THE PENNSYLVANIA STATE UNIVERSITY
SCHREYER HONORS COLLEGE

COLLEGE OF AGRICULTURAL SCIENCES

A FEDERAL INTERSTATE COMPACT AND MARCELLUS SHALE: UNITING A FRAGMENTED LANDSCAPE OR A PANACEA ON PAPER?

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SPRING 2012

A thesis
submitted in partial fulfillment
of the requirements
for a baccalaureate degree
in Environmental Resource Management
with honors in Environmental Resource Management

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ABSTRACT

When our ancestors first colonized the United States, it was a veritable sea of resources that provided for rapid expansion and growth. The power and wealth that the U.S. wields today can be very much attributed to the abundance of land, fuel, and other "exploitable wealth." However, likely because of this richness, less focus was placed on conservation and protection of resources. Unfortunately the ramifications of these consequences were not realized (on a public and federal scale) until recently. As they've risen to prominence due to population growth and geographic expansion, the U.S. has been forced to confront them. Recently it has been proposed that a federal-interstate compact would be an effective tool for transboundary (trans-state) energy management and as potential solution to the Marcellus Shale management challenge. The latter is the current reigning decisive environmental and economic issue of several Northeastern states. Marcellus Shale is a large deposit of unconventional shale gas spanning most of PA extending into NY, OH, and WV. Technology and market advances have allowed for the drilling potential of this previously untapped shale to become a reality. One of the problems presented by this new resource development is that cohesive regulations are lacking for this industry. The current number of laws and regulatory bodies makes it difficult for industry to navigate the developmental landscape. According to the proposal, streamlining and bringing these laws up to speed would both protect the environment and society, while balancing the benefits of industry. This thesis will evaluate – using existing compacts and commissions as well as current literature on the subject – whether a federal interstate compact is an effective and appropriate tool to apply and utilize in the case of Marcellus Shale.

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ACKNOWLEDGEMENTS

No act is entirely our own – we are always deeply indebted to those unique individuals whose words, or deeds, helped us along the way. Many thanks…to Dr. Shannon, and Matt Royer, whose immeasurable patience and support made this endeavor possible; to my parents, who understand that the gratitude I have for them both cannot be put into a few simple words; to Gram and Pop, for passing on their love of the outdoors and bestowing the opportunity to grow up in the woods of Tioga County; and finally, to my friends, who tolerated my passing infatuation with spending countless hours at the library.

PREFACE

"We abuse land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect. There is no other way for land to survive the impact of mechanized man…"

– Aldo Leopold*, Foreword to Sand County Almanac,* 1948

(Leopold 1966)

"Scholarship is, in a sense, an act of faith that writing can make a difference."

- Erwin Chemerinsky

(Fajans and Falk 1996)

Tumbling through creek and stream; lifting rock and log; climbing cliff and scree I forged through woods, exploring as a child is apt to do: with reckless abandon to time, space, and earthly responsibility. Without boundary to constrain, only my exhaustion served to restrain. For enchanted by flora and fauna I roamed far and wide to soak up the beauty of endless fields of golden rod, fragrant patches of hay scented ferns, and secret pockets of pink lady slippers; and farther still to discover red eft, garter snake, porcupine, and cooper's hawk. Only a gnawing hunger and the waft of breaded trout, toasted sour dough and sweet corn on the cob through the summer air could pull me from the depths of those verdant forests and lush meadows.

But even the onset of twilight could not keep me from returning: at night, the woods cloaked by velvet darkness, my eyes turned heavenly in search further rapture. And oh, the skies did not disappoint, for studded with the gems of the Milky Way the universe spilled out before me, fulfilling and challenging every cliché: 'Sparkling', and 'twinkling' would be trite

descriptors; the allusion to diamonds has no luster; and should one try to wish upon a star, the sheer number would be enough to overwhelm and paralyze. So as I lay on blankets in farmer's field, bordered by spruce and pine, the divine beauty of those rolling Tioga County mountains was reflected above in sublime compliment…and I was sandwiched between those two spectacular products of millennia.

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'Humbling' and 'awe-inspiring' come to mind when one speaks of this meld of cosmic and earthly; but truly it is far more nuanced, for these imply a certain detached objectivism. Humility and amazement neglect the integral connection to the subject matter: I may be humbled by the awesome grandeur of the St. Peter's Basilica, but I am no Catholic, and I made no pilgrimage; and I may be amazed by the ingenuity, the lasting brilliance, of the pyramids, but my ancestor's hands did not lay limestone, nor etch hieroglyphics. These are narratives not my own. They are not in my blood; they are not in my soul.

But, Tioga County is: Year in and year out, to fish and hunt, to hike and kayak, Browers (and now McMahons too) have traveled to a little oasis in the woods. For twenty-three years – albeit still a lifetime – I have made the journey west and north; for almost forty more my grandparents have paved that path. It was their hands and their siblings' hands that built the tiny hunting cabin nestled in the valley below Cedar Mountain. And now it is their love, their passion for the woods that beats in the hearts of their children and grandchildren. My family and I are pilgrims of the Northern Tier, of Pine Creek and Colton Point, of Asaph and Tiadaghton.

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However, as the first pilgrims knew, no journey is ever left unaltered. Change is as constant as the seasons. How was I to know that beneath blankets, beneath topsoil, beneath the

extent of imagination laid another spectacular product of millennia: methane. Trapped away in little pockets of shale the building blocks of life were uniquely arranged. Though mere chemical skeletons of an ancient world, the profitable pairing of hydrogens and carbons now has a robust demand. For natural gas heats our homes and drives our buses; natural gas enhances our fertilizers, plastics, and fabrics; and natural gas may offer us a transition fuel from coal and oil.

Which is why well pads dot the hills around my cabin, and why the place where I once stargazed in tranquil silence is overwhelmed by the hum of a compressor. It's why there are Texans in rural Pennsylvania towns, and why there's a constant influx of truck traffic on tiny dirt roads. It's why hiking trails are being rerouted and great swathes of land being cleared. It's why people are worried about their water, their air, and their health. But it's also why families can now send their kids to college, and why they no longer need to depend on the small profits of the family farm. It's why industry is flocking, and why employers are hiring. It's why quiet towns are now booming, and why Pennsylvania is being heralded as the "Saudi Arabia of Natural Gas."

And, it is why there is a dire need for balance in Pennsylvania: balance between industry and the environment, between economic health and social health, between expansion and conservation. For if a delicate balance is not struck, this Commonwealth will be left with legacy issues – economic, social, and environmental – that will persist well after the politicians making decisions have passed into obscurity. The vermillion streams that wend their way through our towns and forests should be warning enough; the eerie steam that rises from the cracked and deserted roadways of Centralia should only serve to reinforce. Again, a precious resource lies beneath our feet, but this time we cannot ignore those precious resources – people, livelihoods, land, water, and air – that lie above too.

There is no doubt that Marcellus Shale development will be a permanent fixture here in Pennsylvania, in addition to New York, Ohio, West Virginia, and surrounding states like Virginia, and Maryland; if we can move forward in a educated and measured way perhaps we can avoid the mistakes of the past. While no straightforward solution exists now, this research seeks to contribute to further discussion of methods to achieve long-term success. In evaluating the utility of a Federal Interstate Compact as a tool to not only navigate the transboundary nature of this resource, but also to balance the need for economic growth with protection, I attempt to offer a more nuanced understanding of the recently proposed concept. For while the current fragmented regulatory landscape, in all its chaos and confusion, may seem unduly burdensome to both individuals and industry, it may also serve an essential democratic function – protecting the people's voice.

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In the end, the pursuit of natural gas extraction, the pursuit of environmental protection, and the pursuit of this thesis is ultimately a search for better quality of life. I know and understand that there will always be change, and some of it may be unpleasant and unsettling, but ultimately the hope is that it is more enriching and enhancing. It is my hope that someday I may make the same familiar journey west and north to drive my children to the cabin tucked in the serene hills of the Northern Tier. It is my hope that they may explore the same magnificent hillsides and fertile valleys as I did. It is my hope that they too will exalt in the wonders of the cosmos on some distant hilltop. And it is my hope that they may develop the same deep love and respect for this land and its people that I have been blessed with in my short life. This is why I make an impassioned plea to strive for informed decisions and discussions, for weighed and

measured solutions…for balance. I am and will always be a Pennsylvanian – I have vested stake in this state's future.

INTRODUCTION

On April 29, 2011 the State of Maryland sent a notice of intent to sue Chesapeake Energy Corporation for violations against the Resource Conservation and Recovery Act (RCRA), the Clean Water Act (CWA), and the Pennsylvania Clean Streams Act. The notice of suit stemmed from a Marcellus Shale well blowout 10 days prior that released thousands of gallons of hydraulic fracturing fluids into Towanda Creek in Bradford County, Pennsylvania. Why would a state, that was neither where the spill occurred, nor in any close proximity, potentially seek injunctive relief and civil penalties? The key is a transboundary connection that winds its way into the largest estuary in the United States: Towanda Creek is a tiny tributary of the Susquehanna River, which supplies just under half the fresh water in the Chesapeake Bay. Although Chesapeake Energy contested the claims based on distance and dilution, Maryland took the potential threat to the health of the bay – a national treasure by many accounts – seriously and sought restitution (Grande; Gansler 2011; The Chesapeake Bay Foundation 2012).

