

AN ANALYSIS OF HYDROFRACTURING GUBERNATORIAL DECISION MAKING

*Peter J. Kiernan**

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*Of Counsel to Schiff Hardin LLP and was Counsel to Governor David A. Paterson from 2008 to 2010.

INTRODUCTION

On June 30, 2011, the New York State Department of Environmental Conservation (DEC) issued “New Recommendations with respect to its Hydraulic Fracturing Review.”¹ This followed an intense period of analysis that began in 2008 when Governor David A. Paterson ordered the DEC to revise its 1992 Generic Environmental Impact Statement (GEIS) with respect to oil and gas drilling to be applicable to high volume horizontal hydrofracturing—also known as hydrofracturing—and its possible permitting for the extraction of natural gas in New York.² Hydrofracturing, a relatively new extraction method (post 1992), is a combination of vertical low-volume hydrofracturing, which had been routinely permitted in New York since the 1950s without incident,³ and high-volume horizontal drilling, a newer phenomenon.

Hydrofracturing was designed to extract natural gas from huge shale formations, formerly seabed, which is about a mile below the surface of the earth and embedded under thick bedrock. Hydrofracturing employs huge amounts of fresh water, sometimes millions of gallons per drill, that are combined with chemicals, some toxic, and sand or “proppants” and forcibly injected with high pressure under the bedrock and into shale in order to create barely perceptible fissures in the shale rocks.⁴ These fissures are held open by the proppants or sand so that

¹ Press Release, N.Y. State Dep’t Env’tl. Conservation, New Recommendations Issued in Hydraulic Fracturing Review (June 30, 2011), available at <http://www.dec.ny.gov/press/75403.html>.

² Exec. Order No. 41, N.Y. COMP. CODES R. & REGS. tit. A, § 7.41 (2010), available at <http://www.governor.ny.gov/archive/paterson/executiveorders/EO41.html>; *Two Announcements Affect the Future of Energy Exploration in New York*, ENVTL. DEC, Aug. 2008, available at <http://www.dec.ny.gov/environmentdec/45407.html>; Douglas Holtz-Eakin, *N.Y., Start Hydrofracking: Jobs Await and We All Need Cleaner, Homegrown Energy*, DAILY NEWS (N.Y.), July 13, 2011.

³ N.Y. COMP. CODES R. & REGS. tit. A, § 7.41; *Marcellus Shale*, N.Y. STATE DEP’T ENVTL. CONSERVATION, <http://www.dec.ny.gov/energy/46288.html> (last visited Mar. 20, 2012); N.Y. STATE DEP’T ENVTL. CONSERVATION, REVISED DRAFT: SUPPLEMENTAL GENERIC ENVIRONMENTAL IMPACT STATEMENT ON THE OIL, GAS AND SOLUTION MINING REGULATORY PROGRAM 5-39 to 5-40 (Sept. 7, 2011), available at <http://www.dec.ny.gov/energy/75370.html> [hereinafter 2011 REVISED DRAFT SGEIS].

⁴ *Marcellus Shale*, *supra* note 3; 2011 REVISED DRAFT SGEIS, *supra* note 3, at 5-39–5-40 (stating the fluids used in high-volume hydraulic fracturing are composed of about 98% water and 2% chemicals); James E. Goddard, *Hydraulic Fracturing of Shale Formations and the Protection of Groundwater*, 6 TEX. J. OIL, GAS & ENERGY L. 435, 438 (2010–2011).

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natural gas, which has been trapped in the shale for millions of years, can migrate through the fissures to the well bore and be brought to the surface.⁵ Hydrofracturing became viable in or about 2005 and is proposed to be employed in New York, as it has been in northern Pennsylvania since early 2007, where it has been creating tremendous employment, economic benefit, and dispute.⁶

Hydrofracturing is a white-hot commercial, legal, environmental and political controversy in New York State. The announcement by DEC, which was followed by the release of a 1,537-page preliminary draft supplemental generic environmental impact statement on July 8, 2011 (dSGEIS),⁷ began a ninety-day public comment period,⁸ and brought the controversy close to the point of final decision by the DEC and, more importantly, by Governor Andrew Cuomo. If permits are to be issued for horizontal fracturing, it is expected to occur in or about the summer of 2012. This essay explores what Governors Paterson and Cuomo knew when they made their respective process decisions, the considerations they had to balance, and the difficult decision consequences that Governor Cuomo will have to weigh in 2012 when final permitting criteria will be established and likely implemented. The essay also assesses the decision making process.

⁵ *Marcellus Shale*, *supra* note 3; Goddard, *supra* note 4, at 438.

⁶ Huhnsik Chung, *The Risks of Hydrofracking*, NAT'L L. REV. (June 5, 2011), available at <http://www.natlawreview.com/article/risks-hydrofracking>; Susan Christopherson, *Hydrofracking a Boom-Bust Endeavor*, TIMES UNION (Albany, N.Y.), Aug. 14, 2011; Marie Cusick, *Drillers Charge "Fracking Hysteria" Helps Enviro Raise Cash*, INNOVATION TRAIL, Mar. 8, 2012, <http://innovationtrail.org/post/drillers-charge-fracking-hysteria-helps-enviros-raise-cash>.

⁷ *SGEIS on the Oil, Gas and Solution Mining Regulatory Program*, N.Y. STATE DEPT' ENVTL. CONSERVATION, <http://www.dec.ny.gov/energy/47554.html> (last visited Mar. 19, 2012). This Preliminary Revised Draft document was subsequently added to and a Revised Draft SGEIS was released September 7, 2011. *Marcellus Shale*, *supra* note 3.

⁸ See Exec. Order No. 41, N.Y. COMP. CODES R. & REGS. tit. A § 7.41 (2010), available at <http://www.governor.ny.gov/archive/paterson/executiveorders/EO41.html> (setting the minimum public comment period at thirty days); see also *SGEIS on the Oil, Gas and Solution Mining Regulatory Program*, *supra* note 7 (detailing the public comment period for the 2009 version of the draft from September 30, 2009, through December 31, 2009, and the public comment period for the 2011 version from September 7, 2010, through January 11, 2012); *Marcellus Shale*, *supra* note 3.

I. REVENUE CRISIS AND OPPORTUNITY

The great recession that began in 2007 and the unprecedentedly severe revenue crisis that accompanied it hit New York brutally hard. When Governor Eliot Spitzer was compelled to announce his resignation on Wednesday, March 14, 2008, Lieutenant Governor David Paterson was sworn in as Governor on Monday, March 17, 2008.⁹ Notwithstanding that it was St. Patrick's Day, Governor Paterson was not to enjoy the luck of the Irish. During the weekend hiatus between the remarkable political events of resignation and inauguration, Bear Stearns & Co. lost 90 percent of its value at astonishing speed and was acquired by JPMorgan Chase.¹⁰ The fire sale of Bear Stearns was soon followed by an ominous threat to, and rescue of, AIG,¹¹ and then the collapse of Lehman Brothers.¹² New York State's sales and personal income tax revenues started a sustained free fall. For example, in the month preceding the April 2009 adoption of the fiscal year 2009–10 budget, the state lost \$4 billion in anticipated revenue.¹³ Recovery never materialized. Consequently, every day of David Paterson's tenure as governor was a day of revenue crisis.

What also began in 2007 was high volume horizontal hydrofracturing drilling along the northern tier of Pennsylvania and in the Marcellus Shale (or Play), a vast formation of formerly seabed rock about a mile below bedrock and concentrated in an approximately 48,000 square-mile swath of eastern Ohio, West

⁹ Michael M. Grynbaum, *Spitzer Resigns, Citing Personal Failings*, N.Y. TIMES, Mar. 12, 2008; Sewell Chan, *Resignation Will Take Effect at Noon Monday*, N.Y. TIMES CITY ROOM BLOG (Mar. 12, 2008, 7:00 PM), <http://cityroom.blogs.nytimes.com/2008/03/12/resignation-will-take-effect-at-noon-monday/?emc=eta1>.

¹⁰ See *Bear Stearns to Sell Itself to JPMorgan for \$2 a Share*, N.Y. TIMES DEALBOOK BLOG (Mar. 16, 2008, 7:25 PM), <http://dealbook.nytimes.com/2008/03/16/bear-stearns-races-to-a-sale-to-jpmorgan/?emc=eta1> (reporting that shares once selling for \$57 dollars on the market were sold to JP Morgan for \$2).

¹¹ Edmund L. Andrews et al., *Fed's \$85 Billion Loan Rescues Insurer*, N.Y. TIMES, Sept. 17, 2008, at A1.

¹² Andrew Ross Sorkin, *Lehman Files for Bankruptcy; Merrill Is Sold*, N.Y. TIMES, Sept. 15, 2008, at A1.

¹³ THOMAS P. DiNAPOLI, OFFICE OF THE STATE COMPTROLLER, N.Y. STATE, FINANCIAL CONDITION REPORT FOR FISCAL YEAR ENDED MARCH 31, 2009, at 3, 5 (2009) available at <http://www.osc.state.ny.us/finance/finreports/fcr09.pdf>; Jerry Hart, *New York Income Tax Revenue Falls 36% in Year, Paterson Says*, BLOOMBERG NEWS, (Oct. 5, 2009, 11:18AM), <http://bloomberg.com/apps/news?pid=newsarchive&sid=aNQ6zYnQbPTc>.

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Virginia, Pennsylvania and New York.¹⁴ Geologists estimate that the Marcellus Shale contains the second—largest volume of captured natural gas in the world.¹⁵ Were the Marcellus Play gas to be brought to market, it could gradually displace some of the current reliance on oil and gas in the Northeastern United States and, arguably, provide a bridge to newer energy sources such as wind and solar and result in a measure of energy independence. Natural gas, while a fossil fuel, is cleaner than oil and particularly coal, and could be very price and environmentally significant in electricity generation.¹⁶ That gains importance as New York and the United States continue to demur on embracing nuclear energy production, which embrace is made even less likely following the tragic 2011 events in Japan and the public's perceptions of the risks associated with reliance on nuclear energy.¹⁷

The geology of Pennsylvania and New York, unlike the geologies of some other states that lie above shallower shale formations, necessitates the use of high volume horizontal fracturing to reach the natural gas deposits.¹⁸ Horizontal

¹⁴ Don Hopey, *Region's Gas Deposits Reported to be Nation's Largest: Economy, Other Concerns Impeded Leasing, Drilling for Natural Gas in Marcellus Shale*, POST-GAZETTE (Pittsburgh), Dec. 14, 2008, <http://old.post-gazette.com/pg/08349/953140-113.stm>; *Marcellus Shale*, *supra* note 3.

¹⁵ Kevin G. Hall, *Does Shale Boom Mean U.S. Energy Independence Near?*, McCLATCHY, Dec. 21, 2011, <http://www.newsobserver.com/2011/12/21/1726038/does-shale-boom-mean-us-energy.html>. In addition to the Marcellus Shale formation in the Appalachian Basin, there are about twenty-four known shale formations in the United States lying under parts of thirty-five states. This includes the deep Utica Shale, also in the Appalachian Basin and underlying Maryland, New Jersey, Western New York, Ohio, Pennsylvania, Kentucky, Virginia, West Virginia and Tennessee. The regional significance of the Utica Shale is that, in part, it underlies the Delaware River Basin. These twenty-four shale formations contain enormous deposits of natural gas and the promise of U.S. energy independence for a sustained period. See Goddard, *supra* note 4, at 439–40.

¹⁶ Donald Gilliland, *New Shale Study Refutes Cornell: Marcellus Gas Better Than Coal*, PATRIOT-NEWS BLOG, (Aug. 17, 2011, 2:31 PM), http://www.pennlive.com/midstate/index.ssf/2011/08/new_shale_study_refutes_cornel.html. Anecdotal information obtained from the New York State Public Service Commission suggests that Consolidated Edison, which now relies on natural gas for about 13 percent of its generating capacity, could grow that reliance to about 60 percent so that natural gas use would determine the marginal price of electricity.

¹⁷ Michael Cooper & Dalia Sussman, *Poll Shows Public is Losing Faith in Nuclear Power*, N.Y. TIMES, Mar. 23, 2011, at A15.

¹⁸ See Chris Churchill, *Safety Fears Fracture Gas Drilling Debate*, TIMES UNION (Albany, N.Y.), Aug. 14, 2011, at A1.

hydrofracturing is expensive and not without environmental risk, both real and perceived. Pennsylvania issued permits for hydrofracturing in early 2007 and a “rush”¹⁹ was on promising the allure of sudden wealth for landowners in the form of lease bonuses and royalty payments, jobs for workers, both skilled and unskilled, supply chain invigoration, tremendous drilling opportunity for oil and gas companies, both established and new (“wildcatters”) and, importantly, revenues for the commonwealth of Pennsylvania. In 2011 it was estimated that since horizontal fracturing permits began to be issued in Pennsylvania, more than 72,000 full-time equivalent jobs have been created in what otherwise were depressed economic areas, and there has been about \$4.8 billion in enhanced gross regional economic activity.²⁰ This ongoing phenomenon²¹ occurred adjacent to New York’s southern border, and gathering the close attention of Southern Tier landowners, suppliers, drillers, politicians, and a revenue-starved state government. The Pennsylvania drilling also gained the increasingly alarmed attention of environmental advocates who correctly noted Pennsylvania’s initial relatively lax and accelerated permitting regime²² and the threat of ecologic harm that accompanied hydrofracturing.

