I. INTRODUCTION
Since the earliest days of the twenty-first century, a combination of increased energy appetites from the fast-growing economies of China, India, and Brazil, instabilities in the world’s oil-producing states in the Middle East and North Africa, volatile prices, and a rebirth of natural resource nationalism worldwide has brought again into question the United States’ reliance on foreign oil. Virtually all oil forecasters indicate that...
United States dependence upon unstable oil regions is destined to grow as the United States consumes about 25% of the world’s oil, or 18.8 million barrels per day. Of that, 55% is imported.1

The seemingly inevitable trajectory of increased appetites and dimming carbon resources has shaped not only the United States’ energy policy, but also geostategic issues and the entire global economy. Further, the social media revolutions that brought life and instances of hope to the “Arab Spring” has also brought turmoil that threatens to further disrupt energy supplies.2 These factors added a new “fear premium” to the coordinated global system of national policies and international institutions that would maintain a steady flow of oil supplies.3

II. ENERGY RESILIENCY

Often framed in terms of “energy independence,” energy security has been part of America’s political vocabulary for a succession of administrations. On March 30, 2011, President Obama called for a reduction in foreign oil by one-third within the next decade.4 His prescription for energy resilience follows a long line of presidents who have promised the same, beginning with Richard Nixon.5 In his November 1973 energy policy speech that followed the oil embargo of that same year, President Nixon vowed that the United States would ensure that “by the end of this decade, Americans will not have to rely on any source of energy beyond our own.”6

While nearly every administration that followed President Nixon promised to replace foreign oil imports from the Middle East and North Africa, the degree of dependency has only increased, thereby shaping not only the United States’ energy policy, but also geopolitics and the entire


2. The events that began in Tunisia in December 2010, then spread throughout much of the Middle East—Egypt, Libya, Yemen, Bahrain, Syria, and beyond—is shaking the political and social foundations of the Arab world. While no one is certain where the aftershocks might lead, popular forces of change are challenging the entrenched elites. The stability of the price of oil is inextricably linked with this series of social transformations, with no end in sight.


6. Id.
global economy for the indefinite future.\footnote{Daniel Yergin, \textit{Oil’s New World Order}, \textit{WASH. POST}, Oct. 30, 2011, at B1.} As world demand promises to increase exponentially, the International Energy Agency recently reported that it is becoming harder to get oil out of the ground. Exxon Mobil projects by its own measure that global energy demand will be about thirty percent higher in 2040.\footnote{EXXONMobil, \textit{The Outlook for Energy: A View to 2040} 1 (2012), \textit{available at www.exxonmobil.com/Corporate/Files/news_pub_co2012.pdf}. “[A]s economic output more than doubles and prosperity expands across a world whose population will grow to nearly 9 billion people,” energy demand will increase exponentially. \textit{Id.}}

But, in the midst of demands for energy security, a paradigm shift is emerging that could reshape the United States’ national energy destiny. Rather than energy dependence, the paradigm shift promises an energy resiliency that is emerging not from a “grand design or major policy effort,” but rather a series of seemingly unrelated technological developments and breakthroughs that are, together, taking on a decided national—if not “hemispheric”—cast.\footnote{Yergin, \textit{supra} note 7, at B1.} As the outlines of a new oil and gas map emerges, this hemispheric “energy axis,” counts as a new frontier amongst some of the world’s largest investment projects.

Large new oil and gas fields are being drilled—both on and offshore—with new technologies that offer access to hundreds of billions of barrels of recoverable and previously inaccessible fossil fuels in deeper, darker, harder, more dangerous places that do not surrender its energy easily. These energy plays—running from the Arctic’s northern reaches, to Canada’s tar sands, through a wide-girth of gas and oil-shale plays in North Dakota, Pennsylvania and Texas, to the Gulf’s offshore wells, then, further south to the enormous, and previously inaccessible, layers of pre-salt and rock reserves, deep below Brazil’s Atlantic waters. These oil and gas plays are creating the potential for greater sources of domestic energy and energy from countries with greater political stability, thus creating the potential for greater energy resiliency for the United States, the world’s top oil consumer.

