Shale Development:  
A Comparison of How States Are Regulating Hydraulic Fracturing

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Outline

• Overview of States’ Regulation of Hydraulic Fracturing
  1. New York (Marcellus, Utica)
  2. Pennsylvania (Marcellus, Utica)
  3. Ohio (Marcellus, Utica)
  4. New Jersey (none)
  5. Massachusetts (Hartford)
  6. Vermont (???)
  7. Illinois (New Albany)
  8. California (Monterey)

• Compare/Contrast Key Requirements
Shale Plays Across the Country
How Are States Regulating Hydraulic Fracturing
New York
Marcellus Shale Formation

Legend:
- Active Marcellus Wells (2009 production)
- Marcellus extent
- NYC Watershed Boundary West
- Catskill Park Blue Line

Source: NYSDEC (http://www.dec.ny.gov/energy/46381.html)
New York

- The Marcellus Shale underlies approximately 18,700 square miles in New York and varies from 1,000 to 7,000 feet in depth.
- The Utica Shale underlies approximately 28,500 square miles in New York and varies in depth in from 2,000 to 12,000 feet.
- The Marcellus and Utica Shale in New York are primarily “dry gas” formations.
- If drilling goes forward in NY, the early drilling “hot spots” will likely be in the southern tier, centered around Broome County near the PA border.
### New York

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>July 23, 2008</td>
<td>Governor Paterson’s directive to the NYSDEC to supplement the 1992 GEIS to address HVHF; Initial target for completion in early 2010.</td>
</tr>
<tr>
<td>September 30, 2009</td>
<td>First draft SGEIS issued.</td>
</tr>
<tr>
<td>September 7, 2011</td>
<td>Revised draft SGEIS issued; Proposed regulations noticed.</td>
</tr>
<tr>
<td>September 2012</td>
<td>NYSDEC announced that the NYSDOH will review NYSDEC’s analysis of the potential health impacts of HVHF.</td>
</tr>
<tr>
<td>November 2012</td>
<td>NYSDEC announced that it will not meet the November 29, 2012 deadline to finalize proposed regulations; Revised regulations issued and written public comments taken until January 11, 2013.</td>
</tr>
<tr>
<td>February 2013</td>
<td>Regulations withdrawn; NYSDOH health review continues: to be completed in “a few weeks.”</td>
</tr>
<tr>
<td>September 2013</td>
<td>NYSDEC: “no timeline.”</td>
</tr>
<tr>
<td>June 2014</td>
<td>Still waiting…</td>
</tr>
</tbody>
</table>
Proposed Requirements:

- Prior to site disturbance for a new pad or new spud for existing pad, water well testing is required for source within 1,000 feet of the well pad. If no such wells exist or access is denied, must look to sources within 2,000 feet of well pad.
- Permits required for water withdrawals greater than 100,000 gpd (unless SRBC and DRBC).
- Setbacks:
  - 100 feet from buildings
  - 500 feet from residential water wells, springs, and aquifers
  - 2,000 feet from public water supplies
- Mandatory disclosure of hydraulic fracturing additives to FracFocus.org and evaluation of “eco-friendly” alternatives.
- Requires completion of a “Pre-Fracking Checklist.”
Recent Developments:

- January 2014 – Multiple pieces of legislation reintroduced to place a moratorium on high volume hydraulic fracturing / natural gas drilling.

- March 2014 – Legislation introduced to prohibit the use of hydraulic fracturing wastewater for road or land-spaying including de-icing or dust control.

- May 2014 – Bill introduced to require screening of drilling waste for radioactivity and set criteria and standards for acceptance of waste at solid waste management facilities.
Department of Environmental Protection
Office of Oil and Gas Management
Unconventional Well Permits Issued and Wells Drilled Locations
January-April 2014
Updated 5/6/2014

Unconventional Permits Issued - 1138  Unconventional Wells Drilled - 412
Pennsylvania

- The Marcellus Shale is prevalent throughout most of Pennsylvania, although its depth and thickness are variable.

