Hydraulic Fracturing In California: A Landmark New Law with Unresolved Questions

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Issue
One of the most controversial areas of current environmental policy is the national debate over hydraulic fracturing. Hydraulic fracturing, the injection of pressurized fluid deep underground to enhance oil and gas recovery by breaking apart subsurface layers or rock, has occurred in California and nationwide for decades. However, recent advancements in horizontal drilling technologies and “well stimulation” techniques, such as injecting chemicals underground to dissolve shale formations (“acidization”) have been instrumental in triggering an American oil and gas boom, making the U.S. the world’s largest producer of oil and gas reserves.

In 2011, the U.S. Energy Information Administration (EIA) estimated that California has about 15.4 billion barrels of recoverable oil in the Monterey Formation which underlies much of the central and southern portions of the state, but the EIA revised this estimate in 2014 to a value of 0.6 billion barrels. Both numbers are highly uncertain. The most likely scenario for future oil recovery using hydraulic fracturing is in and near existing oil fields in the San Joaquin Basin. Production in the Los Angeles Basin does not depend heavily on hydraulic fracturing [1].

Environmentalists and other members of the public are concerned that the hydraulic fracturing process may contaminate groundwater aquifers, strain already-stressed water supplies in the arid American West, trigger earthquakes, release methane emissions, and divert California and the U.S. from the task of weaning themselves from their longstanding dependence on fossil fuels and thereby reducing greenhouse gas emissions to address overarching climate change concerns.

California political leaders responded to this debate in late 2013 by enacting SB 4 (Pavley), legislation designed to create a comprehensive system of state regulation of hydraulic fracturing and calls for a study to evaluate the risks associated with hydraulic fracturing in California.

SB 4 is an important first step in California energy and environmental policy related to hydraulic fracturing. Equally important, however, is the manner in which state regulators will choose to implement that legislation. Adding to the challenge is the fact that SB 4 contains several key ambiguities and unanswered questions that must be resolved in the coming months and years.

Policy Implications
Some states and nations have adopted divergent responses to the engineering and environmental challenges and risks associated with hydraulic fracturing and acidizing, ranging from moratoriums or outright bans on the practices to essentially leaving them unregulated. California, by contrast, has adopted a middle course: allowing oil and gas well stimulation techniques to continue, but making them subject to one of the most robust and detailed permitting systems to be found anywhere.

In 2013, the California Legislature enacted and Governor Jerry Brown signed into law SB 4, a statewide system of regulating and permitting well stimulation activities in California. Broadly, SB 4 requires:

- California’s Division of Oil, Gas and Geothermal Resources (DOGGR) to consult with numerous other state and local agencies to develop a comprehensive set of regulations regarding hydraulic fracturing and acidizing activity in California;
- California’s Secretary of Natural Resources to complete an independent, science-based study evaluating the hazards and risks associated with these oil and gas well stimulation treatments;
- DOGGR to implement a new, statewide permitting system for well stimulation undertaken by California oil and natural gas well operators; and

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Oil and gas well operators to disclose—both to state regulators and the public—the identity and quantity of each chemical used in their well stimulation activities.

DOGGR issued *interim* regulations implementing SB 4 that took effect on January 1, 2014 and has announced plans to prepare an environmental impact report (EIR) under the California Environmental Quality Act to be completed by July 1, 2015.

**Open Issues**

1. **The Secretary of Natural Resources’ Independent Scientific Study of Hydraulic Fracturing**
   The requirements of the mandated “independent scientific study” are very broad. The scope of what can be addressed in the given timeframe can be found [here](http://ccst.us/projects/2014-advanced-well-stimulation-technologies-in-california/index.php) [2]. The first volume of the study is due January 1, 2015.

2. **Jurisdictional Issues: Statutory and Regulatory Authority**
   There is currently a great deal of confusion over which agencies and local governments have regulatory authority and responsibility over specific practices of the oil and gas industry. Therefore, the Public Resources Code (PRC) which directs DOGGR to work with other state agencies to delineate respective authority regarding hydraulic fracturing, is important.

3. **Disclosure**
   The PRC requires well operators to publicly post online the composition of their Well Stimulation Treatment (WST) fluids “following cessation of [WST] on a well”. “Cessation” does not currently have a clear legal definition.

4. **Implications for Local Government Efforts to Regulate or Ban Hydraulic Fracturing**
   SB 4 is not intended to be a final statement on hydraulic fracturing in California. The legislation permits a continuing role for local governments that wish to enact more stringent regulations or bans than the statewide provisions mandated by SB 4. (Some counties, including Mendocino and San Benito, have done so.) It remains to be seen the extent to which other local communities in California will impose additional regulations on oil and gas extraction throughout the state.

5. **The California Environmental Quality Act (CEQA)**
   The environmental community has expressed concern that the provisions of SB 4 may allow DOGGR and well operators to circumvent CEQA requirements during the interim period. This should be clarified.

6. **NGO Lawsuits**
   NGO’s, including the Center for Biological Diversity (CBD), have been particularly active in suing state and federal officials for what the groups believe is the approval of incremental hydraulic fracturing-permits without comprehensive, prior environmental review. The resolution of this litigation could have a bearing on the final rules issued by DOGGR.

7. **The State Water Resources Control Board (SWRCB)’s Groundwater Monitoring Plan**
   The legislation directs SWRCB to focus particularly on drinking water quality in its mandated groundwater monitoring plan. However, the SWRCB has indicated that it is often difficult to accurately detect small amounts of chemicals in water based on available scientific methods. Therefore, there may be current scientific limits on the extent of groundwater quality testing that SWRCB is actively working to advance.

8. **Water Recycling**
   In SB 4’s legislative findings, the Legislature encourages recycling of water used in WSTs. However, the legislation’s substantive provisions barely address the reuse or recycling of such water. DOGGR’s proposed permanent regulations require the permit applicant to include “an estimate of water to be recycled following well stimulation treatment.”

**Further Reading**

This policy brief is drawn from the full CELPC report, “Senate Bill 4: A Past and Future Look at Regulating Hydraulic Fracturing in California,” located at: [https://law.ucdavis.edu/centers/environmental/files/CENPC-SB4-report.pdf](https://law.ucdavis.edu/centers/environmental/files/CENPC-SB4-report.pdf)

**CA Council for Science and Technology (CCST) resources:**


[1] **Advanced Well Stimulation Technologies in California**
   (commissioned by Bureau of Land Management)

[2] **CCST Assessment of Well Stimulation Treatments**
   (commissioned by CA Natural Resources Agency)