III. NORTH DAKOTA

North Dakota is, arguably, the first among equals in the new energy plays that could prove to be the largest domestic oil discovery in the past forty years. The revenue potential of the Bakken play, as is known, is enormous. In 2008, U.S. Geological Survey estimated the Bakken might hold “an estimated 3.0 to 4.3 billion barrels of undiscovered, technically
However, because the challenge is getting the oil out, the amount of recoverable oil in the Bakken may, in fact, be much more.

A. FRACKING

By using the environmentally controversial drilling technology of hydraulic fracturing to release shale oil that lies underground in the Bakken shale rock formation, stretching across Western North Dakota, northeast Montana, and into Canada’s Saskatchewan Province, producers have an opportunity to expand the production of oil to meet growing domestic and, potentially, international demand. The basic technique of hydraulic fracturing, or “fracking,” has been used since the late 1940s in conventional wells, where a vertical well shaft hits a layer of shale and chemically treated water and sand are blasted down at high pressure to crack open the rock and release the oil or natural gas. Recently, the technique has been combined with a newer technology, “directional, or horizontal, drilling” with “the ability to turn a downward-plodding drill bit as much as [ninety] degrees and continue drilling within the layer, parallel to the ground surface . . .” With this technique, oil production in the Bakken has exploded. Production skyrocketed from 3000 barrels a day in 2005 to 225,000 barrels a day in 2010, and 660,000 barrels a day in June 2012, up 71% over June 2011 volumes, according to the government’s Energy Information Administration (EIA). Although the EIA believes the Bakken could produce 350,000 barrels a day by 2035, other analysts and producers think the estimate is too low, with state of the art technologies


11. See id.

12. “Frac job” is an industry term referring specifically to the process of hydraulic fracturing, a secondary recovery method used to increase production from oil and gas wells. During a “frac job,” pressurized water, industrial additives, and sand are blasted down well to fracture or break open rock formations that trap oil or gas. See PHILIPPE A. CHARLEZ, ROCK MECHANICS: PETROLEUM APPLICATIONS 239 (1997). For the purposes of this Article and the NORTH DAKOTA LAW REVIEW, the term fracking may be substituted as interchangeable terms. See, e.g., Armes v. Petro-Hunt, LLC, 4:10-CV-078, 2012 WL 1493740 at *1 (D.N.D. Apr. 27, 2012); Weatherford Int'l, Inc. v. Peak Completion Tech., Inc., CIV.A. H-08-1450, 2011 WL 819324 at *4 (S.D. Tex. Mar. 2, 2011); Parcoil Corp. v. NOWSCO Well Serv., Ltd., 887 F.2d 502, 503 (4th Cir. 1989).


there could be as much as a million barrels a day by 2020, promising to make the United States a center of energy production again.\textsuperscript{15}

According to the North Dakota Department of Mineral Resources, the number of producing wells in North Dakota at the close of 2011 was an all-time high of 6565.\textsuperscript{16} The total December 2011 oil production for North Dakota was 16.5 million barrels, and for all of 2011, the state produced 153 million barrels of oil, which was 40 million more barrels than in 2010.\textsuperscript{17} Although the North Dakota production is only a fraction of the 5.6 million barrels a day the country produces,\textsuperscript{18} and an even smaller fraction of the approximately 19 million that Americans consume,\textsuperscript{19} it is indeed significant. And it is especially significant, in all respects, for North Dakota and its citizens.

\subsection*{B. Scope and Frenzy}

Shale is creating winners and losers in the domestic energy industry. The Wall Street Journal reported that “shale frenzy” has resulted in the total value of United States’ oil and gas deals reaching beyond $292 billion over the past two years.\textsuperscript{20} Kinder Morgan Incorporated recently announced one such deal, involving its buyout of El Paso Corporation in a $21.1 billion deal, which suggests the shale gas play will require billions in distribution systems, as the merger would create North America’s largest natural-gas pipeline operator.\textsuperscript{21} Also, Anadarko Petroleum Company acquired Kerr-McGee Corporation, after the company passed on shale in 2006.\textsuperscript{22} Finally, the Fortune-500 company Devon Energy acquired Mitchell Energy and Development of Houston for $3.5 billion.\textsuperscript{23} With an expansion of its horizontal drilling, Devon is now viewed as one of the companies that has

\begin{thebibliography}{99}
\bibitem{17} Id.
\bibitem{21} David Benoit, Kinder Morgan Bid Approved by El Paso Holders, WALL ST. J., Mar. 9, 2012.
\bibitem{22} Gold & Dezember, supra note 20.
\bibitem{23} Id.
\end{thebibliography}
increased production and improved efficiencies in the once inaccessible Barnett Shale.