- Utica Shale found 2,000 to 7,000 feet beneath the Marcellus formation.
  - The epicenter of initial drilling and development activity to test the potential of the Utica is in western Pennsylvania (and eastern Ohio).

- First Marcellus well – Range Resources Renz well in Washington County, Pennsylvania (vertical well with high-volume hydraulic fracturing). In 2007, Range Resources began to experiment with the stimulation of horizontal wells.

Shale development took off in Pennsylvania in 2008 when 195 wells were drilled.

Permitting never stopped, with activity continually growing in PA.

Over 16,500 permits issued since January 2008 for unconventional wells.

Over the past five years, at least 6.6 trillion cubic feet of gas has come out of the Marcellus Shale in Pennsylvania.

Source: PADEP 2013 Oil and Gas Annual Report (May 2014)
Pennsylvania

Of the top producing Pennsylvania wells, four in Susquehanna County are producing more than 20 million cubic feet of gas a day.

Gas Produced in Pennsylvania from July ’09 - June ‘12
Pennsylvania

ACT 13

• February 14, 2012 – Governor Corbett signed into law.
• The latest in a series of reforms to Pennsylvania’s oil and gas laws designed to reduce the footprint of oil and natural gas operations. In essence, Act 13 revamped the entire law to address some of the concerns that arose from Marcellus Shale development.

Key Provisions:
• In addition to reporting requirements for PADEP, requires Chemical Disclosure Registry Form to be published on FracFocus.org.
• New setbacks (e.g., extends the setback distance for unconventional wells from 200 feet to 500 feet from existing buildings or water wells, unless consented to by the owner).
Pennsylvania

Key provisions of Act 13 (Continued):

• Pre-drill baseline water testing optional, but required participation for operators to maintain legal status.
  – Increases the presumption of liability for water supply contamination for unconventional wells. Rebuttable presumption that an operator is responsible for pollution if the affected water supply is 2,500 feet from an unconventional well, and that pollution occurred within 12 months of the completion, drilling, stimulation or alteration of the well, whichever is later.

• Record keeping requirements for waste transportation.

• New containment requirements regarding well pad design and construction to prevent spills to the ground surface or off the well site.
Pennsylvania

Act 13 Developments:

• September 2013: Independent peer review of regulatory program by a non-profit, multi-stakeholder organization called State Review of Oil and Natural Gas Environmental Regulations, Inc.:
  – found program to be proficient and ready to address the increase in oil and gas operations in Pennsylvania.

• December 2013: PA Supreme Court struck down two portions of the rule:
  – would have established statewide zoning rules for drillers, and
  – barred municipalities from enacting regulations to ban fracking.

• May 2014: PA Commonwealth Court heard arguments on whether the PA Public Utilities Commission (“PUC”) has authority to review local drilling ordinances for compliance with other state statutes.
Pennsylvania

Recent Developments:

• May 2, 2014 – PA Environmental Quality Board signed off on a plan to replace the current permit fee plan from a sliding scale to flat fees.

• May 22, 2014 – Legislation introduced in PA State Senate (S-1378) to set separate standards for conventional and unconventional drilling to protect small-scale drillers.
Pennsylvania

Expected in 2014:

• Comprehensive study on Technologically Enhanced Naturally Occurring Radioactive Material (TENORM) expected to be completed and published.

• Office of Oil and Gas Management intends to “clearly define ‘defective cement’ and finalize the process for efficiently mitigating its occurrence.”

• Oil and Gas Division of Well Plugging and Subsurface Activities to issue proposed rulemaking to revise regulations for drilling, casing, completion, operation, production, and plugging of wells.

• Final report on long-term monitoring of air quality near gas compressors and processing stations to be issued.
Ohio
Source: http://epa.ohio.gov/MarcellusandUticaShale.aspx
Ohio

Ohio is home to portions of the Marcellus and Utica Shale formations.

