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FRAMING FRACKING: MEDIA COVERAGE OF UNCONVENTIONAL OIL AND GAS  
DEVELOPMENT IN SOUTH TEXAS

by

Jebadiha E. Potterf

A thesis submitted in partial fulfillment  
of the requirements for the degree

of

MASTER OF SCIENCE

in

Sociology

Approved:

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and Dean of the School of  
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UTAH STATE UNIVERSITY  
Logan, Utah

2014

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## ABSTRACT

Framing Fracking: Media Coverage of Unconventional Oil and Gas

Development in South Texas

by

Jebadiha E. Potterf, Master of Science

Utah State University, 2014

Major Professor: Dr. Peggy Petrzelka

Department: Sociology, Social Work, & Anthropology

There is an oil boom occurring in the United States reminiscent of the production booms of the early 20<sup>th</sup> century. As the use of unconventional gas and oil extraction practices explode across the US, understanding how the affected public perceives this development is vital. As a major influence on public opinion, understanding the way this development is being framed by interest groups and the news media is an important step in understanding public perceptions. This study utilizes *framing theory* as a method for investigating how online and print media coverage of this development utilizes the frames promoted by actors on either side of this issue. Content analysis is used to examine national-level industry and opposition websites to inductively uncover the thematic frames used by these actors in the public debate surrounding unconventional development. These frames are subsequently used to

analyze newspaper articles published in metropolitan cities of Eagle Ford Shale region to discover how these or other frames are utilized in their coverage of the unconventional development occurring in the Eagle Ford Shale. I found that the pro-development frames used by proponent interest groups matched very closely with the pro-development frames used in the news media. Conversely, the way opposition frames are used by the opponent interest groups and in the news media display much more variance. These findings have implications for several theories seeking to explain the influence of interest groups on news coverage. And are important for fully understanding how the perceptions of residents regarding oil and gas activity are formed. While this research did not take the step to compare the news media frames used to the individual frames residents use to understand this activity, it does address a lacuna in the research on unconventional development by examining the way interest groups and the media frame their communications pertaining to the issue.

(165 pages)

## PUBLIC ABSTRACT

## Framing Fracking: Media Coverage of Unconventional Oil and Gas Development in South Texas

Jebadiha Potterf

The rapid growth of unconventional oil and gas development in the United States has greatly increased the production of these minerals, but has also raised the public's concern over the dangers involved in this process. Due to the contested nature of unconventional development gaining an understanding of both how the public perceives this development and the influences on these perceptions is vital. As several previous research studies have investigated public perceptions this project addresses the second of these requirements.

This is done using qualitative methods to analyze the content of the online communications of proponents and opponents of this development. The organizations sampled include two anti-fracking groups and two industry trade association. Their websites were inductively coded to reveal the framing that is used by each in their presentation of the arguments for or against this activity. These categories were then used to categorize the framing used in two South Texas newspapers. The results of these stages are then compared and contrasted.

The findings showed that the framing of the arguments made by proponents and opponents paralleled each other in several interesting ways, and that proponent frames were heavily favored by the news outlets studies. This provides an increased

understanding of the non-experiential influences on residents' views of this activity, and furthers sociological knowledge pertaining to how individuals' form their perceptions of unconventional development.

## ACKNOWLEDGEMENTS

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I would next like to thank the other two members of my committee, Douglas Jackson-Smith and Reed Geertsens. Doug you kept me focused on the quality of the science underlying my work and gave me abundant assistance with many of the technical aspects of both my research and writing. For that I am eternally grateful. Reed, you have an ability to apply abstract sociological theory to real world situations like no one else I have ever encountered, I aspire to develop such a skill set. Your guidance in the application of theory in this project was extremely helpful and has fostered a passion for social theory that I will undoubtedly carry with me for the rest of my career.



Lastly I would like to thank all the other faculty in the department at Utah State that played a role in my education. Rick Krannich, Jason Leiker, Eric Reither, Eddy Berry, and Steve Daniels; you have all played a role in shaping the Sociologist I am becoming and for that I thank you. Finally, a special thanks to G; whether it was helping me print materials I needed for class, proof reading, or just knowing what to say to lighten a stressful mood, you helped make the day to day aspects of being a grad student go smoothly. Thank you to everyone and I hope we meet again in the not too distant future.

Jebadiha E. Potterf

## CONTENTS

ABSTRACT.....	iii
PUBLIC ABSTRACT.....	v
ACKNOWLEDGMENTS.....	vii
LIST OF TABLES.....	ix
LIST OF FIGURES.....	x
CHAPTER	
I. INTRODUCTION.....	1
The Debate.....	2
Framing.....	4
II. LITERATURE REVIEW.....	9
Resident's Perceptions of Oil and Gas Development.....	9
Framing and Frame Analysis.....	16
Conclusion.....	41
III. BACKGROUND AND METHODS.....	43
Eagle Ford Shale Background.....	43
Methods.....	45
IV. WEBSITE FINDINGS AND ANALYSIS.....	62
Proponent Frames.....	62
Opponent Frames.....	76
Discussion.....	94