In July 2008, Governor Paterson ordered DEC to update its 1992 GEIS that regulates and governs oil and gas drilling in New York, including vertical hydrofracturing, to evaluate and expedite permitting for horizontal hydrofracturing in the Southern Tier.²³

¹⁹ *See id.*

²⁰ *A Tale of Two Shale States*, WALL ST. J., July 26, 2011; Nicolas Loris, *Energy Exploration Would Create Jobs and Raise Revenue Without Raising Taxes*, STATE NEWS SERVICE, Sept. 8, 2011. Professor Timothy Considine, University of Wyoming, cited in States New Service, Thompson Reuters, 9/21/11; a 2011 Manhattan Institute study notes that there could be increased economic output in New York’s Southern Tier of \$11.4 billion if hydrofracturing were to be sanctioned. *A Tale of Two Shale States*, *supra*.

²¹ *A Tale of Two Shale States*, *supra* note 20. A total of about thirty years of production activity is anticipated. *See* George Hohmann, *Marcellus Shale Brings Flurry of Activity: Gas Boom Mirrors Gold Rush*, CHARLESTON DAILY MAIL (S.C), Nov. 25, 2011, at 1A.

²² Pennsylvania set a forty-five day limit on the permit application process. This “learn-as-you-go” process in Pennsylvania can be contrasted with New York’s analytic process which, thus far, is about four years and never could be described as “fast tracking.” *See* U. MD. SCH. OF PUB. POL’Y, MARCELLUS SHALE GAS DEVELOPMENT: RECONCILING SHALE GAS DEVELOPMENT WITH ENVIRONMENTAL PROTECTION, LANDOWNER RIGHTS, AND LOCAL COMMUNITY NEEDS 57 (2010).

²³ Press Release, N.Y. Governor’s Press Office, Governor Paterson Signs Bill Updating Oil and Gas Drilling Law; Pledges Environmental and Public Health Safeguards (July 23, 2008), *available at* <http://www.governor.ny.gov/archive>

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Like Governor Cuomo, who was emphatic, Governor Paterson directed that DEC's analysis should be based on sound environmental science.²⁴ The updated GEIS was to address "potential impacts to groundwater, surface water, wetlands, air quality, aesthetics, noise, traffic and community character, as well as cumulative impacts" from hydraulic fracturing and horizontal drilling.²⁵ The governor wanted identification of "additional safety measures, protection standards, and mitigation strategies" for permit applicants.²⁶

Contemporaneously with Governor Paterson's directive, drilling companies began offering and entering into lease agreements with Southern Tier landowners and mineral rights owners for rights to drill.²⁷ Most of these leases were five-year, "use-it-or-lose-it" agreements.²⁸ This heightened expectations. Royalty payments were being counted before they were realized, and, figuratively, New York State began counting extraction tax and other new revenues before they were enacted or even possible. Some state officials, but not the governor, pressured DEC for expedition, and deadlines for a final SGEIS product were urged that were not realistic.

II. DEC – INITIAL 2009 UPDATE

DEC proceeded diligently. Vertical hydraulic fracturing was permitted relatively routinely in New York since the 1950s.²⁹ There were hundreds of working natural gas wells in the state.³⁰ But high-volume horizontal hydraulic fracturing is a more complicated procedure and posed perplexing issues. It raised the specter of possibly catastrophic environmental consequences if not done cautiously and pursuant to a robust, enforceable

/paterson/press/press_0723084.html.

²⁴ *Id.*

²⁵ *Id.*

²⁶ Lynn Kerr McKay, Ralph H. Johnson & Laurie Alberts Salita, *Science and the Reasonable Development of Marcellus Shale Natural Gas Resources in Pennsylvania and New York*, 32 ENERGY L.J. 125, 128 (2011).

²⁷ Delen Goldberg, *Land Agents Scour CNY, Leasing to Drill*, POST-STANDARD (Syracuse, N.Y.), July 19, 2009, at A1.

²⁸ *See id.*

²⁹ 2011 REVISED DRAFT SGEIS, *supra* note 3, at 6-323.

³⁰ *Oil and Gas: Oil, Gas and Solution Salt Mining in New York State*, N.Y. STATE DEP'T OF ENVTL. CONSERVATION, <http://www.dec.ny.gov/energy/205.html> (last visited Mar. 27, 2012).

environmental regulatory regime.³¹ Environmental science demanded careful examination, but some environmental advocacy employed a doomsday, highly charged rhetoric in reaction to some reported incidents of environmental degradation in Pennsylvania that had correlation with but not necessarily causation by horizontal hydrofracturing.³²

The largest and most legitimate concern was focused on the fact-and-fear of drinking well and water resources contaminations adjacent to some drill sites.³³ This fear was given profound dimension because a sizable portion of the Marcellus Shale in New York is directly under the New York City and Onandaga (i.e., Syracuse) watersheds as well as primary and principal aquifers.³⁴ The Marcellus Shale also is under important natural resources such as timberland, forest, and high quality streams with natural resources and recreational value.³⁵ Some of the descriptions of hydrofracturing which is also termed “fracking,” itself an unfortunate word that lends itself to angry puns³⁶ and derisive comments, are highly charged. Hydrofracturing injects water into shale rock at very high

³¹ Ian Urbina, *Pressure Limits Efforts to Police Drilling for Gas*, N.Y. TIMES, Mar. 3, 2011; *Water Contamination from Shale Gas Drilling*, PARKER & WAICHMAN, LLP: WATER CONTAMINATION FROM SHALE, <http://www.water-contamination-from-shale.com/http://www.water-contamination-from-shale.com/> (last visited Mar. 27, 2012); SCHNEIDERMAN ATTORNEY GENERAL 2010, ERIC SCHNEIDERMAN’S AGENDA FOR THE OFFICE OF NEW YORK STATE ATTORNEY GENERAL: A BLUEPRINT FOR ECONOMIC FAIRNESS, SOCIAL JUSTICE & REAL REFORM IN NEW YORK STATE 25, <http://www.ericshneiderman.com/admin/miscimages/files/Eric-Schneiderman-Policy.pdf>.

³² See, e.g., Don Hopey, *EPA Steps in to Test Pa. Town’s Tainted Well Water Contamination Blamed on Drilling*, POST-GAZETTE (Pittsburgh), Jan. 20, 2012, at A1; Sarah Hoyer, *Report: Chemicals Found in NE Pennsylvania Water Wells*, CNN.COM (Oct. 15, 2010, 7:13 PM), <http://www.cnn.com/2010/US/09/17/pennsylvania.fracking/index.html>.

³³ Hopey, *supra* note 32; Hoyer, *supra* note 32.

³⁴ NY DEC Recommends Drilling, Bans Hydrofracking in Watersheds, CNYCENTRAL.COM (June 30, 2011, 11:15 PM), <http://www.cnycentral.com/news/story.aspx?id=635842#.T3EM6zEgf9Y>. A Primary Aquifer is defined as a highly productive water source and one utilized by a major municipal water supply system for drinking water. *Primary & Principal Aquifers*, N.Y. STATE DEPT’ ENVTL. CONSERVATION, <http://www.dec.ny.gov/lands/36119.html> (last visited Mar. 27, 2012). A principal aquifer is defined as “those known to be highly productive . . . or [whose] geology suggests abundant potential [water] supply,” but is not used intensively as a source of water supply by a major municipal water system. 2011 REVISED DRAFT SGEIS, *supra* note 3, at 2-20.

³⁵ David G. Mandelbaum, *Regulation of Unconventional Natural Gas Development*, 25 PROB. & PROP. 44, 45 (2011).

³⁶ For example: “No Fracking Way”; “Don’t Frack New York”; “Don’t Frack with our Future.”

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pressure, but that gets variously described by critics as “exploding,” “blasting,” “bombarding,” “brute force,” and other violent, stigmatic terms that conjure up massive shale rock dislocation.³⁷ There are no explosions but the use of such language heats the already contentious debate and contributes to certain concerns that are not well founded. For example, it was asserted that the fracturing of shale rocks can permit gas and so called frack water that contains harmful chemicals ultimately to migrate to the surface and introduce toxins into water sources.³⁸ It is not possible for such migration to occur for the simple reason that the gas, frack water, and other ancient sea salts, and metals that may have radioactive elements and become mixed with rock deposits loosened by fracturing remain trapped beneath substantial bedrock more than a mile below the surface of the earth.³⁹ The gas, salts, metals, and naturally occurring radioactive materials (NORM) have been in place for millions of years and will remain so. There is no evidence otherwise and there is an overwhelming scientific consensus to that effect.⁴⁰

Nevertheless, concerns about streams, wells and reservoirs being contaminated are given credence by evidence of water toxicity in certain locations in northern Pennsylvania that are in close proximity to horizontal hydraulic fracturing sites.⁴¹ Some of the reported incidents⁴² may be occasioned by the known

³⁷ See, e.g., *Air Quality Concerns in One Community*, 12 WBOY (Mar. 7, 2011, 11:43 AM), <http://66.118.80.206/story.cfm?func=viewstory&storyid=95307&catid=155>; Nina Berman, *Air Too Dangerous to Breathe: How Gas Drilling Can Turn Rural Communities Into Industrial Wastelands*, ALTERNET (Dec. 13, 2011), http://www.alternet.org/story/153417/air_too_dangerous_to_breathe_how_fracking_can_turn_rural_communities_into_industrial_wastelands_with_photos; Steve Breyman, *No Hydrofracking for Now*, TIMES UNION (Albany, N.Y.), Sept. 15, 2010; Editorial, *Getting Gas Drilling Right*, N.Y. TIMES, Dec. 12, 2011, at A22; Fritz Mayer, *Court Decisions Embolden Towns? All Sides Predict Appeal*, RIVER REPORTER, Feb. 28, 2012, <http://www.riverreporteronline.com/news/14/2012/02/28/court-decisions-embolden-towns-all-sides-predict-appeal>.

³⁸ See Symposium, “Shale” We Drill? *The Legal and Environmental Impacts of Extracting Natural Gas from Marcellus Shale*, 22 VILL. ENVTL. L.J. 189, 200 (2011) [hereinafter “Shale” We Drill?].

³⁹ OFF. OF RES. & DEV.: U.S. ENVTL. PROT. AGENCY, PROCEEDINGS OF THE TECHNICAL WORKSHOPS FOR THE HYDRAULIC FRACTURING STUDY: WELL CONSTRUCTION & OPERATIONS 92, 94 (2011), available at <http://water.epa.gov/type/groundwater/uic/class2/hydraulicfracturing/upload/hydraulicfracturingstudywellconstructionandoperation.pdf>.

⁴⁰ See “Shale” We Drill?, *supra* note at 38.

⁴¹ Hopey, *supra* note 32; Hoyer, *supra* note 32.

⁴² See, e.g., *About the Film, GASLAND: A FILM BY JOSH FOX*, <http://www.gaslandthemovie.com/about-the-film> (last visited Mar. 27, 2012).

phenomena of naturally occurring methane in some Pennsylvania drinking water, but the greater likelihood is that they are the result of faulty drills and poorly encased, possibly corroded, well bores or negligent, unsupervised drilling practices. There are several pending litigations in Pennsylvania that so allege and assert strict liability.⁴³ Some human and equipment fault is inevitable in any elaborate, industrial activity. Careful conducting and monitoring of drilling operations, as well as strict well bore encasement requirements offer very substantial, near complete protections from such consequences. DEC understands this, and Governors Paterson and Cuomo knew this when they ordered the analytical processes to continue.

DEC also discovered and understands that containment, treatment and disposal of frack water that returns or flows back to the surface through well bores also poses risk.⁴⁴ About 80 percent of the water forcibly injected into a horizontal fracturing well remains under bedrock, and about 20 percent returns.⁴⁵ The flowback contains chemicals and proppants put in the water prior to injection, but the flowback brine also contains salts, arsenic, and some NORM washed from the ancient sea bed.⁴⁶ In Pennsylvania and other states where hydrofracturing has been performed, this frack water has been kept, at least temporarily, in open impoundment pits protected with rubber linings.⁴⁷ Increasingly, after the metals settle into residue and evaporation occurs, the frack water is reused.⁴⁸ As technology and technique evolve, reuse has become near one hundred percent.⁴⁹ But linings can get torn and damaged, and there have been instances where

(describing the documentary film "Gasland" which portrays an instance of methane laden tap water being set on fire in Dimock, Pennsylvania).

⁴³ See Molly E. Phillips, *With Fracing Comes Litigation: What Ohio Courts Can Expect as Horizontal Drilling and Hydraulic Fracturing Begin in Ohio*, LEXOLOGY (Nov. 21, 2011), <http://www.lexology.com/library/detail.aspx?g=b695c7d0-b664-40be-9713-f3374277c76f>.