Such significant growth and long-term potential in oil and gas fields is bringing interest from energy companies around the world, suggesting the potential for an industry consolidation. For example, Norway’s biggest oil company, Statoil, is seeking to increase its land holdings by purchasing Texas-based Brigham Oil and its 375,000 acres in the Williston Basin for $4.4 billion.\[^24\] As costs decrease to find and extract Bakken oil, major companies such as Exxon, ConocoPhillips, and Royal Dutch Shell have also reportedly expressed interest in acquiring companies in an environment where oil has rallied about ninety dollars a barrel in October, 2012 with a break-even price now estimated between fifty-five dollars and seventy dollars per barrel.\[^25\] The energy industry, wagering billions that oil shale energy is sustainable, plans to expand the Bakken play from North Dakota further south, with up to 7000 test wells planned within five years for the Tyler formation, located about one-half mile above the Bakken and stretching into South Dakota.\[^26\]

C. SOCIAL AND ENVIRONMENTAL COSTS

Despite promising oil and gas development, advocates on all sides of the oil and gas issue generally agree that advanced technologies lag in their ability to anticipate, prevent, or respond to problems created by the complex high-tech energy extraction ventures. Examples include drilling to 8000 feet below the sea; hydraulic fracturing that injects water and chemicals under high pressure into deep rock; and drilling in extreme Arctic weather conditions in seas where a spill could eclipse the tragedy in the Gulf. These ventures raise core questions of how to find a balance among corporate, government, and community interests; what combination of state or federal regulators should set the standards; what meaningful support exists for energy conservation and renewable sources such as sun and wind; and what regulatory and voluntary social and environmental responsibilities are


emerging at this early stage where no one yet understands the edges of the new plays?27

D. A MODERN DAY GOLD RUSH

North Dakota’s boom is a “modern-day gold rush.”28 Oil rig jobs pay as much as six figures, a truck driver salary may be up to $80,000, and the state’s unemployment rate hovers at nation’s lowest, around 2.5%.29 The tax revenues are enormous. An estimated 205 rigs working on horizontal wells, delivered about $700 million in 2011 tax revenues with an anticipated increase to $1 billion in 2012.30

In response to social changes, the North Dakota Legislature’s recent special session sought to bridge gaps in social and community impacts in the oil and gas producing counties, which is another piece of the puzzle. It incentivized the development of low-income housing where rents have skyrocketed. Road repair funds increased by 80%, as did the general fund for oil-related impacts increase.

E. INCREASING ENVIRONMENTAL REGULATORY SCRUTINY

Regulatory authorities are mixed. States are currently the primary regulators of drilling, including all of the activities involved in oil and gas production, while the federal government has authority over cross-border issues such as water and air quality.

By allocating one million dollars for the state to oppose new federal regulatory authority—if the state perceives as unfair or punitive—over hydraulic fracturing, North Dakota’s Legislature offered a shot across the bow on November 11, 2011 when it enacted a key piece of legislation that one state spokesperson referred to as “an evolving puzzle” of how to shape the frenzied oil shale play that contains the potential to change the culture of the state.31 The key piece of the puzzle is how can North Dakota keep up with the oil play in social, infrastructure, and regulatory terms where, as several industry spokespersons said, “we don’t even yet know the edges?”32

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28. Id.
29. Id.
31. Id. North Dakota Governor Jack Dalrymple said on November 11, 2011 that he would sign the legislation opposing federal regulation, Senate Bill 2371, into law. Interview with Governor Dalrymple’s Staff (Nov. 11, 2011).
With mounting environmental concerns, pressures for federal regulatory action are increasing. In October 2011, the Environmental Protection Agency (EPA) announced plans to regulate the disposal of fracking wastewater. Until now, the EPA has left this regulation to the states.