Nestled in the geographic heart of American Democracy, the Chesapeake Bay has already been subjected to its fair share of environmental degradation: hundreds of years worth of agricultural, industrial, and commercial productivity combined with population growth and land conversion in Pennsylvania, Virginia, West Virginia, New York, Delaware, the District of Columbia, and Maryland, have left the estuary plagued by excess nitrogen, phosphorus, and sediment, resulting in numerous dead zones and an inclusion on the Clean Water Act's list of impaired waters. Suffice to say it has seen better days – pre-17th century to be more specific. Despite these legacy issues the bay is still estimated to be worth $1 trillion annually, supporting agriculture, forestry, tourism, and a thriving fishing industry (The Chesapeake Bay Foundation

2012). In acknowledgment of this, “on May 12, 2009, President Barack Obama signed an Executive Order that recognizes the Chesapeake Bay as a national treasure and calls on the federal government to lead a renewed effort to restore and protect the nation’s largest estuary and its watershed,” (Chesapeake Bay Program 2012)

While this effort is certainly impressive, not to mention essential, it is also reflective of the nation’s history of poor environmental resource management. The Chesapeake Bay is certainly no singular aberration; instead it is a symptom of the rampant and unrestricted growth and expansion that occurred during early years of the republic, when manifest destiny was the nation’s guiding ideology. The country’s numerous degraded streams, denuded hillsides, and impaired skies, are a far cry from the amber waves of grain and purple mountain majesties that “America the Beautiful” conjures. However initially this was not the case as there was a certain lag time associated with visible degradation - the pristine landscape seemed to guarantee an inexhaustible abundance of precious minerals, timber, and wildlife. Consequently there was no clear impetus or incentive for conservation. As George Coggins, emeritus professor of natural resource law at University of Kansas noted:

> …that very profusion of exploitable wealth probably retarded and delayed the legal rules for allocating and conserving natural resources. For more than a century after Independence, the crude, limited federal and state legal systems were concerned more with granting and defining private property rights in resources rather than with long-term conservation for public benefit. Resource developers were free to do as they chose, legally bound only by property notions governing disputes between rival developers. The natural result was incredible waste and unnecessary resource depletion. (Coggins 1984)

Thus it was not until there was significant degradation of resources that government began to intervene – scarcity, rather than abundance, in conjunction with the concrete presence of externalities tends to drive resource protection and conservation. But even then government

was slow to act and subsequently enact legislation. For while formal government in the U.S. has existed for over 200 years, natural resource regulations didn't appear in strength until the mid-20th century – less than 60 years ago. Up until then business had largely dictated natural resource management and energy development policy, using congressional committees and executive agencies to legislate advantageous policies. "The dominant philosophy in the United States was that free enterprise could best serve the economic needs of the country and that government policy should be subservient to this important private interest," (Wenner 1990). Additionally, on most issues, government tends to moves like a sloth, temperamentally and incrementally advancing, absent a continual linear direction; whereas private industry innovates, consumes, and moves purposefully forward (Coggins 1984). Government is an inefficient institution and often acts as a reactive entity rather than a proactive one, burdened by cumbersome historical complexity, bureaucracy, and inherent permanency. Industry and society, although both bound by their origins, have a freedom of evolution and opportunity for reinvention that the government is intrinsically denied, bound by its democratic constitutional roots (Ridgeway 1971).

While conservation efforts lagged due to lack of impetus, and at times, encouragement against, they were also hindered by the lack of an efficient and appropriate method of enacting legislation to encourage conservation. The dynamic and unique federalist system that the United States prides itself on, is also a significant barrier to environmental management (Ridgeway 1971). As Jeffery Featherstone, former Deputy Director of the Delaware River Basin Commission (DRBC), acknowledges, "While not constrained by geographic scale, the federal government is the least efficient provider of many environmental policies. It often is unwilling or incapable of tailoring its policies to meet the particular developmental needs of specific regions," (Featherstone 2001). And, even though state sovereignty and autonomy allows specificity in

regulation that the federal government cannot often provide, it also bolsters a parochialism that inhibits efficient resource management (Coggins 1984).

Natural resources and environmental issues are inherently transboundary: the spawning salmon cares not whether it migrates within waters falling under the jurisdiction of the federal government of the United States or of the state governments of Oregon and Washington; its only desire is to propagate within the headwaters of the Columbia River. Likewise acid rain is not governed by any moral code: its precipitation is not limited to the state in which coal-fired power plants generated sulfur dioxide; instead it is a function of the whims and caprices of wind and weather. These resources and environmental issues defy the arbitrary political boundaries that are inherently human constructs, and necessitate coordinated management on multiple levels. However, the dialogue and negotiations between these levels is convoluted and inefficient; entrenched in the struggle for control, regulatory schema is duplicated, manipulated, and reinvented on federal, state, and local levels *ad nauseum* in an attempt to create an acceptable solution (Ridgeway 1971; Derthick 1974).

Consequently, “While federalism prevents concentrations of governmental power and increases citizen access to public institutions, it seriously fragments government and complicates decision making at all levels of the federalist system. Federalism creates the need for interstate organizations…” (Featherstone 2001). The motivation for regional cooperation is a logical response to issues of scale, coordination, and competitive regionalism (Derthick 1974). It becomes apparent then that precious resources, like the Chesapeake Bay, which necessitate careful and coordinated regional management, are hindered by the intrinsic conflict between state and federal government. In the case of the Bay, interstate efforts to restore and manage the estuary have been ongoing since the 1980s; up until 2009, they had been in the form of the

Chesapeake Bay Program, a voluntary governance structure incorporating Pennsylvania, Maryland, Virginia, Washington, D.C., several federal agencies, and the Chesapeake Bay Commission. While the model was initially touted as revolutionary, 25 years later it was mostly perceived as a failure: In 2008, Chesapeake Bay expert Howard Ernest observed, "The bay is dying a slow death because the current approach to regional environmental management has left the area with nonbinding agreements instead of enforceable laws, goals instead of pollution limits, an environmental bureaucracy that lacks enforcement powers, and a severely impaired ecosystem that shows no sign of systemic improvement," (WTOP).

Under the Executive Order this has largely changed. In part it has been a function of the focused and committed effort by the federal government and associated agencies like the EPA, US Department of Agriculture, Commerce, Transportation, Homeland Security, and Interior (Chesapeake Bay Program 2012). The second driver has been the implementation of pollution limits in the form of Total Maximum Daily Loads, which stipulate the, “maximum amount of a pollutant that a waterbody can receive and still safely meet water quality standards,” (Environmental Protection Agency 2012). Thus the structured incorporation of federal, state, and local government, combined with the opportunity for citizen participation, as well as federal backing and funding ($500 million in federal resources for the 2011 fiscal year) and a uniform vision, have opened the door to a more effective and balanced method of restoring and protecting the bay (Chesapeake Bay Program 2012).

While the protection and federal action in Chesapeake Bay represents a unique approach to resource management – the innovative reaction to many years worth of largely unsuccessful, albeit well-intentioned, restoration efforts – the impetus for management is fundamentally the same as any other resource. The Executive Order is simple recognition that conservation and

economic growth go hand in hand; the health of the bay enhances the social and economic health of the region, which is home to more than 17 million Americans (The Chesapeake Bay Foundation 2012). Ironically, the resource that Chesapeake Energy is hydraulically fracturing, the one whose extraction and consequent spill Maryland perceived as a threat to the Bay, is also worth billions; defies political boundaries; and involves numerous stakeholders. Like the Bay, this includes local, state, and federal government, the citizenry of multiple states, and hundreds of private interests. It too, like the Bay, demands a coordinated legal and regulatory framework of comparable rigorous strength and stature.

The resource, Marcellus Shale is a large deposit of unconventional natural gas spanning most of PA extending into NY, OH, and WV. While it was previously ignored due to a lack of economic feasibility, recent changes have altered its prospects. Now the shale has the potential to be an enormous economic boon to the various states it underlies, promising job growth, increased commercial development, boosted local incomes, and new investment in rural communities. On the other hand, the extraction and exploitation of such a resource also has the potential to leave a number of lasting environmental and social legacy issues, including water contamination, air pollution, forest fragmentation, and seismic activity; in addition to the likelihood of leaving communities worse off in the classic boom bust cycle of natural resource extraction. Consequently, local, state and federal government are scrambling to develop cohesive regulations to manage the resource. Until recently the regulatory schema was highly antiquated and failed to address and anticipate the social and environmental problems that development will produce. Yet absent any coordination, the increasing number of laws and regulatory bodies makes it difficult for industry, not to mention for landowners, to navigate the developmental landscape (Reeder 2010).

