

CHARTING THE FUTURE TRAJECTORY FOR FRACKING REGULATION: FROM ENVIRONMENTAL DEMOCRACY TO COOPERATIVE FEDERALISM

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*I am hanging in the balance of the reality of man; like every sparrow
falling, like every grain of sand.*¹

I. INTRODUCTION

Since the lower Paleolithic human's invention of fire, mankind has continuously pursued energy source for its consumption. In this perennial search for energy, fossil fuel has been the predominant driver. Seeking natural gas via hydraulic fracturing (fracking) also falls in this continuum. Fracking involves unlocking natural gas from the shale formation via a two-step process. First, by fracturing the layers of rock formation deep beneath the earth's crust and, in the second, extracting such gas through horizontal drilling at depths of several miles.² Although fracking has its origin for

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1. BOB DYLAN, EVERY GRAIN OF SAND (Columbia Records 1981).

2. Hydraulic fracturing or commonly known as "fracking" is not a new method of natural gas extraction. In use for more than several decades, the method has come into prominence due to technological innovation that has enabled the ability to horizontally fracture the shale so as to extract large amounts of gas from each well site. *See generally* U.S. DEP'T OF ENERGY, MODERN SHALE GAS DEVELOPMENT IN THE UNITED STATES: A PRIMERES-4 (2009), available at http://www.netl.doe.gov/technologies/oil-gas/publications/EPreports/Shale_Gas_Primer_2009.pdf (provides insight in natural gas resource development activity and environmental protection); *see also* Marathon Oil Corp., *Animation of Hydraulic Fracturing (Fracking)*, YOUTUBE (Apr. 26, 2012), <http://www.youtube.com/watch?v=VY34PQUiwOQ> (providing a simple explanation of how fracking works).

more than a century, it has come to a focal point of our contemporary discourse for various reasons.³ Driven in part by the growing public concern over underground contamination⁴ and also prompted by sudden urgency for regulation due to isolated instances of environmental pollution,⁵

3. See, e.g., Andrew Chow, *Vermont Bans Fracking, Citing Injury Concerns*, FINDLAW (May 23, 2012, 8:43 AM), <http://blogs.findlaw.com/injured/2012/05/vermont-bans-fracking-citing-injury-concerns.html>; see also Pamela Giblin, *Hydraulic Fracturing: The Media Campaign and Federal Initiatives*, AM. COLL. ENVTL. LAWYERS (Feb. 9, 2011), <http://www.acoel.org/post/2011/02/09/Hydraulic-Fracturing-The-Media-Campaign-and-Federal-Initiatives.aspx> ("In the past few years, hydraulic fracturing has seemingly become the target for all environmental and health impacts associated with exploration and production activities."); see also Steve Hargreaves, *The Fracking Public Relations Mess*, CNNMONEY (June 21, 2011, 11:16 AM), http://money.cnn.com/2011/06/21/news/economy/fracking_public_relations/index.htm ("A series of public relations missteps is partly responsible for these bans on hydraulic fracturing . . .").

4. See Sean Savett, *Inhofe Is Wrong: Five Famous Times Fracking Contaminated Our Water*, CLIMATEPROGRESS (July 21, 2011, 10:04 AM), <http://thinkprogress.org/climate/2011/07/21/274064/inhofe-is-wrong-five-famous-times-fracking-contaminated-our-water>; see also Daimon Paul, *Stop Marcellus Shale Natural Gas Drilling*, GOPETITION (Jan. 28, 2010), <http://www.gopetition.com/petitions/stop-marcellus-shale-natural-gas-drilling.html> (air pollution and smog is "not only a product of the many diesel trucks used to transport materials in drilling operations, but vapor emissions escaping from a natural gas well" also contain toxins).

5. One of the most recent incidents involved what happened on April 19, 2011 in LeRoy Township, Pennsylvania: an "equipment failure at the drill site, caus[ed] hydraulic fracturing fluid to be released into the environment, including into Towanda Creek and an adjacent tributary." Eric Hrin, *Protesters Rally for Temporary Drilling Moratorium After Well Blowout*, CITIZENS' VOICE (Apr. 23, 2011), <http://citizensvoice.com/news/protesters-rally-for-temporary-drilling-moratorium-after-well-blowout-1.1136523#ixzz1KjhZA4DH>; see also C.J. Marshall, *Chesapeake Stops Fluid Leak*, CITIZENS' VOICE (Apr. 22, 2011), <http://citizensvoice.com/news/chesapeake-stops-fluid-leak-1.1136067> ("While the majority of the brine water was controlled within containment structures on the site, portions of earthen berms surrounding the location were weakened by recent precipitation events and allowed some of the fluid to escape off of the location.") (noting several families needed to be relocated from their homes as a precautionary measure, while the Chesapeake Energy suspended its well completion operations until further notice). Moreover, underground injection of wastewater from fracking may have triggered recent earthquakes in Ohio and Texas. See Pete Spotts, *How Fracking Might Have Led to an Ohio Earthquake*, CHRISTIAN SCI. MONITOR (Jan. 2, 2012), <http://www.csmonitor.com/Science/2012/0102/How-fracking-might-have-led-to-an-Ohio-earthquake> (noting that a ban on wastewater-injection wells close to existing wells in several cities and municipalities may have been driven from recent seismic activities on some earlier sites). But see David J. Hayes, *Is the Recent Increase in Felt Earthquakes in the Central US Natural or Manmade?*, U.S. DEP'T INTERIOR (Apr. 11, 2012), <http://www.doi.gov/news/doinews/Is-the-Recent-Increase-in-Felt-Earthquakes-in-the-Central-US-Natural-or-Manmade.cfm> (indicating the lack of clear cut evidence linking fracking to an increase in seismic activities).

fracking has come to occupy a contentious space within the socio-political exchanges of today.⁶

The contentious nature of fracking comes from two sides of a debate. Situated on one side is the homogeneous group that seeks to drill hole at every possible corner on the earth's surface in an attempt to secure marketable fossil fuel.⁷ Resisting this über-exploratory mindset is the heterogeneous mix of individuals – ranging from environmentalists to conservationists that are against fracking without caution.⁸ This Article examines this very divergence through the prism of the existing regulatory landscape to chart an efficient future trajectory of gas drilling in the American shales. Phrased differently, what should be the optimal regulation for this emerging drilling mechanism? How does that regulation comport with the desires of a maximum number of stakeholders? Answers will be explored within the pages of this Article.

The pursuit of energy has been shaping mankind's social and technological evolution for millions of years. The need for efficient means of energy procurement has not only transformed human ingenuity, it has continued to be a pivotal force in the humankind's evolving saga since the first human graced our planet.⁹ Yet, despite stratospheric progress in human innovations, this pursuit of energy has often brought calamitous consequences. The critical place of energy in the continuation of human existence manifests itself in countless forms of human endeavors that

6. See, e.g., Danny Hakim, *Shift by Cuomo on Gas Drilling Prompts Both Anger and Praise*, N.Y. TIMES, Sept. 30, 2012, <http://www.nytimes.com/2012/10/01/nyregion/with-new-delays-a-growing-sense-that-gov-andrew-cuomo-will-not-approve-gas-drilling.html?pagewanted=all> (discussing New York Governor Cuomo's agreement in delaying fracking in response to public demand for conducting more studies on the impact fracking has on human health); see also *Fracking, Federal Law: Loopholes & Exemptions*, ENVTL. DEF. CENTER, http://www.edcnet.org/learn/current_cases/fracking/federal_law_loopholes.html (last visited Nov. 30, 2013) (explaining the available fracking loopholes and exemptions from federal law).

7. See, e.g., James Inhofe, *Federal Interference in Energy Development Regulation a Bad Idea*, THE HILL (July 19, 2011, 6:57 PM), <http://thehill.com/special-reports/energy-july-2011/172393-federal-interferencein-regulation-of-energy-development-a-bad-idea> (observing that based on available evidence, fracking has not produced a confirmed case of groundwater contamination, thereby arguing for more fracking for natural gas in the shale).

8. See Savett, *supra* note 4; Paul, *supra* note 4.

9. Vaclav Smil, *Science, Energy, Ethics, and Civilization*, in VISIONS OF DISCOVERY: NEW LIGHT ON PHYSICS, COSMOLOGY, AND CONSCIOUSNESS 709, 709–29 (Raymond Y. Chiao et al. eds., 2010), available at <http://www.vaclavsmil.com/wp-content/uploads/docs/smil-articles-science-energy-ethics-civilization.pdf>.

animate mankind's quest for energy security.¹⁰ Fracking is no different. For many within their sociological context, energy is a fundamental force. Witnessed through the behavioral construct of many cultures, energy is revered – even offered to gods and goddesses.¹¹ Unfortunately, a false promise of energy security has ushered in the era of innovative mechanism of fracking that impinges deep into the earth's crust for that coveted fossil fuel. Unfortunately, however, a perennial pursuit of mankind has become subsumed within the labyrinth of mass corporatization, as I shall examine in this Article.

Despite unprecedented scientific advancement and technological sophistication,¹² safety and security continue to elude man's quest for energy.¹³ Even the über-advanced Western civilizations suffer from this paradox. This Article attempts to explain this paradox by examining the nuances of fracking in the U.S. through an examination of its regulatory framework. In doing so, the analysis uses multiple prisms through which to identify the various disconnects between regulatory objectives and operational inefficiencies and the slew of uncertainties that permeate the current fracking framework.

With this objective in mind, I make some fundamental observations related to fracking in general and its associated regulatory landscape within the context of U.S. oil and gas environment in Section II. This leads to a discussion of the regulatory landscape in Section III, where I identify the

10. See DANIEL YERGIN, *THE QUEST: ENERGY, SECURITY, AND THE REMAKING OF THE MODERN WORLD* (Penguin Group 2011).

11 See, e.g., Hannah M.G. Shapero, *Do Zoroastrians Really Worship Fire? (The Sacred Fire)*, PYRACANTHA, <http://www.pyracantha.com/Z/> (last visited Nov. 30, 2013) ("It is natural to revere fire, for it is one of the primal elements of nature (in modern terms, it is 'plasma' one of the four states of matter) and it is one of the things which makes civilization possible."); see MADHULIKA SHARMA, *FIRE WORSHIP IN ANCIENT INDIA* (Publication Scheme 2001); *A MANUAL OF RITUAL FIRE OFFERINGS* (SharpaTulukku & Michael Perrotttrans., Paljor Publ'ns Pvt. Limited 2009).

12. Significant technological advancement, both in the operational techniques of drilling and in usage of injection fluid, has allowed the current surge in fracking activities. See U.S. DEP'T OF ENERGY, *supra* note 2 (describing fracking techniques from operational perspectives); see also Anthony Brino, *Waterless Fracking Technique Makes Its Debut in Ohio*, MIDWEST ENERGY NEWS (May 15, 2012), <http://www.midwestenergynews.com/2012/05/15/waterless-fracking-technique-makes-its-debut-in-ohio> (introducing a new innovation in fracking utilizing liquid propane gas); see Emran Hussain, *Baker Hughes Launches Green Fracking Fluid Systems*, ARABIAN OIL & GAS (Dec. 9, 2010), <http://www.arabianoilandgas.com/article-8157-baker-hughes-launches-green-fracking-fluid-systems/#UVnFNpPvuSo> (introducing claimed environmental friendly fracking fluids).

13. See *infra* Sections II and III (noting that in the present Article, I find that the various safety issues related to fracking calls for modernization of the regulatory framework).

regulatory framework's fragmented status and the causes of inertia within the current system. In Section IV, I make some further observations about the current framework's inconsistency, which may be contributing to environmental safety issues and human health concerns. This leads me to examine fracking's impact through the prism of local regulation by using the development in Texas as a test case in Section V. In Section VI, I offer commentary on a much less discussed narrative for fracking law in the U.S. – one which recognizes the linkages between and weaknesses of regulatory mechanism within the dichotomies of two generally available regulatory frameworks, which lead me to introduce cooperative federalism as a path forward towards America's fracking regulation in Section VII. Finally, I conclude in Section VIII by noting that at the heart of the fracking issue is the missing recognition rights for all stakeholders, which, when taken in conjunction with the existing legal modalities, provides a better instantiation of preferred regulatory environment.