At the close of 2011, Secretary of Energy Steven Chu released the Shale Gas Production Subcommittee Advisory Board’s 90-Day Report. The report listed a number of findings and recommendations, including the need for industry-wide “best practices” standards and a process of broad public information to the state, local, and tribal communities. That fracking is controversial is clear. In June 2011, the New Jersey Legislature banned hydraulic fracturing. A month later in July 2011, France’s National Assembly approved a bill to prohibit fracking and repealed previously granted licenses. Conversely, New York’s Governor Andrew Cuomo did support the use of shale oil over nuclear power, but opted to slow down natural gas fracking by seeking further study of the environmental implications to “ward off” legal challenges.

Fort Berthold accounts for just under one million acres within its boundaries. Owners of individually allotted land control the lion’s share of the leases, at about 320,000 acres, while the tribe has about 210,000 acres of almost all trust lands. Most of Fort Berthold’s mineral interests lie beneath Lake Sakakawea, whose water is, in part, claimed by the Army Corps of Engineers. The complexities of state-tribal relationships add another dimension to a range of state responsibilities, as Fort Berthold seeks to benefit from the seemingly unstoppable shale oil revolution.

Recently, the Department of Energy released its Shale Gas Subcommittee Advisory Board’s preliminary report. The report announced

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38. Id.
39. Id.
two core points: the need for industry-wide “best practices” standards and processes of broad public information. An EPA spokesperson notes the agency’s hydraulic fracturing study plan, involving the nation’s water resources and air emissions, will see initial findings released in 2012 and a final report in 2014. “No one at the agency is speaking in regulatory terms,” according to the spokesperson. Meanwhile, on the state level, the governor’s office is building the next puzzle piece as it has conducted a series of statewide meetings to apprise residents in the producing counties of regulatory and executive activity and to invite feedback from community residents.

IV. THE MANDAN, HIDATSA, & ARIKARA NATION: FORT BERTHOLD INDIAN RESERVATION

Along with its federal, corporate, community, and environmental organization stakeholders, the North Dakotan political leadership is developing an affirmative relationship with the Indian tribes located within state borders. The Fort Berthold reservation is located at the heart of North Dakota’s oil production boom in the western part of the state. By the close of 2010, Fort Berthold supports about forty-one producing wells, with some two hundred more wells planned for 2011.

In January 2010, then-Governor John Hoeven and then-Tribal Chairman Marcus Levings signed an indefinite extension of the State-Tribal Oil and Gas Tax Agreement that was designed to spur oil production on tribal lands by avoiding a double taxation situation and providing a degree regulatory clarity for companies that seek to conduct business on the reservation. At the time of the signing, only one well existed on tribal land. Two years later, 160 new wells were established with forty of the new wells located on trust lands. However, the current chairman, Tex Hall, who has championed a balance of energy development and responsible environmental and social initiatives, has told state lawmakers

40. Interview with Environmental Protection Agency Officer in Denver, Colo. (Nov. 11, 2011).
that the agreement of his predecessor needs to be reworked. Among the chairman’s primary concerns is the cost to repair the 1000 miles of reservation roads due to damage from thousands of trucks carrying water, waste, and oil in and out of the reservation, given that no pipelines yet exist to move oil.

The state-tribal agreement specifies how oil production is to be taxed on trust lands, which are tribal lands held in trust for the benefit of the tribe or individual tribal members, and fee land that is privately owned.\textsuperscript{44} According to the Associated Press, the North Dakota State Tax Department records show that North Dakota has received about $43.7 million in taxes from Fort Berthold oil since July 2008, while the Three Affiliated Tribes received about $19.1 million.\textsuperscript{45} North Dakota’s Governor Jack Dalrymple has offered the MHA Chairman a budget for road construction, repairs, and schools in lieu of reopening the oil tax revenue sharing agreement.\textsuperscript{46} Although the parties disagree as to a renewal of the agreement, both the State and the Tribe do agree on a core issue of opposing an Army Corps of Engineers claim that the Corps has the right to charge storage fees for surplus Lake Sakakawea water. Most of Fort Berthold’s mineral interests are located beneath the Lake. Further, the oil industry, municipal waters systems, and farm irrigators all share a stake in the use of the water, and all agree that the Corps’ fees would greatly increase their costs.\textsuperscript{47}