In 2010, in an attempt to bridge the classic divide between federal and state action, as well as the conflict between conservation and economic development, Laura C. Reeder, a J.D. candidate at the William and Mary School of Law, suggested the use of a federal interstate compact – a formal bi- or multistate method of cooperation that straddles the divide between federal and state government – as an appropriate tool to maximize the benefits of the vast storage of natural gas, while dually minimizing the negative impacts to the environment and citizens rights. The proposal on first inspection appears to be the perfect remedy to an increasingly multifaceted issue, however it lacks depth of analysis, prompting the question as to whether a federal interstate compact is in fact an appropriate tool. Grounded in compact literature and political theory this thesis explores the notion of such a concept and seeks to evaluate it within the current political context. Under this lens the inherently antidemocratic nature of the proposed compacting framework is realized and ultimately analysis of Reeder's proposal not only highlights the contextual dangers of such an institution, but also offers insight into a more universal truth.

Part I provides the details of Reeder's proposal along with the impetus for such an action: It elaborates on the numerous environmental, social, economic, issues associated with the gas shale, in addition to the increasingly complex, outdated, and multi-state regulatory scheme. Part II examines both the historical basis of compacting and the scholarly commentary on the subject in order to examine the adequacy of Reeder's proposal. Part III illustrates the flaws in Reeder's proposal, and finally, places a federal interstate compact within the context of Marcellus Shale.

MARCELLUS SHALE

"Pennsylvania counties with Marcellus Shale natural gas drilling have experienced a drop in dairy herds above the state average, a new Penn State study has found," reported the Centre Daily Times on March 14th, 2012. "Shell Oil Co. has picked a site in Beaver County, PA over locations in two other states for a proposed $2 billion petrochemical complex that could create more than 10,000 permanent jobs and another 10,000 construction jobs," noted the CoStar Group on March 16th, 2012. "The injection of wastewater from natural gas drilling into a disposal well probably caused a dozen earthquakes last year in Ohio, state officials said Friday, and they unveiled new regulations to deal with the potential hazard," published the LA Times on March 9th, 2012 (White 2012; Drummer 2012; Muskal 2012).

It is headlines and articles from across the country like these that illustrate Laura Reeder's emphasis of the increasing complexity of the Marcellus Shale development. The socioeconomic, physical, and regulatory landscape of the region underlain by the formation is rapidly changing as a pointed influx of investment, attention, and research are directed towards the area. It seems as though every aspect of life in Pennsylvania and surrounding states with underlying shale gas has been affected, or will be soon. Numerous stakeholders – whether industry, or citizen groups, small businesses or local governments – are clamoring to have a say in when, and how this landscape is changing; the decisions that are made concerning the management of this resource will have region-wide and even nationwide implications for years (Reeder 2010).

The reasons for development of Marcellus Shale, the environmental effects, the social ramifications, the economic incentives, and the current regulatory framework have all been, and

continue to be analyzed in great detail in their respective fields. This section does not seek to be an exhaustive source of background information, as there are others who have already done the topics great justice; rather this section seeks present and explore why these issues illicit the need for a regional solution, and more importantly why Reeder proposed an alternate framework.

The Shale Gas Revolution and Hydraulic Fracturing

The pursuit of energy resources is in the United States is no novel concept, there has been and will always be an imperative for cheap, abundant sources of, energy regardless of the derivation, for without it there can be no functioning society. In its brief history the U.S. has cycled through a variety of energy sources. As early as 1748 coal was being commercially mined and sold in Virginia; in 1859 the first oil well in the United States was drilled in Titusville, Pennsylvania; and prior to that in 1821, the first well producing natural gas was drilled in Fredonia, New York. Over the past century development of these fossil fuels has waxed and waned according to necessity, feasibility, economic incentive, and public perception. Now again the nation finds itself developing a fuel source with all of those factors in mind. However, while this time it's a familiar fuel, the type and methodology of extraction is unconventional (National Energy Technology Laboratory - DOE; The Paleontological Research Institution; Union of Concerned Scientists 2012).

The fuel is natural gas; but the methodology is a unique combination of hydraulic fracturing and horizontal drilling, necessitated by the low porosity of formation rock, shale. Unlike the typical gas-containing formations of porous sandstone, shale traps gas in between layers of hardened sediment inhibiting mobility on a human timescale. Until recently development of such formations was inhibited by economic feasibility and a lack of appropriate

technology and technique. While geologists have known about the deposits of natural gas since the 1800s, the extremely low permeability and consequent low production rates of such deposits dissuaded any sort of large scale of extraction and production. There was simply no significant economic incentive (U.S. EIA 2012).

Now that has all changed. Recent advances in technology combined with increased prices for natural gas (which only dropped in recent months) have allowed the various formations around the country to become economically viable and commercially attractive. By 2016 the U.S. is expected to become a net exporter of liquefied natural gas, and within 5 years, an overall net exporter of natural gas – driven in part by the extraction of shale gas. While currently shale gas occupies twenty-five percent of total U.S. natural gas production, by 2035 it's predicted to comprise forty-six percent. Fueling much of this growth is the development of Marcellus Shale, not only one of the largest shale plays within the U.S., but also in the world. Although initial estimates expected the deposit to yield over 480 trillion cubic feet (tcf), the recently revised estimate of 141 tcf of natural gas still constitutes over one third of the total recoverable resources of unconventional natural gas in the U.S. (U.S. EIA 2012).

Because of the size and extent of Marcellus Shale, the development of the resource is expected to have significant impacts for Pennsylvania, and the other states that contain parts of the formation – New York, Ohio, West Virginia. In Pennsylvania alone some studies found that by 2020 the industry could generate $12 billion in state and local taxes, $13.5 billion in value added and almost 175,000 jobs (Considine et al. 2009). This attractive stimulus has been somewhat tempered by the additional impacts that natural gas exploration and extraction has produced.

Impacts and Reeder's Proposal

Since the development of the formation has almost occurred overnight, the region, and nation have been largely been caught by surprise. The result has been to liken the scramble to scoop up mineral rights, land leases, and drilling permits to the gold rush, and the oversight of extraction and the general industry to that of the Wild West. Mostly this just reflects the lag of adequate regulatory development, but it also reflects that new frontiers are always uncharted, and the consequences of expansion and exploration unanticipated. In this case the consequences, or more accurately, current concerns, which have emerged in the past few years, are the threats to environmental health and safety, and social well-being.

One of the social concerns that Reeder raised is the impact to property owners within the region. The development of the shale will affect property values, mineral and surface rights, land development, and zoning laws. She notes that local governments try to respond to the concerns that these illicit but are hampered by preemption by state and federal law. Additionally many of these problems are not geographically limited to the various political borders, and will overlap on the county and state level. She highlights that a regional solution could help ease these tensions (Reeder 2010).

The primary environmental concern with natural gas development has to do with the water issues that arise from hydraulic fracturing and horizontal drilling. The act, which forces slickwater – a mix of water, and proprietary (and potentially hazardous) chemicals – several thousand feet into the ground, allows the low permeability reservoirs to remain propped open so that gas can be extracted. In order to completely fracture a well, this must occur several times over, which exacerbates the already enormous demand that the method places on water resources. On average a horizontal well requires between 3 million and 4 million gallons of

water with an upward potential of 10 million gallons. The problem is that this slickwater, or hydraulic fracturing fluid, has the potential to be released into the environment through spills, mechanical errors, or other opportunities, which is worrisome primarily because of the chemical constituents of the fluid (Arthur, Langhus, and Alleman 2008).

A second water resource concern is dual: this water has the potential to pollute ground water if the well is not properly cased and the potential to pollute and contaminate above ground when it returns to the surface over time. Called produced water, this fluid still contains the chemical contaminants of slickwater and additionally contains naturally occurring chemicals, and metals picked up from the interaction with subsurface geology. As a result, produced water can contain dissolved chemicals and contaminants, and naturally occurring radioactive material (NORM), that necessitate treatment (Arthur, Langhus, and Alleman 2008). Treatment however, is extremely complex and many facilities do not have the ability to adequately treat yet. In one case before this was understood, produced water was diluted and then discharged into the Monongahela River in Pennsylvania. The water then flowed into West Virginia with total dissolved solids levels that exceeded standards. Since recognized as problematic, the other option is disposal – usually underground injection – but this is less feasible in Pennsylvania, and has been partially attributed to seismic activity in Ohio (Reeder 2010).

As the Chesapeake example in the introduction and the pollution in the Monongahela River show, transboundary environmental issues are inevitable. Laura Reeder cites these problems as an impetus for interstate coordination, “With this type of interconnectedness comes the need for environmental agencies from various states to cooperate with each other and with regional and national regulatory bodies. The problem then becomes one of successfully coordinating a state-regulated source of pollution – drilling for natural gas – with environmental

solutions that must be approached from a more regional and interstate stance in order to be comprehensive and efficient," (Reeder 2010). There are also a host of other environmental issues that she does not cover including land conversion, invasive species invasions, air pollution, that could also have interstate consequences (Governor's Marcellus Shale Advisory Commission 2011).