II. CURRENT LANDSCAPE – FRACKING IN THE U.S.

Should fracking be federally regulated or must it be left alone for the states to deal with? This central inquiry of the Article requires analysis along multiple threads. The prospect of reshaping the future of U.S. energy¹⁴ is one of the most seductive driving forces behind the current impetus for fracking expansion at the Marcellus and Barnett Shales. Unfortunately, however, a fragmented regulatory framework brings with it a slew of collateral consequences that manifest in more ways than one. To adequately respond to the common question of why fracking is so contentious, it is important, therefore, to focus on a few of the various possibilities and impacts. Most recent fracking debates have centered on

14. See James M. Tour et al., *Green Carbon as a Bridge to Renewable Energy*, 9 NATURE MATERIALS 871, 871–74 (2010) (observing both that the typical value of greenhouse gas emission for natural gas is about *half that of coal*, as measured in CO₂ per kilowatt hour, and that there is enough recoverable natural gas in shale deposits to meet the world's energy needs for the next half century); Guy Chazan, *Shale Gas Boom Helps Slash U.S. Emissions*, FIN. TIMES (May 23, 2012, 11:57 PM), <http://www.ft.com/intl/cms/s/0/3aa19200-a4eb-11e1-b421-00144feabdc0.html#axzz2R2IWU5WD>; J. DANIEL ARTHUR ET AL., HYDRAULIC FRACTURING CONSIDERATIONS FOR NATURAL GAS WELLS OF THE MARCELLUS SHALE 5 (2008), *available at* http://www.dec.ny.gov/docs/materials_minerals_pdf/GWPCMarcellus.pdf.

issues related to fracking fluid's toxic impact,¹⁵ potential for earthquakes,¹⁶ and the conflict between a mineral owner's right vs. a landowner's right,¹⁷ to name a few. Prompted by public concerns, Congress has recently empowered the Environmental Protection Agency ("EPA") to engage in a long-term study on the impacts of fracking.¹⁸ Although results are not expected until 2014,¹⁹ the study may point towards a willingness on the part of the EPA to engage in rule making in this vitally important area of energy production. Thus, it is important to evaluate the sources of fracking fear.

15. The full scope of toxicity in the fracking fluid has been the cause for concerns amongst the general public and health and human services officials. Additionally, companies involved in fracking keep their fluid formulas confidential so no one at present really knows what toxins potentially exist in the fluid. See Letter from Lisa P. Jackson, Administrator of the EPA, to Hydraulic Fracturing Industry, available at <http://water.epa.gov/type/groundwater/uic/class2/hydraulicfracturing/upload/HFvoluntaryinformationrequest.pdf>. Moreover, since chemical additives are generally stored at the well site and mixed with water and proppants prior to injection, toxicity arising out of fracking fluid's chemical composition has become a major concern for the public. Therefore, the ongoing EPA study is geared towards understanding the chemical composition of the fracking fluid, while evaluating its components for toxicity. See *Natural Gas Extraction – Hydraulic Fracturing*, EPA, <http://water.epa.gov/type/groundwater/uic/class2/hydraulicfracturing/index.cfm> (last updated Apr. 2, 2013); see generally Chris Roark, *Flowback Water Spilled in West Flower Mound*, STAR LOCAL NEWS (Mar. 18, 2010, 10:08 PM), http://www.flowermoundleader.com/articles/2010/03/18/news_update/771.txt (“[A]bout 80 barrels of flowback water were spilled when the operator was conducting flowback activities used to initiate gas production.”).

16. See Sarah Eddington, *Guy Earthquake Swarm: Arkansas Mystery Quakes May Be Result of ‘Fracking’ Disposal*, HUFFINGTON POST, Feb. 17, 2011, http://www.huffingtonpost.com/2011/02/17/guy-earthquake-swarmarkansas_n_824497.html; Dan Vergano, *Texas Earthquakes May Be Linked to Wells for Gas Mining*, USA TODAY, Mar. 10, 2010, http://www.usatoday.com/tech/science/2010-03-11-quakes11_ST_N.htm.

17. See *Scoma v. Chesapeake Energy Corp.*, No. 3:10-cv-1385-N, 2010 WL 3706170 (N.D. Tex. Aug. 11, 2010); *Mitchell v. Encana Oil & Gas (USA), Inc.*, No. 3:10-cv-02555, 2010 WL 5384210 (N.D. Tex. Dec. 15, 2010).

18. Alan Kovski, *EPA Planning Regulations on Wastewater from Shale Gas, Coalbed Methane Wells*, BLOOMBERG BNA, Oct. 21, 2011, <http://www.bna.com/epa-planning-regulations-n12884903952/>; Bridget DiCosmo, *Agencies’ Upcoming Fracking Rules Could Inform EPA Water Standards*, INSIDE EPA, Nov. 2, 2011; Derek Hawkins, *EPA to Probe Fracking Water Treatment for Future Rules*, LAW360 (Nov. 16, 2011, 3:53 PM), <http://www.law360.com/articles/286535/epa-to-probe-fracking-water-treatment-for-future-rules>.

19. Tom Zeller, *EPA to Study Chemicals Used to Tap Natural Gas*, N.Y. TIMES, Sept. 9, 2010, <http://www.nytimes.com/2010/09/10/business/energy-environment/10hydraulic.html>; Jim Efstathiou, *New Yorkers Spar Over U.S. EPA Study of Natural-Gas Fracturing*, BLOOMBERG, Sept. 13, 2010, <http://www.bloomberg.com/news/2010-09-13/new-york-gas-drilling-conflict-aired-over-u-s-fracturing-study.html>.

Fracking presents multiple sources of public fear. Fracking process involves injecting chemicals into the earth's core. Even more alarming is the pumping of toxic chemicals, much closer to the water aquifer than initially thought, in an attempt to extract natural gas lodged inside the layers of underground formation.²⁰ Traditionally, the gas operators have used a great deal of secrecy and uncertainty in regards to the chemical composition of the injection fluid.²¹ Therefore, an important issue at hand is whether the companies must be forced to disclose the chemical content of their injection fluid. Such disclosures will certainly facilitate the evaluation of threat to both the environment and human health.

Disclosure has evolved in two threads: jurisprudential and regulatory. The first deals with the complex question of what legal theory should form the decision trajectory to determine the course of action. Judging from various federal courts' recent invocation of the public nuisance doctrine in environmental pollutions litigations,²² public nuisance claims could form the basis for decision making in cases involving disclosure of fracking fluid content. This sets up a classic tension between the two competing rights – corporate right to secrecy and public right to transparency. Until now, the trade secret protection argument seems to be holding firm for the operators, as they are able to overcome the public disclosure rights under the Emergency Planning and Community Right to Know Act (EPCRA).²³

The second thread of this contentious issue unfolds in bringing the regulatory authority of the federal agency under the microscope, as reported cases of toxicity and pollution continue to come to the surface. Therefore, it is important to focus on the scope and context of the EPA's rule-making authority.

20. See *Natural Gas Extraction – Hydraulic Fracturing*, *supra* note 15.

21. See Letter from Lisa P. Jackson, Administrator of the EPA, *supra* note 15; see also Mike Soraghan, *Halliburton Announces Ecofriendly Fracking Fluid, More Disclosure*, N.Y. TIMES, Nov. 15, 2010, <http://www.nytimes.com/gwire/2010/11/15/15greenwire-halliburton-announces-ecofriendly-fracking-flu-80875.html?pagewanted=all> (establishing that secrecy is involved in dealing with the composition of fracking fluid); Tim Webb, *Results of Controversial 'Fracking' for Shale Gas in U.K. Will Be Kept Secret*, GUARDIAN, Mar. 1, 2011, <http://www.guardian.co.uk/business/2011/mar/01/fracking-shale-gas-energy-mps>; Kevin Dougherty, *Minister Confirms Ban on Fracking in Quebec*, CALGARY HERALD, Mar. 17, 2011, <http://www2.canada.com/calgaryherald/news/calgarybusiness/story.html?id=6c0f3da4-f4d1-4b86-99e3-4d0b91cbe46b>; John Shimkus, *France Bans Drilling, Fracking & Exploration for Shale Natural Gas*, ENERGY DIGITAL (Mar. 14, 2011), <http://www.energydigital.com/sectors/france-bans-drilling-fracking-exploration-shale-natural-gas>.

22 *North Carolina v. Tennessee Valley Auth.*, 615 F.3d 291, 302 (4th Cir. 2010) (asserting “public nuisance law doubtless encompasses environmental concerns”).

23 42 U.S.C. § 11001 (1986).

Although the full scope and future legal trajectory of possible causation of economic and environmental damages are yet to be determined, fracking on the Marcellus and Barnett Shales invites us to take an introspective look at the intersection of public rights and current regulations. More importantly, this will allow for a better understanding of how legal actions can be used to shape the new laws and regulations in the near future. While forthcoming legal actions might center on environmental damages and their connection with regulatory and operator liabilities by drawing from the EPCRA, Safe Drinking Water Act (SDWA) and the 1990 Pollution Act, the legal theories could range from remoteness of economic damage to public nuisance doctrine. However, my primary focus here is to trace the trajectory of fracking's future regulatory landscape.

Recent years' precipitous rise in gas prices has initiated a relentless pursuit for the discovery of large natural gas deposits in the United States. Fracking allows this pursuit by extracting natural gas from greater depths than ever before. Through technological innovation, it is possible to extract natural gas by drilling wells several miles below the surface. The process of drilling horizontally requires injecting millions of gallons of water mixed with sand and chemicals to fracture the shale at high pressure in order to release natural gas lodged inside the rock formations²⁴ at the various U.S. shales like the Barnett Shale²⁵ and the Marcellus Shale.²⁶

Despite the promise of a natural gas bounty, however, the reality of fracking involves shattered dreams and broken homes. The initial euphoria of fossil fuel bounty has given way to a stark reality where communities are waking up to health concerns and environmental calamities. Despite literally sitting on top of huge gas reserves, more and more communities

24. See *Natural Gas Extraction – Hydraulic Fracturing*, *supra* note 15.

25. Carl T. Montgomery & Michael B. Smith, *Hydraulic Fracturing: History of an Enduring Technology*, J. PETROLEUM TECH. 26, 27 (2010), available at <http://www.spe.org/jpt/print/archives/2010/12/10Hydraulic.pdf> (charting the history of fracking in the U.S.); see also GROUND WATER PROTECTION COUNCIL & U.S. DEP'T OF ENERGY, STATE OIL AND NATURAL GAS REGULATIONS DESIGNED TO PROTECT WATER RESOURCES 21 (2009), available at http://www.gwpc.org/sites/default/files/state_oil_and_gas_regulations_designed_to_protect_water_resources_0.pdf (observing that the first commercial application of fracking as part of well treatment to stimulate the production of oil or gas likely occurred either in Kansas in 1946 or near Duncan, Oklahoma in 1949).

26. See ANDREW BRADFORD, MARCELLUS SHALE AND IMPLICATIONS FOR THE NORTHEAST (2010), available at http://www.narucmeetings.org/Presentations/BENITEK_Market_Update_MACRUC_100629.pdf.

have begun to prohibit fracking. Ironically however, with every one such community, there are others that are only eager to jump on the fracking bandwagon, while along the way facing the daunting task of creating natural gas regulation for the first time.

Pulled in opposite directions by two equally-compelling forces, fracking in the U.S. is in a flux. Responding to the promise of a long sought after bounty, some local governments have been rushed into making rules without comprehending the core issues.²⁷ On the other hand, by waking up to the darker side of fracking, some local governments have begun to develop rules to ban fracking.²⁸ Caught in the middle, the EPA is finally showing signs of emerging from its inertia, as seen through the agency's most recent initiative in re-evaluating its role in this emerging paradigm. Against this consumer confusion, vested corporate interest and uncertain environmental consequences, it is time for a re-examination of current fracking regulation. Fracking at present does not have a centralized regulatory framework, since most rulemaking is happening at the state and local level. The current state of environmental safety in the U.S. calls for modernization of the federal regulatory framework for fracking. However, before delving into an analysis of EPA's future role in fracking, an examination of regulatory inertia is worth undertaking.

Despite the availability of various Acts on the books, the U.S. energy regulation often times does not depend on direct supervisory authority of an applicable statute. Rather, fracking regulation has emerged from a manipulative paradigm by drawing regulatory authority from the innovative interpretation of the Acts in question. In its capacity as sole supervisory entity for regulation, the EPA often engages in a fragmented approach. For example, the EPA's lack of expertise in dealing with agricultural, ecological, and environmental concerns related to fracking at present is well-documented and discussed widely by reputable scientists in the field.²⁹ Yet, the EPA attempted to regulate fracking through its creative

27. See Sorell E. Negro, *Fracking Wars: Federal, State and Local Conflicts Over the Regulation of Natural Gas Activities*, 35 ZONING & PLAN. L. REP. 1, 5 (2012), available at http://www.rc.com/documents/negro_frackingwars_2012.pdf.