⁴⁴ *Fact Sheet: What We Learned from Pennsylvania*, N.Y. DEP'T ENVTL. CONSERVATION, http://www.dec.ny.gov/docs/administration_pdf/pafactsheet072011.pdf (last visited March 27, 2012).

⁴⁵ *Nuts and Bolts of Marcellus Shale Drilling and Hydraulic Fracturing*, 41 ENVTL. L. REP. NEWS & ANALYSIS 10,587, 10,590 (2011) [hereinafter *Nuts and Bolts*].

⁴⁶ See Susan McClure, *Marcellus Shale Natural Gas: From the Ground to the Customer*, LEAGUE OF WOMEN VOTERS OF PA 3 (2009).

⁴⁷ *Id.* at 3, 11.

⁴⁸ *Nuts and Bolts*, *supra* note 45, at 10591, 10596, 10601.

⁴⁹ *Id.* at 10591.

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leaks have occurred with resulting harm to ground water.⁵⁰ This damage can be aggravated by spills and storm run-offs. Frack water cannot be treated at normal municipal water treatment plants because plants are neither equipped nor permitted to treat metals. Some treatment plants can be so permitted and other suitable treatment facilities do exist.⁵¹ When available and when costs permit, frack water is trucked to such treatment facilities.⁵² The process of trucking, however, also poses risks of leaking during transfers and spillage in the instance of accidents.

The DEC released a draft scope of its supplemental analysis in October 2008, held public scoping sessions, analyzed scoping comments, and released a final scope in February 2009.⁵³ DEC released its updated, draft SGEIS for public comment on September 30, 2009.⁵⁴ The comment period ended on December 31, 2009.⁵⁵ More than 13,000 comments were received.⁵⁶

The draft SGEIS addressed the range of potential impacts of shale gas development and outlined safety measures, protection standards and mitigation strategies to which operations would have to adhere in order to obtain permits.⁵⁷ With respect to possible well-bore leaks, more stringent drilling and casing requirements were mandated, and with respect to flowback, operations were required to use airtight steel tanks on site for some flowback storage. Pre-drilling disclosure of all chemicals to be used in frack fluids was ordained and pre- and post- drilling testing of procedures and pressures was required. Trucking, noise and light mitigation steps also were detailed, along with many other preventive and protective measures. Notably, DEC found “no substantive basis to believe that water quality will be

⁵⁰ See, e.g., *DEP Fines Talisman for N. Tier Spill*, STAR-GAZETTE (Elmira, N.Y.), Jan. 5, 2012, at C8 (stating that equipment failure caused a lining to tear and spilled 21,000 gallons of fluid).

⁵¹ See Susan McClure, *supra* note 46, at 13–14.

⁵² *Id.*

⁵³ *SGEIS on the Oil, Gas, and Solution Mining Regulatory Program*, *supra* note 7.

⁵⁴ *Id.*

⁵⁵ *Id.*

⁵⁶ *Id.*; McKay, Johnson & Salita, *supra* 26, at 129.

⁵⁷ See generally N.Y. STATE DEP'T OF ENVTL. CONSERVATION DIV. OF MINERAL RESOURCES, DRAFT SUPPLEMENTAL GENERIC ENVIRONMENTAL IMPACT STATEMENT ON THE OIL, GAS AND SOLUTION MINING REGULATORY PROGRAM 6-3 to 6-154 (Sept. 30, 2009), available at <http://www.dec.ny.gov/data/dmn/rdsgeisfull0911.pdf> [hereinafter 2009 DRAFT SGEIS].

degraded in the New York City watershed” or any other watershed or aquifer.⁵⁸

The release of the dSGEIS sparked an intense debate about the wisdom of hydrofracturing. As the 13,000 comments were being analyzed by DEC, the state’s revenue condition continued to deteriorate, and activism by opponents of hydrofracturing increased.⁵⁹ In November 2010, prior to further official announcements by the DEC with respect to its dSGEIS, the New York State Legislature promulgated a bill that would have created a moratorium on all hydraulic fracturing, both vertical and horizontal, in New York State until May 15, 2011.⁶⁰ The Senate sponsor concluded, without specifics or support, that fracturing chemicals “work their way into the regular water supply.”⁶¹ The bill was sent to the governor in early December 2010 and was heavily lobbied during the ten-day period afforded the governor to assess the legislation. On December 13, 2010, Governor Paterson vetoed the bill.⁶² The veto message stated that the bill was too broad and would halt hundreds of existing, productive vertical fracturing operations that were supporting many hundreds of jobs in New York.⁶³ The governor said the bill could send perhaps thousands of jobs and millions of dollars of capital investment out of the state.⁶⁴ Governor Paterson (and Governor Cuomo subsequently) had been advised by DEC that: “No known instances of groundwater contamination have occurred from previous horizontal drilling or hydraulic fracturing projects in New York State.”⁶⁵

But Governor Paterson also issued Executive Order No. 41 contemporaneously with his veto message.⁶⁶ The executive order required additional environmental review. While noting that

⁵⁸ *Commissioner’s Testimony at NYS Assembly Hearing on Oil and Gas Drilling for DSGEIS*, N.Y. STATE DEP’T ENVTL. CONSERVATION (Oct. 15, 2009), <http://www.dec.ny.gov/energy/58821.html>.

⁵⁹ See e.g., *SGEIS on the Oil, Gas, and Solution Mining Regulatory Program*, *supra* note 7; see also *Marcellus Shale*, *supra* note 3.

⁶⁰ S. 8129-B, 2010 Leg., 232d Reg. Sess. (N.Y. 2010).

⁶¹ Press Release, Antoine M. Thompson, Senator Antoine Thompson, Residents & Advocates Urge Moratorium on Gas Drilling Which Could Pollute New York’s Drinking Water (Aug. 13, 2010), *available at* <http://www.nysenate.gov/press-release/senator-antoine-thompson-residents-advocates-urge-moratorium-gas-drilling-which-could->

⁶² S. 8129-B, *in* Bill Jacket, Veto 6837.

⁶³ *Id.*

⁶⁴ *Id.*

⁶⁵ *Marcellus Shale*, *supra* note 3.

⁶⁶ *Id.*

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low-volume hydraulic or conventional fracturing has been used successfully and safely in the state for many years consistent with the 1992 GEIS, and further noting that the SGEIS process the governor had ordered in 2008, as a result of the new horizontal fracturing technology that had emerged, was not yet complete, the governor said further study of the new technology was necessary.⁶⁷ He ordered DEC to proceed with its science-based, objective analysis and to publish a revised draft SGEIS on or about June 1, 2011, and “accept public comment on the revisions for a period not less than thirty days.”⁶⁸ He also authorized DEC to schedule public hearings after its public comment period.⁶⁹ The executive order prohibited DEC from issuing permits for hydrofracturing projects until completion of the SGEIS and a regulatory regime specifically for such projects.⁷⁰

Governor Andrew Cuomo continued Governor Paterson’s executive order when he assumed office in January 2011.⁷¹ DEC published its new recommendations on June 30, 2011,⁷² and released its new SGEIS on July 8, 2011.⁷³ Public hearings have occurred and the public comments, the period for which ends January 11, 2012, are being analyzed.⁷⁴

III. PREEMPTION

Of paramount significance to both Governors Paterson and Cuomo was that the permitting of high-volume horizontal hydrofracturing is very much a state decision. Amendments to the National Safe Water Drinking Act of 2005 exempt oil and gas drilling from the act;⁷⁵ thus, the federal Environmental Protection

⁶⁷ *Id.*

⁶⁸ Exec. Order No. 41, N.Y. COMP. CODES R. & REGS. tit. A, § 7.41 (2010), available at <http://www.governor.ny.gov/archive/paterson/executiveorders/EO41.html>

⁶⁹ *Id.*

⁷⁰ McKay, Johnson & Salita, *supra* note 26, at 128.

⁷¹ N.Y. Exec. Chamber, No. 2 Review, *Continuation & Expiration of Prior Exec. Orders* (Jan. 2011), available at <http://www.governor.ny.gov/executiveorder/2>.

⁷² Press Release, N.Y. Dept. Envtl. Conservation, New Recommendations Issued in Hydrpalic Fracturing Review, (June 30, 2011), available at <http://www.dec.ny.gov/press/75403.html>.

⁷³ *SGEIS on the Oil, Gas and Solution Mining Regulatory Program*, *supra* note 7.

⁷⁴ *Id.*

⁷⁵ 42 U.S.C. § 300h(d)(1)(B) (2006); *Regulation of Hydraulic Fracturing Under the Safe Drinking Water Act*, U.S. ENVTL. PROT. AGENCY (Mar. 6, 2012),

Agency (EPA) effectively has no role in a hydrofracturing permitting decisions. There is no federal regulatory framework over hydrofracturing and there are no applicable federal standards for ground water protection. For the period 1997–2004, the EPA investigated potential impacts to drinking water from hydraulic fracturing of coal bed methane reserves.⁷⁶ It found no evidence of drinking water well contamination associated with hydraulic fracturing.⁷⁷

Similarly, New York State Mine and Gas Law preempts local law with respect to drilling permits.⁷⁸ Notwithstanding the ferment of the debate concerning hydrofracturing in cities and towns throughout the Southern Tier, and in some cases the promulgation of bans by local ordinances,⁷⁹ state law controls. No permits can be issued until the SGEIS is finalized by the DEC and approved by the governor. No permit either can be given or denied by a local government. While local governments retain zoning control, and zoning regulation laws may affect the locations of certain drill sites (subject to DEC override), zoning cannot be used to do indirectly what the zoning body cannot do directly. Accordingly, the governor, acting through the DEC, is the final decision-maker. A time will come soon where – notwithstanding that the technology, science, and learning continues to evolve, and circumstances continue to inform – a decision will have to be made. Eventually, process must become substance, and the desire for balance, no matter how assiduously

http://water.epa.gov/type/groundwater/uic/class2/hydraulicfracturing/wells_hydr_oreg.cfm.

⁷⁶ U.S. ENVTL. PROT. AGENCY, EVALUATION OF IMPACTS TO UNDERGROUND SOURCES OF DRINKING WATER BY HYDRAULIC FRACTURING OF COALBED METHANE RESERVOIRS; NATIONAL STUDY FINAL REPORT (2004), *available at* http://www.epa.gov/ogwdw/uic/pdfs/cbmstudy_attach_uic_final_fact_sheet.pdf.

⁷⁷ *Id.*

⁷⁸ N.Y. ENVTL. CONSERV. LAW § 23-0303(2) (McKinney 2007). However, on February 21, 2012, in a declaratory judgment action, a Supreme Court justice in *Anshutz Exploration Corp. v. Town of Dryden* upheld the town's zoning ordinance banning natural gas drilling. 940 N.Y.S.2d 458, 474 (Sup. Ct. 2012). The court also held that the town had no authority to invalidate a permit lawfully issued by another governmental entity. *Id.* at 473–74. And, less than one week later, an acting Supreme Court justice upheld a drilling ban of the Town of Middlefield. *Cooperstown Holstein Corp. v. Town of Middlefield*, No. 2011-0930, 2012 WL 1068841 (N.Y. Sup. Ct. Feb. 24, 2012).

⁷⁹ *See, e.g.,* Howard W. Appell, *Town Board to Place Hold on Hydro-Fracking*, LIVINGSTON COUNTY NEWS, Nov. 30, 2011, <http://thelcn.com/2011/town-board-place-hold-on-hydrofracking/> (stating the town of Livonia, NY prepared text for a local law, creating a one year moratorium on fracking activity).

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pursued and how carefully designed, ultimately must yield to a hierarchy of values.

IV. ELEMENTS OF DECISION

There are no final victories in politics and the advocates and supporters on both sides of the hydrofracturing debate are unlikely to relent. There will not be consensus. Governor Cuomo must make a final determination and deal with the consequences whether favorable, mixed or bad. As reflected clearly in the revised draft SGEIS released July 2011 (discussed below), the DEC is designing careful mitigation measures and is planning a strong regime of regulatory protection to buffer water resources, keep aquifers safe, and insulate important watersheds.⁸⁰ The SGEIS will have the force of law. But Governor Cuomo knows that economics has laws as well.

As shale drilling becomes more prevalent, as it is in Pennsylvania and West Virginia and perhaps soon in Ohio, and as natural gas supply that is easily accessible by existing pipelines to the populous energy consuming North East market becomes abundant, the price of natural gas will continue to decline. Already the new drilling, combined with the recession, caused a slowdown of other economic activities such as construction, has reduced current prices to less than \$4 per thousand cubic feet from more than \$13.⁸¹ Current contracts are about \$3.17 per thousand cubic feet⁸² and there are contracts for about \$2.⁸³

That is good for consumers and air quality as some usages of coal have been displaced, but it may not be good for drillers and producers in New York whose added costs of business may negate their prospects of profits. Although costs may vary with respect

⁸⁰ N.Y. STATE DEP'T OF ENVTL. CONSERVATION, PRELIMINARY REVISED DRAFT SUPPLEMENTAL GENERIC ENVIRONMENTAL IMPACT STATEMENT ON THE OIL, GAS AND SOLUTION MINING REGULATORY PROGRAM 17–18 (July 2011), *available at* <http://www.slideshare.net/MarcellusDN/ny-2011-draft-sgeis-summary>.

