Geothermal Energy Association Issue Brief: Geothermal Provisions of S. 2012 as Passed by the Senate

Geothermal Provisions of S. 2012 as Passed by the Senate in April 2016

S.2012 includes a series of provisions that would help expand geothermal energy in the US. The potential for geothermal energy production in the U.S. is significant, but still largely untapped. According to the US Geologic Survey, there are 3,675 MW to 16,457 MW in identified geothermal systems; 7,917 MW to 73,286 MW in undiscovered systems; and well over 100,000 MW in Enhanced Geothermal Systems (EGS).[i]

Geothermal energy – the heat of the earth -- represents an enormous energy resource and the technology needed to exploit its benefits is still developing. Where geothermal resources are utilized they provide reliable power, creating jobs and economic growth with minimal environmental impacts and negligible emissions. US companies are the respected world leaders of this growing energy technology and the International Renewable Energy Agency has pledged to grow the global sector fivefold by 2030.[ii]

There are many good reasons to support expanding geothermal power production[iii] but, a primary obstacle to its growth is risk. Geothermal projects require expensive high risk exploration. As noted in the USGS estimate cited earlier, most of the geothermal resources in the US are either "undiscovered" or require advanced technology to develop like EGS. The high initial risk is compounded by the long-lead times required for project development, much of which is driven by governmental regulations.[iv]

In addition to the upfront risk, geothermal projects in the U.S. face lead times that can be as long as ten years! Recent analysis by NREL indicates that "with no permit issues, a project could be developed (from start of exploration to power online) in 3 to 3.5 years."[v] However, geothermal projects are subject to repetitive, and duplicate, NEPA permitting requirements. For example, a geothermal energy facility on federal lands is typically subject to NEPA processes when the land is leased, again when exploratory wells are drilled to assess the geothermal resource, and still again when the geothermal facility is constructed. "Geothermal development project can go through as many as six NEPA analyses," the NREL analysts have concluded.[vi]

S.2012, as passed by the Senate, includes several geothermal energy provisions that would help address the risk and reduce the delays that impede expanded use of this renewable resource. The Murkowski-Cantwell legislation builds upon legislative proposals introduced previously by Senators Crapo, R-ID, Daines, R-MT, Heinrich, D-NM, Heller, R-NV, Merkley, D-OR, Risch, R-ID, Tester, D-MT, Udall, D-NM and Wyden, D-OR and Representatives Simpson (R-ID), DeFazio (D-OR), and Gosar (R-AZ).

Measures which S.2012 builds upon include:

- Senate: S. 822, The Geothermal Production Expansion Act, (Senators Wyden, Crapo, Merkley, Murkowski, Risch) and
- House: H.R.1719, Geothermal Production Expansion Act, (Rep. Simpson, DeFazio)
- Senate: S. 1407, the Public Land Renewable Energy Development Act, (Senators Heller, Gardner, Daines, Heinrich, Risch, Tester, Wyden, Udall) and
- House: H.R. 2663, the Public Land Renewable Energy Development Act, (Rep. Gosar, 63 co-sponsors)
- Senate: S. 562, the Geothermal Exploration Opportunities Act, (Senators Heller, Risch)
- Senate: S. 1057, the Geothermal Energy Opportunities Act, (Senators Wyden, Tester)
- Senate: S. 1155, The Geothermal Exploration and Technology Act, (Senator Tester)

This paper briefly describes the geothermal sections of S.2012 as passed by the Senate on April 20, 2016.

SUBPART A – Geothermal Energy

Sec. 3005. National goals for production and site identification.

This section establishes national geothermal goals and consistent with the recommendation of leading industry, government, and scientific exploration experts made as a result of a workshop convened by the Great Basin Center for Geothermal Energy (GBCGE), in collaboration with the Department Of Energy Geothermal Technology Office (DOE-GTO) and the Geothermal Energy Association. The first overall recommendation of the experts convened was: "The Department of Energy (DOE) should set a goal of identifying within the next ten years sites capable of producing 50,000 - 100,000MW of geothermal power (5-10% of total US power generation), utilizing the full range of technologies, through a sustained national exploration effort, significantly supported by long-term federally funded programs."[vii]

Because this text specifically applies to "the full range of available technologies," this site identification would apply across the country. It would also require that it be conducted "through a program conducted in collaboration with industry, including cost-shared exploration drilling." Cost-shared drilling ensure that the program translates into development of new geothermal power plants across the US.