28. See Freeman Klopott & Jim Efstathiou, *New York Fracking Advocates Say Local Bans Are 'Kiss of Death'*, BLOOMBERG, Jan. 16, 2012, <http://www.bloomberg.com/news/2012-01-17/new-york-fracking-advocates-say-local-bans-are-kiss-of-death-.html>.

29. See HEATHER COOLEY & KRISTINA DONNELLY, HYDRAULIC FRACTURING AND WATER RESOURCES: SEPARATING THE FRACK FROM THE FICTION 16 (2012), available at http://www.pacinst.org/reports/fracking/full_report.pdf.

interpretation of the SDWA,³⁰ despite continually failing to incorporate timely enhancements in laws subsequent to technology advancements. The inability to adequately close various regulatory loopholes has affected the EPA's ability to thwart off possible adverse consequences. Thus, fracking has seen collateral consequences.

The deeply ingrained inertia within the U.S. energy regulation requires a deep dive into tracing its genesis. History of energy regulation opens us to confront a fundamental weakness within the federal regulatory framework. During the 1960's U.S. energy boom, there were disconnects in applying relevant statutes to emerging new technologies.³¹ This may have created an ambience of confusion and inadequacy within the EPA.³² A faulty recognition of inadequacy gave way to vulnerability in dealing with new challenges, for which the agency sought a creative solution. Thus, it applied available statutes into emerging challenges by making older laws fit newer challenges. Unfortunately, such a framework suffers from a mismatch between its stated objective and available tools of statutory relevance. Thus, the framework continues to be burdened by escalating advancement of technological innovation. This has resulted in sub-optimal oversight.³³

Fragmented regulatory framework and sub-optimal regulation is an age-old problem. Despite an abundance of agencies, a fundamental problem that is shared amongst the vast majority of regulatory agencies is that these agencies do not distribute regulatory responsibilities based on exhibited expertise. Often, they do not delegate supervisory responsibilities

30. See Safe Drinking Water Act, 42 U.S.C. §§ 300f-300j (1974).

31. See Peter Van Doren, *A Brief History of Energy Regulations*, CATO INSTITUTE (Feb. 2009), <http://www.downsizinggovernment.org/energy/regulations>.

32. Confronted with the emerging scenario of a sudden energy boom, the early stages of the U.S. energy landscape witnessed inertia in adapting to new innovation and operational challenges. Instead of creating new statutes, the regulatory framework relied on adaptation and creative accommodation by attempting to fit old rules into newer complexities. Looking into the current regulatory landscape, especially during the early stages of fracking, the existing flaws within the federal regulatory system for shale gas is a stark reminder of a deeply ingrained inertia in the system. One of the fall-outs of such ambience of confusion and inadequacy within the federal regulatory agency is the uncertainty amongst the general public and fragmented regulatory framework created by different states addressing localized challenges outside of a cogent and consistent centralized authority.

33. See generally Hannah Wiseman, *Untested Waters: The Rise of Hydraulic Fracturing in Oil and Gas Production and the Need to Revisit Regulation*, 20 FORDHAM ENVTL. L. REV. 115, 145-46 (2009) (describing how fracking regulatory failures may have been the result of a lack of established framework at the federal level); see *Loopholes & Exemptions*, *supra* note 6.

based on specificity of purpose. In such constructions, the agencies draw regulatory authorities based on faulty statutory interpretations that attempt to force-fit new, evolving, and increasingly sophisticated issues into old statutes.³⁴ This is because the regulatory responsibility belonging to any given regulatory agency is derived from the statutory mandates of that particular agency. These mandates may not comport with evolving complexities that automatically come with new technology. In this context, decades-old law simply cannot do justice. It lacks the process-specific regulatory authority.

Therefore, regulatory agencies' creative manufacturing of authority based on arcane statutes is an attempt to create the illusion of adequacy and capability of oversight. These agencies struggle to legitimize their oversight functions related to the delegated areas and this is a strong indication of a deep-rooted weakness within the current regulatory framework. Yet, a closer look reveals how agencies have prevailed over the years while continuing to do a sub-optimal job of regulating in the complex areas within the U.S. energy production and distribution system. Let us now analyze EPA's fragmented and inconsistent approach on fracking, which calls for a more robust federal framework.

III. FRACKING'S REGULATORY FRAMEWORK: INCONSISTENCY AND FRAGMENTATION

Without central regulatory authority related to fracking, the EPA's role in regulating fracking is mired in a confusional conundrum. The central issue is whether fracking should be regulated locally or be mandated through a federal agency like the EPA.³⁵ The proponents of local control feel that the fundamental differences in topography resulting from geologic and geographic uniqueness make local authorities better suited to regulate fracking.³⁶ The proponents of federal control argue that the full impact of fracking is not known at various levels, and therefore, the federal agency is

34. See MATTHEW MCFEELEY, STATE HYDRAULIC FRACTURING DISCLOSURE RULES AND ENFORCEMENT: A COMPARISON 8 (2012) (observing the lack of regulatory framework at the state level and subsequently arguing for enhanced federal regulation for fracking), available at <http://www.nrdc.org/energy/files/Fracking-Disclosure-IB.pdf>.

35. See Negro, *supra* note 27.

36. See David B. Spence, *Federalism, Regulatory Lags, and the Political Economy of Energy Production*, 161 U. PA L. REV. 431, 462 (2013).

better equipped to engage in an exhaustive study of fracking's impact.³⁷ This divergence within fracking's regulatory landscape is seen through disparate initiatives currently underway across various states.

Currently, more than twenty states have embraced fracking. Over 26,000 wells have been drilled in the past two years. Several states are rethinking whether or not to allow operators to engage in fracking.³⁸ For example, most recently, the state of New York has pressed the reset button on fracking.³⁹ Based on its initial findings of adverse health impacts, New York has decided to adopt a "wait and see" approach. The operators for fracking must wait pending detailed studies on fracking's impact on health, humans and the environment.⁴⁰ Similarly, the city of Fort Collins has completed its evaluation on the rising threat of fracking near residential areas. Fort Collins recently passed a resolution to ban fracking via a 5-2 vote.⁴¹ Citizens in these states generally have welcomed federal agencies to study the impacts of fracking on the environment, especially on human health and on drinking water. They are generally relieved that there is a temporary moratorium on fracking before more information is known.

Yet, the country seems to be in constant confusion regarding fracking's impact. This confusion is corroborated by the diversity of opinions and contrarian positions taken by states and local authorities on the contentious issue of fracking. For example, the legislators in North Dakota have passed a resolution urging Congress to limit the EPA's authority in certain aspects of fracking — such as, drilling with fracking fluid consisting of less than 50% diesel fuel.⁴² Similarly, several counties in Pennsylvania allow fracking. Yet, the regulatory frameworks are either unclear or based

37. See Wiseman, *supra* note 33, at 127.

38. See, e.g., Jacquelyn Pless, *Regulating Hydraulic Fracturing: States Take Action*, NCSL (Dec. 2010), <http://tinyurl.com/ctaz443>; see also Bridget DiCosmo, *Kansas Backs Activist Call for EPA to Repeal Waiver for Oil, Gas Waste*, INSIDE EPA (Nov. 2, 2011), <http://insideepa.com>; Eve Byron, *Concerns Grow About Fracking Along Rocky Mountain Front*, BILLINGS GAZETTE (Nov. 14, 2011, 10:01 AM), <http://tinyurl.com/c9xqsxl>.

39. Paul Gallay, *On Fracking, Waiting is the Right Way Forward to New York*, N.Y. DAILY NEWS (Feb. 26, 2013, 1:47 PM), <http://www.nydailynews.com/opinion/fracking-waiting-new-york-article-1.1273825>.

40. *Id.*

41. See Robert Garrison, *Fort Collins City Council Votes to Ban Fracking*, 9NEWS.COM (Mar. 5, 2010, 11:53 PM), <http://www.9news.com/news/article/321480/188/Fort-Collins-City-Council-votes-to-ban-fracking>.

42. Sorrell Negro, *Fracking Wars: Federal, State, and Local Conflicts over the Regulation of Natural Gas Activities*, ZONING AND PLANNING LAW REPORT 1, 3 (Feb. 2012), http://www.rc.com/documents/negro_frackingwars_2012.pdf.

on state's rulemaking.⁴³ On the other hand, the state of Texas has recently passed regulation related to fracking activities within its borders.⁴⁴ Often times, however, states have begun regulating the drilling process, only to call upon the EPA to identify, examine and measure associated environmental impacts. The state of Pennsylvania exemplifies this dichotomy.⁴⁵

With the controversy surrounding the inadequacies of its supervisory regime, fracking should predominantly be seen as an unregulated framework. Neither the federal agency, nor the state regulators are clear in their roles. Yet, by all accounts, it is important to develop rules for regulating air pollution and wastewater from fracking. The states face a legitimate quandary as to how far they must regulate, as the scope of such regulation depends on the local nuances. Without the EPA's regulatory intervention, the states are compelled to intervene. On the other hand, if the EPA's regulatory ambit expands, states may still be called upon to be part of the regulatory framework. The take away is whether the interaction between federal and state regulatory agencies could introduce a robust regulatory trajectory for fracking.

So, how would it work? Understanding the current landscape might shine some light on the issue. States regulate the energy — both oil and gas

43. See generally Andrew Maykuth, *Strong Positions on Either Side of "Fracking" at EPA Hearing*, PHILLY.COM (Apr. 18, 2011, 10:51 AM), http://www.philly.com/philly/news/special_packages/inquirer/Marcellus-shale/20100914_Strong_positions_on_either_side_of_quot_fracking_quot_at_EPA_hearing.html?c=r ("Binghamton Mayor Matthew Ryan urged regulators to take their time and examine not just fracking, but all aspects of gas drilling. 'To date,' he said, 'I have heard only one refrain from those who want to speed up the gas play: We need the money.' Outside, where the street drama was taking place - police kept the rivals separated by barricades - land owners such as Chris Ostrowsky expressed exasperation that Pennsylvanians a few miles away in Susquehanna County were striking it rich, while New Yorkers were in limbo.") Such confusion continues to propagate through the political process, where subsequent administrations found themselves on opposite sides of the fracking debate, bolstering the case for federal involvement. See Pa. Exec. Order No. 2010-5 (Oct. 26, 2010), available at http://www.portal.state.pa.us/portal/server.pt?open=512&objID=708&PageID=224602&mode=2&contentid=http://pubcontent.state.pa.us/publishedcontent/publish/cop_general_government_operations/oa/oa_portal/omd/p_and_p/executive_orders/2010_2019/items/2010_05.html (placing a moratorium on fracking); Pa. Exec. Order No. 2011-1 (Mar. 8, 2011), available at http://www.portal.state.pa.us/portal/server.pt/gateway/PTARGS_0_2_785_708_0_43/http%3B/pubcontent.state.pa.us/publishedcontent/publish/global/files/executive_orders/2010_2019/2011_01.pdf (creating the Governor's Marcellus Shale Advisory Commission).

44. See Kate Galbraith, *Texas Senate Approves Fracking Disclosure Bill*, THE TEXAS TRIBUNE (May 25, 2011), <http://www.texastribune.org/2011/05/25/texas-senate-approves-fracking-disclosure-bill>.

45. See Maykuth *supra* note 43.

industries within their borders. Several states have passed new fracking regulations during 2009-2011.⁴⁶ These states include Arkansas,⁴⁷ Michigan,⁴⁸ and West Virginia.⁴⁹ Some states are also engaged in study and proposed rulemaking. These include Delaware⁵⁰ and New York.⁵¹ Texas has passed new rules and regulations just within the last year,⁵² whereas West Virginia enacted emergency rules in August 2011 to regulate horizontal gas drilling,⁵³ pending the passage of long-term regulations in the not-too-distant future. These current and pending legislations only point to an emerging consensus: the existing state level fracking regulations are diverging, fragmented and inconsistent.⁵⁴

IV. THE PARADOX OF SAFETY AND REGULATORY INADEQUACY

Existing health and environmental safety in the U.S. fracking industry is certainly inadequate. Modernization of the federal regulatory framework overseeing the application of drilling at depths of more than several miles, especially close to water aquifers, is long overdue. Currently, the regulation of fracking is conducted along two regulatory threads. On one

46. See, e.g., H.R. 304, 129th Gen. Assemb., Reg. Sess. (Ohio 2011).

47. See Ark. Oil & Gas Comm'n, Gen. Rules & Regs., Ark. Admin. Code 178.00.1-B-19.

48. See Mich. Dep't of Env't Quality, Supervisor of Wells Instruction, 353, 936 (June 22, 2011) (to be codified at Mich. Admin. Code R. Part 299), available at http://www.michigan.gov/documents/deq/SI_1-2011_353936_7.pdf.