V.	NEWSPAPER ARTICLE FINDINGS AND ANALYSIS.....	102
	Introduction.....	102
	Proponent Frames.....	104
	Opponent Frames.....	110
	Balanced Frames.....	119
	Temporal Analysis.....	121
	Discussion.....	122
VI.	BRINGING IT TOGETHER.....	127
	Introduction.....	127
	Frame Usage Comparison.....	127
	Theoretical Implications.....	137
VII.	CONCLUSIONS.....	140
	REFERENCES.....	145

## LIST OF TABLES

## Tables

1.	Search Terms.....	57
2.	Interest Group Frames.....	96
3.	Dominant Proponent News Frames.....	105
4.	Dominant Opponent News Frames.....	111
5.	Balanced Frame Use.....	121
6.	Proponent Frame Comparison.....	130
7.	Opponent Frame Comparison.....	131

## LIST OF FIGURES

## Figures

1.	Influences on News Frames.....	22
2.	Eagle Ford Shale Map.....	44
3.	Theorized Relationship of Influences on News Frames.....	140

## CHAPTER I

### INTRODUCTION

Modern technological developments have recently allowed for a massive expansion of domestic gas and oil production in the US. This activity has turned many once sleepy rural towns into what can best be described as energy boomtowns. Responsible for this boom is a combination of two technological developments that have made the recovery of minerals economically feasible in areas where it was previously not so. Hydraulic Fracturing (commonly referred to as “fracking”) is a process where water, sand, and chemicals are pumped into a well bore at extremely high pressure, causing cracks in the mineral producing rock layer, which allow easier recovery of those minerals. This is accompanied by technological advances in the drilling process, referred to as directional drilling, that allow a drill bit, once below the surface, to be turned so that the bore will run horizontally along a rock strata, thus increasing the surface area where the well bore and rock are in contact (API 2013). This has allowed minerals contained in non-porous geological formations to be exploited. These newly accessible deposits have been termed *unconventional resources* as they could not be profitably developed using conventional techniques; hence the moniker for this type of extraction; *unconventional development* (Halliburton 2014).

## THE DEBATE

The subject of unconventional oil and gas development, and in particular the process of hydraulic fracturing, has received much coverage in the media in recent years. Stories have appeared in a wide variety of outlets; from a National Geographic Magazine cover story (March 2013), to stories in national newspapers such as USA Today (10/23/12, 3/9/13, 2/5/14), and the New York Times (2/26/11, 12/4/12, 3/13/13), to its use as a subject of discussion with guests (3/28/12, 6/9/11) on Comedy Central's satirical political talk show *The Colbert Report*, where anti-fracking activist actor Mark Ruffalo and Natural Gas lobbyist Tom Ridge have both appeared as guests.

With increased awareness of hydraulic fracturing an ongoing battle for public support between interest groups that support unconventional development and those that oppose it is occurring (EPA 2004; Sumi 2005). For example, in 2004 the EPA released the results of a study investigating the potential of hydraulic fracturing in coal beds to negatively impact groundwater, concluding that it poses "little or no threat" to underground water sources. In 2005, Earthworks Oil and Gas Accountability Project (OGAP) countered this report by questioning the methods underpinning it, the review process it went through; and providing anecdotal evidence from several community residents (in locations where hydraulic fracturing has occurred) who have experienced water contamination and public health issues. Aside from the established environmental groups, such as the Sierra Club and Greenpeace that one might expect to become involved in a movement opposing a potentially environmentally destructive practice; a

multitude of local and regional groups have been formed to oppose the use of hydraulic fracturing in the places where it is being used. Examples can be found around the country wherever hydraulic fracturing is occurring, such as the Dakota Resource Council in the Bakken Shale in North Dakota and Montana, FracDallas in the Barnett Shale in Texas, and STOP Fracking PA in the Marcellus Shale of Pennsylvania.

New national level groups have also come into existence, with the specific mission of ending the use of hydraulic fracturing. For example, Stop the Frack Attack (STFA) is a social movement group dedicated to ending the use of hydraulic fracturing. STFA originated as a multi-day march on Washington DC, but has since morphed into an organized group serving as a central point of contact and planning among the various other groups and concerned citizens in regards to opposing 'fracking'. This debate over unconventional oil and gas development has subsequently attracted the attention of social scientists, interested in researching the ways that residents of areas experiencing unconventional development perceive the activity surrounding them (as will be shown in the literature review).

There have been reports of many negative impacts of this development in the areas where drilling is occurring. Potential negative impacts have included the contamination of ground and surface water, the quantities of water required by the process, community health impacts and air pollution, rapid population increases due to transient industry workers and the accompanying stresses on local housing and service



providers (Anderson and Theodori 2009; Brasier et al. 2011; Christopherson and Rightor 2012; Theodori 2009, Wynveen 2011).

In contrast, the gas and oil industry, in their public relations campaigns, has lauded this expansion in development as providing a plethora of benefits to both the regions where extraction is occurring, and to the nation as a whole. Potential benefits have included economic growth in extraction regions, better paying jobs, reduced reliance on foreign oil supplies, and reduction in prices for consumers (API 2013).