The Utica Shale formation appears to hold significant amounts of ‘wet’ gas and oil.

To date, over 800 wells have been drilled in the Utica and Marcellus Shale plays.

- As many as 16,000 hydraulic fracturing stages from those wells.

In June 2012, Governor Kasich signed into law an energy bill (SB 315) focusing primarily on regulatory issues relating to the shale boom in eastern Ohio. This law became effective September 2012.

- The bill was introduced at Governor Kasich’s request in March 2012.

SB 315 ushered in broad new requirements governing hydraulic fracturing and unconventional drilling operations in Ohio and revised existing law (Ohio Revised Code Chapter 1509) to account for horizontal drilling and hydraulic fracturing.
Ohio

Key provisions of SB 315:
• Well owners must disclose, either in their well completion report or through www.fracfocus.org, trade names, volumes, and concentration of chemicals used to stimulate the well.
  – Disclosures are subject to a fairly broad trade secret exemption that permits the protection of components’ identity, amount, concentration, and purpose.
  – Requires the sharing of all chemical information with doctors who may share proprietary chemical information with the patient and other medical professionals directly involved in treating a patient.

Figure 5.6 - Example Fracturing Fluid Composition Including Recycled Flowback Water (New July 2011)
Ohio

Key provisions of SB 315:

• Pre-drilling water samples required within 1,500 feet of a proposed horizontal well. Distance can be revised if “necessary to protect a water supply” or “conditions at the proposed well site warrant such a revision.”

• Requires disclosure of the proposed source of water used in the well drilling and hydraulic fracturing process. Operators also required to include the rate, volume and source of water that will be used for production operations.

• Special rules for urban wells.

• Requires injection well owners to electronically report each shipment of brine or other waste received for injection. Also requires promulgation of rules establishing the depth of injection wells as well as any other procedures and requirements necessary to protect public health and safety.

• Encourages well operators to enter into a Road Use Maintenance Agreement (RUMA) with local government.

• $5,000 bond per well or $15,000 blanket bond.
Ohio

Recent Developments:

• March 2014 Seismic Events
  – Poland Township – Experienced four earthquakes ranging from 2.0 to 3.0 magnitude.
  – ODNR geologists think the hydraulic fracturing process may have increased pressure on an unknown microfault.
  – Hydraulic fracturing was suspended, but the company was permitted to continue to recover resources from their 5 previously drilled wells.
Recent Developments:

- May 11, 2014: New policies announced by the ODNR Division of Oil and Gas Resources
  - New permits for horizontal drilling within 3 miles of a known fault or area of seismic activity greater than 2.0 magnitude would require companies to install seismic monitors.
  - If seismic event detected at greater than 1.0 magnitude, activities cease until cause is investigated.
  - If investigation shows a probable connection to hydraulic fracturing, all well completion operations will be suspended.
New Jersey
New Jersey

• To date, no known natural gas deposits necessitating the use of hydraulic fracturing have been proposed for development in New Jersey.

• According to the New Jersey Petroleum Council:
  – "The state geologist in New Jersey has said there’s maybe some potential, decades down the line, but right now, it’s not economically viable, as far as our companies are concerned."

• In 2011, the New Jersey legislature passed a bill (S-2576) which would have permanently banned hydraulic fracturing in the State.
New Jersey

- Governor Christie vetoed the bill and opted to tack on an order for a one year moratorium for “more study.”
  - “I am placing a one-year moratorium on fracking so that the DEP can further evaluate the potential environmental impacts of this practice in New Jersey as well as evaluate the findings of still outstanding and ongoing federal studies.”

- Moratorium expired in January 2013.
  - Legislation to re-introduce moratorium until certain federal laws are changed (e.g., Safe Drinking Water Act, Clean Air Act) currently in Senate (S-1376). Other similar bills pending.

- Continued push for a state-wide ban.

- May 2014 – NJ Senate passed bill to ban fracking waste in NJ.
  - Prior bills vetoed by Christie as unconstitutional.