49. See W.Va. Dep't of Env't Prot., Office of Oil and Gas, Rules Governing Horizontal Well Dev., 268, 337 (Aug. 26, 2011) (to be codified at W. Va. Admin. Code § 35-8-3), available at <http://www.dep.wv.gov/oil-and-gas/Documents/35-8%20%20Horizontal%20Well%20Rule.pdf>.

50. See Susan Phillips, *Delaware Lawmaker Creates Online Petition to Oppose Fracking Along Delaware River*, STATE IMPACT (Nov. 23, 2011, 12:35 PM), <http://stateimpact.npr.org/pennsylvania/2011/11/23/delaware-lawmaker-creates-online-petition-to-oppose-fracking-along-delaware-river>.

51. See N.Y. Exec. Order No. 41 (Dec. 13, 2010); see also *SGEIS on the Oil, Gas and Solution Mining Regulatory Program*, N.Y. DEP'T. ENVTL. CONSERVATION, www.dec.ny.gov/energy/47554.html (last visited Nov. 30, 2013).

52. See Pless, *supra* note 38.

53. See *DEP Files Emergency Rule for Horizontal Drilling*, W.VA. DEP'T ENVTL. PROTECTION (Aug. 22, 2011), <http://www.dep.wv.gov/news/Pages/DEPfilesemergencyruleforhorizontaldrilling.aspx>.

54. See, e.g., Scott Detrow, *How Pennsylvania's Fracking Chemical Disclosure Rules Stack Up Against Other States*, STATE IMPACT (Aug. 12, 2011, 8:27 AM), <http://stateimpact.npr.org/pennsylvania/2011/08/12/whats-in-the-frack-how-pennsylvanias-chemical-disclosure-rules-stack-up-against-other-states/>.

hand, states are authorizing oil and gas companies to drill under state rules and regulations.⁵⁵ On the other hand, the regulation of fracking does not depend on the direct supervisory authority originating from an applicable statute.⁵⁶ Rather, U.S. fracking regulation, thus far, has evolved via a manipulative paradigm of regulatory authority borne out of innovative interpretation of various legislative acts. Often times, this would include finding creative loopholes within the applicable statutes to bypass regulation. Moreover, in its capacity as the sole supervisory agency in charge of fracking regulation, the EPA can offer its *de facto* authority to regulate drilling through a fragmented approach in collaboration with various laws already on the books. These laws, however, are neither directly applicable to fracking nor can relate to fracking activities through substantive instantiation.⁵⁷

This creative usurpation of regulatory authority can be seen at various fronts. For example, fracking operators utilize inconsistencies and gaps contained in the Safe Drinking Water Act (“SDWA”), as the legislative enactment exempts fracking from its regulatory ambit.⁵⁸ Two points are

55. MARY TIEMANN & ADAM VANN, CONG. RESEARCH SERV., R41760, HYDRAULIC FRACTURING AND SAFE DRINKING WATER ACT REGULATORY ISSUES 30 (2013).

56. William J. Brady, *Hydraulic Fracturing Regulation in the United States: The Laissez-Faire Approach of the Federal Government and Varying State Regulations*, U. DENV. L. 1, 3 (last visited Nov. 30, 2013) <http://www.law.du.edu/documents/faculty-highlights/Intersol-2012-HydroFracking.pdf>.

57. *Natural Gas Extraction — Hydraulic Fracturing*, *supra* note 15.

58. Creative usage of the existing provisions within an available statute has been the hallmark of regulatory deficiency in fracking. It is instructive to understand how the interactions amongst congressional objective, selective usage of a statute to create a loophole and the federal agency’s reluctance to get involved may have allowed for a confusing conundrum in fracking thus far. In 1974, Congress enacted the Safe Drinking Water Act (SDWA) with the purpose of protecting the quality of drinking water in the United States. *See* 42 U.S.C. § 300f (1974), *supra* note 30. Within this context, SDWA established the Underground Injection Control program (UIC) that prohibited any “underground injection” that endangered underground drinking water sources. As defined within the applicable statute, underground injection “endangers drinking water sources if such injection may result in the presence in underground water which supplies or can reasonably be expected to supply any public water system of any contaminant, and if the presence of such contaminant may result in such system’s not complying with any national primary drinking water regulation or may otherwise adversely affect the health of persons.” 42 U.S.C. § 300 h(d)(2) (2006); *see also Basic Information About Injection Wells*, EPA, <http://water.epa.gov/type/groundwater/uic/basicinformation.cfm> (last visited Apr. 5, 2013). As per such stated objective under the SDWA, the EPA had established federal “floors” in standards and requirements for underground injection practices, which had exempted injection related to fracking activities. Subsequent to this, the 2005 Amendments to the SDWA continued this practice of focusing on injection at the subsurface level that exempted fracking. *See*

worth noting in this context. First, the SDWA was never envisioned to provide authority to regulate fracking.⁵⁹ Second, the very invocation of the SDWA to provide regulatory guidance is a feeble attempt in addressing lack of regulatory authority in a completely new arena, where newer regulations must be incorporated. Therefore, instead of focusing on the SDWA's lack of expertise in dealing with human health, ecological, and environmental concerns, the focus must be on SDWA's structural disconnect with fracking in general. As a result, attempting to expand SDWA's regulatory authority via interpretative guidance from the more recent Federal Fracturing Responsibility and Awareness of Chemicals ("FRAC") Act would tantamount to continuing on the fragmented regulatory trajectory.⁶⁰

The FRAC Act was introduced in 2009 to address various exemptions within the SDWA.⁶¹ Although the objective of the FRAC Act was to regulate the underground injection of fluids or propping agents for fracking, such regulation was not applicable for oil and gas production activities. Although the FRAC Act has not been officially enacted into federal law,⁶² its disclosure provision is questionable. Despite the legislative enactment calls for public disclosure of chemical constituents for underground injection for fracking, it is debatable whether the enactment in its current form is robust enough to enforce full disclosure of all harmful ingredients within fracking fluid.

One of the reasons the FRAC Act may have stalled recently is that Congress may be waiting on the outcome of EPA's study of fracking's impact on human health. Clearly, the EPA holds the key for overall regulation at the federal level. Because, in essence, the FRAC Act is an enhancement of the SDWA, as most of the EPA's current initiative revolves

generally Armando Benincasa, *The Current and Future State of Shale Gas and Hydraulic Fracturing Regulation*, 42 No. 3 A.B.A. TRENDS 8, 9 (2011).

59. Benincasa, *supra* note 58; see *Legal Envtl. Assistance Found. Inc. v. EPA*, 118 F.3d 1467, 1471 (11th Cir. 1997) (establishing that EPA's original position was that SDWA was never intended to be used for regulating fracking).

60. See Fracturing Responsibility and Awareness of Chemicals (FRAC) Act, S. 1215, 111th Cong. (2009); Abrahm Lustgarten, *FRAC Act—Congress Introduces Twin Bills to Control Drilling and Protect Drinking Water*, PROPUBLICA (June 9, 2009, 12:31 PM), <http://www.propublica.org/article/frac-act-congress-introduces-bills-to-control-drilling-609>.

61. The objective of the FRAC Act is to eliminate various exemptions under the Environmental Policy Act of 2005 from the Safe Drinking Water Act. See 42 U.S.C. § 300h as amended Aug. 8, 2005, P.L. 109-58. The exemptions were enacted based on extensive lobbying by the oil and gas industry for Congress to provide clarification about whether the EPA was required to regulate hydraulic fracturing under state UIC programs. See Wiseman, *supra* note 33, at 116.

62. Pless, *supra* note 38, at 4.

around examining the potential impact of fracking on drinking water resources. For example, a published study focuses on a set of impacts related to large water withdrawal and injection of fracking fluids, as part of the overall fracking process.⁶³ However, neither the enhancement envisioned in the SDWA nor the full implication of the FRAC Act can fully respond to the concern raised within the current regulatory regime's disclosure issues. The FRAC Act is deficient for various reasons, the chief among which is the confidentiality provision that I examine next.

The confidentiality provision enshrined within the legal disclosure of trade secret protections for companies is a thorny issue, predominantly due to the trade secret exemption. Why is the issue of trade secrets problematic? Also, why does it exhibit yet another instance of inadequate regulatory issues related to fracking? Using trade secrets to keep the formula for chemical composition out of public's view has been a traditional practice in the regulatory world.⁶⁴ In keeping with the general principle, private corporations are not legally obligated to disclose anything to the public.⁶⁵ Based on the fundamental premise that a corporation's business is a private affair and, unless a specific law is violated, the workings of the business are generally kept away from the public's prying eyes. This sets up a classic case of corporation's right to a trade secret versus the public's right to know. Typically, this quandary is resolved through local regulations. For example, in the event of a private company engaged in an activity, the activity is regulated by the supervisory jurisdiction—a local, state, or federal agency. Any one of these agencies can invoke their status as “public” agencies. This invocation oftentimes allows the agency to investigate the contents of anything submitted to the agency available pursuant to a public records request under state or federal law. In the context of fracking, this interaction between public right and private right becomes significant as it relates to the future disclosure for fracking fluid used in injection.

Can invocation of trade secrets provide the fracking operators immunity against required disclosures currently being envisioned under law? According to the Uniform Trade Secrets Act, a trade secret is such “information, including a formula, pattern, compilation, program device, method, technique, or process” that, when disclosed, would allow a third

63. See Zeller, *supra* note 19; see also Efstathiou, *supra* note 19.

64. Zeller, *supra* note 19.

65. *Id.*

party to gain economic benefit from its usage.⁶⁶ The current paradigm, therefore, calls for creating sufficient bulwark in law to “maintain its secrecy.” While the judiciary has not become engaged in interpreting whether the composition of fracking fluid must remain closed to the public, mainly on account of newer laws in progress through legislation, the courts’ general tendencies in this arena might be of interest. The courts have traditionally ruled in favor of operators’ right to retain their business secrets.⁶⁷ Yet, it conflicts with the public’s right to transparency. If viewed through the prism of potential cumulative impacts, the public’s right to know may become stronger against the business’s competing right. Currently more than 250 chemicals and additives are being used in various combinations for injection fluid in fracking.⁶⁸ These chemicals vary from operators-to-operators and from injection-sites-to-injections-sites.⁶⁹ Without knowing the chemical combinations, a wider swath of land may be subject to environmental degradation, and even a much larger pool of individuals may be subject to health issues. Yet, companies have gone to great measures to keep the details of their contents secret.⁷⁰

The above dichotomy presents a strong rationale for federal intervention, for which the EPA should be the primary agency to engage in

66. UNIF. TRADE SECRETS ACT §1.4 (1985).

67. Until the recent initiative via the FRAC Act, companies involved in fracking have tried to use an earlier ruling in *Parker v. Bureau of Land Mgmt.*, 141 F. Supp. 2d 71 (2001), in which the United States District Court held that business related information provided by a pipeline operator to the Bureau of Land Management for the purpose of environmental assessment was a privileged trade secret. It is instructive, in the merging context, to dissect the operating elements in the Court’s ruling. The court observed, “Whether the information was provided to the government voluntarily or if it was required to be provided . . . if information was voluntarily provided, defendants must satisfy a lower threshold to prevent disclosure.” *Id.* at 77. The Court continued that the operator in this instance is only required to “establish that the documents are the kind of information that would not customarily be released to the public.” *Id.* Clearly, such rulings do not have precedential value to emerging cases dealing with fracking, as more advanced studies have established potential for harm to both general public and environment is greater than keeping trade secret related to chemical composition of fracking fluid.

68. See Freedom of Information Act (FOIA) 5 U.S.C. § 552 (2009). The FOIA obligates a governmental agency upon receipt of a request for information to disclose all information they possess, unless such information falls within one of the privileged exemptions under the Act. *Id.* In this context, the district court in *Parker* noted, “The central purpose of FOIA is to ‘to pierce the veil of administrative secrecy and to open agency action to the light of public scrutiny’ through the disclosure of government records.” See also *Dep’t of Air Force v. Rose*, 425 U.S. 352, 361 (1976).