This difference in potential impacts has led to a debate in the public sphere over whether the expansion of unconventional gas and oil development should be continued. On the side of continued expansion are the gas and oil industry and their assorted proponents, making claims about the safety of the process and the benefits to be shared by all if development is allowed to continue to expand (API 2013). Opposing them is an assortment of national environmental organizations that have taken up the cause of halting the expansion of unconventional development; as well as local, regional and national opposition groups, that have organized in response to the impacts of development they have experienced or witnessed in neighboring regions (Stop the Frack Attack 2013).

## FRAMING

Each side in this debate uses intentional framing in the construction of their messages to reflect their position. Framing in communications is important as it can influence the way individuals' process information and thus how they perceive an issue

(Chong and Druckman 2007; de Vreese 2005; Pan and Kosicki 1993). Yet minimal research has been done that investigates the way that interest groups on either side of this debate frame their messages, and the one study to do this (Matz 2013) only investigates framing used by one of the oil and gas industry's PR organizations. Thus, we do not yet know how the opponents of this development frame their messages, and how the frames of each side compare to the other. This is an important step in understanding the public perceptions of unconventional development, as framing theorists have shown that the way messages are framed can have a major influence on how people perceive the topic of the message (Benford and Snow 2000; Chong and Druckman 2007; de Vreese 2005; Pan and Kosicki 1993).

Social science research has done much in the way of providing insight on how members of the communities that are experiencing gas and oil development make sense of the events surrounding them, the areas of impact that most concern them, as well as identifying many variables that may influence residents' views. But they have not focused on *how* the media provides information that may be used by residents in forming their perceptions, and the way this information is framed by the media. I address this lacuna in sociological knowledge with the research questions that guide this project;

RQ1: In the website analysis: what conceptual frames are used by proponent and opponent organizations in the discussion of unconventional development utilizing hydraulic fracturing?

RQ2: In the newspaper analysis: what conceptual frames are used in Texas metropolitan newspapers, serving regions that are experiencing unconventional development, in their coverage of the positive and negative impacts of this activity?

RQ3: How do the frames used by proponent and opponent organizations (found in RQ1) compare with the frames used in the regional metro newspapers in South Texas (found in RQ2) and can this be explained by theories of elite control on the media?

Several theories offer possible explanations as to the interaction of the different subjects of my investigation, as will be covered in more depth in the literature review. In brief, the connection between the interest group framing and the newspaper frames is in regard to the ability or lack thereof for these groups to influence the framing used by the newspapers in their coverage of unconventional development and hydraulic fracturing. While large national groups and coalitions are often thought to influence smaller regional or local groups, it can also be argued that the opposite occurs as well, and that the concerns of regional organizations can influence the stances taken by national organizations. These interactions can occur in multiple ways, and while this project is focused on looking for similarities in frames used, identifying the precise mechanism that accounts for any influence is beyond its scope.

For the purpose of this study the terms “frame” or “conceptual frame” refers to the grouping of communicated information into conceptually similar classifications. For

example, arguments pertaining to the effects of unconventional development activity on the economy, local or national, are classified separately from its effects on communities.

While analyzing the frames of both sides, I investigate the way that messages pertaining to unconventional development are framed by both industry and opposition groups, as well as how these frames are utilized by the print media in South Texas. The area selected for this research is South Texas' Eagle Ford Shale play, a play that since 2008 has experienced development of its oil and gas resources utilizing unconventional drilling techniques.

In Chapter II, I provide a literature review of previous research that has been done on unconventional development. I then discuss framing theory, framing in the media, and how framing has been used in natural resource extraction activities, and other public debates. In Chapter III, I present my research questions, background on the Eagle Ford Shale Region and details about the methods employed for this research. In Chapter IV, I present the findings from my content analysis of proponent and opponent websites, and discuss these findings in relation to my first research question. In Chapter V, I present the findings from content analysis of sampled newspaper article from South Texas, and discuss how these answer my second research question. In the sixth chapter, I compare and contrast the use of frames between the interest group websites and the newspaper articles, and discuss the implications for my third research question. In the final chapter, I address the conclusions reached through these analyses, address the

limitations of this research, and provide suggestions as to where future research in this area is needed.

## CHAPTER II

### LITERATURE REVIEW

I begin this chapter by reviewing research on the public perception of the use of hydraulic fracturing in unconventional development and its potential effects. I follow this by examining the literature on the theoretical aspects of framing and examples of research using framing. Following that I then discuss the theoretical base and use of content analysis. I then provide an examination of research into a subject that parallels the debate on unconventional development; the introduction of genetically modified organisms (GMOs) into the food system. I conclude the chapter by showing the gaps in the current body of research my study fills.

#### RESIDENTS' PERCEPTIONS OF OIL AND GAS DEVELOPMENT

Since the recent boom in domestic gas and oil development, sociologists have become interested in how residents of areas where this development is taking place perceive the impacts occurring in their community. The Marcellus Shale region of the Northeast has been the focus of much of this research, as it was the first to gain national attention of the negative impacts that were attributed to this increase in industry activity (Brasier et al. 2011; Kinchy 2013; Kriesky et al 2013; Weigle 2011; Willits, Braiser, Filteau et al. unpublished).