⁸¹ *Natural Gas Assessment New York State Energy Plan 2009*, at 15–17, Dec. 2009, *available at* http://www.nysenergyplan.com/final/Natural_Gas_Assessment.pdf; Robert Bryce, *How Fracking Lies Triumphed*, DAILY NEWS (N.Y.), Jan. 22, 2012; Clifford Krauss, *As Oil and Gas Prices Plunge, Drilling Frenzy Ends*, N.Y. TIMES, Mar. 15, 2009, at A26.

⁸² *US EIA Cuts 2012 Gas Prices to \$3.17/MMBTU from \$3.35/MMBTU in February*, PLATTS (D.C.) (Mar. 6, 2012, 1:52 PM), <http://www.platts.com/RSSFeedDetailedNews/RSSFeed/NaturalGas/3983034>.

⁸³ Bryce, *supra* note 81.

to well established drillers that enjoy the benefits of scale, and with respect to lesser established smaller firms and wildcatters, a general benchmark is that the breakeven costs of a single well-pad operating is about \$3 million.⁸⁴

The governor will know the market prices of Marcellus Shale gas and its price trend when he will be required to decide whether to approve the SGEIS. But the governor will not be able to know with any certainty the costs for each potential driller of compliance to the recommended DEC regulations. Nor could he know reliably the cost/profit analyses that drillers might make. Some of their decisions might be complicated since many of the leases and drilling rights they entered into have five-year terms and in most cases it will be in year four before the SGEIS is released. Thus, there is no assurance that widespread drilling will occur even if the SGEIS were to be approved. Producers may deem the regulatory regime too onerous and expensive. They may decide to withhold investment.

Yet the governor will know in the spring of 2012 that the state still is likely to be in revenue crisis and confronted by a structural budget deficit. Thus, job creation and revenue gain will be the primary predicates if he is convinced that proceeding with permitting will not endanger health and the environment and he decides to approve. So, the governor will have to weigh the costs of protection against the costs of production. That primarily will be a risk assessment and the governor will have to make a value judgment as well as an economic one. In assembling a hierarchy of risks it would be extraordinary if he could satisfy both sides; it might be that he cannot satisfy either.

Necessarily, the governor also will be making a political decision. The governor is an elected official. His power is derived from the electorate's will. He rightly should assess his own power stakes in every important decision he makes because political power is essential to effective governance and leadership. That the state is required to confront revenue crises necessarily means it must undertake difficult choices. The right choices may be painful; even the lesser of two evils allies one with an evil. The governor needs to amalgamate and preserve his political power so he can build support for hard, unpleasant things that may follow. The choice to permit or not to permit hydrofracturing, and if so,

⁸⁴ Jeffrey C. King, *Selected Re-Emerging and Emerging Trends in Oil and Gas Law as a Result of Production from Shale Formations*, 18 TEX. WESLEYAN L. REV. 1, 3-4 (2011).

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under which constraints, is risky politically primarily because the political terrain is quite unusual and unclear. A Quinnipiac poll released October 27, 2011 illustrates this.

The poll found that New York State voters are divided on drilling for natural gas in the Marcellus Shale: 44 percent support drilling because of promised economic benefits while 43 percent oppose because of threatened environmental harm.⁸⁵ The single percent approval margin is less than it was in prior monthly polls; the trend clearly is toward disapproval. Of more importance and interest is the regional breakdown. In “upstate” New York where drilling would occur, the split is 45 percent to 45 percent.⁸⁶ In New York City, where no drilling would occur, the split is 43 percent against and 41 percent in favor.⁸⁷ Thus, unlike other political issues that have different regional impacts, e.g., a payroll tax surcharge to subsidize the Metropolitan Transportation Authority, where the regions split sharply on the perceived basis of who pays and who benefits (suburban residents greatly against; New York City greatly for),⁸⁸ with hydrofracturing there is intraregional confusion: neighbor versus neighbor.

This pervades, notwithstanding that in New York City neither will drilling occur, nor will jobs be created, while the exact opposite will be true in the Southern Tier. Expectations and doubts seem to be near evenly mixed regardless of region. There is no region where either position is overwhelmingly popular. This suggests that those who support drilling are poised to be disappointed if economic returns are not significant, and those

⁸⁵ Celeste Katz, *New Yorkers Split on Marcellus Shale Drilling*, DAILY NEWS DAILY POLITICS BLOG (N.Y.) (Oct. 27, 2011, 7:21 AM), <http://www.nydailynews.com/blogs/dailypolitics/2011/10/new-yorkers-split-on-marcellus-shale-drilling>; QUINNIPIAC U. POLLING INST., VOTERS BACK WALL ST. PROTESTORS, MILLIONAIRE’S TAX, QUINNIPIAC UNIVERSITY NEW YORK STATE POLL FINDS; NEW YORKERS DIVIDED ON NATURAL GAS DRILLING (Oct. 27, 2011), available at <http://www.quinnipiac.edu/institutes-and-centers/polling-institute/new-york-state/release-detail?ReleaseID=1668> [Hereinafter *New Yorkers Divided on Natural Gas Drilling*].

⁸⁶ Katz, *supra* note 85; *New Yorkers Divided on Natural Gas Drilling*, *supra* note 85.

⁸⁷ Katz, *supra* note 85; *New Yorkers Divided on Natural Gas Drilling*, *supra* note 85.

⁸⁸ *New Yorkers Divided on Natural Gas Drilling*, *supra* note 85; see also William Neuman & Nicholas Confessore, *Unexpected Opposition to Payroll Tax Throws M.T.A. Rescue Talks Into Turmoil*, N.Y. TIMES, Apr. 1, 2009, at A23 (noting that New York State senators representing suburban districts opposed a payroll tax surcharge).

who oppose drilling are poised to pounce if and whenever an almost inevitable accident were to occur, no matter how minor. These divisions and volatile expectations are played out and reflected in the media frenzy that surrounds hydrofracturing. Controversy creates interest.

The significance of this aberrant political paradigm would seem to be that the Governor would bear a possible long-term risk if he were to approve hydrofracturing. It is a risk over which he would have no control. The hydrofracturing debate is passionate as demonstrated by the hearings conducted in late November 2011. Passions are emotions; they can shift abruptly and dramatically, and can be characterized by rueful regret.

On December 21, 2011, another Quinnipiac Poll was released.⁸⁹ This followed the four hydrofracturing hearings that were conducted by the DEC.⁹⁰ Each hearing was attended by overflow crowds that were overwhelmingly opposed to hydrofracturing and were quite volatile in their opposition.⁹¹ These hearings, three of which occurred in the Southern Tier, and one in New York City, were given extensive media coverage with the essential report being that there was widespread opposition to hydrofracturing.⁹² The stories also repeated many of the allegations against hydrofracturing at the hearings and at marches and protests that surrounded the hearings. Thus, a lot of misinformation and some

⁸⁹ QUINNIPIAC U. POLLING INST., SUPPORT FOR INDEPENDENT REDISTRICTING INCHES UP, QUINNIPIAC UNIVERSITY NEW YORK STATE POLL FINDS; VOTERS SUPPORT VEGAS-STYLE CASINOS 2-1 (Dec. 21, 2011), <http://www.quinnipiac.edu/institutes-and-centers/polling-institute/new-york-state/release-detail?ReleaseID=1685> [hereinafter INDEPENDENT REDISTRICTING].

⁹⁰ *Id.*; see *High Volume Hydraulic Fracturing Proposed Regulations*, N.Y. STATE DEPT' ENVTL. CONSERVATION, <http://www.dec.ny.gov/regulations/77353.html> (last visited Mar. 23, 2012) [hereinafter *High Volume Hydraulic Fracturing Proposed Regulations*] (listing the dates and locations of hearings in Dansville, Binghamton, Sheldrake, and Manhattan).

⁹¹ Steve Reilly, *Fracking Regulations: DEC's Latest Script Produces High Drama at Binghamton Forum*, PRESS & SUN BULLETIN (Binghamton, N.Y.), Nov. 18, 2011; Angela Sutfin, *Wide Spectrum of Opinions at DEC Hydrofracking Hearing in Dansville*, EVENING TRIBUNE (Hornell, N.Y.), Nov. 16, 2011; Bobby Cuza, *Hydrofracking Opponents Flood Public Hearing*, NY1.COM (Nov. 30, 2011, 9:55 PM), http://www.ny1.com/content/top_stories/151706/hydrofracking-opponents-flood-public-hearing; Venise Toussaint, *Hydrofracking Hearings Held in Sullivan County*, YNN.COM (Albany, N.Y.) (Nov. 29, 2011, 11:02 PM), http://hudsonvalley.ynn.com/content/top_stories/565423/hydrofracking-hearings-held-in-sullivan-county.

⁹² See Reilly, *supra* note 91; Sutfin, *supra* note 91; Cuza, *supra* note 91; Toussaint, *supra* note 91; *High Volume Hydraulic Fracturing Proposed Regulations*, *supra* note 90.

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strident charges were given a wide dissemination. This very likely influenced the poll that showed that 44 percent support drilling because of the economic benefits and 45 percent oppose because of environmental concerns. But unlike the October poll, attitudes in the affected regions shifted and hardened. In December opposition upstate was 48 percent to 43 percent, and in New York City (whose water supplies would be threatened according to opponents) opposition was 49 percent to 40 percent.⁹³ A lopsided supportive position in the suburbs of 53 percent to 34 percent,⁹⁴ where there were no hearings and no alleged deleterious effects, caused the overall poll to reflect a basically even split.

Time favors opposition generally and that appears to be happening with hydrofracturing. If Governor Cuomo favors hydrofracturing, he may have let the decision process take too long and may be getting “boxed” by events. A political maxim is that if one pursues a policy of keeping one’s options open, one invariably ends up with the option one least prefers. The point is that it is important to decide. So long as there is not a decision, those who advocate various positions have a “hunting license” to advocate and skew the choices. The governor could have declared that he will permit hydrofracturing and then direct the DEC to develop protocols to ensure that it occurs safely. The debate then would have shifted (presumably) from not whether permits would be issued but when and on what terms. But instead the conversation is stuck on should hydrofracturing be permitted at all and the naysayers to that question have been allowed to grow and become more intense. This increases the political risks of the governor.

Another dimension to the political riskiness of the governor’s decision is the nature of the advocates. The drillers are businesspersons and risk takers. They want certainty so they can calculate their risks and make business decisions. They are transactional. They want the governor to offer them a deal, e.g., you can apply for a permit but here is what you have to be willing to do to get it. They then can accept or refuse; they do not have to like the terms offered, they just have to be able to live with them. As long as they think it is a reasonable risk, they may accept. If not, they will go elsewhere.

⁹³ INDEPENDENT REDISTRICTING, *supra* note 89.

⁹⁴ *Id.*

Environmental advocates tend not to be transactional. They tend not to make deals and are risk adverse. They think longer term. Their calculations are valence driven. They have moral certainties and notions of the absolute that they apply to specific circumstances. They may compromise when compelled to, but their pragmatism is often short lived. That is emphasized in their insistence of a life cycle regime, e.g., for the entire operating period of a well (which could be thirty years) as a condition of a permit to drill (if there are to be permits at all).⁹⁵ It will be much harder for the governor to bargain politically with such advocates.

The process the governor has created is an inclusive one and it provides environmentalists with a seat at the political table. But they are hard to co-opt. Environmental advocacy depends on outrage for fundraising and political power. Such advocacy gains strength by registering opposition despite the ironic fact that it is the things that environmental advocates are for that is their *raison d'être* and is what gives them a nobility. In political terms, environmental advocates are less vulnerable to division and conquest because they argue for an indivisible whole. Governor Cuomo knows this.⁹⁶ Regulations that ultimately he may approve will demonstrate that he has listened carefully. But that may prove to be insufficient at the first indication of environmental degradation.

There are other elements of uncertainty that make the governor's decision difficult. Permitting hydrofracturing would mean necessarily that there would be some industrialization of rural, agricultural settings. Were this to be restricted too much, there could be an insufficient return on the economic, governmental and political investment. So there will be change and some of it will be unsettling. There will be steady noise (from compressors and other machinery), there will be bright lights, there will be odors, there will be massive trucks bringing water to and from drill sites, moving constantly on hitherto unclogged

⁹⁵ See, e.g., JOHN W. UBINGER ET AL., DEVELOPING THE MARCELLUS SHALE 11, 26 (2010), available at http://www.mde.state.md.us/programs/Land/mining/marcellus/Documents/Developing_the_Marcellus_Shale.pdf.

⁹⁶ Some observers have commented that, in effect, the Governor is proposing a deal to environmental advocates: shutting down the Indian Point Nuclear facility and permitting hydrofracturing. See Andrew C. Revkin, *Cuomo Clarifies Fracking and Nuclear Plans*, N.Y. TIMES DOT EARTH BLOG (June 30, 2011, 7:05 PM), <http://dotearth.blogs.nytimes.com/2011/06/30/cuomo-clarifies-fracking-and-nuclear-plans>. The governor probably would deny that. Nuclear power and hydrofracturing are separate issues, each with its own merits and imperatives.