After recognizing these issues she explores the laws and regulations governing extraction of natural gas in Pennsylvania in order to show how a regional solution could ease the duplicity and multiplicity of the regulatory schema. She highlights the Oil and Gas Act, which is a permitting system prior to drilling; the Pennsylvania Department of Environmental Protection's (PDEP), which has a Bureau of Gas Management, that develops policy and programs, and oversees permitting and inspections; the Pennsylvania Clean Streams Law, which falls under DEP and allows the agency to regulate water pollution; and several interstate compacts and commission which affect the natural gas industry. The Susquehanna River Basin Commision and the Delaware River Basin Commission both have regulations regarding water withdrawals and the industry. Reeder also notes the zoning and land use control hurdles municipalities have faced when attempting to regulate drilling. She argues that because of the many different mandates from many agencies from several different states makes management of the resource difficult for protection agencies and industry alike. She maintains that regional framework of cooperation and coordination would alleviate this.

It is because of these regional economic, social, and environmental concerns that Reeder suggests a compact: "[i]n order to maximize the potential of this resource, encourage the industry's attempts to develop the resource, and simultaneously minimize any negative environmental effects, Congress and every state containing potentially developable areas of the

Marcellus Shale formation should facilitate the formation of a Marcellus Shale Compact and Commission." More specifically her proposal of an interstate compact seeks to holistically manage a transboundary natural resource in order to: prevent industry from becoming discouraged by the various regulatory schemes of federal, state, and local government; "lessen the pressure on states to eliminate some of the regulatory safeguards in order to keep the industry interested" (known sometimes as prisoner's dilemma); serve as a forum for states, the federal government, and related interests to collaborate, coordinate, and settle conflicts; and finally ease the manpower burden required to regulate and enforce (Reeder 2010).

It appears that a regional solution is increasingly appropriate because this is a multifaceted transboundary conflict involving numerous stakeholders; a longer timescale, with the propensity – of both development and consequences – to last for decades; and a complex regulatory schema. To understand whether an interstate compact is an appropriate regional solution, the historical basis and scholarly literature of compacting must be reviewed. The following section provides the background and history of interstate compacts as a political mechanism, purported or theoretical advantages and disadvantages, and performance in practice as analyzed by political and legal scholars.

REGIONAL SOLUTIONS: INTERSTATE COMPACTS AND COMMISSIONS

"*The quintessential ingredient necessary for harmonious interstate relations is a cooperative spirit animating negotiations to resolve disputes and achieve synchronous state actions to solve transboundary problems,"* (Zimmerman 2002).

The variety of environmental and social concerns, the strong economic incentives, the multiplicity and rampant duplicity of the regulatory schema all make a strong case for a framework of regional cooperation and coordination; the argument for an interstate compact, is not as clear. In order to properly evaluate the utility of an interstate compact it is crucial to understand the historical origins, evolution, and present conditions, as well as the primary conclusions of scholarly legal and political literature.

History and Growth

While there exists a variety of ways that states can negotiate the horizontal relations that federalism produces and necessitates – informal cooperation, organized conferences, uniform and reciprocal legislation, and administrative agreements like in the case of the Chesapeake Bay – none is more powerful, nor more historically entrenched than the interstate compact. For not only are compacts legally binding contracts between member states and their citizens, they are also agreements that have the status of statutory law: state compliance with the provisions of the compact is mandatory, enforceable by the Supreme Court as well as Congress; and all prior and future state legislation is superseded by those of the compact (Zimmerman 2002; Florestano

1994; Glendening and Reeves 1984). In addition, "…compacts represent the only mechanism in the Constitution by which the states themselves can alter the dynamics of their relationships without running afoul of the authority of the federal government," (Broun et al. 2006). As will be seen later however, it is also because of this that the mechanism runs afoul of other issues.

Historically, agreements similar to compacts appeared in North America as early as British colonization, where they were largely utilized by colonies to settle boundary disputes under the consent of the British Crown. Far from disappearing after the American Revolution and formation of the U.S. Constitution, the concept doggedly persisted, appearing not only in the Articles of Confederation (Article VI) but in the Constitution as well. Article I, Section 10, Clause 3, states that "No State shall, without the consent of congress…enter into any Agreement or Compact with another State, or with a foreign Power." The Constitutional framers, like the British Crown, recognized the need for tools of coordination and dispute resolution between individual states, yet they also recognized the inherent threat of such unions (Florestano 1994). Congressional consent allowed the federal government the power to maintain the fine line that divides empowering the states and preventing trespass onto the powers of the federal government.

When this power is exercised, however, is less straightforward. In 1785, not long after the Nation's inception, the first formal compact was utilized in order to settle a dispute between Virginia and Maryland over navigation and fishing rights in the Potomac River, the Pocomoke River, and the Chesapeake Bay. Ironically, it was established without the requisite of congressional consent, yet was never contested. For some decades after courts upheld numerous boundary agreements without congressional approval. It appears that initially the federal government did not interpret the compact clause literally, which allowed for exception (Broun et

al. 2006; Pincus 2009). As such the need for consent has fluctuated over time; in most cases any compact that ventures into the realm (be it politics or governance) of the federal government has needed congressional consent, whereas "those which establish channels of interstate relations, seek uniformity of law, or pertain to issues where state action is unusual, and predominant, such as education, child welfare, criminal law, or mental health," do not (Florestano 1994). This restrictive nature, while necessary to protect the sovereignty of federal government, may explain the sparing use of compacts in the following hundred years.

Prior to 1920 the states entered in only thirty-six compacts, the majority of which concerned only boundary resolution. It is hypothesized that besides the inhospitable compacting climate, in such a rural and agriculturally-driven nation there was little need for frequent interstate interaction, let alone compacting (Zimmerman 2002). Another reason, given by Broun et al., is that it,

> …may have to do with their oddity within the federal structure of American government. Arguably, interstate compacts violate the pure principles of federalism because they bring into formal contact independent government units and allow those units (the states) in some circumstances to create sub-federal, supra-state administrative agencies: a third tier of governing authority created by the collective action of the member states but not subject to the single authority of any one state. (Broun et al. 2006)

But, modern life has brought transboundary policy challenges the Framers never anticipated. Spurred by population growth, the subsequent expansion of cities, increases in transportation and commerce, and prevalence of natural resources depletion and degradation, government has turned to innovative solutions that exist within the current paradigm (Zimmerman 2002).

This "creative federalism" seems to be a natural reaction to the 20th century's "nationalization" (akin to the current globalization) of economy, society, and politics. Under

pressure to manage continually evolving cross boundary conflicts, states have turned to equally adaptive measures (Ridgeway 1971). Unlike the simple – but certainly not insignificant – boundary compacts of earlier days, post 1920's compacts fall into two categories: advisory compacts, and regulatory or administrative compacts. Advisory compacts are devoid of any governing power and loss of state sovereignty, are only meant to study and report back to the states about a given issue; regulatory, or administrative compacts on the other hand are truly the embodiment of "the third tier" of government, for they create powerful administrative agencies that have the authority, if provided so by compact agreement, to create and enact rules and regulations.

It is important to stress here that these agreements differ significantly from uniform laws, a type of "guideline legislation," and administrative agreements, a method of synchronization between reciprocal state agencies. While uniforms laws are intended to create consistency across boundaries, they are also flexible, voluntary measures that can not only be tailored and adapted to a state's needs, but can be repealed if the state so desires at any time. Similarly administrative agreements, tools of coordination and cooperation by state executive agencies, lack permanency and allow for unilateral alteration. Interstate compacts on the other hand are bilateral or multilateral agreements that stipulate mandatory compliance and participation, enforceable by U.S. Supreme Court if necessary. State sovereignty is sacrificed in order to make room for a longer, collective vision (Broun et al. 2006).

Despite this binding permanence, the use and application of compacts has proliferated. As of 2003, according to Ann O'M Bowman, there were 192 interstate compacts in existence, of which ninety-four were nonoperational. Nonoperational describes those that are no longer in use, or were never used, or have been abandoned. She found that most states were participating in at

least fifteen different compacts concerning a variety of issues including transportation, mental health, motor vehicles, education and school districts, energy, river basins, and natural resource conservation and development. Additionally, while compacts are most utilized for water allocation – twenty-six total – it's clear that the scope of subject matter for compacting is not limited by any means. Nor are compacts limited to just state participation and inclusion – the federal government if it so chooses may initiate or become a member of compacts, elevating the statutes contained in the agreement to federal law. Only several examples of federal-interstate compacts exist, all of which appeared after the 1960s. Notable within this list are the *Delaware River Basin Compact* and the *Susquehanna River Basin Compact*, as well as the *Appalachian Regional Development Compact* (Zimmerman 2011).

Today the interstate compact exists as a dynamic tool that is both regionally empowering and fundamentally state driven; it has come far from its humble beginnings as only a source of boundary negotiation, and would likely be unrecognizable to the Framers of the Constitution in its present form. However, the economic, social, and environmental landscape of the U.S. has been radically altered over the last two hundred years, and it is also likely that the Framers would not recognize those landscapes either – changing times necessitate changing tools. In an era of increasingly fluid problems, which defy political boundaries, the need for coordination and cooperation between states becomes apparent. However, not all tools were created equal. The next section reviews current literature on the subject – assessing the advantages and disadvantages and providing insight into the general utility of the compact mechanism.