This research has identified a number of factors that often influence perceptions of this development and of the industry, biasing individuals toward positive or negative

perceptions of oil and gas activity. One factor that consistently influences perceptions toward the positive is economic connections to the oil and gas industry (Kriesky et al. 2013; Theodori 2009). A factor that typically influences perceptions toward the negative is the length of time since development began (Anderson and Theodori 2009; Theodori 2009). Factors with mixed influences include; level of knowledge about drilling and the connected impacts (Willits, Braiser, Ooms et al. unpublished), which sources of information are trusted (Theodori et al. 2012; Willits, Luloff, and Theodori 2011), the volume of activity (Brasier et al. 2011; Kriesky et al. 2013), and community power gradients (Llyod, Luke and Boyd 2013).

For example, in their investigation of how differing levels of oil and gas activity in the Marcellus Shale can influence an area's residents' perceptions of the activity, Kriesky et al. (2013) found that those residing in high activity counties were slightly more supportive of industrial activity. But that this was primarily due to higher levels of economic connections to the industry. Specifically they found that these residents were more likely to view it as an economic opportunity, significantly more likely to have signed or have a family member who has signed a production lease, less likely to expect environmental or health problems to result from the activity, and more likely to follow development issues closely. They concluded that the "analyses shows that perception of MS [Marcellus Shale] as an economic opportunity and being a family leaseholder are the two variables that primarily mediate the difference between ... the level of support for MS drilling activity" (Kriesky et al. 2013: 5).

In the same vein as the research of Kriesky et al. (2013), Theodori (2009), and Anderson and Theodori (2009) look at the differences in perception of the oil and gas industry activity in two counties (in the Barnett Shale region of North Texas) which had highly divergent levels of industrial activity. In Theodori (2009) three controlled variables were accounted for: mineral rights ownership, personal/family ties to the industry, and length of residence. The results supported the contention that individuals living in areas with differing levels of industrial activity have differing perceptions of the industry. Additionally, he showed that individuals in the high activity county exhibited “somewhat more negative perceptions of the energy industry” (2009: 280), and through a multivariate analysis he found that “mineral rights ownership is a relatively strong and consistent factor associated with [positive] public perception of the natural gas industry” (2009: 280).

The Anderson and Theodori analysis found that residents of both counties “perceived many similar positive and negative consequences,” but that “they weighed the effects of those consequences differently” (2009: 121). Positive consequences typically related to the economic contributions of industrial development; while negative consequences could be grouped into three categories: public health and safety, environmental concerns, and quality of life matters. The major differences identified in these perceptions of potential impacts of development were that “in Johnson County [the low activity county] ... respondents unanimously agreed that the benefits of production would outweigh the costs. In contrast, Wise County [the high activity county]



respondents unanimously reported that the costs outweighed the benefits” (2009: 124). This finding is opposite that found by Kriesky et al. (2013), where the residents of the county with a higher level of activity expressed more supportive and positive views of oil and gas activity than did residents of the low activity county

An additional study comparing counties with different types of activity was conducted by Brasier et al. (2011) where they investigated the perceptions of residents of four counties in Pennsylvania and New York regarding the impacts of this development. They used semi-structured key informant interviews to discover if, and how, these perceptions varied according to differences in time, geographic space, and historical context. The researchers found that perceptions did indeed vary “according to stage of energy development as well as experience with extractive industries” (Brasier et al. 2011: 32). Additionally, they found that in regions with low population densities, “higher levels of development lead to a broader awareness of natural gas impacts, both positive and negative” (Brasier et al. 2011: 32), which produced mixed perceptions of the activity as a whole.

Where this research has shown that perceptions can be influenced by a number of external factors, Willits, Braiser, Ooms et al. (unpublished)<sup>1</sup> was interested in the internal factors that have influence on these views, primarily the amount of knowledge people had pertaining to unconventional development and which sources of

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<sup>1</sup> This was found on Google Scholar when searching the terms “hydraulic fracturing” and “perceptions” and was not a formal article, but rather a collection of graphical representations of the results of a survey.

information they trusted. They surveyed 21 counties within the Marcellus Shale region and found that at the time of the survey (winter of 2009-10) far more people reported having little or no knowledge about the potential economic, social, or environmental impacts, while relatively few reported having a 'good bit or a great deal' of knowledge. Additionally, they found that half of the residents believed that the quality of life in their communities would stay the same; compared to only 17% who expected it to get worse, and 13% who expected it to get better.

Where these studies looked at perceptions of local oil and gas activity in general, Kinchy (2013) investigated residential perceptions of particular aspects of the activity, i.e. the handling and treatment of the wastewater produced from the fracturing process. Kinchy found that perceptions of the industry as a whole were decidedly mixed, with almost all participants in the focus groups expressing concerns over the potential for negative impacts from hydraulic fracturing. Never the less, many also expressed views of the gas companies as being good neighbors and hoped that technological improvements would reduce or eliminate the negative impacts of development. Regarding wastewater, residents saw it as only one of several issues they were concerned about, and it was found to be influenced by "their broader set of experiences and concerns" (Kinchy 2013: 27) around industrial development. This highlights the importance of looking at not just the development as a whole, but also its individual aspects as these aspects can result in influencing perceptions in varying directions.