- Notably, local municipalities are taking up the issue.
  - September 2013: the Highland Park Borough Council passed an ordinance to explicitly ban the extraction practice. A first in New Jersey.
Massachusetts
Hartford Basin
Possible natural gas deposits reported in USGS study

Quabbin Reservoir

MASSACHUSETTS

VT.  N.H.

NEW YORK

CONN.

R.I.

Springfield

Hartford

50 MILES

SOURCE: USGS

DAVID BUTLER/GLOBE STAFF

HISCOCK & BARCLAY LLP
Massachusetts

• Unclear if hydraulic fracturing would ever be proposed in Massachusetts.
  – USGS Study (2012) identified the Hartford Basin, an area formed 227 million years ago, stretching from Connecticut into the Pioneer Valley which is believed to contain "tight gas sandstone," which could yield natural gas.
  – Some suggest that it is of poor quality and limited quantity.
  – Some geologists have concluded it is unlikely any commercial drilling would occur.

• Despite this, a push to ban hydraulic fracturing in Massachusetts continues.

• The Administration is rumored to support a fracking ban in Massachusetts so that this potential natural gas reserve in the Springfield area is never tapped using hydraulic fracturing.
“An Act to protect our drinking water from hydraulic fracturing” (H.3796): “Hydraulic Fracturing for Oil or Gas Recovery: Prohibition (a) No person may engage in hydraulic fracturing in the commonwealth. (b) No person may collect, store, treat, or dispose of wastewater hydraulic fracturing fluid, wastewater solids, sludge, drill cuttings or other byproducts from hydraulic fracturing within the commonwealth.”

• If passed, the legislation would place a 10 year moratorium on hydraulic fracturing in Massachusetts (January 1, 2015 – December 31, 2024).

• Status: The Joint Committee on Environment, Natural Resources and Agriculture approved the bill on November 27, 2013

• The bill is now before the House Committee on Ways and Means, the final step before the full House of Representatives vote.
Vermont
Vermont

- First state to ban hydraulic fracturing (May 2012).
- Governor Peter Shumlin:
  - "This is a big deal."
  - "This bill will ensure that we do not inject chemicals into groundwater in a desperate pursuit for energy."
  - A desire that other states will follow Vermont's lead in banning hydraulic fracturing.

- Law not expected to have any immediate effect - no information to suggest that the state has underground gas reserves that could be tapped by hydraulic fracturing.
  - Iberville Shale: from southern Quebec, Canada into northwestern Vermont.

- Note: The Vermont law also bans the importation and storage of wastewater associated with hydraulic fracturing.

Source: UVM
Vermont

• Is there hope for the future?
• Vermont law requires the Secretary of Natural Resources to submit a report to the legislature, on or before Jan. 15, 2015, recommending how hydraulic fracturing should be regulated in the state.
• The report is to include recommendations on the following:
  – what state agency should be authorized to regulate hydraulic fracturing,
  – where and how hydraulic fracturing should be sited,
  – waste disposal,
  – water withdrawal,
  – land use practices,
  – traffic, and
  – whether additional statutory or regulatory authority is needed, and if so, what is needed.
Illinois
Illinois

- The Illinois Basin’s New Albany Shale could hold sizable shale reserves.
- The Illinois Basin is an oval depression that’s roughly 60,000 miles in the United States Mid-Continent—southern Illinois, southwest Indiana and northwest Kentucky.
- The New Albany Shale is Devonian age, formed roughly 350 million years ago in a shallow sea that once covered the Eastern half of the United States.
- It was formed at the same time as four other major U.S. oil resource plays, including the Williston Basin/Bakken Shale and the Appalachian Basin/Marcellus Shale.
Illinois

• June 2013, Governor Pat Quinn signed the Hydraulic Fracturing Regulatory Act (Senate Bill 1715) into law.
  • “As I said in my budget address, hydraulic fracturing is coming to Illinois with the strongest environmental regulations in the nation. It’s about jobs and it’s about ensuring that our natural resources are protected for future generations. I applaud the many environmental advocates and representatives from government, labor and industry who worked with us to make Illinois a national model for transparency, environmental safety and economic development.”