Compact Literature

In her 1971 assessment of interstate compacts, Marian Ridgeway noted that, "…this growth [of interstate compacts] is taking place in a somewhat legally defined and politically uncharted area of our constitutional system and that it therefore needs closer observation than appears to be given by students of American government and the public at large,"(Ridgeway 1971). Her observation echoes what many academics have pointed out: political scholars have largely neglected the study of interstate compacts, despite the fact that the tool is one of the least understood political mechanisms (Broun et al. 2006; Ridgeway 1971; Hasday 1997). Oddly, this is not unique to compacting, for regionalism and regional institutions, as political phenomena, have mostly remained unexamined as well. Intellectual interest appears to have cyclically waxed and waned over the past century. This fad-like behavior may be due in part to nebulous territory that regionalism and subsequently interstate compacts occupy within the political schema; the result is that while the concepts persist, they remain somewhat undefined experimental tools (Hayes 1980; Derthick 1974). "There has been no consensus on what functions should be performed regionally nor on what the best functions should be," (Derthick 1974). Likewise, explicit agreement on the use of interstate compacts is lacking. However, it is precisely because of this deficiency and the growing impetus for interstate cooperation, that proposed interstate compacts warrant further evaluation: use of a tool that is essentially undefined and obscure risks misapplication (Hasday 1997).

The advantages of interstate compacting have been well touted by scholars and practitioners alike. In 2011 Joseph Zimmerman noted that compacts were a useful tool of horizontal and vertical coordination that allowed "power to be centralized at a regional level."

He also quoted the conclusions of Frankfurter and Landis, whose 1925 work is among the earliest assessments of interstate compacts, yet remains relevant today:

> With all our unifying processes nothing is clearer than that in the United States there are being built up regional interests, regional cultures and regional interdependencies. They produce regional problems calling for regional solutions. Control by the nation would be ill-conceived and intrusive. A gratuitous burden would thereby be placed upon Congress and the national administration, both of which need to husband their energies for the discharge of unequivocally national responsibly. As to these problems, Congress could not legislate effectively. Regional interest, regional wisdom, and regional pride must be looked to for solutions. (Zimmerman 2011)

Likewise, in their Practitioner's Guide, Broun et al. (2006) observed that compacts are a useful political mechanism because they dually respect the role, power, and interests of the federal government while at the same time allowing for the creation of joint action by sovereign states. In turn this provides the opportunity for regulatory frameworks that offset federal insensitivity through regional specificity and dynamic self-regulation. Interstate compacts offer a high level of responsiveness, a structured method of answering to all levels of government (local, state, and federal), a unique chance to broaden parochial focus without being vulnerable, and finally a stable and predictable environment for states to cooperate (Broun et al. 2006).

These latter two points are importantly expounded on by Jill Hasday, who acknowledges that compacting offers an opportunity to eliminate or at least manage the appearance of prisoner's dilemmas between states. Prisoner's dilemma is the idea that individuals rationally acting in their own self-interest will benefit the actor, but not the collective (Kuhn 2007). Competition for economic advantage (a benefit to a few) often forces states to weaken existing policy, sacrificing protection (to many) for enhanced growth and expansion. Contractual uniform regulations would allow states to securely proceed at the same pace, dually creating an equal playing field for growth while also maintaining a desired level of regulation. Additionally she

also notes the economic advantage of counteracting externalities through an interstate compact: acting in their own best interest states will ignore the negative down wind effects of a given behavior, whereas expanding jurisdictional control distributes decisions and consequences more evenly (Hasday 1997).

Acknowledging these merits, many scholars have still questioned the appropriateness of interstate compacts. The concerns leveled over the past century certainly have not lessened nor changed drastically, rather they have been reinforced, allowing for a more cohesive body of thought – suggesting potentially that there are inherent structural drawbacks to compacting. While a noted complaint is that the compacting process is long and arduous, it has also been recognized that the process is no slower than action at the federal level (Zimmerman 2011; Hasday 1997). The rest of the criticisms are of more substance:

In 1967 Weldon Barton's book, *Interstate Compacts in the Political Process*, surveyed numerous interstate compacts and associated commissions to understand their utility within the American federal system. His study placed particular emphasis on the political and economic motivations behind the establishment of compacts, and in turn, focused on the individuals and groups that benefited most from creation. His analysis included four regulatory compacts and commissions, composed of the Interstate Oil Compact, Atlantic States Marine Fisheries Compact, Ohio River Valley Water Sanitation Compact, and Waterfront Commission of New York Harbor; three metropolitan area compacts and commissions, composed of the Port of New York Authority, Delaware Port Authority, and Bi-State Development Agency; six water management compacts, composed of the Colorado River Basin Compact, DRBC, New England Flood Control Compacts, Tennessee-Tombigbee Waterway Development Authority, Wabash Valley Interstate Compact, and Great Lakes Compact; seven service compacts and commissions,

which included two on education and five on crime control, health, and welfare. From his analysis, Barton concluded that while the over-all utility of compacts and commissions was too difficult to determine, service compacts appeared to provide the most functionality to the American federal system. This is because service compacts are unique: they concern governmental functions that traditionally fall under jurisdiction of the states rather than the federal government; and their creation typically originates from state officials rather than private interests (Barton 1967).

This contrasts his assessments of regulatory and water management compacts, whose origins and governance seem to be more heavily influenced by private parties, and often reflect attempts to avoid federal action. In reference to the latter point, after reviewing the Ohio River Valley Sanitation Commission, he noted the commission's efforts were not only ineffective in controlling pollution but were actually frustrating federal enforcement of pollution control in waters that fell under the jurisdiction of the federal government. In the case of the regulatory compacts, he concluded,

> …since industries and other producers generally enjoy effective access to the legislatures and administrative agencies of the states in which they are located, these groups can usually prevent regulation at the state level which they feel inimical to their interests. Thus while the compacts ostensibly protect the authority of the states over the activities of private enterprise groups, actual power tends to remain in the hands of the private interests. (Barton 1967)

Likewise, he observed compacts created for the purpose of managing the "natural regions" of river basins have been largely recommended or driven by power utilities, agriculture, manufacturing industries, or any other groups that have an interest in controlling the water resource. He highlights that most of this occurs outside of the public eye, removing constituent oversight and allowing the broad or holistic focus that many of the basin compacts initially pledge to disappear. Thus Barton concludes that the creation and implementation of interstate

service compacts, which, “are concerned, then, with areas of governmental policy that can have the most direct effect on the dignity of human lives,” can offer the most benefit to states (Barton 1967).

Perhaps one of the most scathing evaluations of compacts was published in 1971, authored by Marian Ridgeway. While the work has been criticized for drawing generalized conclusions from a small pool of compacts – only four, all of which included Illinois as a member – it also, more importantly, drew attention to the idea that compacts are “ to some degree undemocratic and unrepresentative.” Ridgeway pointed to the lack of later evaluation after creation, the domination by staff and appointees, and ultimately the high propensity for legislatures to understudy and under-develop compacts, and concluded that misapplication may routinely occur (Zimmerman 2002; Zimmerman 2011; Glendening and Reeves 1984; Ridgeway 1971). She conceded that no one has discovered an answer to the influence of special interests in government, nor a method of consistently making governmental agencies responsive to the public, but she especially condemned compacting agencies to their lack of public responsiveness:

> Such an agency under the control of special interests or gubernatorially appointed representatives is two or more steps removed from popular control, or even of control by local government. Armed with ‘planning authority’ and ‘advisory recommendatory’ (lobbying) power, such an agency has immeasurable potential power to influence the lives of the populations who live under it but who do not participate in the planning, the legislative, and the decision making processes. Add to the agency the power to create and operate plans to completion and the loss to the people of control may become virtually total. (Ridgeway 1971)

Ultimately, she found that the growth of interstate compacts heralds an age of an increasingly complex and largely inaccessible form of government, dominated by the motivations of economic and political special interests (Ridgeway 1971).

Numerous scholars have echoed these claims by Barton and Ridgeway. Donald Axelrod's analysis perceived interstate and intrastate public authorities as forms of "shadow government;" in their section on interstate compacts, Glendening and Reeves emphasized that compacts are frequently utilized by private interests as mechanisms to block or avoid action by the federal government; in his 1980 book, *Energy, Economic Growth, and Regionalism in the West*, Lynton Hayes noted that the underlying motives and politics of the creation of regional organizations largely determines the overall structure and mission (Zimmerman 2011; Glendening and Reeves 1984; Hayes 1980).

Martha Derthick, writing in 1974, also assessed regional organizations. Her evaluation included the Delaware River Basin Compact and Commission, Tennessee Valley Authority (TVA), Appalachian Regional Commission, Title V for Regional Economic Development, and Title II Commissions for River Basin Planning. While the latter three concern regional organizations that are not interstate compacts, her conclusions not only reinforce much of what has been said before, but they also offer new insights as well (Derthick 1974). She, like others, emphasizes that very little of the citizenry are aware of regional organizations, and that organization creation is motivated by a small, powerful few. Additionally, analysis of the DRBC under the lens of decentralization sheds light on the utility of the federal government in federal-interstate compacts: she argues that the jointness is largely ineffectual because the federal government has declined to actively participate. A singular representative cannot speak for the entirety of the federal government – it's a superfluous measure that fails to enhance vertical coordination. More importantly it illustrates that such inclusion may hint to a lack of definition of purpose – a search by states for policy guidance. Moving on she notes that strong, effective regional organizations are largely political accidents because such an action takes deep

motivation and support to run against the federalist grain. In support she cites a major flood in 1955 and Supreme Court decree that preceded the creation of the DRBC, and Roosevelt's election in 1932 for the TVA. Of final importance, she reports that "… it seems likely that any such organization will strongly prefer some types of operations over others, particularly those that produce revenue or minimize the costs of jurisdictional conflict," (Derthick 1974). Put another way, it is as Barton observed: regional organizations that begin broad will seek to specialize and define concrete objectives, eliminating the holistic intentions of framers.