Aside from individual perspectives, the way the community as a whole interacts and views industrial activity is important to understand. Llyod et al. (2013) explored “community perspectives of the coal-seam gas industry in affected communities of northeast New South Wales and southeast Queensland, Australia” (2013: 145). During interviews with residents several concerns were raised, including; environmental damage, inadequate regulation, community and landholder rights, lack of or confrontational engagement with the community by the industry, changes to the quality of life, and a lack of research on the potential impacts of industrial activity. These concerns were viewed by the researchers as reflecting “people’s fears that their basic human needs ... may not be met in the future” (2013: 160). Researchers also found that “key concerns expressed relate to power gradients between industry, government, and community,” and that “common themes in the interviews were mistrust of mining companies and governmental bodies” (2013: 161). In other words, the residents in these communities were concerned about power differences between themselves and the government or gas industry, and that they did not trust the government or mining companies to make the decisions that would be in their [the community’s] best interest.

As has been noted, this oil and gas boom has produced mixed views among the residents of development areas. This makes it somewhat unique in that previous development booms did not produce the same divisive views that have been shown in the studies covered thus far. Weigle (2011) was interested in why this newest development boom had become so polarizing, where previous oil and gas development

had not, and how perceptions of this activity influenced the actions of local residents. Using group interview data, key informant interviews, and content analysis of secondary data sources such as newspaper articles, interest group communications, and Census data, Weigle found that resident concerns could be grouped into four major categories: socio-economic, environmental, government and planning, as well as health and safety. He was interested in looking at what sources of information residents used to learn about the development and the perceived trustworthiness of these sources. He found that the internet was the main source of information, followed by personal communications, with print communications being the least used. And that, as expected, the perceptions of the “trustworthiness of information sources hinged on the individual’s personal perspectives” (Weigle 2011: 10). Residents with pro-industry attitudes cited industry sources as most trustworthy, while pro-environmental residents viewed industry sources as the least trustworthy.

The discussed research has done much in the way of providing insight on how members of the communities that are experiencing gas and oil development make sense of the events surrounding them, as well as identifying many variables that may influence these residents’ views. Additionally, it also identifies several of the areas where possible impacts most concern them. However, missing from the sociological literature on perceptions of unconventional development is an in-depth analysis of *how* information on fracturing is framed by the interest groups and the media. Willits (2011) started in this direction with her investigation of where residents got their information

regarding the development; but stopped short of looking at how this information was presented to these residents. The objective of my thesis is to add more depth to this missing piece of the puzzle.

## FRAMING AND FRAME ANALYSIS

In this section I review the literature on the theoretical aspects of framing, including its use in message construction, news media coverage, and social movements. I also look at studies that have been done using these concepts, and how these relate to my research.

The idea of framing was first popularized by Goffman in the 1970's. He defined a frame as "a schema of interpretation" used by individuals to contextualize information (as cited in Hallahan 1999: 221). Social constructionists contend that individuals' mentally form constructions of real world objects that are not simply reflections of an objective reality. As a result there can be considerable variation between individuals in how events and activities are understood. Perceptions are considered important in understanding a situation as they influence the way individuals understand the events of the world in which they live. In the early 20<sup>th</sup> century, sociologist William Isaac Thomas popularized the idea that it was the way events were perceived that dictated how people reacted to them. As he stated, "If men define situations as real, they are real in their consequences" (Thomas and Thomas 1928: 572). Hallahan (1999) connects these perceptions of the real world to the way people receive and process information pertaining to the object or event in question. That is, the way an object or event is

presented, or framed, effects how individuals subsequently think about it and therefore how they perceive the world.

Framing in communicated messages is important because it influences the way individuals' process information and thus how they perceive an issue. Chong and Druckman define framing as "the process by which people develop a particular conceptualization of an issue or reorient their thinking about an issue" (2007: 104). Chong and Druckman further propose that this process is inherent in the way people form attitudes and opinions. These arguments have been noted by a variety of researchers investigating how framing influences public opinion, politics, and social movements (e.g. Benford and Snow 2000; de Vreese 2005; Iyengar 1991; Pan and Kosicki 1993). Framing theorists have proposed that this influence primarily occurs through what are called *framing effects*. Chong and Druckman define framing effects as occurring "when (often small) changes in the presentation of an issue or event produce (sometimes large) changes in opinion" (2007: 104). What this suggests is that subtle differences in how the issue of unconventional development is presented by the news media can have a major influence on how people perceive and understand that development.

Framing involves the intentional highlighting of specific facts that support one's position, as well as the conscious use of language to shape the contours of the public discussion of the topic. There are two levels of framing important to this research: 1) *media (or news) frames*, or how information is presented in media coverage; and 2)

*message framing*, which is how individuals or groups compose their messages to encourage acceptance of their point of view. Assuming that a large portion of the information people use to form perceptions about the world comes from the news media, the question becomes how various news media outlets frame the information that they present.