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roads (as many as 715 to 2,615 truck trips, as well as about 100 hauls of produced water are necessary for a single hydrofracturing operation),⁹⁷ there will be landscape alterations including new access roads and five acre site clearings, and disruptions in routine. And some drill sites could be entirely unproductive. To the extent such change occurs, and in some locations it will have to occur to a measurable extent, there will be intrusion. Drilling operations may occur for only five weeks at a time and there will be multiple drills per well pad—a distinct feature of horizontal hydrofracturing—but wells could be present for many years.⁹⁸ There will be required re-seedings and site restorations but that cannot be done instantaneously. For even the most ardent proponents some of the change will be unpleasant. Change is always dislocating and can cultivate resentment.

V. ARGUMENTS PRO AND CON

In late November 2011, DEC conducted four public hearings: three in the Southern Tier and one in New York City.⁹⁹ At the last hearing in Manhattan on November 30, 2011, DEC announced that it was extending the public comment period to January 11, 2012 making the length of the public comment period 126 days.¹⁰⁰ The extension illustrates the depth of the controversy. Department of Environmental Conservation spokesperson Emily DeSantis noted that 10,000 comments were received by the time the public hearings began.¹⁰¹

The hearings underscored the intensity of the debate. Based on press reports and other accounts, it appears that every argument advanced by one side is disputed by the other. There

⁹⁷ See Joan Tubridy, *Gas Drilling: Economic Boom or Bust?*, GAS DRILLING: COMING TO A FIELD NEAR YOU?, Sept. 2011, at 6, available at <http://www.peacecouncil.net/NOON/hydrofrac/Hydrofracking%20Primer9-2011.pdf>; see also UBINGER ET AL., *supra* note 95, at 23 (discussing the fact that oil and gas well-related activities place “significant stress” on roads and other infrastructure, and describing “significant truck traffic” involved therewith); 2011 REVISED DRAFT SGEIS, *supra* note 3, at 6-289.

⁹⁸ See 2011 REVISED DRAFT SGEIS, *supra* note 3, at 6-289.

⁹⁹ *High Volume Hydraulic Fracturing Proposed Regulations*, *supra* note 90.

¹⁰⁰ Cuza, *supra* note 91.

¹⁰¹ Brian Nearing, *More Time to Join Voices on Shale Gas Plan*, TIMES UNION (Albany, N.Y.), Dec. 1, 2011, at A3. Reportedly, as many as 66,000 comments were received. Mary Esch, *Waste Boss: No NY Fracking Until 2013*, OBSERVER-DISPATCH (Utica, N.Y.), Mar. 15, 2012.

does not seem to be a single undisputed fact. Among the more strident arguments made by those opposed to hydrofracturing are these:

- That hydrofracturing will cause New York rivers, streams, reservoirs and aquifers to be contaminated, and “[t]here is no way to prevent it;”¹⁰²
- That hydrofracturing and natural gas will aggravate the gradually worsening effect of climate change causing what is now a plentiful supply of fresh water to be reduced due to evaporation and the huge withdrawals required by hydrofracturing;¹⁰³
- That the quantity of New York’s water required by hydrofracturing will degrade the quality of New York’s water;¹⁰⁴
- That drilled wells provide pathways for “deadly chemical hazards” to rise under pressure and mix with freshwater aquifers either instantly or over a period of years due to corrosion from harsh downhole conditions;¹⁰⁵
- That natural gas wells and related processing sites will spew invisible plumes of air pollution containing methane and, possibly, benzene and toluene;¹⁰⁶
- That hydrofracturing is a “criminal industry;”¹⁰⁷
- That the dumping of waste water from hydrofracturing “kills” fresh water streams;¹⁰⁸
- That hydrofracturing will not produce the numbers of jobs DEC claims and that DEC exaggerates the economic benefits. There would be negative impact on agriculture, tourism, beer and other industries;¹⁰⁹

¹⁰² Tracy Carluccio, Op-Ed, *Fracking is Destroying Our Groundwater*, U.S. NEWS & WORLD REP., Nov. 29, 2011.

¹⁰³ *Id.*

¹⁰⁴ *Id.*

¹⁰⁵ *Id.*

¹⁰⁶ Tim Wheeler, *Bay Foundation: Video Shows Fracking Sites Polluting Air*, BALT. SUN B'MORE GREEN BLOG (Nov. 30, 2011, 6:30 AM), http://weblogs.baltimoresun.com/features/green/2011/11/infrared_video_shows_air_pollu.html.

¹⁰⁷ See Gary Gough, Comment to David Robinson, *Region Seen Benefitting on 'Fracking' Outside State*, BUFFALO NEWS (Nov. 30, 2011, 12:00 AM), <http://www.buffalonews.com/city/communities/amherst/article653960.ece>.

¹⁰⁸ Adam Federman, *What Killed Dunkard Creek*, EARTH ISLAND J., Winter 2012, available at http://www.earthisland.org/journal/index.php/eij/article/what-killed_dunkard_creek.

¹⁰⁹ See Karen McVeigh, *New York Fracking Proposal Roundly Condemned at Public Hearing*, THE GUARDIAN (U.K.), Dec. 1, 2011, available at 2011 WLNR 24804155.

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- That hydrofracturing is a “direct assault on the cancer community of New York;”¹¹⁰
- That DEC’s regulations “can’t possibly go far enough”;¹¹¹
- That the DEC regulations fall short because they do not assess cumulative effects of hydrofracturing;¹¹²
- That natural gas from the Marcellus Shale will be exported to Japan and other international markets and cannot alleviate the use of other fossil fuels in New York;¹¹³
- That total lifecycle greenhouse gas emissions are as bad as coal and that the notion that natural gas can serve as a transition fuel to sustainable energy is incorrect;¹¹⁴
- That contamination from hydrofracturing could force New York City to build a plant to filter drinking water that could cost \$20 billion;¹¹⁵
- That DEC does not have sufficient resources to oversee gas drilling properly;¹¹⁶
- That industry’s economic benefit projections are overstated by a factor of ten, or about 900 percent;¹¹⁷
- That hydrofracturing will make New York smell like Newark;¹¹⁸
- That hydrofracturing creates jobs filled by out-of-state

¹¹⁰ *Id.*

¹¹¹ Derek Hawkins, *Opponents Dominate Final NY Fracking Rules Hearing*, LAW360 (Nov. 30, 2011, 7:49 PM), <http://www.law360.com/articles/287171/opponents-dominate-final-ny-fracking-rules-hearing>.

¹¹² *Id.*

¹¹³ See Harry Rearick, Op-Ed, *Gas Companies Shouldn’t Be Allowed to Export to China, Japan, Elsewhere*, GOERIE.COM (Oct. 6, 2011, 12:01 AM), <http://www.goerie.com/article/20111006/OPINION08/310069992/Rearick%3A-Gas-companies-shouldn't-be-allowed-to-export-to-China-Japan-elsewhere>.

¹¹⁴ Wes Ernsberger, Op-Ed, *Fracking for Natural Gas Will Hurt Our Climate*, PRESSCONNECTS.COM (Nov. 30, 2011, 4:54 PM), <http://www.pressconnects.com/article/20111201/VIEWPOINTS02/112010358/Guest-Viewpoint-Fracking-natural-gas-will-hurt-our-climate>.

¹¹⁵ Jim Efstathiou, Jr., *New York Fracking Rules Won’t Protect City Water, Foes Say*, BLOOMBERG NEWS (Dec. 1, 2011, 1:58 PM), <http://www.bloomberg.com/news/2011-11-30/new-york-fracking-rules-won-t-protect-city-water-opponents-say.html>.

¹¹⁶ See Jay Burney, *Extreme Environmentalists, Fracking, Spills, Disasters, and the Free Market*, ARTVOICE, <http://artvoice.com/issues/v11n2/greenwatch> (last visited Mar. 13, 2012).

¹¹⁷ FOOD & WATER WATCH, EXPOSING THE OIL AND GAS INDUSTRY’S FALSE JOB PROMISE FOR SHALE GAS DEVELOPMENT: HOW METHODOLOGICAL FLAWS GROSSLY EXAGGERATE JOBS PROJECTS 1 (Nov. 2011).

¹¹⁸ James Thilman, *Fracking Will Make NY Smell Like Newark, Opponents Warn at Tribeca Forum*, GOTHAMIST (Dec. 1, 2011, 5:02 PM), http://gothamist.com/2011/12/01/fracking_mark_ruffalo_will_boo_if_y.php.

workers and causes property values to be lowered, and “destroy[s]” rural land;¹¹⁹

- That hydrofracturing causes earthquakes;¹²⁰
- That micro-seismic events due to hydrofracturing could create cracks in the sixty-six-year-old water tunnels that bring fresh water to New York City;¹²¹
- That hydrofracturing is a good technology taken to an “abusive extreme;” and¹²²
- That hydrofracturing can be likened to the BP Gulf oil leak and the disastrous results occasioned by “an anemic regulatory body” unable to hold industry accountable.¹²³

Criticisms aimed directly at the dSGEIS include:

No health impact assessment[;]

No health expense projection[;]

No socio-economic assessment[;]

No provisions for increased first responder use for managing crises[;]

No risk management and liability plan for death, injury, contamination and accidents[;]

No fallbacks for lawsuits, defaults or bankruptcy by gas leasing, drilling or sales companies[;]

No bailout projections for investment losses[;]

No data on the risk of declining properties values both downstate and upstate[;]

No plan for potential foreclosure crisis, triggered by mortgage forfeiture

No provision for damage insurance[;]

No evaluation of NYC’s aging water infrastructures for seismic

¹¹⁹ Aaron Munzer, *Enfield Residents Tell Town Board To Ban Fracking*, ITHACA J. (N.Y.), Dec. 3, 2011; ENVTL. WORKING GROUP, *New York Shale Gas Drilling Plan Endangers Drinking Water* (Oct. 2011), <http://static.ewg.org/pdf/NY-Shale-Gas-Drilling-Fact-Sheet.pdf> (last visited Apr. 3, 2012).

¹²⁰ Spencer Hunt, *A Seismic Shift; A Little-Known State Office Managed By A Seismologist Working Part Time Has Become The Epicenter Of An Investigation Into A String of Earthquakes In Ohio*, COLUMBUS DISPATCH (Ohio), Jan. 9, 2012, at 1A.

¹²¹ See Editorial, *Quaking In Our Boots*, DAILY NEWS (N.Y.), Dec. 5, 2011; see also Henry Fountain, *Add Quakes to Rumbles Over Gas Rush*, N.Y. TIMES, Dec. 13, 2011, at D1 (providing examples of locales whereby a causal link between hydrofracturing and small seismic tremors have been established).

¹²² Michael Gorman, *Energy Expert Raises Risks of Fracking*, CHRON. HERALD (N.S.), Dec. 4, 2011, available at <http://thechronicleherald.ca/novascotia/39237-energy-expert-raises-risks-fracking>.

¹²³ Alison Rose Levy, *Will New Yorkers Veto Cuomo’s Fracking Guidelines?*, HUFFINGTON POST (Dec. 2, 2011, 7:27 PM), http://www.huffingtonpost.com/alison-rose-levy/what-do-new-yorks-frackin_b_1124556.html.

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destabilization or contamination risks[;]

No comprehensive plan for hazardous waste disposal[;]

No evaluation of possible increased contamination risks due to more frequent hurricanes, floods, and other artifacts of climate change[;]

No evaluation of hazards arising from fracking induced seismic activity leading to increases in earthquake frequency and intensity[; and]

No strategy for increased taxpayer burden to cover any of the above[.]¹²⁴

To such claims, the natural gas industry and its proponents rejoin and demur. They argue that since the 1950s and the advent of hydrofracturing, there are no known fatalities or scientific proof that the process has ever contaminated a drinking source.¹²⁵ Spokespersons acknowledge that faulty wells and substandard operations can lead to a leaching of some hazardous chemicals into groundwater but there are a few in the industry who emphasize, with supporting evidence, that the problems associated with hydrofracturing are all soluble.¹²⁶ Members of the industry believe that regulatory regimes are behind technological developments.¹²⁷ (This is hardly unusual; government is generally behind the curves of science, technology and discoveries about human nature.) They do not agree that drilling at the New York City watershed would endanger New York City drinking water or threaten the filtration exemption,

¹²⁴ *Id.*; see also Letter from U.S. Congressman Maurice D. Hinchey (N.Y.) to N.Y. Governor Andrew M. Cuomo (Jan. 9, 2012), http://hinchey.house.gov/images/stories/20110109_HincheyDSGEISComments.pdf; see also Press Release, Maurice D. Hinchey, Hinchey Urges Withdrawal of DSGEIS: Congressman Lists 10 Problems With Regulations (Jan. 9, 2012), available at http://hinchey.house.gov/index.php?option=com_content&view=article&id=1808:hinchey-urges-withdrawal-of-dsgeis-&catid=71:2011-press-releases (arguing for ten analyses beyond the 2009 dSGEIS reflecting the requirements of the state Environmental Quality Review Act).