69. *Id.*

70. See *Webb*, *supra* note 21.

rule making. Why should the EPA be considered the central regulatory agency in this case? Thrusting the EPA in the role of the chief federal regulator for environmental issues is nothing new. Historically, both the legislators and the courts have done so by successfully putting the onus of regulating environmental emissions and actions and having environmental consequences upon the EPA within the meaning of available acts and statutes.⁷¹ For example, *Massachusetts v. EPA* began when the petitioners, comprised of several states including Massachusetts, brought suit in the lower court,⁷² petitioning the EPA to regulate emissions of greenhouse gases (GHG)⁷³ under the 1963 Clean Air Act (CAA).⁷⁴ The case evolved into a series of observations highlighting the role of a central regulatory agency.⁷⁵

First, the EPA's role is assumed to be overseeing the environmental, ecological, and health impact resulting from drilling activities within the

71. See *Massachusetts v. E.P.A.*, 549 U.S. 497 (2007); *Our Mission and What We Do*, EPA, <http://www2.epa.gov/aboutepa/our-mission-and-what-we-do> (last visited Apr. 12, 2013).

72. *EPA*, 549 U.S. at 497.

73. *Greenhouse Gases, Climate Change, and Energy*, ENERGY INFORMATION ADMINISTRATION (May 2008), <http://www.eia.gov/oiaf/1605/ggcebro/chapter1.html> (The term "greenhouse gases" (GHG) applies generally to water vapor, which are essential to maintain the earth's temperature at the habitable level, as without these gases this planet would likely be too cold to inhabit. Although the earth's weather and energy balance is maintained by a multitude of factors, including the sun and the water cycle, scientific proof exists to indicate that the average temperature of this earth would be considerably lower if all else is held equal and stable. A recent assessment by the IPCC has concluded that, human activities impact significantly on the level of atmospheric GHG. The IPCC noted, "changes in atmospheric concentrations of greenhouse gases and aerosols, land cover and solar radiation alter the energy balance of the climate system," which led the IPCC to conclude that "increases in anthropogenic greenhouse gas concentrations is very likely to have caused most of the increases in global average temperatures since the mid-20th century.").

74. See Robyn Kenney & Alexander Gastman, *Clean Air Act, United States*, THE ENCYCLOPEDIA OF EARTH (Jun. 23, 2010, 4:33 PM), http://www.eoearth.org/article/Clean_Air_Act_United_States (Congress's enactment of the Clean Air Act (CAA) in 1963 was with the explicit purpose of reducing air pollution from stationary sources, including power plants and steel mills, among other sources. The CAA's objective is to set emission standards for stationary sources and ensure enhancement of public health and welfare in the U.S. Within the broader meaning of the CAA, Congress recognizes the environmental hazards caused by motor vehicle exhausts and mandated research, investigations, surveys, and experiments on interstate pollution from the use of high sulfur coal and oil. This resulted in state and local governments as well as air pollution control agencies incurring expense of over 95 million dollars for more than three-year period financed, which enabled them to conduct research the Congress has mandated. However, the efficacies of the control programs created from this initiative are questionable from a mitigation perspective.).

75. *EPA*, 549 U.S. at 500.

context of oil, gas, and applicable commodity operations.⁷⁶ Therefore, within the context of fracking, the EPA should legitimately be recognized as overseeing the drilling operations that could adversely impact the environment—ensuring the integrity of the water resource squarely falls within such a mandate. Yet, the fundamental disconnect in this mandate comes from identifying the applicable statute or the specific Act that the agency must adhere to in delivering its responsibility. Because the EPA regulates by drawing authority from congressional mandate via legislative enactments, the protection for the states is ensured by the congressional mandates.⁷⁷ In this context, a federal agency is tasked with a specific procedural framework, which the agency is obligated to develop rules to regulate issues related to citizens' everyday life. If such agency were unable to develop rules, the default scenario would prompt the agency to provide the justification for its inability to oversee the regulation that is sought. No such issue has yet arisen in the context of fracking.⁷⁸

Second, the EPA is in charge of regulating environmental risk.⁷⁹ In this authority, the agency has been delegated to measuring and managing the adverse impacts of fracking, and yet the agency has not completed a comprehensive study to understand the risks associated with fracking. Thus, it may not be in a position to enforce specific acts of Congress.⁸⁰ Clearly, the current framework of environmental regulation is a cornucopia of shortcomings and redundancies inherited from a broader overture of the various congressional acts, such as the CAA and the SDWA. The EPA's rulemaking within the framework of SDWA will therefore require determination with regard to every type of pollutant, any and all of which may fall within the regulatory jurisdictions under EPA.⁸¹ In the absence of

76. See *Our Mission and What We Do*, *supra* note 71.

77. I refer to the general framework by means which Congress either via statutes or direct mandate to the federal agencies ensures the protection of state's interest.

78. See *supra* Part III.

79. *Our Mission and What We Do*, *supra* note 71.

80. See *supra* Part III.

81. According to the D.C. Circuit Court of Appeals, the EPA has a "clear statutory obligation to set emissions standards for all hazardous air pollutants" under 112(b) of the Clean Air Act. *Sierra Club v. EPA*, 479 F.3d 875, 878 (D.C. Cir. 2007). On the other hand, *Massachusetts v. EPA* mandates the EPA to engage in endangerment determination prior, to provide rule-making determination on greenhouse gases. That means, for any greenhouse gas, the decision to regulate or not must be preceded by the intermediate step of determining a threshold of endangerment for that gas. This invites complex jurisdictional quandaries as well as overlapping obligatory constraints under dual application of *Massachusetts v. EPA* and section 112(b) of the CAA. Clean Air Act, 42 U.S.C.S. § 7412(b) (1999).

specificity, it is quite possible that the EPA's obligation to regulate a specific pollutant or a certain toxic chemical may become applicable to a wide range of scenarios where the public's health or welfare becomes threatened.⁸² This might require expanding regulations beyond fracking fluid, but encapsulating a broader array of products and processes involved in fracking. This will ensure a fuller evaluation of fracking, whose adverse impacts are still unfolding and yet immeasurable. The EPA's recent response, through its expected release of the significantly lengthy study on fracking might reveal the layered and bureaucratic procedural steps the EPA might be contemplating prior to engaging in definitive rule-making to redress the environmental concerns highlighted in fracking.⁸³

Third, the EPA is tasked with evaluating environmental safety issues emanating from all geologic and hydrologic activities related to drilling.⁸⁴ In this regard, the EPA has the responsibility of ensuring not only water safety issues, but also water conservation issues—a responsibility that cannot be covered within the current provisions of the SDWA. While the EPA, through the SDWA and the proposed version of the FRAC Act, may exercise its jurisdiction over water safety, specifically with respect to contamination, pollution, and long-term impact. Interestingly, analysis of human health is conspicuously absent from both the agency task definition and its own interpretation of the Act in question.

For example, under the proposed version of the FRAC Act, the EPA is authorized to regulate “underground injection of fluids or propping agents pursuant to hydraulic fracturing operations related to oil and gas production activities.”⁸⁵ Here, the controlling authority of the EPA comes from the statutory provision defining “injection” involving “chemical constituents” intended to be used “in any underground injection during” fracking,⁸⁶ which unfortunately does not address long-term impacts of repetitive high-intensity and high-frequency vibrations of underground layers of earth. Moreover, the disclosure provision within the proposed Act calls for public disclosure of chemical compositions of the injection fluid by “identification of the chemical constituents of mixtures, Chemical Abstracts Service numbers for each chemical and constituent, material safety data sheets

82. See Soraghan, *supra* note 21.

83. See TIEMANN, *supra* note 55.

84. See *Natural Gas Extraction—Hydraulic Fracturing*, *supra* note 15.

85. Fracturing Responsibility and Awareness of Chemicals Act, S. 1215, 111th Cong. § 2(a)(B) (2009).

86. *Id.* at § 2(b)(4)(A)(i).

when available, and the volume of chemical used.”⁸⁷ This language neither compels, nor encourages fracking companies to research adverse ramifications or potential hazardous implications of underground injections. Rather, the onus of analyzing any poisonous or deleterious effects is clearly on the domain of the agency. By implication, therefore, absent the EPA’s intervention, the current regulatory framework does not provide a clear mandate for fracking corporations to be extra vigilant towards public safety, environmental protection, and ecological and geological security of the earth’s crust.

When scientific research continues to gather evidence of collateral consequences of fracking on various fronts,⁸⁸ we are compelled to draw inferences of potential injury to human health, environment, and ecology resulting from fracking.⁸⁹ The continuous shaking, rearranging, replacement, and substitution of material underground presents, perhaps, a far more dangerous possibility than that created from the mere presence of toxic chemicals in the fracking fluid. Yet, the flurry of activities in those

87. *Id.*

88. *See generally Scientific Integrity in Policy Making: Further Investigation of the Bush Administration’s Misuse of Science*, Union of Concerned Scientists, (July 2004), http://www.ucsusa.org/assets/documents/scientific_integrity/scientific_integrity_in_policy_making_july_2004_1.pdf; *see also* Letter from Weston Wilson, EPA employee, to Wayne Allard, Ben Nighthorse Campbell and Diana DeGette (Oct. 8, 2004), <http://latimes.image2.trb.com/lanews/media/acrobat/2004-10/14647025.pdf> (detailing within the content of the letter sent by Weston Wilson, an environmental engineer in Denver, the concerns related to contamination within the water aquifers arising out of fracking); *see also* Council of Scientific Society Presidents (2010), Letter from the Council to President Obama and senior administration officials, dated May 4, 2010, *available at* <http://www.eeb.cornell.edu/howarth/CCSP%20letter%20on%20energy%20&%20environment.pdf>.

89. OFFICE OF RES. & DEV., RES. ARM OF THE EPA, EPA 600/R-00/000, INVESTIGATION OF GROUND WATER CONTAMINATION NEAR PAVILLION, WYOMING 33 (Dec. 2011), http://www.epa.gov/region8/superfund/wy/pavillion/EPA_ReportOnPavillion_Dec-8-2011.pdf (establishing groundwater contamination near wells engaged in fracking). *See also, e.g.*, Mead Gruver, *Wyoming Air Pollution Worse Than Los Angeles Due To Gas Drilling*, HUFFINGTON POST (Mar. 8, 2011), http://www.huffingtonpost.com/2011/03/08/wyoming-air-pollution-gas-drilling_n_833027.html?; Mike Soraghan, *Baffled About Fracking? You’re Not Alone*, N.Y. TIMES (May 13, 2001) <http://www.nytimes.com/gwire/2011/05/13/13greenwire-baffled-about-fracking-youre-not-alone-44383.html> (describing the widely circulated water contamination case in Dimock, Pennsylvania, in which fracking resulted in methane seeping into local wells). Several instances of fracking related incidents, manifested impacts, and scientific research begin to converge upon the general understanding related to fracking’s adverse environmental and health impacts. For example, recent research confirms that fracking can contaminate underground drinking water.

states allowing fracking has not recognized this danger.⁹⁰ While the fundamental dangers are readily perceivable and scientifically supported, the EPA's fragmented approach thus far is rather disconcerting, to say the least.

Therefore, the existing utilization of outdated rules, such as the CAA⁹¹ or the SDWA to bring a new genre of energy operations under the EPA's regulatory purview is inherently flawed. It does not delineate between traditional oil and gas operations and the structurally new operation of fracking.⁹² This prompts us to recognize the various disconnects within the EPA's regulatory ambit, which is largely driven by imprecise articulation within the statutory pronouncements of the available statutes and Acts of Congress. Similarly, vagueness within the EPA's policy statements has presented significant implementation difficulties.⁹³ Ironically, EPA's continued reliance on the existing version of the FRAC Act has caused more damage in the field of environmental safety than perhaps any other regulatory pronouncement. Yet, the flawed policy focus may have kept other possible adverse impacts outside the regulatory ambit and for which the absence of awareness is even most discouraging for the future of human and environmental safety.

Therefore, the policy failure in fracking has not come by happenstance. It is the culmination of long-standing policy inertia. The lack of a comprehensive regulatory framework for pollutant is destructive to the human health and environment. Unfortunately, it is derived from prior administrations turning a blind eye to environmental impacts, while strengthening the corporate grip on the nation's natural resources. Absent the review and regulation by federal agencies, consumers cannot be protected from health risks related to fracking. Yet, current regulations and federal reviews of fracking do not explicitly acknowledge the public right. There are provisions for the federal government's authority to adequately

90. *See supra* note 58.

91. 42 U.S.C. §§ 7401-7671g (2006).