\section*{V. NORTH DAKOTA: A MODEL FOR BEST PRACTICES}

North Dakota has surpassed Alaska to become the nation’s second leading oil producer, falling second only to the number one producing state, Texas.\textsuperscript{48} The state owes its meteoric rise from the nation’s ninth producer in only six years due to improved technologies in horizontal drilling in the rich Bakken and Three Forks oil shale formations in western North Dakota. For example, discussions to solve the gas-flaring problem involve both

\begin{itemize}
\item \textsuperscript{46} \textit{Id.}
\item \textsuperscript{47} A decision about whether the government can change municipal, domestic, and industrial uses for Lake Sakakawea water is pending. See Patrick Springer, \textit{Corps Can’t Charge Farmers Using Sakakawea for Irrigation}, BAKKEN TODAY (Apr. 18, 2012), http://www.bakkentoday.com/event/article/id/357995/publisher_ID/1/.
\end{itemize}
environment and financial costs of capturing gas by building a multi-stakeholder consensus-based approach that includes industry representatives, government agencies, and community groups. Similar consensus strategies are already evident. The North Dakota Study Group discussions that include the oil industry, the state’s tax department, industrial commission, and department of health reflect the significant but early stages of proactively and strategically bringing together the various stakeholders in the State—producers, industry, state, Native American tribes, agriculture, and community groups—to balance conflicting interests and grab the regulatory reins before external forces define the terrain.

VI. CORPORATE SOCIAL RESPONSIBILITY

Perhaps a most useful tool to accomplish consensus building, generally referred to as corporate social responsibility, is when industry, government, and community seek to find common ground on difficult and, often, contentious issues. The puzzle is complex. In the context of oil and gas development, with mounting environmental concerns and potential for more national media coverage, pressures for federal regulatory action have increased.49

A. STATE OR FEDERAL REGULATORY REGIMES?

Oil industry spokesmen note that industry leaders prefer a state to federal regulatory regime to prevent the kind of uncertainty that could impede development in geological formations that are better known at state levels. Ron Ness, President of the North Dakota Petroleum Council, an organization that represents several hundred oil companies that operate in the states’ oil play, stated that on environmental matters, the industry has invested three billion dollars in natural gas infrastructure to harness flaring, has agreed to make public the composition of fracking chemicals, and will spend some four hundred million dollars annually to meet the states’ new regulatory requirements.50 The spokesmen said that the new industry ethic standards include community issues “we never dreamed to address: health


care, emergency services, roads, water resources for communities—even city planning.”

Yet in this unfolding story, environmental groups say more needs to be done. Advancements include output monitors on salt water pipelines, the allowance of any citizen to file an environmental complaint, a slow down of the permitting process, development of baseline studies on the chemical composition of water, and tightening wastewater disposal as the United States seeks to achieve energy security and energy independence. It is possible a kind of balance could emerge, and North Dakota appears to be establishing an example of best practices.

Regulatory rigor is crucial, particularly given the possibility for more industry consolidation with large domestic and international players schooled in an understanding of how to obtain a “social license to operate” as key to their continued welcome status.

North Dakota’s approach to oil and gas development fits quite easily into the corporate social responsibility “best practices” model to help industry, government, and local communities find common ground on difficult environmental and social issues.

VII. NORTH DAKOTA: A POSTER CHILD FOR ENERGY-PRODUCING STATES

As North Dakota grapples with its large-scale chaotic energy play, it appears to be a poster child for any energy-producing state that seeks to shape and govern the cacophony of environmental, social, and financial elements of a high-stakes industry capable of causing great imbalance yet remarkable growth. The state’s need to shape the development, combined with the industry’s expressed interest to meet the state’s requirements and community expectations, is the essence of corporate social responsibility—an approach to production that is defined by transparent communications and problem solving by a partnership of industry, government, and local communities. This approach is imprinted in the North Dakotan psyche. North Dakota, unlike so many other states, did not overreach or overextend financially as did far too many in the recent financial crisis. The live-within-your-means approach to an economy based in agriculture, cattle, and some recovery of industry is likely to inform the corporate-government sensibilities, if not the regulatory regime in North Dakota’s oil patch. Both the federal government, other shale oil and gas producing states, and Indian energy tribes should, indeed, look closely. There is much to learn.

51. Id.