geothermal Data System,
Director Intermountain West Geothermal Consortium,
&
Professor
Department of Geosciences

Boise State University
Boise, Idaho 83725