Pan and Kosicki define a *news frame* as “a system of organized signifying elements that both indicate the advocacy of certain ideas and provide devices to encourage certain kinds of audience processing of the texts” (1993: 55-6) and “a cognitive device used in information encoding, interpreting, and retrieving” (1993: 57). A variety of reasons have been proposed as to why news outlets frame information at all. The most basic of these is that it is done simply to create a story that will be of interest to media consumers (Hallahan 1999). Alternately, a common explanation is that the amount of possible information on any given topic is so vast that the news must try to limit its presentation to only the most important elements needed to understand the issue (Pan and Kosicki 1993; Price, Tewksbury, and Powers 1997), so that people can make sense out of what they are processing (Karlberg 1997). That is, a news frame tells us what aspects of a particular issue are important.

In addition to why news is framed, the question of how news is framed is important. One common research finding is that news media tend to frame stories in episodic rather than thematic form (Hallahan 1999; Singer and Endreny 1994). That is, they tend to focus on particular events that have occurred rather than on the larger

moral or social dimensions of the issue that influence the occurrence of specific events. This can influence the news frame by biasing it toward easily coverable events, rather than on the underlying subject of the tension. The amount of coverage given to a particular issue or aspect of an issue is another way that the media frame news stories (Angelique and Cunningham 2006). Hallahan (1999) and others (Levin, Schneider, and Gaeth 1998) have identified *attribute framing* as a method by which news outlets focus attention on specific attributes of an issue, thus influencing what elements of the issue audiences use in their evaluation. An example of attribute framing and its affect can be seen in Levin and Gaeth's (1988) work on the labeling of ground beef. They experimented with labeling the packages as being either 25% fat or 75% lean. While meaning the exact same thing, the result, however, was that the packages labeled 75% lean were rated as "tastier" and "less greasy." These findings support the idea that how information is presented influences how it is interpreted by the individual.

Pan and Kosicki (1993) point out that for a news frame to be widely accepted it will usually need to be connected to a larger socio-cultural frame that is commonly accepted by the population. For example, in the United States, frames emphasizing 'freedom' or 'equality' generally see broad support. Hall and White (2008), in their study of the framing used in the debate about salmon policy in the Pacific Northwest, refer to these socio-cultural frames as *master frames*. Master frames are frames "which have a broad scope and are applicable to many issues and social groups" (Hall and White 2008: 33). The concept of master frames interacts with the framing of a particular issue



through *frame resonance*. Frame resonance (also called cultural resonance (Kubal 1998)), refers to how well the frame used regarding a specific issue aligns with “wider cultural values and concerns” (Hall and White 2008: 33). Research has shown that the more closely aligned specific frames (whether news or social movement frames) are with the dominant master frames in the culture, the more readily they will be accepted and therefore influence the way an individual conceptualizes the issue at hand (Benford and Snow 2000; Diani 1996; Ettema 2005; Kubal 1998; Zemanova 2009).

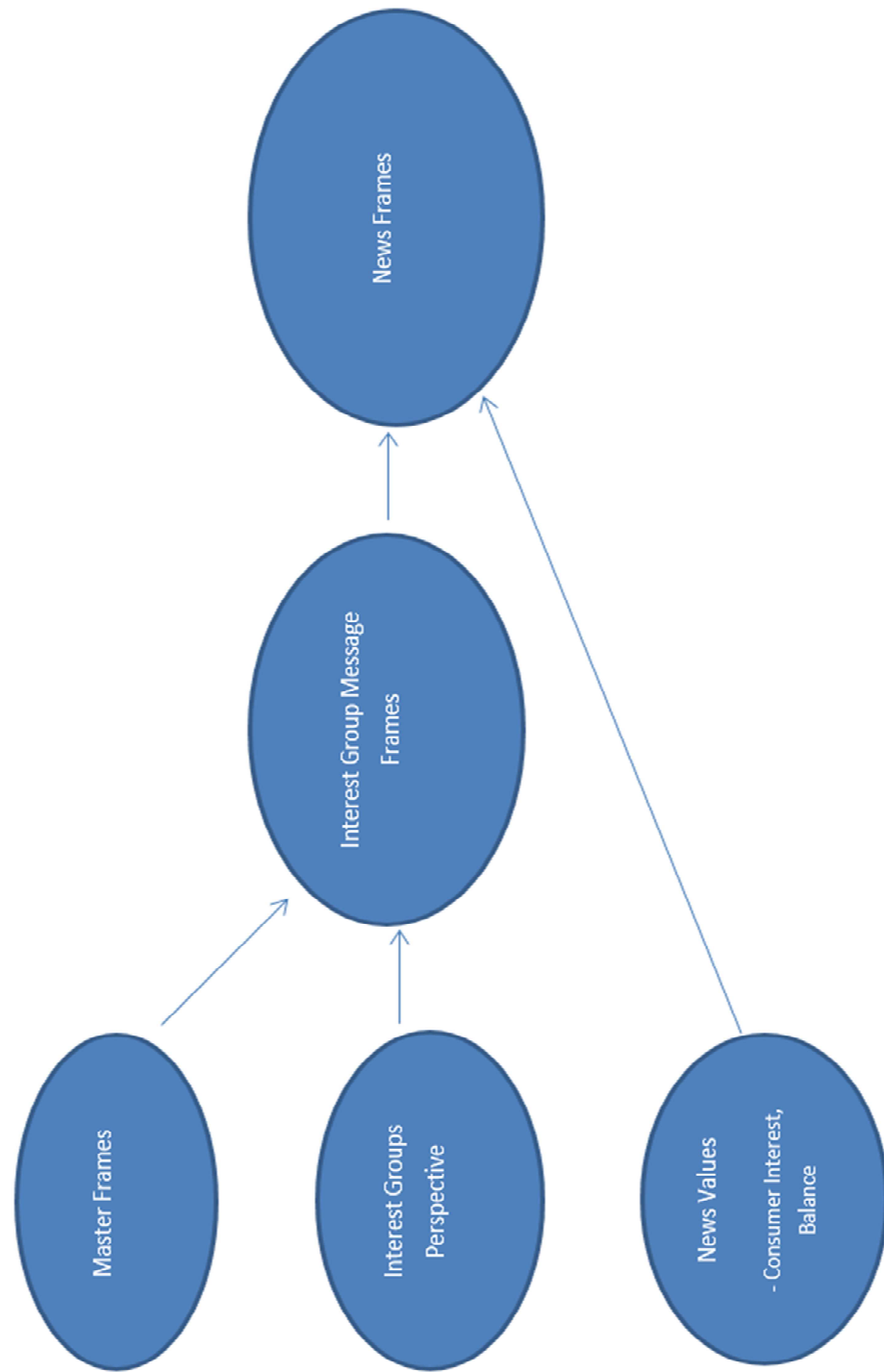
Two other influences on what frames are chosen by the media are the role of *news values* and *elite control of the media*. According to Price et al. (1997) news values, such as having a balanced presentation or focusing on stories of the most interest to media consumers, have long played an important role in shaping the presentation of news. While these influences are important, they are more or less innocuous. The influence of elite interest groups is much less harmless. Traditionally, news media were expected to play the dual roles of explaining both sides of a debate and attempting to provide unbiased coverage of events as they actually unfold in relation to the topic of consideration. Modern communications and media scholars no longer see this as typical of media coverage in late capitalism (Angelique and Cunningham 2006; Mazur and Lee 1993). Studies have shown that media coverage, consciously or unconsciously (Macnaghten 1993), now often present stories in a way that reflects the framing of one side more than the other.