92. 42 U.S.C. §§ 6901-6992k (2006 & Supp. IV 2011).

93. Energy Policy Act of 2005, Pub. L. No. 109-58, 119 Stat. 594 (2005) (resulting in fracking operators legally injecting anything diesel into the ground with permit). *See* OFFICE OF WATER, EPA 816-R-12-004, PERMITTING GUIDANCE FOR OIL AND GAS HYDRAULIC FRACTURING ACTIVITIES USING DIESEL FUELS – DRAFT: UNDERGROUND INJECTION CONTROL PROGRAM GUIDANCE #84 (2012) <http://water.epa.gov/type/groundwater/uic/class2/hydraulicfracturing/upload/hfdieselfuelsguidance508.pdf>. It may be noted that, as per the 2005 Energy Policy Act (EP Act), Congress has amended the definition of “underground injection” under the SDWA specifically to exclude “the underground injection of fluids or propping agents (other than diesel fuels)” associated with fracking.

respond to the threat to public health arising out of environmental release of hazardous substance.⁹⁴ Yet, the risks related to ecological disaster,⁹⁵ environmental degradation,⁹⁶ biodiversity contamination,⁹⁷ or geological degradation have not been adequately recognized in formalizing rules related to fracking at the state level. For example, Texas has been the leader in producing natural gas based on fracking, yet, the regulatory framework seemed to have been developed without due cognizance to the adverse impacts of fracking, as I shall highlight in the next Section.

V. INADEQUACY OF FRACKING REGULATION THROUGH THE PRISM OF TEXAS

Variations in statewide fracking regulations have in part directly contributed to the divergence in natural gas production profile across the U.S. This inconsistency in the state wide regulatory framework certainly necessitates the need for uniformity in fracking regulations. Moreover, state initiatives have been found wanting in encapsulating the complexity of fracking, despite the process being almost as old as the natural gas exploration itself. Therefore, in order to provide a relevant context, I examine a few vignettes within the regulatory framework for fracking in Texas, including the most recent Texas Fracking Disclosure Law. My observation will form a prism through which to dissect the issues of statewide inconsistency and the state level inadequacy, if there are any.

A. Applicable Regulatory Framework in Texas

Texas has been a leader in shale gas production, seen through the doubling of fracking wells in the last decade.⁹⁸ Specifically, fracking has

94. See Environmental Protection Agency, *Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Overview*, 42 U.S.C. § 9601 (1980), ENVIRONMENTAL PROTECTION AGENCY (Mar. 1, 2013), <http://www.epa.gov/regulations/laws/cercla.html>.

95. See *Massachusetts v. EPA*, 549 U.S. 497 (2007).

96. See *supra* note 15.

97. See *Zimmerman v. Atlas Energy Inc.*, No. C-63-CV-200907564, Wash. Cnty. Ct. C.P. (2009).

98. See Kate Galbraith, *In Texas and Nationwide, Many Shales Left to Explore*, TEXAS TRIBUNE, Apr. 28, 2013, <http://www.texastribune.org/2013/04/28/texas-and-nationwide-many-shales-left-explore/>.

been quite extensive in the Barnett Shale in northern Texas,⁹⁹ but there are other significant shale sites, like the recent Eagle Ford Shale in southern Texas.¹⁰⁰ The strong surge of natural gas production in Texas can certainly be traced to the regulatory ease of fracking within the state. Without engaging in an exhaustive study related to the regulatory framework of natural gas in Texas, it can be argued that this regulatory flexibility draws its force from three main sources. These three sources, not necessarily in any order of significance are:

- (i) The agency competency in managing the comprehensiveness required to supervise all aspects of fracking.
- (ii) The primary functionality of the agency to which the responsibility was given.
- (iii) The agenda of the legislatures in allocating regulatory authorities to the specific agency in question.¹⁰¹

Looking at the divergence amongst the state wide regulatory initiatives related to fracking, Texas can be recognized as less environmentally concerned compared to some other states like New York, Pennsylvania and Wyoming—the other states that are considered to be at the forefront of the fracking movement.¹⁰² In Texas, the legislators have designated the Railroad Commission of Texas (Railroad Commission) as the primary energy regulator for the oil and gas commission.¹⁰³ With specific agendas of promoting the oil and natural gas industry development in mind, the corporate-influenced political framework has delegated the regulatory responsibility to the Railroad Commission.¹⁰⁴ The Railroad Commission regulates the oil and natural gas industry in general. It also supervises associated industries, such as the natural gas and hazardous liquid pipeline industry and the pipeline transporters industry, among many others.¹⁰⁵ Therefore, among the functionalities that fall within the Railroad

99. Railroad Commission of Texas, *Barnett Shale*, <http://www.rrc.state.tx.us/barnettshale/index.php> (last visited Nov. 30, 2013).

100. *Id.*

101. See Spence, *supra* note 36, at 456–58.

102. *Id.* at 455.

103. See Soraghan, *supra* note 21.

104. *Id.*

105. *Id.*

Commission's supervisory ambit, most prominent are the responsibilities of assessing the effectiveness of current laws and regulations related to all aspects of fracking. Theoretically, this should include assessing the physical safety in the construction of pipelines and the evaluation of adverse impacts to human health and the environment. The practicality of this is a different story altogether.

The Railroad Commission is, therefore, responsible for all regulatory activities related to the technical nuances of fracking in Texas. This could range from evaluating the strength of the wellhead to the safety of the burner tip applied in injection during fracking. Thus far, the Railroad Commission's regulatory authority has predominantly been premised on property rights, production rates and competition. The Railroad Commission has *not* been responsible for evaluating and managing the impacts of natural gas development as it applies to the environment, ecology and humans. A separate agency, the Texas Commission on Environmental Quality (TCEQ), has been responsible for protecting the state's human and natural resources.¹⁰⁶ TCEQ does so, in part through its jurisdiction over oil-field waste generated in connection with oil and gas exploration.¹⁰⁷ Yet, fracking presents unique challenges related to not only waste but also groundwater and water aquifer as well—something that has not been addressed within the designated responsibilities of these agencies. Moreover, optimal fracking regulation must go beyond mere regulation of property rights and production rates, as it must be indexed at multiple dimensions including environmental regulation,¹⁰⁸ hazardous material control,¹⁰⁹ evaluation of adverse impact to health of humans¹¹⁰ and degradation of environment and ecology,¹¹¹ among others.

Due to its narrow focus, politically hijacked legislative agenda and the lack of comprehensive approach, the *de facto* fracking regulation in Texas has shown some interesting dichotomies with respect to the other states. Texas regulatory framework has evolved towards becoming more specific in certain narrow areas. As a result, rules have become unnecessarily prescriptive compared to the other fracking intensive states like

106. About the TCEQ, TEXAS COMM'N ON ENVTL. QUALITY, <http://www.tceq.texas.gov/about> (last visited Nov. 22, 2013).

107. *Id.*

108. See NATURAL RES. DEF. COUNCIL, FRACKING FACTS: PROTECTING AMERICANS FROM THE RISKS OF FRACKING 2 (2012).

109. *Id.*

110. *Id.*

111. *Id.*

Pennsylvania and New York. Moreover, owing to its genesis from within the specificities of the pipeline industry, the existing fracking regulations focus on specifics like well constructions, casing specifications, blow-out preventers, etc. Yet, such rules fail to recognize the dangers from water contamination and unregulated waste disposal.¹¹² Rules even specify exact locations where well casings are to be constructed within the well. On the contrary, rules fail to evaluate the safety of toxic liquids used in fracking, or how accidents from blow out preventers can be managed, or at what distances water trucks supplying water should be kept from the boring holes.¹¹³ Among the examples of specificity within Texas fracking regulations include the following samples:

- (i) Rule require cement casing “from the shoe [the bottom of the surface casing] to a point at least 600 feet above the shoe.”¹¹⁴
- (ii) Rules regarding blowout preventers must contain specified characteristics, such as, “a minimum of two remotely controlled hydraulic ram-type blowout preventers,” with specified characteristics.¹¹⁵
- (iii) Rules related to storage and disposal during natural gas production vary significantly. As such, operators are permitted to construct and utilize underground for the storage of various liquids and they must obtain separate permit to dispose of liquid wastes underground.¹¹⁶

Specificity, however, does not address the broader fundamental issues that emerge from escalating instances of fracking related accidents, instances of environmental pollution, neighborhood degradation, and adverse impacts to the farming communities.¹¹⁷ These adverse consequences could be the result of not having a central federal agency guiding towards a uniform fracking regulation. An examination of the

112. See *Fracking, Federal Laws: Loopholes & Exemptions*, ENVTL. DEF. CTR., http://www.edcnet.org/learn/current_cases/fracking/federal_law_loopholes.html (last visited Nov. 22, 2013).

113. *Id.*

114. 16 TEX. ADMIN. CODE § 3.13(b)(3)(A) (2003).

115. 16 TEX. ADMIN. CODE § 3.13(c)(2)(B) (2003).

116. 16 TEX. ADMIN. CODE §§ 3.8(d)(4), 3.9(1).

117. See *id.*

Texas fracking legislation and its loopholes will further corroborate this point.

B. Fracking Disclosure Law in Texas

After month long debates among the state lawmakers, a *limited* chemical disclosure act (“Texas Fracking Law”) was enacted in 2011.¹¹⁸ Although initially built as the panacea for all fracking related problems,¹¹⁹ the law’s final version falls short on many grounds.¹²⁰ Seen through the many exemptions and loopholes within the enactment, the much-hyped Texas Fracking Law has turned out to be “much ado about nothing.”¹²¹

Texas Fracking Law requires operators to disclose the relative proportion of water and chemical additives used in each fracking treatment.¹²² The operators are to publicly disclose the contents of such chemical additives on a well-by-well basis using the website fracfocus.org.¹²³ Despite the Act’s primary objective of public disclosure of chemicals used in injection fluids, the much sought after transparency is still missing on multiple grounds. First, the Texas Fracking Law *only* requires disclosures for treatment of wells that have become operational after the enactment of the current rules. Second, the rules provide extensive protection to the industry by granting the operators wider latitude in declaring chemicals as part of company trade secret, thereby exempting such chemicals from disclosure. The fracking disclosure law has, therefore, become questionable in terms of its effectiveness, timing of enactment and non-retroactive nature.

118. S. 1049, 82 Reg. Sess. (Tex. 2011); H.B. 3328, 82 Reg. Sess. (Tex. 2011).

119. See Memorandum regarding New 16 Tex. Admin. Code § 3.29, relating to Hydraulic Fracturing Chemical Disclosure Requirements, TEXAS R.R. COMM’N (Aug. 22, 2011), <http://www.rrc.state.tx.us/rules/prop-new-3-29-frac-disclosure-Aug29.pdf>.

120. See Christopher Mims, *Texas’ fracking disclosure law has huge omissions*, GRIST, June 22, 2011, <http://grist.org/list/2011-06-22-texas-fracking-disclosure-law-has-huge-omissions/>.

121. See WILLIAM SHAKESPEARE, MUCH ADO ABOUT NOTHING (Cedric Watts ed., Woodsworth Classics 2003). Shakespeare’s 16th century play, *Much Ado About Nothing*, offered themes of love, lust, and alleged infidelity. But his play suggested that the alleged infidelity was nothing more than a big fuss, or a big *ado*, over nothing. This theme of nothing, or *much ado about nothing*, also encapsulates the deeper impact of the much-ballyhooed Texas Fracking Law, as I have set to establish in this Section of my Article.