¹²⁵ Brian Nearing, *Study Proclaims Natural Gas Hydrofracking Safe for Groundwater*, TIMES UNION THE GREEN BLOG (Albany, N.Y.) (Feb. 17, 2012, 5:24 PM), <http://blog.timesunion.com/green/study-proclaims-natural-gas-hydrofracking-safe-for-groundwater/3716>.

¹²⁶ See generally G. Howard, S. Godfrey & T. Boonyakarnkul, *Sanitary Completion of Protection Works Around Groundwater Sources*, in PROTECTING GROUNDWATER FOR HEALTH: MANAGING THE QUALITY OF DRINKING-WATER SOURCES 493, 499 (Oliver Schmoll et al. eds., 2006), available at http://www.who.int/water_sanitation_health/publications/PGWsection4.pdf; J. Chilton and W. Alley, *Hydrological Management*, *supra*, at 517, 532.

¹²⁷ Renee Schoof, *As Shale Fracking Booms, Environmental Protection Lags*, McCLATCHY (Dec. 21, 2011, 4:56 PM), <http://www.mcclatchydc.com/2011/12/21/v-print/133807/as-shale-fracking-booms-environmental.html>.

and argue against the necessity of various buffer zones but dispute that they are inadequate.

The industry maintains that hydrofracturing is a key to capturing natural resources that offer the United States energy independence and a lengthy bridge to new sustainable energy sources. It has been estimated, they note, that hydrofracturing in shale formations could produce the equivalent of 118 years of current domestic consumption.¹²⁸ They scoff at the argument that shale gas from New York will be mostly exported, noting that the costs of such an endeavor would cut deeply into profit margins, especially since pipelines transporting natural gas to regional markets present a less expensive and simpler alternative to the process of converting gas from wet to liquefied form and getting it to ports for distant shipping in liquefied natural gas tankers.

With respect to servicing international markets, it should be noted that the shipment of natural gas in liquefied form requires an export license.¹²⁹ In its 2011 report, *World Shale Gas Resources: An Initial Assessment of 14 Regions Outside the United States*, the U.S. Energy Information Administration (EIA) assessed forty-eight shale deposits in thirty-two countries and estimated reserves of 5,760 trillion cubic feet of possibly recoverable gas.¹³⁰ In April 2010, the U.S. Department of State established the Global Shale Gas Initiative to help countries identify and develop their unconventional gas resources safely and economically.¹³¹ So, there will not necessarily be an international market demand for shale gas produced in New York. In the United States, demand and supply of natural gas is rising. According to the EIA, production of shale gas in the United States in 2010 was 4.87 trillion cubic feet compared to just

¹²⁸ Robert J. Aalberts, *Can We Frack Our Way To Energy Independence?*, 40 REAL EST. L.J. 111, 111 (2011).

¹²⁹ See John Funk, *DOE Boss Says Shale Gas Could Be Good for Wind and Solar*, CLEVELAND.COM (Jan. 19, 2012, 10:20 AM), http://www.cleveland.com/business/index.ssf/2012/01/doe_boss_says_shale_gas_could.html. No current permits or liquefied natural gas export facilities exist. Derek Hawkins, *FERC Approves Cheniere LNG Export Project*, LAW360 (Apr. 17, 2012, 7:14 PM), http://www.law360.com/internationaltrade/articles/330880?nl_pk=7db2364ae-4592-ao.

¹³⁰ U.S. ENERGY INFO. ADMIN., *WORLD SHALE GAS RESOURCES: AN INITIAL ASSESSMENT OF 14 REGIONS OUTSIDE THE UNITED STATES 2* (2011), available at <http://americaspetrogas.com/pdf/World-Shale-Gas-Resources.pdf>.

¹³¹ *Global Shale Gas Initiative*, U.S. DEPT OF STATE, <http://www.state.gov/s/ciea/gsgi> (last visited Mar, 27, 2012).

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.039 trillion cubic feet in 2000.¹³² The optimum economic strategy for U.S. natural gas production, then, is to stimulate domestic demand. (However, the international price per thousand cubic feet of natural gas is three to four times the current domestic price, largely because it is linked to the price of oil.)

The industry also points to evidence in job growth and economic activity claiming 72,000 new jobs were created in Pennsylvania in just the last eighteen months.¹³³ A 2011 report offered by pro-industry IHS Global Insight concludes that producing shale natural gas will support 870,000 U.S. jobs and add \$118 billion to economic growth just in the next four years, not including New York.¹³⁴ The report was commissioned by America's Natural Gas Alliance.¹³⁵ The report further concludes that shale gas will generate \$57 billion in federal, state and local taxes by 2035 and an added \$231 billion to U.S. gross national product in 2036 alone.¹³⁶ Environmental critics dismiss the report arguing that it does not provide a detailed methodology making it impossible to validate. Critics also dismiss as "exaggerated" a 2011 report by the Public Policy Institute of New York State that argues that by 2018 just 2,500 wells (500 per year), in New York would create 62,620 jobs.¹³⁷ Following industry estimates, DEC anticipated that peak demand in New York could reach close to 2,500 wells per year.¹³⁸

DEC has opined as to the direct benefits of jobs created attributable to hydrofracturing.¹³⁹ Under an average development scenario, it estimates that 17,634 direct full time

¹³² Emilio Godoy, *Shale Gas May Be a Mexican Mirage*, INTER PRESS SERV. (Dec. 5, 2011), <http://ipsnews.net/news.asp?idnews=106097>.

¹³³ PENN. DEPT LABOR & INDUS., MARCELLUS SHALE FAST FACTS 4 (2011), available at http://www.paworkstats.state.pa.us/admin/gsipub/htmlarea/uploads/Marcellus_Shale_Fast_Facts_Viewing.pdf.

¹³⁴ Jim Efstathiou, Jr., *Shale-Gas Drilling to Add 870,000 Jobs by 2015, Report Says*, BLOOMBERG NEWS (Dec. 6, 2011), <http://www.bloomberg.com/news/2011-12-06/shale-gas-drilling-to-add-870-000-u-s-jobs-by-2015-report-says.html>.

¹³⁵ *Id.*

¹³⁶ *Id.*

¹³⁷ *Id.*; see generally PUBLIC POLICY INST. OF N.Y. STATE INC., DRILLING FOR JOBS: WHAT THE MARCELLUS SHALE COULD MEAN FOR NEW YORK (2011), available at <http://www.ppiny.org/reports/2011/Drilling-for-jobs-what-marcellus-shale-could-mean-for-NY.pdf>.

¹³⁸ 2011 DRAFT SGEIS, *supra* note 3, at 6-10.

¹³⁹ N.Y. DEPT ENVTL. CONSERVATION, FACT SHEET: ECONOMIC IMPACTS OF HIGH-VOLUME HYDRAULIC FRACTURING IN NEW YORK STATE (2011), http://www.dec.ny.gov/docs/materials_minerals_pdf/econimpact092011.pdf.

equivalent (FTE) construction jobs would be created.¹⁴⁰ This assumes about 1,652 wells per year.¹⁴¹ Under the same assumed scenario, DEC estimates that jobs created for operating well pads and related work would be about 7,161 FTE.¹⁴² With respect to indirect employment in other sectors, DEC predicts an additional 29,174 FTE jobs would be generated.¹⁴³ Assuming average development for up to 30 years, DEC projects up to \$2.5 billion in new employee earnings.¹⁴⁴ With respect to local government additional sales tax receipts, DEC estimates that over the thirty-year life of a typical horizontal well, a total of \$1.45 million per well could be realized.¹⁴⁵

There may be other benefits to hydrofracturing. The National Fuel and & Gas Co. in Amherst, New York, estimated that heating costs for a typical household in Western New York for winter 2011–12 would run about \$719 from November to March which would be \$351 less than the \$1,070 the average household paid during the winter of 2008–09.¹⁴⁶ This is due to increased supply from Pennsylvania. With respect to supply, DEC estimated in 2009 that one trillion cubic feet of natural gas is used in New York annually and that about eight to ten trillion cubic feet of gas would be recoverable per year in New York from the Marcellus Shale.¹⁴⁷

Investment capital is restless. Just as natural gas can be liberated by fissures, capital is released by risk taking and the risk/reward ratio in fossil fuel exploration has always been high. The industry argues that this ratio is being compromised in New York by excessive regulation which might add \$1 million in cost per well.¹⁴⁸ The industry argues that further delay is unnecessary. Why, then, it asked, was the comment period

¹⁴⁰ *Id.*

¹⁴¹ *Id.*

¹⁴² *Id.*

¹⁴³ *Id.*

¹⁴⁴ *Id.*

¹⁴⁵ *Id.*

¹⁴⁶ David Robinson, *Region Seen Benefiting on “Fracking” Outside State; Amherst Energy Firm Cites Lower Gas Prices*, BUFFALO NEWS, Nov. 30, 2011, at B1.

¹⁴⁷ 2009 DRAFT SGEIS, *supra* note 57, at 4-24; *Marcellus Shale*, *supra* note 3.

¹⁴⁸ *State’s Proposed Framework for Natural Gas Exploration Lacks the Balance Needed to be a Formula for Growth and Environmental Protection*, INDEP. OIL AND GAS ASS’N OF N.Y. (Jan. 11, 2012), available at <http://www.marcellusfacts.com/blog/state%e2%80%99s-proposed-framework-for-natural-gas-exploration-lacks-the-balance-needed-to-be-a-formula-for-growth-and-environmental-protection>.

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extended? It sees no scientifically based proof of harm presented.

The Department of Environmental Conservation stimulated these arguments and comments and probably recognizes that they cannot be reconciled. Nevertheless, it must evaluate them, adopt some, and reject most. Whatever it recommends to the governor, necessarily, will be controversial because the long process of analysis has served to make the value driven arguments more extreme, more self-righteous. It would appear that no one is listening as the argument intensifies. The range of compromise has narrowed. There will not be an election to determine the course to be followed; the governor must select a path of resolution that risks widespread disappointment. For, as the arguments persist, the choice the public is constructing is becoming: to ban or not to ban. One letter-to-the-editor author tried to draw a perspective to illustrate how less meaningful the debate was becoming. Gordon Tomei of Centerport offered: "In the last two years, more than 40 people have died from farming contaminants such as manure in water. Should we ban farming?"¹⁴⁹

The fundamental essence of the governor's final decision will be whether he concludes that hydrofracturing can be conducted safely in New York, minimizing potential harm and maximizing potential benefit. DEC's 2011 dSGEIS, subject to comment and revision, argues those goals can be realized.

V. dSGEIS 2011: MITIGATION AND PROTECTION

Water contamination risk is the most prevalent argument raised against hydrofracturing. DEC addresses these concerns directly in its 2011 dSGEIS adding more thorough and cautionary measures than it did in its 2009 dSGEIS.¹⁵⁰ Four important fresh-water protection decisions characterize the 2011 document. The first is that drilling will not be allowed within 4,000 feet of both the Syracuse and New York City watersheds.¹⁵¹ The second is that drilling will not be allowed within 2,000 feet of either side of rivers and streams.¹⁵² The third is that drilling will not be

¹⁴⁹ Gordon Tomei, Letter to the Editor, *Fracking Phobia is Overblown*, NEWSDAY (N.Y.), Nov. 29, 2011, available at <http://www.newsday.com/opinion/letters/letter-fracking-phobia-is-overblown-1.3354652>.

¹⁵⁰ See 2011 REVISED DRAFT SGEIS, *supra* note 3, at 3, 19–22.

¹⁵¹ *Id.* at 20.

¹⁵² *Id.* at 21.

allowed within 500 feet of principal and primary aquifers.¹⁵³ The fourth is that drill surface cement casings must be at least 75 feet below the deepest aquifers, which is about 850-feet deep.¹⁵⁴

The Department of Environmental Conservation's decision reflects a vital fact and prudent conclusion regarding Syracuse and New York City watershed: the drinking water from these watersheds is exempt from EPA/Clean Water Act filtration requirements.¹⁵⁵ Although gas stations, tanks, and light industrial activity already exist on or near lands of these watersheds, and although DEC in 2009 found no risks associated with drilling on such lands,¹⁵⁶ the level of site disturbance that could occur with fracturing could be substantial. It would be unwise to risk the filtration exemption because the costs of filtration would be very high, and, if necessitated, would far outweigh the benefits to the state of any gas extraction at the watersheds. It is also significant that the more than ten million persons that depend on the watersheds for irreplaceable drinking water would not have cause for alarm or fear about the quality of their water. Their psychic exposure would be dramatically minimized no matter the specter of horrors that may be raised by the most vitriolic, uncompromising opponents of hydrofracturing. From a political perspective, these important proposed exclusions should relieve legislative pressure on hydrofracturing,¹⁵⁷ and also reduce some knee-jerk type opposition. And, while nothing short of an outright ban would be likely to get the *Ithaca Journal* off of the governor's back,¹⁵⁸

¹⁵³ *Id.* at 1-17. The stream and river buffer zones are twenty times larger than in Pennsylvania where drilling is not permitted within 100 feet. Reportedly, Pennsylvania intends to extend that buffer to 300 feet. Edward McAllister, *Insight: N.Y. Gas Drillers' Victory Soured by Tough New Rules*, REUTERS (Oct. 21, 2011), <http://www.reuters.com/article/2011/10/21/us-newyork-shale-idUSTRE79K4YT20111021>.

