

# **Hydraulic Fracturing and Earthquakes: Ethically, How Do We Move Forward, and Do the Right Thing?**

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## **ABSTRACT**

In 2010, Senator Bingaman of New Mexico requested that U.S. Department of Energy Secretary Steven Chu engage the National Research Council (NRC), the operating arm of the National Academy of Sciences and National Academy of Engineering, to form an ad hoc committee to examine the topic of “Induced Seismicity Potential in Energy Technologies.” The committee of eleven members was formed from a large set of nominees sent to the NRC staff from a spectrum of professionals in academia, government, and industry, and was approved by the chair of the NRC. The committee members, each of whom served pro bono for the duration of the project, brought a wide range of expertise to the study, including oil and gas exploration and production, geothermal energy, drilling engineering, fluid injection, seismic monitoring and modeling, seismic hazard assessment, geomechanics, mining engineering, fluid-rock interaction, and regulatory oversight, with professional experience derived from academic research, private industry, and government service. During the course of a year, the committee convened five public information-gathering meetings and produced a consensus report that assessed the current situation related to induced seismicity in the U.S. for various energy technologies, including hazards, risks, government roles and responsibilities, proposed research needs, and suggestions on how to move forward. The report stands as an example of how a group of objective professionals with varying viewpoints can come to a consensus and produce a useful, scientifically-grounded document to help guide developments with emerging energy technologies.