• The new law was the product of extensive negotiations between the Governor’s Office, industry groups, environmental groups, labor unions, legislators, the Attorney General’s Office, and state agencies, including the Department of Natural Resources and the Illinois Environmental Protection Agency, which will manage implementation of the law.

• The Department of Natural Resources opened registration for companies to use hydraulic fracturing in October 2013.

• Proposed rules noticed for public comment in November 2013.

• Rules yet to be finalized have delayed the issuance of first permits which had been slated for early 2014.
Illinois

Key provisions of IL Hydraulic Fracturing Regulatory Act and proposed rules:

- Frac fluid/chemical disclosure report required with permit application.
  - Must identify each additive, chemical and proppant anticipated to be used for each fracking stage as well as the total volume of water to be used (can later modify subject to notice and explanation of modification).
  - Service company must be authorized to do business in Illinois and have master list on file.
  - Can claim trade secret – provisions to disclose to health professionals.
  - DNR to post chemical master lists on its website.

- Fluids and flowback plan – must address plans for handling, storage, transportation and disposal.

- Hydraulic fracturing additives, hydraulic fracturing fluid, hydraulic fracturing flowback, and produced water shall be stored in above ground tanks at all times until removed for proper disposal or recycling.

Source: FracFocus
Key provisions of IL Hydraulic Fracturing Regulatory Act and proposed rules:

- **Setbacks** (measured from well site). Examples:
  - Residence or place of worship: 500 feet, unless waiver by landowner.
  - School, hospital, or water well: 500 feet.
  - Surface water or groundwater intake of a public water supply: 1,500 feet.

- **Intermediate casing** may be required (e.g., when necessary to isolate fresh water not isolated by surface casing).

- **Water Quality Monitoring Work Plan**:
  - Baseline testing within 1,500 feet from well site.
  - Follow-up monitoring at 6, 18 and 30 months after fracking operations.
  - Rebuttal presumption of liability for water pollution or diminution of water supply if:
    - Within 1,500 ft of public water supply,
    - Baseline testing showed no pollution or diminution,
    - Pollution or diminution occurred within 30 months of fracking operations, and/or
    - Laboratory results indicate pollution or diminution
Key provisions of IL Hydraulic Fracturing Regulatory Act and proposed rules:

- Waste fluid management requirements:
  - wastewater to be reused in fracking or injected deep underground;
  - wastewater to be tested for certain chemicals before being taken offsite; and
  - wells be shut down if fracking fluid is released outside of the shale rock formation being fractured.

- Bonding $50,000/well or $500,000 blanket.

- Public comment procedure for permit issuance and potential for public hearing.

- 60 days to approve/deny permit application from date of submission.

- Citizen suits - any adversely affected persons – including environmental groups – may sue (a) fracking companies for violations of the Act, and (b) the Department for failure to perform its duties under the Act.
California

- Monterey Shale Formation, a resource once estimated to hold 15 billion barrels of oil.
  - In 2014, the U.S. Energy Information Administration downgraded recoverable oil estimates to just 600 million barrels to reflect the amount that is recoverable given existing technologies.

- On September 20, 2013, California Governor Jerry Brown signed into law a bill (S.B. 4) regulating hydraulic fracturing operations and other “well stimulation treatments.”

  - Requires the promulgation of regulations, informed by a “comprehensive independent scientific study,” to be conducted by the Secretary of the Natural Resources Agency by January 1, 2015, on the hazards and risks that hydraulic fracturing and other well stimulation treatments pose to human health and the environment.

- Effective January 1, 2014, the California Department of Conservation established interim regulations until permanent regulations are completed and become effective.