¹⁵⁴ 2011 REVISED DRAFT SGEIS, *supra* note 3, at 7-50.

¹⁵⁵ 16 C.F.R. § 141.3 (2012); 40 C.F.R. § 141.73 (2012); *EPA Grants NYC New Waiver for Filtering Drinking Water*, WATER WASTES DIGEST (July 31, 2007, 8:52 PM), <http://www.wwdmag.com/epa-grants-nyc-new-waiver-filtering-drinking-water>; CITY OF SYRACUSE DEP'T OF WATER, WATER NEWSLETTER 6 (May 2011), available at <http://www.syracuse.ny.us/pdfs/Water/WaterNewsletter2011.pdf>.

¹⁵⁶ 2009 DRAFT SGEIS, *supra* note 57, at 5-98, 6-37, 7-70, 34.

¹⁵⁷ In the 2011 session of the New York State Legislature, at least ten bills were introduced to ban or limit hydrofracturing in various ways. *See, e.g.*, S. 6703, 2011 Leg., 233d Reg. Sess. (N.Y. 2011) (establishing a five-year moratorium on hydrofracturing).

¹⁵⁸ Editorial, *Spill Should Spur Hydrofracking Ban*, ITHACA J. (N.Y.), Apr. 30, 2011.

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protecting the watersheds might insulate the governor from savage editorial criticism by the more widely read *New York Times*.¹⁵⁹ However, as the press reports of the public hearings reveal, the argument that the buffers are not and could not be sufficient is unabated. Nevertheless, those dependent on the Syracuse and New York City watersheds for water, the source and sustenance of life, are safe and have a demonstrated reason to feel safe.

Similarly, the 2,000-foot buffers with respect to rivers and streams also provide reassurance. This is important with respect to concerns about spillage both from trucks and from transfers of above surface flow back water going into streams due to storm run-offs. It also acknowledges the recreational and tourism benefits that New York's wonderful, scenic landscapes the Southern Tier represents and provides. It would be quite unwise to threaten the viability of these benefits which contribute both to the quality of life and the economic viability of the Southern Tier. Hydrofracturing should only minimally displace settled and productive life patterns. The river/stream buffer decision argues that proposition while validating the disruption of tourism concern.

Perhaps equally significant, the dSGEIS also proposes that hydrofracturing will be banned on state-owned land, ensuring that forests, parks, preserves, wildlife habitats, and vast swaths of quality land will not be disturbed.¹⁶⁰ If hydrofracturing were to be permitted for drilling on privately owned land, its occurrence would be a function of an economic decision made between a landowner and a drilling entity for which there would be consideration, and about which there will have been opportunity for informed choices and caution. DEC believes that notwithstanding that drilling will not be allowed within the watersheds or on state land, and not within buffer zones, there still will be about 85 percent of the Marcellus Shale area available for drilling.¹⁶¹ The industry, however, claims there is far greater restriction and suggests that the available percentage

¹⁵⁹ See Editorial, *Natural Gas and Clean Water*, N.Y. TIMES, Mar. 23, 2011, at A26 (detailing hydrofracturing's technical uncertainties); Editorial, *Too Fast on Drilling*, N.Y. TIMES, Sept. 12, 2011, at A26 (evincing the *New York Times* editorial board's general uncertainties regarding hydraulic fracturing).

¹⁶⁰ 2011 REVISED DRAFT SGEIS, *supra* note 3, at 1-17.

¹⁶¹ *DEC Will Allow Hydrofracking in 85% of the Marcellus Shale*, FINGER LAKES DAILY NEWS (N.Y.) (June 30, 2011, 3:38 PM), <http://fingerlakesdailynews.com/news/details.cfm?clientid=16&id=2371>.

is as low as 50 percent and that therefore many lease agreements will have to be voided.¹⁶² Regardless, there is room for further area restrictions and these could be proposed following the comment period in order to calm criticism. The contention of New York City officials, echoed by the *New York Times*, that hydrofracturing within seven miles of the New York watershed could generate seismological activity that conceivably could introduce cracks into eighty year old water tunnels, could occasion a much larger watershed buffer zone.¹⁶³

The aquifer decisions also are significant. City officials say, simply, that aquifers are to be undisturbed and not threatened. Vertical fracturing, mostly low volume, has been extant in the United States and New York for roughly sixty years without adverse harm to aquifers, as the drilling industry argues constantly. Indeed, Lisa Jackson, the EPA Administrator, in testimony before a U.S. Senate hearing on May 6, 2011, said “I’m not aware of any proven case where the [hydrofracturing] process itself has affected water.”¹⁶⁴

In 2004, EPA had concluded that the injection of hydraulic fracturing fluids into wells posed minimal threat to underground drinking water sources.¹⁶⁵ A 2011 report by the Massachusetts Institute of Technology (MIT) said: “There has been concern that these fractures can also penetrate shallow freshwater zones and contaminate them with fracturing fluid, but there is no evidence that this is occurring.”¹⁶⁶

The MIT report blamed the known instances of methane contamination on a small number of substandard operations, e.g., Cabot Oil in Dimock, Pennsylvania.¹⁶⁷ Hydrofracturing has been

¹⁶² See *With Hydrofracking Comment Period Over, Proponents Impatient, Opponents Concerned* (North Country Public Radio news broadcast Jan. 12, 2012).

¹⁶³ See, e.g., Editorial, *Safe, Not Sorry, on Drilling*, N.Y. TIMES, July 9, 2011, at A18.

¹⁶⁴ *Hearing of the House Oversight and Gov’t Reform Comm.; Pain at the Pump: Policies that Suppress Domestic Production of Oil and Gas*, 112th Cong. 25 (2011) (statement of Lisa Jackson, Administrator, U.S. Env’tl. Prot. Agency).

¹⁶⁵ U.S. ENVTL. PROT. AGENCY, EVALUATION OF IMPACTS TO UNDERGROUND SOURCES OF DRINKING WATER BY HYDRAULIC FRACTURING OF COALBED METHANE RESERVOIRS 7-5 (2004).

¹⁶⁶ MASS. INST. TECH. ENERGY INITIATIVE, THE FUTURE OF NATURAL GAS 7 (2011), available at http://web.mit.edu/mitei/research/studies/documents/natural-gas-2011/NaturalGas_Report.pdf.

¹⁶⁷ *Id.*; Robert Myers, *The Environmental Dangers of Hydro-Fracturing the Marcellus Shale*, LOCK HAVEN UNIVERSITY (Oct. 26, 2011), <http://www.lhup.edu/rmyers3/marcellus.htm>.

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used successfully to return over seven billion barrels of oil and over six trillion cubic feet of natural gas as reported by the Heritage Foundation, citing the EPA, the Ground Water Protection Council, and other independent agencies who found no instances of drinking water contamination.¹⁶⁸ A prominent reason these findings were reached is that ground water aquifers sit thousands of feet above where actual horizontal fracturing and extraction occurs under bedrock.

Despite the safety record, there have been several reported instances of water contamination and health hazards due to faulty drilling which is a necessary component to the process which accommodates hydrofracturing. Poor well casings both concrete and steel around well bores or inadequate well construction have and could cause gas and frack water containing unhealthy chemicals to escape into water supplies above bedrock. This has occurred in Pennsylvania. When the Pennsylvania drilling rush began, too much drilling was done too fast. The Sierra Club maintains that of the first 1,368 wells drilled, the Pennsylvania Department of Environmental Protection cited 1,544 violations.¹⁶⁹ One driller bore through areas of sandstone (so called sandstone stringers), which are silty deposits millions of years old that contain gas, without properly cementing well bores and without employing what are known as “gas blockers” which involve putting into place external casing barriers.¹⁷⁰ The failure to employ gas blockers allowed some shallow sandstone stringer gas to migrate into drinking wells with resulting harmful effects to animals and humans. Pennsylvania is adapting to these phenomena. It has doubled its oversight staff since 2008 and now has more drilling inspectors than Louisiana, which is the nation’s fourth largest oil and gas exploration state.¹⁷¹

The DEC devoted attention to this issue. Knowing that gas migration could occur due to inadequate well construction or

¹⁶⁸ Nicolas Loris, *Delay, Baby, Delay: Obama Puts up to 200k Jobs on Hold*, THE FOUNDRY (Nov. 18, 2011, 1:27 PM), <http://blog.heritage.org/2011/11/18/delay-baby-delay-obama-decision-puts-up-to-200k-jobs-on-hold>.

¹⁶⁹ *Nuts and Bolts*, *supra* note 45, at 10,595.

¹⁷⁰ ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS, EAST GLACIER CREEK II: STRATIGRAPHIC SECTION (1976), *available at* http://www.dggs.alaska.gov/webpubs/dggs/aof/oversized/aof104_sh002.PDF.

¹⁷¹ Lauren Lawley, *DEP Secretary John Hanger Offers Parting Words*, PITTSBURGH BUS. TIMES, Jan. 14, 2001, *available at* <http://www.bizjournals.com/pittsburgh/blog/energy/2011/01/dep-hanger-offers-parting-words.html?page=all>; *Letter From CEO*, LUCA, http://www.luca88.com/index.php?option=com_content&view=article&id=51&Itemid=87&lang=en (last visited Mar. 26, 2012).

negligent operation, it details a remedy to assure proper well construction.¹⁷² There are proposed specific requirements including a certain quality cement and steel casings from the very top of the well bore to the point below bedrock where the horizontal or slant drilling begins.¹⁷³ The design of well bores, which must be preapproved by DEC in all cases as part of the application/permit process, must be such so that gas molecules will not be able to escape to the annulus, i.e., the area between drill valves and steel pipes.¹⁷⁴ This area must be enclosed with cement casings.¹⁷⁵ There are to be no voids and there must be pre- and post-pressurized tests.¹⁷⁶

The dSGEIS describes this preventative process as “three strings” of cemented casings:

The outer string (i.e., surface casing) would extend below fresh ground water and would have been cemented to the surface before the well was drilled deeper. The intermediate casing string, also called the protective string, is installed between the surface and production strings. The innermost casing string (i.e., production casing) typically extends from the ground surface to the toe of the horizontal well.¹⁷⁷

New York has had the advantage of closely examining Pennsylvania’s practices, both public and private. New York does not have to adapt; it needs only to adopt. It will require gas blockers. This protective design does not persuade the most outspoken opponents of hydrofracturing and causes skepticism about DEC’s lack of resources to enforce its protective scheme. Former DEC Commissioner Grannis previously pledged and the recently issued compliance and maintenance recommendations of the advisory panel indicate that there will be DEC personnel at various times at every drill pad.¹⁷⁸ That could be costly. Commissioner Martens also has said that fracking is the most important issue that DEC has.¹⁷⁹ “[P]ermits won’t be issued until [DEC] has the resources in place to enforce rules for doing it

¹⁷² 2011 REVISED DRAFT SGEIS, *supra* note 3, at 1-12.

¹⁷³ *Id.*

¹⁷⁴ *Id.* at 7-55.

¹⁷⁵ *Id.*

¹⁷⁶ *Id.* at 5-92, 7-55.

¹⁷⁷ *Id.* at 8.

¹⁷⁸ Telephone Interview with Pete Grannis, former Commissioner of N.Y. State Dep’t of Env’tl. Conservation (Dec. 16, 2011); Telephone Interview with Julie Tighe, Director, Legislative Affairs, N.Y. State Dep’t of Env’tl. Conservation (Apr. 24, 2012).

¹⁷⁹ *NY Opens Hearings on Hydraulic Fracturing*, WALL ST. J., Nov. 16, 2011.

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safely,” he said.¹⁸⁰

There are other preventative, protective, and mitigative requirements specified in the revised dSGEIS that are more elaborate than had been proposed in 2009.¹⁸¹ With respect to the containment of flow back frack water, the 2009 dSGIES would have permitted some frack water to be held in impoundment pits, similar to Pennsylvania, but most in steel tanks.¹⁸² But the revised 2011 dSGEIS requires *all* frack water to be contained in tanks.¹⁸³ This will minimize leaking and spillage.¹⁸⁴ With evaporative technology, most, if not all, of the frack water will be re-used.¹⁸⁵ That will reduce the quantity of fresh water withdrawals necessary, reduce the trucking of fresh water, and will reduce the trucking of contaminated water. That will lessen road damage, road congestion and the amount of possible accidents. Tanks also will reduce odors associated with open pits.¹⁸⁶ Hydrofracturing requires the use of compressors often on a twenty-four hour basis for as long as five weeks.¹⁸⁷ This produces noise that can be mitigated by barriers, natural or artificial. The dSGEIS requires such barriers.¹⁸⁸

Finally, with respect to water quality, advances are being achieved with water treatment. While municipal plants are neither designed nor permitted to treat metals and, therefore, cannot and should not treat frack water, some treatment facilities that are able to treat such water do exist and others can be brought on line.¹⁸⁹ Frack water can be piped to such facilities and the same pipe lines, using existing rights of way, can bring back treated water for reuse. In New York, the permitting for pipelines is done by the Department of Transportation. The permitting processes, reportedly, take longer than it would take to construct the pipelines, so this is a possible near-term protection solution that also would mitigate trucking and reduce

¹⁸⁰ *Id.*

¹⁸¹ See 2011 REVISED DRAFT SGEIS, *supra* note 3, at 1-12.