Finally, Jill Hasday, in her 1994 law article, *Interstate Compacts in a Democratic Society: The Problem of Permanency*, draws upon many of the scholars noted above in order to argue that compacting in its current state is an antidemocratic tool that should only be used under the strictest circumstances. She primarily cites the overwhelming inability to amend and terminate compacts. This permanency locks states into powerful agreements and commissions that, as previous scholars have observed, are not as easily accessed or influenced by the populace, have a high amount of autonomy, and are sometimes easily taken over by special interests. Significantly Hasday, unlike previous literature, elucidates on the latter:

> Capture by private economic interests is also a perennial problem, …its extent appears to be highly contextual, a function of the officials involved, the strength of the private interest, and the degree to which the interest group has decided to concentrate its resources at the state or interstate as opposed to the federal level. At a minimum, compact agencies tend to be even quicker than other administrative agencies to establish influential industry advisory committees and to be less likely to establish effective channels of communication with the public. (Hasday 1997)

Consequently, some states have looked to hobble compact power and reach, but in doing so have created agreements that are "practically useless, but still unresponsive and largely indestructible." Both situations have created institutions that are undesirable. She recommends

that the principal reason for compacting should be for the citizenry and advancing public policy goals, but as this still does not solve the structural problem of permanency, she suggests that the Supreme Court reevaluate the prohibition of unilateral nullification. This in turn would make compacts highly attractive and potentially more effective solutions. Until then, Hasday cautions against casual compacting and stipulates that compacts "should only be entered when it is of the utmost necessity, their scope and limits are clearly defined, and there is liberal room for adjustment and termination," (Hasday 1997).

Assessment

From its historical origins as tool of boundary negotiations even before the birth of the nation, to its current state of widespread proliferation in both type and utilization, the interstate compact, and in particular the administrative and regulatory compact, remains a relevant and useful tool, albeit a bit of a curiosity in the world of political mechanisms. The interstate compact is a tool that is obscure, ambiguous, and still somewhat undefined in proper application, yet it persists because the concept of regionalism, and interstate coordination is without a doubt an imperative in these contentious times. Coordination, cooperation, and compromise are crucial to minimizing externalities, and maximizing benefits to all parties faced with the obstacle of artificial boundaries.

Consequently the objective to have a political institution that can balance and handle these goals is certainly noble and incredibly desirable. Providing power that balances and preserves the dynamic between state and federal government; creating a regionally tailored solution; solving states' prisoner's dilemma; streamlining regulations; establishing permanency with flexibility, adaptability and holistic vision; offering a forum for debate and resolution; and

finally a centralized body for information dissemination are laudable and essential objectives. However, because interstate compacts remain more experimental in nature, having never developed an optimal prescribed structure, the capacity to produce a functioning compact that actually encompasses and achieves these aspirations appears to be more theoretical, at least for now (Ridgeway 1971).

Scholars have noted that some compacts have been successful, but it has been those that are narrowly focused (TVA), and tailored to specific social problems that are within the primary jurisdiction of states' power – service compacts, like those that fall under education, mental health, or criminal proceedings (Derthick 1974; Barton 1967). However, these successes pale in comparison to the lofty aspirations of academic ideal. In order to achieve all of the benefits that they purport, interstate compacts would first require a tremendous effort to create a clearly defined statement of purpose, strategic plan, and well-developed "articles of incorporation." This would then need to be followed by an enormous amount of vigilant monitoring and long-term oversight. Compacting states would need to be cognizant of inherent flaws and potential pitfalls prior to the development of agreements so that such a device was not misapplied or abused. The fact that compacts largely exist out of the public eye, enjoy a high level of autonomy from state legislatures, are not often reviewed or reassessed, are highly responsive to special interests, and are created to avoid or hinder federal action, are highly troublesome features. Conscious and structured efforts to acknowledge, avoid, and prevent these negative aspects of compacts would be essential to creating a fundamentally democratic mechanism (Hasday 1997).

But again, this remains a theoretical imperative. The fact that 94 out of 192 compacts are currently non-operational suggests that many previous compacts have been ill-conceived solutions – failing to adequately address the issue they were created to resolve (Zimmerman

2011). With such a record it is difficult to imagine states having the organized and collective power, wisdom, and funds to truly make the effort to turn an experimental tool into a functional political device. Making it harder still to imagine is that most compacts have been the combined result of the fortuitous circumstances and the efforts of a devoted few proponents. While scholars concede that the failings of interstate compacts are often reflective of the inherent difficulties of the federalist system, in their current state they remain insufficient answers to the environmental, social, and economic challenges of the twenty-first century. As Ridgeway concluded, "It is…clearly evident that what these compacts reveal is a state of acknowledgement of need in a federal system, but a political response that appears to be little more than a state gesture along the line of self-protection rather than toward responsible and constructive achievement to eradicate the problems that created the need," (Ridgeway 1971).

Interstate compacts will continue to grow and persist as political tools, but barring radical transformations by state actors to become better architects and stewards of such agreements, their application will remain tenuous, their potential, unrealized – constrained by the nebulous position they hold within the political sphere. No matter how essential regional solutions are, if they cannot be implemented effectively in practice, then they will remain empty and potentially hazardous placeholders. In this current state, a mechanism that is undefined will always appear a panacea – a dangerous situation for the polity. Anything deemed to have undemocratic leanings should never be casually proposed nor capriciously applied; a tool that is mostly unknown to the public, highly responsive to special interests, and largely autonomous necessitates great caution and evaluation. With this in mind the following section will evaluate Reeder's proposal both independently and within the current context of the region.

INTERSTATE CONTEXT

"*When we try to pick out anything by itself, we find it hitched to everything else in the Universe*."

– John Muir, *My First Summer in the Sierra,* 1911

Initially this quote was intended to briefly provide transition; however upon second glance it has revealed a connection far deeper. A brief aside:

While in his quote John Muir may be speaking of our intimate connection to nature – the idea that there is a kindred spirit that resides in the plants and animals he encounters on mountainside – he is also noting that one cannot remove a thing from its context. Even the abstraction of his quote from the chapter, "Mount Hoffman and Lake Tenaya," is a testament to this, for it does a disservice not only to you, the reader, but also Muir, whose sweeping and illustrative prose deserves more than merely a nod. His meaning in such a sentence is inherently tied to the greater milieu of the paragraph, the chapter, the book, and Muir himself in that moment. In an effort to partially rectify this, here is the paragraph from which it was pulled (the italics are my own):

> The snow on the high mountains is melting fast, and the streams are singing bankfull, swaying softly through the level meadows and bogs, quivering with sun-spangles, swirling in pot-holes, resting in deep pools, leaping, shouting in wild, exulting energy over rough boulder dams, joyful, beautiful in all their forms. No Sierra landscape that I have seen holds anything truly dead or dull, or any trace of what in manufactories is called rubbish or waste; everything is perfectly clean and pure and full of divine lessons. This quick, inevitable interest attaching to everything seems marvelous until the hand of God becomes visible; then it seems reasonable that what interests Him may well interest us. *When we try to pick out anything by itself, we find it hitched to everything else in the universe.* One fancies a heart like our own must be beating in every crystal and cell, and we feel like stopping to speak to the plants and animals as friendly fellow-mountaineers. Nature as a poet, an enthusiastic workingman, becomes more and more visible the

> farther and higher we go; for the mountains are fountains--beginning places, however related to sources beyond mortal ken. (Muir 1911)

This is what one misses: rich philosophical musings and even more vivid observations, which elevate the quote to new and deeper meanings. For the removal of that phrase – the quick cut and paste – ignores the intrinsic bond and function of those words within the larger context. It leaves one with a shallow impression, an idea without the force and weight of the original. And, it is this emptiness, this hollowness that creates room and allows for others to apply new meanings with wanton abandon. Often such unattached quotes are misapplied, misused, and misattributed. Ironically, Muir's quote is one of these: not only has it been attributed to John Burroughs, it has also been misquoted by numerous sources including the San Francisco Chronicle, Smith and Hawken, and several other companies. As Harold Wood, Chair, Sierra Club John Muir Education Committee, points out, these misquotes "are only a shortened paraphrase of what Muir wrote, and [are] not nearly as interesting, eloquent, and charming as Muir's original," (Wood 2012). To understand Muir's true intent, his true meaning, the quote must be viewed in its original form. Context is crucial to avoid misapplication, misuse, and misunderstanding.