- The proposed permanent regulations were publicly noticed on November 15, 2013.
During the pre-regulation period, Division of Oil, Gas & Geothermal Resources will conduct a state-wide environmental impact report, pursuant to the California Environmental Quality Act, which must be completed by July 1, 2015.

On May 30, 2014 legislators shut down a bill (S.B. 1132) that would have put a moratorium on drilling until the State completed its environmental risk analysis and expanded upon the scientific study ordered under S.B.4.

Some local governments, including the City of Los Angeles, Santa Cruz, and Marin County, have passed ordinances/resolutions banning hydraulic fracturing.

Not clear if these local laws would be preempted by S.B.4.
California

Key provisions of S.B.4 and proposed regulations:

• Frac fluid disclosure: operator must post, within 60 days following the cessation of fracking, specified information regarding:
  – A complete list of the names, Chemical Abstract Service numbers, and maximum concentration, in percent by mass, of each and every chemical constituent of the well stimulation treatment fluids used.
  – The trade name, supplier, concentration, and a brief description of the intended purpose of each additive contained in the well stimulation fluids used.
  – The source, volume, and specific composition and disposition of all water used.
  – The radioactivity of the recovered well stimulation fluids.
  – The estimated volume of well stimulation treatment fluid that has been recovered.
    Note: Trade secret protection available.

• Provide baseline groundwater contaminant levels and monitor groundwater following hydraulic fracturing operations at the request of property owners within 1,500 ft.

• Water Management Plan for water volumes, sources, recycling, and disposal.

• Fluids must be stored in containers and cannot be stored in sumps or pits.
Compare & Contrast
## Status

<table>
<thead>
<tr>
<th>State</th>
<th>Geological Play</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>New York</td>
<td>Marcellus, Utica</td>
<td>De facto moratorium – 6 years</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>Marcellus, Utica</td>
<td>Active drilling since 2008; legislative amendments in 2012</td>
</tr>
<tr>
<td>Ohio</td>
<td>Utica, Marcellus</td>
<td>New law (2012)</td>
</tr>
<tr>
<td>New Jersey</td>
<td>None known</td>
<td>One-year moratorium expired; new legislation pending</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>Hartford</td>
<td>Considering state-wide ban</td>
</tr>
<tr>
<td>Vermont</td>
<td>None known</td>
<td>State-wide ban</td>
</tr>
<tr>
<td>California</td>
<td>Monterey</td>
<td>New law (2013) – interim regulations; final rulemaking pending</td>
</tr>
</tbody>
</table>
# Water Testing

<table>
<thead>
<tr>
<th>Location</th>
<th>Testing Requirements</th>
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</thead>
<tbody>
<tr>
<td>New York*</td>
<td>Mandatory baseline and post-drilling testing within 1,000 ft (possibly 2,000 ft if no sources within 1,000 ft).</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>“Liability Rule” – Sample all water supplies within 2,500 ft to preserve defense.</td>
</tr>
<tr>
<td>Ohio</td>
<td>Mandatory baseline testing within 300 ft of urbanized areas; otherwise 1,500 ft.</td>
</tr>
<tr>
<td>Illinois*</td>
<td>Mandatory baseline and post-drilling testing within 1,500 ft of the well site.</td>
</tr>
<tr>
<td></td>
<td>Rebuttable presumption of liability.</td>
</tr>
<tr>
<td>California*</td>
<td>Baseline testing within 1,500 ft of the well site if requested by landowner (possibly longer depending on the length of the wellbore).</td>
</tr>
</tbody>
</table>