122. S. 1049, 82 Reg. Sess. (Tex. 2011); H.B. 3328, 82 Reg. Sess. (Tex. 2011).

123. H.B. 3328, 82 Reg. Sess. § 91.851(a)(1)(B)(i)–(ii) (Tex. 2011).

During the legislative process, the Texas Fracking Law was being socialized as the prototype for the nation. Yet, as its final version has come to light, its impact seems severely muted, generating passionate debates across the state. Pitted on one side are the critiques of the current law, according to whom, the Act does not adequately protect the environment and human health from the corrosive impacts of the fracking fluid due to the broader proprietary exemptions granted to the operators.¹²⁴ The supporters of the law, on the other hand, are basking in the victory of their lobbying against the comprehensive disclosure and intrusive analysis of the fracking fluid's water-contamination effects.¹²⁵ The comments made by two Texas legislators capture these contrasting moods. For example, the Texas State Representative Jim Keffer, the author of the legislation, lauded the fracking disclosure bill as a "landmark piece of legislation that would establish a clear model for other states to follow."¹²⁶ On the other hand, Lon Burnam, a Democratic State Representative and a co-author of the law lamented that "this disclosure bill has a hole big enough to drive a Mack truck through."¹²⁷ Scientific evidence has been unable to establish that the risk from the chemicals linked to surface spills is not necessarily greater than the risk from their injection underground. Therefore, blocking disclosure of fracking chemicals by claims of trade secrets is dangerous to public interest, as there is no way of eliminating some highly toxic chemicals from entering the ground.¹²⁸

Critically evaluating these exemptions would, therefore, indicate that the Texas Fracking Law may eventually retain only symbolic importance with respect to the prevention of water contamination and other environmental problems. Especially, looking through the narrow prism of the Act's disclosure provisions and its exemptions loopholes, I question whether the states involved in rulemaking have either the adequate political

124. See Mims, *supra* note 120; see also Terrence Henry, *What Texas' Fracking Disclosure Law Does and Doesn't Do*, NPR (Aug. 7, 2012, 12:32 PM), <http://stateimpact.npr.org/texas/2012/08/07/what-texas-fracking-disclosure-law-does-and-doesnt-do/>.

125. See Ben Elgin, Benjamin Haas & Phil Kunz, *Fracking Secrets by Thousand Keep U.S. Clueless on Wells*, BLOOMBERG (Nov. 29, 2012, 11:01 PM), <http://www.bloomberg.com/news/2012-11-30/frack-secrets-by-thousands-keep-u-s-clueless-on-wells.html>.

126. *Id.*

127. *Id.*

128. Because each company keeps its fluid formula confidential, nobody actually knows what toxins potentially exist in the fluid. See Letter from Lisa P. Jackson, Administrator of the EPA, *supra* note 15.

independence or the expertise in dealing with fracking's complex impacts. A look into the anatomy of the Texas Fracking Law's exemption framework will shed further revelatory light.

C. Anatomy of Exemptions and Its Impacts

The fracking industry's unbridled expansion into public land and farming communities has created the escalating tension between public's demands for enhanced disclosure and drilling operator's need for insulation against secrecy. Against this backdrop, the Texas Fracking Law has been enacted with the promise to ensure public safety. Yet, its myriad loopholes might jeopardize the law's benefit for several reasons. The Act may have come too late in the development cycle, especially if one of the central provisions requires disclosure of only those wells for which the "initial drilling permit is issued on or after the date the initial rules adopted."¹²⁹ What this translates to is that for all the 18,000 wells that have already been constructed over the years and for which chemicals are being pumped for the last several years, there are no legal implications. Despite widespread instances of environment problems, operators for those wells can continue to inject chemical additives without any public disclosure.¹³⁰ In this sense, the law may be catching the tail end of the shale gas boom and therefore, may not have much beneficial impact for the public. Most damages have already taken place and the current disclosure law does not have the retroactive bite that was needed to reverse any adverse impact.

The newly enacted law requires the operators to report fracking chemicals used on new wells to a nonprofit website, fracfocus.org.¹³¹ These operators are required to provide a list of all chemicals used in fracking to the Railroad Commission.¹³² Yet, there are several loopholes in the law that provides a range of latitude for exemptions. First, the law provides exclusion of such additives that are not specifically designed for a designated functionality. This allows for a range of toxic chemicals with adverse consequences for both the humans and the environment to go untreated. The rule specifically states, "Incidental chemicals not used for a

129. See S. 1049, 82 Reg. Sess. § 2 (Tex. 2011).

130. *Id.*

131. About Us, FRAC FOCUS CHEMICAL DISCLOSURE REGISTRY, <http://fracfocus.org/welcome> (last visited Nov. 30, 2013).

132. *Id.*

specific purpose need not be reported.”¹³³ Second, the law specifically allows exclusion of additives that the companies determine to be proprietary, yet it has not provided more specific or objective guidelines towards determining what could be brought under the ambit of trade secret. The rule simply states, “Trade secrets can still be protected.”¹³⁴ This creates a safe passage for myriad toxic chemicals to flood the river ways and contaminate the groundwater without the public’s ability to evaluate or identify the root cause of their impacts. Third, as the disclosure requirements categorically emphasize that injection fluid’s “actual amounts used aren’t required,”¹³⁵ the cumulative impact of toxicity will remain outside the purview of meaningful investigation. This presents huge stumbling block towards assessment of fracking fluid’s impact on the human health and the environment. A quantitative evaluation of the current disclosure law’s impact over the first few months since enactment provides a glimpse of the law’s ineffectiveness.

A review of the data collected from the website fracfocus.org reveals that the operators have claimed trade secret exemptions approximately 20,000 times during the first 8 months in 2012.¹³⁶ Moreover, these companies have withheld more than one out of every five chemicals they used in fracking.¹³⁷ Thus, in more than 20% of the situations, the public has no recourse to identify, evaluate, or take preventive measures against fracking fluids. Even if the public creeks, rivers, aquifers and farm lands near fracking wells become exposed to contamination, degradation and pollution, common citizens do not have the ability to prevent *a priori* the source of health hazards and environmental degradation. Besides its inherent weakness, the above revelation also calls into question the Texas Fracking Act’s inherent tension with the various federal laws, such as, the Toxic Substances Control Act (TSCA)¹³⁸ and the Clean Water Act (CWA).¹³⁹

By presenting a state specific prism to evaluate the inconsistency and inadequacy of state level fracking regulation, the observation above points to multiple areas of concern. First, some of fracking’s various other

133. S. 1049, 82 Reg. Sess. § 2 (Tex. 2011).

134. *Id.*

135. *Id.*

136. *See* Elgin, *supra* note 125.

137. *Id.*

138. *See* 15 U.S.C. § 2620.

139. *See* 33 U.S.C. § 1251 *et seq.* (1972).

adverse impacts in the state of Texas have not received adequate attention. For example, there have not been adequate studies on destruction of water levels in the arid region,¹⁴⁰ illegality of waste disposals by the fracking well operators¹⁴¹ and the dangers of water contamination.¹⁴² Second, nuanced analysis related to potential lawsuits that may arise from public nuisance,¹⁴³ trespass,¹⁴⁴ negligence¹⁴⁵ and strict liability,¹⁴⁶ have not found traction in contemporary discourse. These areas of concern have not been adequately addressed during discussions leading to legislative enactments. Thus, despite urgency shown by them in becoming the forerunners in natural gas production via fracking, the states' attempts to formalize such pathway through legislation have been deficient. Evident in their sheer lack of comprehensiveness is also an inability to shed the shackles of political agendas, which calls for re-evaluation of the fracking framework within the regulatory ambit of federalism.

VI. CHOSING REGULATORY EFFICIENCY – TOP DOWN VS. BOTTOM UP APPROACHES

In an attempt to clarify the relationship between regulatory framework and environmental safety, I must address the issue of how to devise an optimal level of federal regulation. Current regulatory landscape is fraught with many internal inconsistencies, which may have stymied various regulatory efforts in streamlining product assimilation and adoption into the production chain. Here, often times, a particular innovation either gets fast-tracked into normal use or gets stymied by regulatory hurdles on account of

140. See Joe Carroll, *Worst Drought in More Than a Century Strikes Texas Oil Boom*, BLOOMBERG, June 13, 2011, <http://www.bloomberg.com/news/2011-06-13/worst-drought-in-more-than-a-century-threatens-texas-oil-natural-gas-boom.html>; see also Kate Galbraith, *In Texas, Water Use for Fracking Stirs Concerns*, TEXAS TRIBUNE, Mar. 8, 2013, <http://www.texastribune.org/2013/03/08/texas-water-use-fracking-stirs-concerns/>.

141. See Kate Galbraith & Terrence Henry, *As Fracking Proliferates in Texas, So Do Disposal Wells*, TEXAS TRIBUNE, Mar. 29, 2013, <http://www.texastribune.org/2013/03/29/disposal-wells-fracking-waste-stir-water-concerns/>.

142. See Chris Roark, *Flowback water spilled in west Flower Mound*, FRACKING INSIDER, Mar. 18, 2013, http://www.flowermoundleader.com/articles/2010/03/18/news_update/771.txt.

143. See *Mitchell v. Encana Oil & Gas (USA), Inc.*, No. 3:10-cv-02555, 2010 WL 5384210, at *3 (N.D. Tex. Dec. 15, 2010).

144. *Id.* at *5.

145. *Id.* at *6.

146. *Id.* at *7.

public participation. Therefore, how much public participation must be allowed within the context of federal rulemaking may be one of the thorniest issues in contemporary federal rulemaking initiatives. Moreover, federalism has a shaping affect, which is manifested mostly in giving rise to a delay in granting approval for new methods. This creates an apparent dichotomy within the general regulatory framework—that of finding the right balance between a bottom-up framework and a top-down mechanism.¹⁴⁷

One of the fallouts of the current fragmented approach in energy regulation is the often-unnecessary delay associated with the approval process for some products. The issue of how best to structure an optimum level of public participation essentially gravitates towards a quintessential point of divergence—that between the public's right to know versus the public's need to know. Often times, especially during the initial adoption of newer methodologies, an overabundance of public outcry might result in excessively unwanted public participation in the rulemaking process, leading to a perceived-information distortion within the regulatory approval process.¹⁴⁸ However, viewing through the prism of information distortion only tells part of the story.¹⁴⁹ The issue must be viewed in its comprehensiveness, through the balancing struggle between information distortion and information asymmetry.¹⁵⁰ For example, when an energy company attempts to saturate the consumer market with distorted advertisement,¹⁵¹ eventually drowning advocacy efforts of interest groups, consumer voices must be allowed, at least to an optimum extent, to match the corporate efforts. Not doing so will set up a choice between believing a false rationality or a distorted reality for the general consumer. By allowing public participation in the process, a regulatory framework can retain both the sanctity and robustness of the approval process. How much public participation is allowed must be determined through a composite function that balances the information asymmetry introduced by corporate

147. See Saby Ghoshray, *Food Safety and Security in the Monsanto Era: Peering Through the Lens of a Rights Paradigm Against an Onslaught of Corporate Domination*, 65 ME. L. REV. 1 (2013) (explaining the regulatory dichotomy in detail).

148. *Id.*

149. *Id.*

150. *Id.*

151. See Mijin Cha, *North Dakota's Fracking Boom Is A False Panacea*, THE POLICY SHOP (Feb. 5, 2013), <http://www.policyshop.net/home/2013/2/5/north-dakotas-fracking-boom-is-a-false-panacea.html>.

advertisement and information distortion attempted by excessive public participation.

The fragmented nature of regulatory affairs and the imprecise and inconsistent implementation of the approval process creates regulatory impasse within the approval process. The uncertainty introduced by such impasse could evolve in two ways. In the absence of a robust trajectory of federal law in a particular area, the states may engage in micro level rule making, which has the potential to unravel because of different states developing disproportionate and disjointed regulatory frameworks. This might reduce conflict of laws for interstate commerce. This would call for the development of a top-down approach.¹⁵² Contrarily, however, having a centralized authority within a federal framework supervising a diverging array of intersecting rights and interests may suffer from an inherent drawback. When the confines of law cannot adequately encapsulate local nuances and micro-level specificities, as they might be borne out of the interplay between technology and culture, indeterminacy and incompatibility in implementation may result. This would call for developing a bottom-up approach, which may suffer from an implementation quagmire in creating indeterminacy in law and making implementation difficult. Navigating this tension in law between the top-down approach and the bottom-up approach is one of the key challenges in developing a robust regulatory framework for innovations in a traditional field, such as oil and gas drilling.¹⁵³

Therefore, regulatory approach towards environmental safety in the U.S. must craft a carefully balanced approach. This is accomplished by recognizing the inherent limits of federal encapsulation of all possible scenarios within individual localities. The federal approach should proceed along a broader contour. It should allow agencies to incorporate a set of touch points along the various sensitive areas, where various safeties might be at risk, while recognizing local nuances and health and human calamity issues.

152. *Id.*

153. See generally Jeffrey J. Rachlinski, *Bottom-Up versus Top-Down Lawmaking*, 73 U. CHI. L. REV. 1 (2006); Cornell Legal Studies Research Paper No. 05-025, available at <http://ssrn.com/abstract=807685> (discussing the context and scope of the two general methods by means of which democratic legal systems make law).