Sec. 3006. Priority areas for development on Federal land.

This section directs the Bureau of Land Management, along with other federal agencies, to identify 'Priority Areas for Geothermal Development.' The Secretary of Interior signed a Record of Decision in October 2012 to create and promote priority areas for solar energy development on public lands.[viii] Given the importance of geothermal power for western energy development, and the greater financial return from geothermal development, the geothermal industry believes recognition of geothermal power's value is warranted and important.

Sec. 3007. Facilitation of coproduction of geothermal energy on oil and gas leases.

This section of the bill allows federal oil and gas lease holders to obtain a non-competitive geothermal lease to facilitate coproduction of geothermal from their wells when practical. The Department of Energy estimates that "25 billion barrels of hot water is produced annually from oil and gas wells within the United States."[ix] Unfortunately, when the geothermal leasing laws for federal lands were revised in 2005, the authors did not anticipate co-production. Today there are permitting obstacles that prevent oil and gas facilities from using these resources to produce electricity. S.2012 corrects the problem and could facilitate new geothermal electricity generation and achieve greater productivity from existing development sites on federal lands.[x]

Sec. 3008. Noncompetitive leasing of adjoining areas for development of geothermal resources.

Section 3008 amends section 4(b) of the Geothermal Steam Act 1970 to set up a limited noncompetitive leasing process where existing geothermal leaseholders on federal lands making a new discovery can move to lease adjoining lands administratively without rebidding. Today, if a geothermal leaseholder discovers through exploration activities new geothermal resources immediately adjacent to their lease, they must go through the regular competitive process with other potential lessees for the right to develop that resource. Section 3008 will encourage geothermal production by avoiding delays associated with the competitive leasing process and ensure that opportunistic agents cannot capitalize unfairly on another company's discovery. Section 3008 ensures that developers exercising a noncompetitive lease must pay BLM for the fair market value of the land leased, and limits the amount of land that can be acquired without competitive bids. Reps. Simpson and DeFazio have introduced identical legislation in the House, H.R. 1719, the *Geothermal Production Expansion Act of 2015.*

Sec. 3009. Report to Congress.

Section 3009 requires DOI and DOE to prepare a report to Congress on progress made toward the 50,000 MW goal established in Section 2005.

Sec. 3010. Authorization of appropriations.

SUBPART B—Development of geothermal, solar, and wind energy on public land

Sec. 3011. Definitions.

Sec. 3011A. Land use planning; supplements to programmatic environmental impact statements.

Sec. 3011B. Environmental review on covered land.

Sec. 3011C. Program to improve renewable energy project permit coordination.

Sec. 3011D. Savings clause.

Subpart B was included as Amendment 3286, offered by a bipartisan coalition of 9 Senators. It was accepted April 19 by voice vote. This amendment enrolls portions of S. 1407, the Public Lands Renewable Energy Development Act (PLREDA). Rep. Gosar (R-AZ) has introduced companion legislation to PLREDA in the House, H.R. 2663.

Subpart B, Section 3011, would have a significant impact on reducing lead times and costs to industry for new projects while benefitting federal and state governments, at very little cost. This section improves permitting for utility-scale geothermal, wind and solar energy development on public lands. This section is particularly important for geothermal power because of the vast majority of geothermal resources that could be developed into commercial projects are located on federally-owned properties in the Western states.

This subpart recognizes the unique characteristics of geothermal, wind and solar projects by establishing renewable energy coordinating offices and streamlining project permitting on public lands without undermining environmental stewardship. We believe that this will help unlock new projects to create high-paying, long term jobs and baseload, emission-free power. In addition, these new projects also will pay leases and royalties back to the Bureau of Land Management, which provide additional, much needed resources.

This subpart also directs the Interior Secretary discretion to regularly update Programmatic EIS's (PEIS) in order to avoid duplicative additional EIS reviews and save taxpayer dollars. History has demonstrated that a geothermal PEIS will help expedite geothermal timelines significantly. In October 2008, the DOI issued its PEIS for Geothermal Leasing in the Western United States in order to reduce the backlog of geothermal lease applications in the pipeline and to facilitate more efficient processing of lease applications by federal agencies. Prior to the implementation of the PEIS, it is reported that lease processing took 2 – 3 years. However, in the period between October 2008 and fall 2010, approximately 230 of the 271 lease parcels offered for sale – 84% -- were processed using a Determination of NEPA Adequacy (DNA). A DNA can be executed in just 3-4 months on average.