Theories of elite domination of the media have been advanced as an explanation for how the frames used in news stories are selected. The central tenet is that interest groups, representing the powered elite, use their power and influence to attempt to shape the presentation of information in ways that are most favorable to their position (Culley et al. 2010; Hodgetts and Chamberlain 2007; Scheufele 1999). This theorized relationship is shown in a Venn diagram in figure 1.

### *Elite Influence on the Media*

There are two primary ways that the elites in the United States are viewed as exercising influence over the media in modern society. The first is through the interrelationship between the media and the government (Akhavan-Majid and Wolf 1991; Entman and Rojecki 1993; Jean-Pierre 1997). The second is through the consolidation of media corporations, which also implies a intermingling of media elites with business elites, which serves to merge the ideologies influencing the media's presentation of information (Akhavan-Majid and Wolf 1991; Moemeka 1988; Pierre 1997). The relationship between governing bodies and the media increases elite influence by creating a media dependence on governmental sources for information, and by the creation of a "revolving door" between political positions and the media (Pierre 1997). Pierre argues that personnel now regularly move between media outlets

Figure 1. Influences on News Frames



And governmental positions, in the area of both public address (such as the White House Press Secretary) and in regulation (such as the FCC).

Entman and Rojecki (1993) look deeper into this interaction through the way the nuclear freeze movement was covered by the media at different stages of its development. The nuclear freeze movement was an attempt in the 1980's to get world governments to agree to cease the production of additional nuclear weapons; this goal had the broad support of the US public, but not the administration. What the researchers found was that media coverage changed as the movement grew from a "symbolic and educational" mission to one directly challenging what the government was doing. They also noted that the "media in general belittled the public and its involvement, whereas critiques of the elite [government] opinion was rare" (1993: 157). These authors claim that due to the interrelationship between government and media the coverage of the movement changed as it became more antagonistic toward the governing elites. This connects to the present study in that a portion of what the opponents of hydraulic fracturing are focusing on is the failure of governments to adequately regulate the oil and gas industries practices that endanger the public.

The second route for elites to exert influence on the media involves the continued consolidation occurring between various media outlets themselves, and between media outlets and big business. Jean-Pierre (2001) makes the claim that journalists have become little more than stenographers for big business; and that consolidation implies that fewer and fewer voices will be heard in the agenda setting of

public discourse. As an example he points to the fact that NBC is owned by General Electric and questions whether NBC would present information damaging to General Electric, their parent company, in particular government expenditures on GE military contracts.

Moemeka also investigated the effects of the concentration of media outlets and what this meant for the ability of elites to influence the coverage of events. He recognized that media managers belonged to the ruling elite class and that this had implications for how the news was presented. Of primary importance to him was that the “mass media, especially through agenda setting and cultivation, play a dominant role in defining the opinion environment” (1988: 5), and that in this way they succeed in “attracting and directing attention to people, problems and/or solutions in ways which can favor those with power” (1988: 7). This is representative of the agenda setting role of the media, covered shortly, where they succeed more in telling people what to think about than they do in telling people what to think. Additionally, Moemeka recognizes how the media can selectively present information in such a way as to further the interests of the elite power structure and that “by hiding behind [the] seemingly neutral media, the elite are able to manipulate the masses. Because the masses believe in the neutrality of the media ... the manipulation of the power of the elite is very effective” (1988: 13).