¹⁸² 2009 DRAFT SGEIS, *supra* note 57, at 5-75, 5-150.

¹⁸³ See 2011 REVISED DRAFT SGEIS, *supra* note 3, at 7-61.

¹⁸⁴ *Id.*

¹⁸⁵ *Id.* at 1-2.

¹⁸⁶ *Id.* at 7-61.

¹⁸⁷ *Id.* at 6-289.

¹⁸⁸ *Id.* at 7-134.

¹⁸⁹ See, e.g., William J. Kemble, *Kingston Won't Accept Fracking Fluid at Sewage Treatment Plant, City Engineer Says*, DAILY FREEMAN (Kingston, N.Y.), Dec. 19, 2011, available at <http://www.dailyfreeman.com/articles/2011/12/19/news/doc4eee73521641a869886272.txt>.

spillage risk.¹⁹⁰

The larger point to be drawn from the assemblage of mitigation and protection measures, both in the 2009 and 2011 SGEIS revisions, is that high-volume horizontal hydrofracturing is an evolving industry and technology. As it progresses, safety might be enhanced and risks, now manageable and relatively minimal, could be further reduced. So too, the economics and technologies of hydrofracturing can be compatible with environmental concerns and demands, but only if there is proper monitoring, best practices and economic incentives for compatibility. For all these protection steps to be effective, and for the governor to be able to calm criticism of the proceed-to-drill decision it seems likely he will make, he will have to provide DEC the means to carry out its enforcement program.

To ascertain the resources necessary for proper DEC enforcement and in his caution that permitted hydrofracturing be safe, an advisory panel to DEC was created by Governor Cuomo. The panel was charged with three important tasks:

- 1) Identify the resources necessary to implement the regulations;
- 2) Identify how those requirements are to be funded; and
- 3) Analyze the socioeconomic impacts that may accompany high volume horizontal hydrofracturing and who may be affected adversely.¹⁹¹

The composition of the advisory panel is a blend of experts of natural gas extraction, environmental analysts and protectors, and persons knowledgeable about how government can work effectively and what it requires to do so.¹⁹² The Panel's charge did

¹⁹⁰ IND. OIL & GAS ASSOC., REGULATORY OVERSIGHT OF NEW YORK'S OIL AND GAS INDUSTRY, <http://www.marcellusfacts.com/blog/wp-content/uploads/2011/06/2011IOGAFactSheet5.pdf> (last visited Apr. 16, 2012).

¹⁹¹ Press Release, N.Y. Dep't Env'tl. Conservation, DEC Commissioner Appoints Members to Hydraulic Fracturing Advisory Panel, (July 1, 2011), <http://www.dec.ny.gov/press/75416.html>.

¹⁹² *Id.* The initial panel members will include: Stan Lundine, former New York Lieutenant Governor; Kathleen McGinty, former chair of White House Council on Environmental Quality under President Clinton; Eric A. Goldstein and Kate Sinding, senior attorneys, Natural Resources Defense Council; Robert Hallman, Board Chair, N.Y. League of Conservation Voters; Robert F. Kennedy, Jr., President of the Waterkeeper Alliance; Robert Moore, Executive Director, Environmental Advocates; Mark Brownstein, chief counsel, Energy Program, Environmental Defense Fund; Heather Briccetti, acting President & CEO, Business Council of New York State; Robert B. Catell, Chairman, Advanced Energy Research and Technology Center at SUNY Stony Brook; Mark K. Boling, Executive Vice President, General Counsel and Secretary, Southwestern

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not include comment on the regulations being analyzed by DEC. Rather, an important dimension to the panel is that it demonstrates government is listening and being proactive in anticipating and resolving problems. It is vital to achieve public trust especially in a time when the public has lost trust in institutions: Big Banks; Big Corporations, Big Universities, Big Church, Big Government, Big Media, and even so called Big Green, i.e., the long established environmental lobby. While many observers do not recognize the similarities and overlaps between the Tea Party and Occupy Wall Street movements, that which most assuredly overlaps is distrust in institutions, as well as anger, protest and anti-incumbent political sentiment. The respective movements are viewed curiously by the large segment of the electorate (perhaps 40 percent) that is independent. It is the independents that allocate political power. The Tea Party and the Occupiers demand to be heard while believing they are being ignored. The advisory panel is a means by which Governor Cuomo listens, or seems to.

But while government listens, it also must discern. It necessarily has to separate the crucial from the irritating. Protest can be characterized by hyperbole and hysteria. The governor wisely has asked both the drilling and the environmental advocates to ponder, consider, and not to rant. Drillers are asked to recognize that environmental harm is not a mere balancing act but a dangerous affront to an informed society. And environmentalists are requested to acknowledge that economic benefits properly incentivized also can produce breakthrough, innovative, safer technologies.¹⁹³ The public deserves to know what the National Resources Defense Council and the Friends of the Earth, et al., truly think about issues such as hydrofracturing; the public does not need to be reminded of the environmental appetite for outrage. And the governor wants to know if trust can be gained. The Advisory Panel is an effort to be trustworthy. It gives both the extraction industry and the environmental lobby a seat at the political table, and is an important element of the high volume horizontal hydrofracturing

Energy; Senator Tom Libous, Deputy Majority Leader; Assemblymember Donna Lupardo. *Id.*

¹⁹³ See Thomas Kaplan, *Millions Spent in Albany Fight to Drill for Gas*, N.Y. TIMES, Nov. 26, 2011, at A1; Peter Applebome, *Drilling Critics Face a Divide Over the Goal of their Fight*, N.Y. TIMES, Jan. 9, 2012, at A17 (quoting a Natural Resources Defense Council representative, “we haven’t called for a ban . . .”).

decision process.

A December 5, 2011, letter in *Newsday* by a prominent member of the advisory panel, Robert Catell, makes the case for hydrofracturing and for the advisory panel's thoroughness, perhaps signaling the gubernatorial decision that may follow.¹⁹⁴ The op-ed cites the familiar economic benefit agreement and stresses that natural gas reduces carbon emissions by a third compared to oil and a half compared to coal.¹⁹⁵ It argues that newly obtained natural gas has reduced our oil imports from 60 percent in 2005 to 47 percent today.¹⁹⁶ It also cites the "emotional" debate in New York and says that the state's economic and energy benefits do not justify environmental harm concluding that the lengthy analysis by the DEC has produced stringent standards for controlling and mitigating the environmental impacts of hydrofracturing.¹⁹⁷ It pledges that DEC will have the means necessary (severance fees for extraction, bonding requirements, and permit fees are advocated by many) to ensure that the risks of environmental harm will be at "negligible levels."¹⁹⁸ In other words, if one looks at the facts, which is what both the governors insisted be done, the trade offs are acceptable and hydrofracturing should be permitted.

Beyond the soluble problems of process, and scientific inquiry into possible physical harm to the environment, there are socioeconomic factors that are being analyzed. The advisory panel is considering such issues as: the possible loss of property insurance or increased property insurance premiums for properties near drill sites; the possible loss of mortgage financing for property owners that have entered into drilling leases; the possible decline in affordable housing availability for residences of some communities that may experience an influx of out of state, highly paid workers; the demands that might be placed on community law enforcement and mental hygiene systems with the influx of highly paid non-resident temporary workers; the introduction/aggravation of drug related or other crime; and demand on health care facilities. Other more tangible consequences associated with hydrofracturing that the advisory

¹⁹⁴ Bob Catell, Op-Ed, *With Care, Fracking Can Work in NY*, NEWSDAY (N.Y.), Dec. 5, 2011, at A46.

¹⁹⁵ *Id.*

¹⁹⁶ *Id.*

¹⁹⁷ *Id.*

¹⁹⁸ *Id.*

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panel is examining are the added costs to local governments for road repair and infrastructure damage. Some argue that unless these costs are imposed on drillers, there necessarily will be an increased tax burden on local residents which burden may not be offset by increases in local tax revenues.

The dSCEIS proposed mitigation measures to address impacts on communities and local governments. These include limiting simultaneous construction of well pads and wells in proximity to each other, and requiring drillers to produce detailed transportation plans that contain road condition assessments.¹⁹⁹ The decision to permit drilling will have to rely on the efficacy of these and other mitigation proposals, and such other steps that may be selected in an adaptive review. Certain county and town governments, in conjunction with the advisory panel, are working locally to be prepared. Their opportunity to be proactive in their planning is a function of the governor's inclusive approach. Their availing themselves of the opportunity is a credit to them and evidence of government working to solve problems before the problems become distress.

The scientific method of analysis is an evidentiary one requiring discovery and tests to arrive at fact. It is a task that demands discipline and rigor. After nearly four years, the exploration and analysis is close but not yet complete. The governor continues to be patient. It is of paramount importance that the decision process be valid, legitimate and of outmost scientific integrity. To date, Governor Cuomo has insured that. But socioeconomic factors such as ineligibility for mortgage financing because of proximate economic activity, the nuisance of traffic, light and noise, the problem of increased crime, and non-chemical related health needs also are facts that present themselves without scientific examination. They are irrefutable facts that the Governor knows and must consider.

CONCLUSION

The controversy surrounding hydrofracturing has eclipsed climate change as an environment issue. In four hearings in late November 2011 thousands of persons sought to register an

¹⁹⁹ Press Release, N.Y. Dep't Env'tl. Conservation, DEC Begins 90-Day Public Comment Period on Draft Hydraulic Fracturing Study; Four Public Hearings Planned (Sept. 7, 2011), *available at* <http://www.dec.ny.gov/press/76892.html>.

opinion about hydrofracturing, most overwhelmingly against it.²⁰⁰ In two years, more than 18,100 comments have been submitted to DEC regarding its dSGEIS originally issued in September 2009.²⁰¹ In continuing a process of analysis by DEC, which was originally ordered by Governor Paterson, Governor Cuomo said, "Let's get the facts. Let the science and the facts make the determination, not emotion and not politics."²⁰²

In 2009 testimony, former DEC Commissioner Pete Grannis said that the public comment process was not a referendum, and that the most effective and useful comments are specific observations based on fact, science, engineering, geology and an objective assessment of real risks and the efficacy of the proposed mitigation measures.²⁰³ But the length of the analytic process has produced more heat than light and, as the debate extends, the science that might be more salient is political science.

Whether hydrofracturing will happen in New York has important economic, energy, environmental, social and political dimensions but the question has devolved to slogans and community division. DEC has produced two lengthy revisions of a generic environmental impact statement calling for a comprehensive regulatory regime that is both expensive and defensive while declaring that, under supervision and with best practices, hydrofracturing is safe. The point of gubernatorial decision has been reached.

The long analysis has been managed very well. Hydrofracturing operations in adjacent states are happening and the supply of natural gas in the United States from ancient shale deposits is rapidly expanding. The declining costs of natural gas may give strong impetus to increase demand thereby producing a geopolitical advantage to the United States by lessening reliance on oil imports, in part, from regions that are hostile to us. And while the environmental benefits of greater use of natural gas remain disputed, and its energy transition value is challenged, an

²⁰⁰ *More than 18,000 Comment on Fracking*, ITHACA J. (N.Y.), Jan. 7, 2012, available at <http://www.theithacajournal.com/article/20120107/NEWS01/201070339/More-than-18-000-comment-fracking>.

²⁰¹ *Id.*

²⁰² Kaplan, *supra* note 193.

²⁰³ *Draft Supplement Generic Environmental Impact Statement Governing Natural Gas Drilling Hearing Before the N.Y. State Assem. Comm. on Env'tl. Conservation*, 2009 Leg., 231st Sess. (N.Y. 2009) (statement of Pete Grannis, Comm'r, N.Y. State Dep't of Env'tl. Conservation), available at http://www.dec.ny.gov/docs/materials_minerals_pdf/dsgeistestim.pdf.

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indisputable fact is that the tremendous amount of shale gas in New York is not going to go anywhere. The deposits have been in place perhaps as long as 400 million years, so a four-year debate on whether and how to extract the gas is not very long.

It is also indisputable that governors of New York are not elected to make geopolitical decisions affecting macroeconomics. They govern in the short term and not the long term, and most New York gubernatorial decisions are tactical. That clearly has been the case with the hydrofracturing process. The tactics have been inclusion, information, observation, exploration, consultation, consideration and, now, conclusion. Gubernatorial decisions also are usually political. An inevitable consequence of a thorough analysis is that a clear demarcation of the various positions of the participants emerges. Reconciliation of proponents and opponents is unlikely. Thus, it is essential that the analytical process has had integrity and has been conducted professionally. That has been achieved. The effort to have a process that is trustworthy provides the best opportunity for a decision to be accepted. The analytical has become political. But that is the way a democratic free election system is designed to be.