SUBPART C—Geothermal exploration

Sec. 3012. Geothermal exploration test projects.

Section 3012 provides to geothermal a targeted categorical exclusion (CX) for some types of exploration and limited types of test well drilling. Because the vast majority of known geothermal resource in the United States are located on federal lands, federal environmental compliance is a major factor in the pace of development and economic viability of geothermal energy. Unfortunately, routine NEPA compliance has proven to be one of the greatest obstacles for new projects and the expansion of existing ones. A National Renewable Energy Laboratory[xi] released in 2013 found that geothermal projects on federal land can have a 7-10 year development timeframe, nearly half of which is due to meeting NEPA and permitting obligations.

For test wells on existing, previously-permitted development sites, there is already a CX provided to the oil and gas industry under Section 390 of EPAct 2005. Section 390 provides a CX from NEPA for limited surface disturbances and new drilling on lands that have already been permitted for drilling activities within the previous 5 years. This has allowed oil and gas developers to save time and money and incentivizes them to extract the maximum energy value from existing development sites. BLM staff has also been able to save time and resources reviewing duplicative NEPA paperwork. The Section 390 program has made clear that certain types of activities to expand existing energy projects can be done responsibly without requiring an EA or full EIS.

Section 3012 would simply provide parity for geothermal with oil and gas to reduce a sizable permitting burden on benign exploration activities, subject to extraordinary circumstances. If a viable resource is located as a result of exploration conducted using this CX, the developer would then have to go through with the usual NEPA requirements in order to develop the site.

References

[i] USGS, *Assessment of Moderate- and High-Temperature Geothermal Resources of the United States*, 2008, available at: http://pubs.usgs.gov/fs/2008/3082/

[ii] United Nations Framework Convention on Climate Change. 2016. "The Global Geothermal Alliance Harnessing the Power of Geothermal Energy." UNFCCC. Accessed May 3. http://newsroom.unfccc.int/lpaa/renewable-energy/the-global-geothermal-alliance-harnessing-the-power-of-geothermal-energy/.

[iii] Geothermal Energy Association Issue Brief*: Additional Economic Values of Geothermal Power,* February 2015, available at: http://geo-energy.org/events/Geothermal%20Energy%20Association%20Issue%20Brief_Economic%20Values%202015_Final.pdf

[iv] For more discussion of geothermal risks and efforts to address them, see:
Best Practices for Geothermal Power Risk Reduction Workshop Follow-Up Manual, 2014, available at: http://geo-energy.org/reports/Geothermal%20Best%20Practices%20Publication%20Final%20CL188154847.pdf

[v] Katharine R. Young, National Renewable Energy Laboratory, *Policy and Regulatory Concerns Impacting the Geothermal Industry*, State of the Geothermal Industry Briefing, February 24, 2015.

[vi] *Ibid*.

[vii] Great Basin Center for Geothermal Energy, *Report on Workshop on Exploration and Assessment of Geothermal Resources*, September 21-22, 2010, Reno, NV, available at: http://geo-energy.org/pdf/Wkshop_Report_Final.pdf

[viii] Blake Androff, and David Quick. 2012. "Obama Administration Approves Roadmap for Utility-Scale Solar Energy Development on Public Lands." October 12. http://www.blm.gov/wo/st/en/info/newsroom/2012/october/NR_10_12_2012.html.

[ix] National Renewable Energy Laboratory. 2010. "Geothermal Energy Production with Co-Produced and Geopressured Resources (Fact Sheet), Geothermal Technologies Program (GTP)." DOE/GO-102010-3004. National Renewable Energy Laboratory. http://www.nrel.gov/docs/fy10osti/47523.pdf.

[x] If NREL's estimated potential for co-production is even partially achieved, this provision could generate significant new royalty revenues.

[xi] Young, Katherine R., Kermit Witherbee, Aaron Levine, Adam Keller, Jeremy Balu, and Mitchell Bennett. 2014. "Geothermal Permitting and NEPA TImelines." *Geothermal Resources Council Transactions* 38 (October). http://www.osti.gov/geothermal/biblio/1214997.