Assessment of Reeder's Proposal

It is through this lack of contextual analysis that the proposal by Reeder falls short. The utilization of an interstate compact in her proposal abstracts it from its historical and scholarly roots. It fails to take into account the intention of the Framers, the evolution of theory, and the later academic evaluations. The absence of a brief background, not to mention defense or advocacy of such a concept creates a situation where it appears a panacea on paper because it has

no context. If one does not understand the nuanced history, and interpretation of regionalism and compacts, then one would not understand the intrinsic duality (those assets and shortcomings discussed above). Like Muir's quote, the concept can be distorted and exploited without the reader knowing any better.

So, of course the proposal's basis for utilization falls squarely within the merits of interstate compact – centralization and consolidation of power, uniform laws, holistic, flexible and adaptable, elimination of prisoners dilemma, and federal backing with state control – because that is all it may do. It is limited to a misleading, one-sided argument because it is a façade, lacking depth and any strength of support. But this also makes direct rebuttal of the proposal extremely elusive and difficult: without context, and an adequate balancing of virtues and flaws, she is never forced to define exactly what the compact and commission would entail, nor how this would be achieved.

Initially the work touts the need for a holistic framework that "consolidate[s] the laws and regulations surrounding natural gas extraction," but later this is narrowed down to only environmental regulations: "The proposal should not be viewed as a body that would usurp the state's traditional role as a regulator of land use within its borders. Rather, the Commission would remove some of the pressure from individual states as far as development of environmental standards are concerned…" (Reeder 2010). There are several problems here. The first is that the environmental standards are not specified; thus one must look to the types of environmental regulations that already exist or have been proposed. Most concern waste disposal, well site-maintenance and remediation, water protection and withdrawals, best practices, and minimizing overall disturbance (Governor's Marcellus Shale Advisory

Commission 2011). Inherently many of environmental concerns that Marcellus Shale elicits are issues of land use. To regulate one is to regulate the other, even if indirectly.

This highlights the second problem: an interstate compact inherently usurps state power. It is the sacrifice that states must make in order to realize a more permanent and comprehensive vision. It gives the transboundary regulations true authority and power. But the proposed framework, attempts to retain state sovereignty while at the same time searching for binding resolution. It desires state adaptability and flexibility while at the same time desiring contractual uniformity. In both cases it is for the benefit of developing efficient regulation that attracts the natural gas industry. The compact is endowed with powers they are currently incapable of exercising and in doing so reveals an underlying objective – streamlining environmental regulations that hinder development. "The Commission would, therefore, serve as both a rule-maker and an information distributer, and would aid in the transformation of the Marcellus Shale play from a promising resource into a proven asset in the domestic energy landscape,"(Reeder 2010). Thus the primary basis for compacting lies not in environmental protection, and ultimately citizen and landowner protection, but in making the regulatory schema efficient to enhance resource development. The problem is not this intention, but the fact that it is proposed under the guise of balance and environmental and landowner protection.

Ultimately the argument for a federal interstate compact is evasive, and once pinned down has questionable motivations and justification. By avoiding the historical and scholarly context the proposal does the political tool, the reader, and the Framers a disservice. However, the proposal does highlight the necessity of dialogue, coordination, and cooperation. It makes clear that the underlying impetus for regional coordination is undeniable. There will be transboundary air, and water pollution; there will be cross state competition; there will be long

term externalities that demand equally lengthy management. As to whether the use of a federal interstate compact is appropriate within the region proposed – Pennsylvania, New York, Ohio, and West Virginia– is a different story. Because Reeder proposed such a tool, it is incumbent on the evaluator to disprove it, regardless of whether her argument was adequate. Once a concept is suggested it cannot simply be ignored. Thus after placing the interstate compact back within its historical and scholarly context, and then reinserting it into the social, economic, environmental, and political context, only then can the true worth be realized.

Assessment of Political Context

In light of scholarly compact literature, it is difficult to hypothesize that an interstate compact would be a wise solution given the potential threat of antidemocratic leanings. As noted above, it is a monumental task to expect that compacting states could rise above the obstacles that compacts present: a highly autonomous nature, a lack of consistent review, a disposition to special interest capture, and a track record of avoiding or hindering federal action. While this is not to say that it would be impossible, it does suggest that these aspects would be significant hurdles – it would take an enormous amount of forethought and planning from balanced and open-minded leadership. Compactors and their creators would not only be attempting to overcome the disputes and conflicts between states, but faults and flaws of the unrefined mechanism as well.

Again, this is not an insurmountable feat, but the capacity of states and their goverments to do so is hampered by the inherent permanency of the compact – a structural failure, as Hasday points out, that only the Supreme Court can rectify (Hasday 1997). For as the literature notes, this permanency begets autonomy. The distance from legislature and popular constituency then

opens the door to manipulation and seizure by special interests (Barton 1967; Derthick 1974; Ridgeway 1971; Zimmerman 2011). Thus in order to evaluate a Marcellus Shale Federal-Interstate Compact I will return to Hasday's observations on special interests: that their propensity to influence is, "a function of the officials involved, the strength of the private interest, and the degree to which the interest group has decided to concentrate its resources at the state or interstate as opposed to the federal level," (Hasday 1997).

Since the concept of a Marcellus Shale Federal-Interstate Compact is only a proposal and does not exist in a current practical reality, the officials involved with its creation are largely undefined, so this assertion cannot be evaluated in full. Additionally, the degree of resource concentration at the federal or state level is indicative of the industry's opinions on who controls the most power; any interstate organization that is heavily lobbied towards by industry, is obviously a powerful one. This assertion reflects an opinion that necessitates an already developed compact. The only assertion then that can truly be gauged in full here is the power of the private interest (the officials involved are tangentially viewed as they relate to industry lobbying efforts).

The clear private interest of note here is the natural gas and hydraulic fracturing industry, for it would have the most to gain by institution of such a compact. Scholars have noted that any time there is a resource involved – water in river basin management, fisheries, and oil – industries will seek to influence legislation and regulation (Barton 1967). In this case the power and ability to influence is viewed through the lens of lobbying efforts. Recent publications by Common Cause, offer insight into the amount of money lobbied at the federal and state governments by the industry over the last ten years.

On a federal level Common Cause has found that companies engaged in fracking spent $726 million lobbying over a period of ten years (from 2001-2011). During this same time members of congress received $20.5 million from the industry, with the majority donated in the last election cycle. Additionally most of these donations were directed towards members of congress who have voted certain ways or are involved with committees relevant to the industry. Those " members of Congress who voted for the 2005 Energy Policy Act, which exempted fracking from regulation under the Safe Drinking Water Act. Current members who voted for the bill received an average of $73,433, while those who voted against the bill received an average of $10,894," (Browning and Kaplan 2011). Members of the Senate Committee on the Environment and Public Works have received $1.4 million, and members of the House Energy and Commerce Committee, $3.7 million (Browning and Kaplan 2011).

On the state level, analysis by Common Cause has found a heavy industry influence in Pennsylvania as well, likely since the state overlays the majority of the formation. Pennsylvania politicians and respective parties received $7.7 million over the same 10 year period from 2001 to 2011; current Governor, Tom Corbett, received the highest amount, approximately $1.6 million of that total (Browning and Kaplan 2011). Notably, Republicans received greater contributions than Democrats in Pennsylvania: "…$3 million going to Republican officeholders, compared to $401,000 to in-office Democrats. Republican Party PACs collected $805,450, compared to $126,125 for Democratic Party PACs," (Browning and Kaplan 2011).

In New York, Common Cause evaluated both lobbying expenditures and campaign contributions and found that those contributor and lobbyists affiliated with natural gas drilling or drilling interests outspent and out lobbied all other organizations. For example, "Entities which opposed a moratorium on natural gas drilling outspent those entities which supported the

moratorium by a margin of 4 to 1," (Lerner and Bitetti 2011). An interesting comparison is the lobbying amounts between natural gas industry and environmental groups. Chesapeake Appalachia, a subsidiary of Chesapeake Energy, spent a disclosed amount of $1,090,051 in 2010; while Citizens Campaign for the Environment (not specifically created to oppose natural gas development), spent $159,232 in the same year (Lerner and Bitetti 2011). This is not an anomaly; rather it reflects a greater discrepancy between the power of the industry and opposition groups. Three of the top natural gas companies outspend the top five environmental groups by over one million dollars in one year alone. And, it not just the depth of lobbying but also the breadth – on the state and local level 2,349 campaign contributions were made by industry to New York politicians from 2007 – 2011. Finally, business groups associated with natural gas development have assisted in widening this divide – an amalgamation "of energy companies, business and professional associations in addition to natural gas companies spent a total of $2,869,907 in lobbying expenditures last year" (Lerner and Bitetti 2011).

In Ohio, the impact appeared less significant because only $407,322 was reported spent in 2009; however this is more likely a reflection of Ohio lobbying law, which does not require disclosure of payments to lobbyists. Common Cause reported that, "Companies engaged in fracking contributed $2.8 million to state candidates, political committees, and parties in Ohio from 2001 through June 2011," (Browning and Clifford 2011). Additionally from 2001-2010, Ohio's Govenor, John Kasich received $213,519 from the industry. Finally, Ohio's top 20 state-level recipients of fracking industry money are all Republican candidates except for one (Browning and Clifford 2011).