VII. A PATH FORWARD: ARGUING FOR COOPERATIVE FEDERALISM

Against a backdrop of a confusional conundrum surrounding fracking, the central inquiry revolves around how and who should regulate fracking.¹⁵⁴ As the analysis above has proven, the U.S. shale gas production is not only controversial, but is fraught with uncertainty surrounding various adverse impacts that has not been fully explored. Against a flurry of activities within the political economy of energy production, the call for replacing fossil fuel with cleaner natural gas certainly becomes louder with each passing day.¹⁵⁵ As a result, state and local regulators across the states are scrambling to cope with the evolving drilling boom in various states.¹⁵⁶ Whether or not federal regulators must step up to the plate or augment the existing local regulations has been one of the running themes within the regulatory lag perceived within the fracking industry.¹⁵⁷ Examining the existing regulator landscape and the anatomy of fracking from its various adverse implications, this section addresses the issue of regulation in two steps. First, the analysis presents rationale for developing a federally focused regulatory environment. Second, the scope of federal involvement is presented to chart the future regulatory trajectory for fracking.

A. Linking Federalism in Fracking Regulation

As the landscape of fracking manifests in its inherent dichotomies of diverging outcomes across states, the rationale for locally focused regulation does gain currency based on certain localized aspects of fracking.¹⁵⁸ There is no doubt that the operational aspect of fracking and its environmental impact is dependent to some extent on the local geography and geology.¹⁵⁹ However, this localized feature alone cannot be the primary rationale for developing fracking regulations along state lines. Despite the variety in the geologic formation and differences in core local economic infrastructure, fracking has deeper economic and political

154. *See supra* note 58.

155. *See supra* note 15.

156. *See* Spence, *supra* note 36.

157. *See id.* at 435.

158. *See id.* at 507.

159. *Id.*

implications that transcend both state and local boundaries, as I shall outline below.

First, fracking involves uncertainties in evaluating unknown parameters related to both present and future impacts on environment, ecology and human health, areas that a federal authority is better equipped to comprehensively evaluate.¹⁶⁰ Moreover, the process of fracking extends several miles below the earth's surface.¹⁶¹ Because of the uniqueness of the fracking process that involves horizontal injection of fluids into the Earth's underground, the impact could have spillover effects that may transcend multiple states, and go beyond states boundaries.¹⁶² Furthermore, as the analysis of some of the applicable existing federal statutes indicates, it is very difficult to encapsulate some of the operational nuances of fracking within the current regulatory framework. Therefore, based on cross-border activities and potential adverse impacts that could spill over across states, the rationale exists for justifying regulation of fracking via involvement of federal agencies.

Second, as the current state-level initiatives and legislative advances reveal,¹⁶³ states view fracking with significantly diverging viewpoints.¹⁶⁴ This may impede development of businesses across the states due to the asymmetric impacts companies may have across the states. Moreover, the lack of efficiency introduced from diverging local practices can be seen from instances where one state prohibits certain commercial activities that the neighboring state may encourage. Besides economic impact, this may cause both undue migrations of civilian establishment and disturbances within the affected region. By developing uniform rules across the region, the agency tasked with promoting and regulating fracking activities will be better equipped in introducing business efficiency and population symmetry. Therefore, commercial uniformity and business efficiency presents a strong rationale for bringing fracking under the federal ambit of regulation.

Third, as fracking continues to expand across the U.S., the risk of direct interstate pollution increases in proportion to the statewide expansion of drilling.¹⁶⁵ This has no credible measure to evaluate the cumulative

160. *See id.* at 507–08.

161. *See id.* at 438.

162. *Id.*

163. *Id.*

164. *Id.*

165. *Id.*

impacts, as the fracking related activities present their cumulative impacts on communities surrounding the wells.¹⁶⁶ Such adverse impacts will certainly cross over state boundaries. A localized regulatory framework is simply inadequate to deal with impacts upon land use, wildlife and ecologies, which requires a broader and more intensive framework that is possible only through federally mandated regulatory framework.

Fourth, if we were to take the issue of fracking from a localized shallow viewpoint, we will miss the much broader picture—that of a significant transformation of the way of life. It has been shown in isolated instances within the recent past, fracking has not only transformed vast swaths of rural America,¹⁶⁷ but it has also eroded the historic qualities of traditional life.¹⁶⁸ As various local battles trickle into the various state Supreme Courts, fracking's transformative impact is further evidenced through its impact on the cultural and historical landscape in the affected communities, for which a reliance of federal regulation might be more efficient than anything else. However, fracking does have localized issues that may advance argument in favor of decentralization as a response to satisfy both the local preferences and to tailor decisions to suit local environmental conditions. Thus, adaptive management and developing economically efficient regulation might indeed call for a balanced federalism that is discussed below.

B. Response to Fracking – Will Cooperative Federalism Pave the Way?

Since the days of drafting the Constitution, the allocation of decision making authority across the various levels of government is steeped in tension.¹⁶⁹ In this fundamental struggle to identify the most optimum level

166. Robert W. Howarth, Anthony Ingraffea & Terry Engelder, *Natural Gas: Should Fracking Stop?*, NATURE (Sept. 15, 2011), <http://blog.acsf.cornell.edu/?p=804>.

167. Michael Burger, *Fracking and Federalism Choice: In Response to David B. Spence, Federalism, Regulatory Lags, and the Political Economy of Energy Production*, 161 U. PA. L. REV. ONLINE 150 (2013) available at <http://ssrn.com/abstract=2190445>.

168. *Id.*

169. Regulation of conduct is governed by the law that is controlling—state or federal. Conflict in the supervisory interest in governing such conduct emanates from two clauses of the U.S. Constitution, the Commerce Clause, and the Supremacy Clause. See U.S. CONST. art. I, § 8, cl. 3; U.S. CONST. art. VI, § 2. The Commerce Clause allows Congress to regulate interstate commerce via enactment of legislation by virtue of the constitutional grant bestowed by the U.S. Constitution. Residing at the core of federal-state conflict, the Tenth Amendment allows experiments and exceptions to be carved out of the federal intent. See U.S. v. Darby, 312 U.S. 100, 124–25 (1941). Since the Framing debates, this particular

of regulation,¹⁷⁰ from the choices between a top-down approach or a bottom-up approach,¹⁷¹ how much responsibility is to be allocated across the various governmental authorities while ensuring the broader policy objectives of environmental protections are met? Some form of cooperative federalism might be best suited to regulate fracking, which would require both federal and state participation. Although a central agency may be required to develop guideposts along the way for the lower-level governmental authorities to expand upon, this unique federalism must consist of a federal floor within the states' heightened authority. In this version of cooperative federalism, the local nuances can adequately be responded to by empowering states in clarifying their role in enforcement and legislation. This would require establishing new standards enabling adoption and enforcement of new states' regulatory principles modeled under the broader federal mandate.¹⁷² Instead of either allowing individual states to make diverging rules related to fracking activities or imposing on

Amendment has continued to guarantee states or its citizens certain rights that have not been expressly delegated to the United States. See U.S. CONST. amend. X. This important constitutional provision could very well become the single most defining element in shaping the evolution of cooperative federalism that I described in this article. At its core, the federalism debate surrounding fracking could evolve through an interaction of three pillars of the Constitution: the Commerce Clause, the Supremacy Clause, and the Tenth Amendment. Thus, the path to clarity over consistent and universally acceptable fracking regulations must come through specific coterminous areas of state and federal rights, an area I have discussed elsewhere.

170. See *supra* Section VI.

171. *Id.*

172. Canvassing the landscape of divergence in the fracking regulations across the country, I ponder as to what might happen when and if the majority of state-sponsored initiatives are in conflict with federal statutes. Following the laboratory of democracy framework of federalism, these initiatives revolve around the state legislatures enacting laws to regulate oil and gas activities at different parts of the value chain while drawing from the concept of "laboratory for experiment." Based on Justice Brandeis's metaphorical characterization of States as laboratories of experimentation within the Federal Union, individual states' ability to experiment with local laws has become the accepted benchmark among the proponents of Federalism. See Michael S. Grave, *Laboratories of Democracy*, AEI ONLINE (Mar. 31, 2001), <http://www.aei.org/article/politics-and-public-opinion/elections/laboratories-of-democracy/>. However, such a scheme might create a situation in which compliance with state laws and regulations will prevent simultaneous compliance with the broader provisions of the FRAC Act and other applicable federal Acts, which might make compliance with the applicable federal law impossible. This would invariably set up a positive conflict that would require preemption via conflict analysis. Although the trajectory of preemption is a well understood area of jurisprudence, as animated by the Supreme Court's observation in both *Wyeth v. Levine* and *Gonzales v. Oregon*, in this article, I argue for avoiding such conflicts by carefully calibrating state laws within the broader federal objectives.

the states a “one size fits all” regulatory framework, a version of interactive federalism that draws its authority via an overlapping shared paradigm will not only promote beneficial cooperation but, shall certainly conform to the legitimate goal of federalism.¹⁷³

Implicit within the objective premise of federalism is a reference to multiple governmental authorities. These authorities through their quasi-autonomous existence, restrains usurpation of asymmetric power amongst rivals, which ultimately enables the creation of a sustainable equilibrium. Eventually, the structure would be better suited to provide multiple structures towards solving broader and complex problems within a dual, interactive regulatory framework.¹⁷⁴ Dual regulation may be a required safeguard to ensure public protection and environmental integrity. Moreover, it can work as a bulwark against asymmetric and unequal usurpation of power that may be subject to hijacking by broader corporate interests. This form of interacting federalism specifically focuses on harmonization of various state laws as opposed to federal preemption. This in turn, minimizes the risk of succumbing to broader corporate interests.

There is no denying the fact that any variant of cooperative federalism brings with it the unnecessary costs related to information redundancy. Yet, within it resides the seeds for enhancing environmental democracy where all the stakeholders can be brought to the table by allowing multiple voices to be heard. This would allow multiple voices to rise in regulating and conducting public affairs.¹⁷⁵ After all, federalism is predicated on competition between multiple authorities and geared towards ensuring maximal public interests. Any variant of cooperative federalism therefore, not only cures the ill effects of asymmetric power usurpation,¹⁷⁶ it also prevents subsuming public interests against broader corporate domination through sharing responsibilities across multiple stakeholders and diverging interacting authorities. Within this interactive cooperative paradigm, various statutes can act as guideposts along a broader spectrum. This cooperative federalism would allow some states to enact more stringent regulatory framework as a response to local nuances. It certainly would allow some other states to adequately respond in meeting these challenges

173. *Id.*

174. See Bruce Ledewitz, *The Present and Future of Federalism*, 43 DUQ. L. REV. 645 (2005).

175. See *supra* note 81.

176. *Id.*

by creating a framework that calls for relying on a federally mandated floor with room to maneuver and expand upon as the local need arises.

VIII. CONCLUSION

This Article is an outgrowth of emerging views on fracking federalism. As the regulation of fracking continues to be shaped via stronger corporate interests, the drowning of public voices within the regulatory framework's fragmented landscape is rather regrettable. As the debates surrounding how much to regulate and who shall regulate continue to evolve through diverging manifestations in federal and state legislatures, agency updates and court proceedings, we must retrace our steps towards a more fundamental research. The pertinent inquiry must be indexed not at how much to regulate, but rather indexed at what are the risks and where these risks come from. Responses will undoubtedly illuminate our understanding in creating comprehensive federal guideposts towards mapping the fracking future roadmap.

As I have highlighted in this Article, fracking involves a complex paradigm. This is partly because, within the context of energy and environment law, there seems to be a predominant absence of an acceptable locus of regulatory and legal contour. Also, due to it being in a relatively nascent stage, a host of emerging issues exist for which robust laws are either non-existent or are extrapolation from other areas within energy law. The legal theories shaping the fracking debate are still uncertain and continue to evolve based on developments at state levels. Therefore, I would like to place the regulatory issue at the intersection of separation of powers and individual liberty interests. Dissected through a prism of a robust constitutional framework, federal encroachment may come up deficient. As such, the future of jurisprudential contours animating states' rights may seek guidance from the history of the Tenth Amendment and the intent of the Framers, for which I have outlined how a variant of cooperative federalism might be the way forward towards fracking.

Finally, while the fracking debate continues to challenge the conceptual confines of our rights paradigm, I see the deficiency in the contemporary discourse in its lack of properly contextualizing the intersecting rights framework, especially related to the applicability in public versus private rights. My Article attempts to place the fracking debate within this frame. Doing so will undoubtedly allow the needed

emphasis in exploring how the regulatory contours might need to be changed when viewed through a multi-dimensional prism consisting of safeguards surrounding water allocation, chemically induced contamination, injury to human health and long-term impacts from cumulative effects, issues that may not have been encapsulated within the disclosure laws in its current version.