*Proposed Rules/Regulations
# Frac Fluid Disclosure Requirements

<table>
<thead>
<tr>
<th>State</th>
<th>Disclosure Method</th>
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<tbody>
<tr>
<td>New York*</td>
<td>Full disclosure to NYSDEC; Chemical disclosure form published to FracFocus.org.</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>Full disclosure to PADEP; Chemical disclosure form published to FracFocus.org.</td>
</tr>
<tr>
<td>Ohio</td>
<td>Either in well completion report or FracFocus.org.</td>
</tr>
<tr>
<td>Illinois*</td>
<td>Chemical disclosure report identifying each chemical and proppant anticipated to be used to IDNR.</td>
</tr>
<tr>
<td>California*</td>
<td>Public disclosure through chemical disclosure registry within 60 days after well stimulation operations cease.</td>
</tr>
</tbody>
</table>

*Proposed Rules/Regulations
## Setbacks

<table>
<thead>
<tr>
<th>Location</th>
<th>Buildings:</th>
<th>Water Wells:</th>
<th>Public Water Supply:</th>
</tr>
</thead>
<tbody>
<tr>
<td>New York*</td>
<td>500 ft, unless waived</td>
<td>500 ft</td>
<td>2,000 ft</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>Buildings and Water Wells: 200-500 ft</td>
<td>1,000 ft</td>
<td></td>
</tr>
<tr>
<td>Ohio</td>
<td>100-200 ft, unless waived by landowner</td>
<td></td>
<td>NOTE: special rules for urbanized drilling</td>
</tr>
<tr>
<td>Illinois*</td>
<td>Buildings, School: 500 ft</td>
<td>500 ft</td>
<td>1,500 ft</td>
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<tr>
<td>California*</td>
<td>To be determined by January 1, 2015 by the Secretary of the National Resource Agency (SB4).</td>
<td></td>
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</tbody>
</table>

*Proposed Rules/Regulations
## Local and Landowner Concerns

<table>
<thead>
<tr>
<th></th>
<th>Home Rule</th>
<th>Mandatory Pooling / Compulsory Integration</th>
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</thead>
<tbody>
<tr>
<td><strong>New York</strong>*</td>
<td>????</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Oral arguments in Dryden case heard on June 3, 2014</td>
<td>NY Envt‘l Conserv. §23-901; NYSDEC Policy DMN-1</td>
</tr>
<tr>
<td><strong>Pennsylvania</strong></td>
<td>Act13 provisions that would have barred local zoning overturned</td>
<td>Yes, but doesn’t apply to Marcellus wells</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pa. Code §79.31 et seq.</td>
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<tr>
<td><strong>Ohio</strong></td>
<td>????</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Pending City of Munroe Falls case</td>
<td>Ohio Rev. Code Ann. §1509.27</td>
</tr>
<tr>
<td><strong>New Jersey</strong></td>
<td>Local municipalities enacting bans.</td>
<td>NA</td>
</tr>
<tr>
<td><strong>Massachusetts</strong></td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td><strong>Vermont</strong></td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td><strong>Illinois</strong>*</td>
<td>Proposed legislation would require companies to comply with local rules, thus no preemption.</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>62 Ill. Ann. Code §240.131</td>
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<tr>
<td><strong>California</strong>*</td>
<td>Unclear under S.B. 4; Local municipalities enacting bans.</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Cal. Laws for Conservation of Petroleum &amp; Gas §3640 et seq.</td>
<td></td>
</tr>
</tbody>
</table>

*Proposed Rules/Regulations
Upcoming

• **Virginia**
  – January 13, 2014: A Notice of Intended Regulatory Action was published, indicating that Department of Mines, Minerals and Energy would review its existing Gas and Oil Regulation to:
    - determine whether ingredients used in hydraulic fracturing should be disclosed,
    - review existing best practices, and
    - determine whether additional requirements are necessary for drilling in different regions of the Commonwealth.
  – May 2014: Department of Mines, Minerals and Energy assembled an advisory panel of state officials, an industry representative and others to review the state’s existing rules on fracking. The panel will conduct its meetings over the course of June, July, and August 2014.

• **North Carolina**
  – June 4, 2014: North Carolina’s governor signed a law that will lift a longtime state ban on hydraulic fracturing, allowing shale gas exploration to begin as early as 2015.
Questions?
Contact Information

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