While certainly not comprehensive these figures provide an illustration of the power that industry has recently leveled at the states that overlie a majority of the gas play. If an interstate

compact was resorted to solve the problems of Marcellus Shale this money could potentially be directed towards the creation, direction, and long-term maintenance of such an institution. Rather than being spread across various political offices, and levels of government, this influence could be directed toward a singular entity naturally endowed with a great deal of power, effectively allowing the interstate compact to become a vehicle primarily for advancing the interests of the natural gas and fracking industry. It would be one thing if opposition interests could level this amount of influence, but as in the case of New York, there is a clear discrepancy in lobbying funds, and subsequently a disadvantage in influence. More worrisome is the fact that lobbying efforts by either energy or environmental special interests are not representative of the views of the totality of constituents. Public perception is extremely nuanced, and encompasses a spectrum of views on the issue. Consequently, because there is no collective, no group from which to advocate that comprehends such breadth and depth; policy cannot as effectively be influenced.

In sum the industry has already directed a great deal of lobbying efforts towards this issue, and will likely devote more. Given the consensus of scholarly literature and lobbying power that the industry wields, it would appear that compacting is unwise – the potential for economic influence threatens the already undemocratic leanings of an interstate compact. While this conclusion is enough to dissuade such political action, further analysis would be necessary to understand the true power of the natural gas and fracking industry. Any such evaluation should include review the connection between political power and influence, and lobbying efforts. Additionally historical analysis of the industries lobbying power, as well as the current political connections to industry would be highly relevant. An evaluation of specific companies involved, and specific regulations introduced, would be useful as well. This could then be placed within the context of a comparative study of past compacts and the influence of industry on their

outcomes, allowing the propensity of the natural gas industry to “capture” a Marcellus Shale Interstate Compact to be more fully quantified and qualified.

CONCLUSION

"A free government is a complicated piece of machinery, the nice and exact adjustment of whose springs, wheels, and weights, is not yet well comprehended by the artists of the age, and still less by the people."

— John Adams to Thomas Jefferson**,** May 19, 1821

(Jordan 2007)

Almost two hundred years later, John Adams words still ring true. While the machinery of democracy continues to move forward, chugging along the tracks laid down by the founders of this great nation, the movement is sporadic, punctuated by frequent stops and starts, as both direction and vehicle are continually reevaluated, refined, and reinforced. Like any tinkering, the act is less exact science, and more nuanced art. In part this is because absolute knowledge of the inner workings can never be completely achieved, but also because there is no universal understanding of vision and method. For the beauty and the burden of democracy is that while we have a chief engineer, and thorough support crew, there are over 300 million passengers neatly tucked into fifty cabins who each have a voice to express their constantly changing needs and desires. While the expression of their desires may manifest itself in their decisions of their elected officials, there is no doubt that each individual has a right to influence and maintain the tracks and machinery. Included too in this collective voice – though not directly – are the opinions of special interests and lobbyists, as well as the international community.

Thus, when we reach a crossroads, where the train has slowed to a halt – abrupt or gentle – the millions of voices that express their opinions on how to fix, and what to fix, are a bit

overwhelming. Often, the source of the problem isn't completely identified or defined, the train simply grinds to a standstill. And as the cars fifty cars bump and knock into one another in quick succession, the passengers lean out, wondering why they're being held yet up again. They shout their opinions at the engineer and support crew, who puzzle over the steaming engine or broken tracks, and do their best (we hope) to listen. Yet achieving consensus is more evasive than the wind, and takes years to pin down. It's a messy situation, one that most would theoretically like to circumvent… the faster and easier the better. But, circumventing the process also means circumventing the most fair and balanced solution. If the engineer were to simply ignore the masses, the train could plow forward without interruption – a streamlined and efficient machine. This is what the Founders and the Framers, sought to avoid. A monarchy, an oligarchy, are both expedient, but at the cost of freedoms we hold so dear. The democracy of the United States is certainly an imperfect vehicle, but it is a vehicle that derives its power from our consent and in doing so, secures us certain unalienable rights – life liberty and the pursuit of happiness. The sum total of this may be a very inefficient machine, but one of the most effective methods of determining the future of a nation where each voice has been promised equal weight.

After analyzing the proposal by Laura Reeder in light of scholarly literature and political context, it becomes clear that her application of a federal-interstate compact is an attempt to make democracy more efficient; it is a theoretical panacea intended to streamline and circumvent the messy, painful, and ugly process of realizing what is truly valued and desired by society. The chaos that has characterized the debate over the proper development of Marcellus is no different than any other current debate: healthcare, women's reproductive rights, or the Keystone XL pipeline. There is always a wish to balance; there is always a desire to appease both sides.

This takes time: time to understand the issues, voice opinions, debate, negotiate, compromise, and formulate a proper way forward.

The discussion over Marcellus Shale has only been around for several years. The region, the states involved, and the populous have simply not had enough time to understand and debate all of the impacts that this development has produced. There is a recognition on many fronts that development has the potential to pay enormous economic dividends – jobs, revenue from leasing, new investments in rural towns, the growth of related industries, increased tax revenues – however there is also a desire to protect lives, livelihoods, and ways of life. The social and environmental impacts threaten these, and complicate the seemingly straightforward benefits of Marcellus Shale. This juxtaposition has forced the citizenry and government to struggle to weigh and define values, wants, and needs.

It is likely because of this that a proposal such as Reeder's has appeared. A cure-all solution is immensely attractive at any time but especially those times when the conflict is highest – it is human nature to avoid turmoil. It is also human nature to desire compromise. The proposal seems to offer this in a federally condoned political mechanism. However, history and compact literature have shown that despite a presence in this country for well over 200 hundred years, interstate compacts remain an experimental tool in the federalist system. For little studied by political scholars, and haphazardly applied by politicians, their proper use is still largely undefined. While there is no doubt that the concept of interstate compact is necessary in this federalist system, the ability of states and politicians to overcome the structural problems engendered by binding permanency, and in turn act as responsible stewards, is questionable. As such, in their current form, interstate compacts are largely undemocratic institutions and as Hasday noted, should only be resorted to in the most desperate of circumstances.

In the case of Marcellus Shale the dangers of compacting outweigh the hazards of inaction. The current fragmented landscape acts as a barrier to industry takeover; the many regulatory agencies that the natural gas industry must navigate a safety mechanism. Although much bemoaned by industry, politicians, and citizens alike, the alternative, the use of a compact, would provide an easy target for special interests to focus lobbying efforts and avoid the action of the federal government. Imagine the degree of influence already exerted on Pennsylvania, Ohio, and New York legislators, focused onto one governmental body that would see little oversight by politicians and constituents alike. As with many compacts before, a federal-interstate compact for Marcellus Shale would become a mechanism for industry to profit unopposed, rather than a tool to enhance the "dignity of human lives" and the democratic rights of the citizenry. A compact would simply be grease on the wheels, an opportunity to keep the train moving; rather than a mechanism to make the coordination and cooperation of the many voices and opinions more effective. It is the author's view that a federal-interstate compact would not be an appropriate solution to the problems that the development of Marcellus Shale has created.

Instead, in the search for a solution, it would be wise to take note of the Chesapeake Bay. A resource that has been plagued by environmental degradation since the estuary's watershed was first colonized in the 1600s; the citizens, the states and the nation have had ample time to holistically understand the situation. Several hundred years have allowed those involved to realize there was a problem, analyze the situation and potential causes, debate the best course of action, and experiment with potential solutions. Only now is success finally being achieved because the federal government is invested, and there are enforceable mandates with clearly defined goals and measurable controls. Although the understanding of the situation, and

consequently the consensus on direction and methodology, are constantly evolving as new information appears and opinions change, the problem has been largely defined, allowing a more concrete solution to emerge.

Ultimately, analysis of Reeder's proposal not only highlights the hazards of an interstate compact in context, but illustrates a more universal truth: any problem, without definition will be plagued by inappropriate, inadequate, and ineffective management; no tool can solve the problem of indeterminate desires. And, any such proposal of one is a panacea intended to circumvent the disorganized, uncomfortable, and unpleasant process of realizing what is truly valued and desired. The Founders, and Framers, in all their wisdom, created a system of government that while chaotic and at times highly inefficient, allows citizens to voice opinions and exert influence. It is truly a government "by the people for the people." And, that power should never be relinquished.

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Academic Vita

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Nitrogen and Phosphorus Laboratory Technician: U.S. Department of Agriculture, Agricultural Research Service, University Park, PA, Summer 2010

Analyzed hundreds of soil, plant, and water samples for Nitrogen and Phosphorus (for specific procedures, inquire). Organized and maintained laboratory; coordinated movement of samples. Assisted in field work – used GPS to map research crops.

Water Quality Laboratory Technician: Allentown Water and Waste Water Laboratories, Allentown, PA, Summer 2006, 2008

Performed various lab tests (for specific procedures, inquire)and analyses, as well as stream surveys. Entered data and worked with Labworks LIMS program. Produced Water Quality report for Leibert Creek.

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Analyzed stream samples for Absorbance and Florescence

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