Akhavan-Majid and Wolf (1991) furthered the study of media consolidation to include the integration of media elites with other powerful elite groups, such as the

integration of media and other big business interests. Their central thesis is that the US media must be thought of as an elite power group, “characterized by a) growing concentration and conglomeration, b) integration with other power elites, and c) ability to exercise self-serving control on government even as it is controlled by it” (1991: 139). They claim that “the increasing concentration and conglomeration of ownership ... [lead to] the subordination of the ideals of diversity and independence to the corporate search for synergy and profits” (1991: 139), which in turn has moved the media from the ‘Libertarian’ mode (characterized by a free market of ideas in the media) to a more Authoritarian mode (characterized by its use to communicate the ruling elites version of reality).

The researchers point to two facts to support this claim; first, that the number of corporations controlling the majority of media outlets (newspapers, magazines, TV, books, and movies) has shrunk. From 46 in 1981, to 23 in 1991; and is expected to continue shrinking (a prediction that has been confirmed in the present time where six corporations control approximately 90% of the media outlets in the US (<http://www.businessinsider.com/these-6-corporations-control-90-of-the-media-in-america-2012-6>)). And second, by the fact that many, if not most, corporate board members of media companies also sit on the boards of other businesses in various industries, such as oil and gas, banking, insurance, and corporate law.

This consolidation of media elites with elites in other industries, Akhavan-Maid and Wolf (1991) claim, means that the interests being represented in the media will be

those of the elite power group and not those of the general public. In the context of unconventional oil and gas development, this implies that the topics covered by the media (being of positive or negative impacts) will typically be of those impacts that encourage support of further development, as this will benefit the business elite. Also, that impacts which negatively affect the population in development areas will be covered only as much is required to continue the façade of neutrality.

### *Message Framing*

Explanations for how news frames influence audiences are also quite varied, but two theories have gained the most acceptance; *framing effects* and *agenda setting*.

Framing effects are cognitive interactions that attempt to explain the process through which frames influence individual thought processes (Chong and Druckman 2007).

Scholars acknowledge that media frames are not deterministic, however, and are viewed as interacting with an individual's mental frame to produce framing effects (Huang 1996; Scheufele 1999). One highly regarded theory as to how framing effects are hypothesized to influence perceptions is through the use of conceptual cues.

Conceptual cues are simply cues within the communication text that "affect cognitive processing by selectively influencing which memory nodes, or sets of memory traces organized as schemas, are activated to interpret a particular message" (Hallahan 1999: 209). These conceptual cues are used to activate knowledge the person already has stored (Price et al. 1997). This helps the individual to easily fit newly gained information into the knowledge they already possess (Hallahan 1999; Iyengar 1987). Other

researchers also see framing as activating conceptual cues, but they see its influence coming from those cues that allow for causal attribution of events to take place (Pan and Kosicki 1993). The key to these views is that the frames used are intended to activate certain types of knowledge rather than others, although this is not perfectly accomplished.

In addition to the influence of framing effects, the news media are thought to influence issue evaluations through *agenda setting*. Agenda setting has little to do with what a person thinks, and everything to do with what a person *thinks about*. The way in which a communication text is framed plays three roles in agenda setting. First, it sets the boundaries of accepted discourse pertaining to an issue. Second, it raises an issue (or certain aspects of an issue) to a higher level of salience than previously held. Finally it shows what attributes of an issue are to be focused on and thought about (Jonsson 2011; Mazur and Lee 1993; Price et al. 1997). It is thought that by simply covering an issue, people will see it as more salient than they otherwise would.

In the case of a contested issue such as oil and gas development, the news media are able to focus attention on particular attributes of the issue. This can influence the importance individuals assign to the covered attributes, to the detriment of other attributes. The highlighted attributes are then the ones thought to be most frequently used to evaluate the issue as a whole (Hallahan 1999; Levin et al. 1998). Therefore, if the news media are able to influence which attributes are used to judge an issue, they are able to suggest how the issue should be evaluated. Agenda setting operates at three



levels in relation to the issues being framed: 1) diagnostic framing, which is the identification of the problem as well as causal attributions of blame for it; 2) prognostic framing, which is specifying solutions for the problem identified; and 3) motivational framing, which provide the impetus to do something about the problem (Snow and Benford 1988).

Message framing is more general than the media framing, and is applicable to the creation of any message by any source. In framing a message the goal is to “select some aspects of a perceived reality and make them more salient in a communication text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation” (Entman 1993: 52). Framing a message is not only important to news media communications, but in the communications of social movements as well. Benford and Snow (2000) make the claim that “framing processes have come to be regarded, alongside resource mobilization and political opportunity processes, as a central dynamic in understanding the character and course of social movements” (2000: 612). They see these collective action (or social movement) frames as fulfilling the same purpose of organizing the meaning attached to events and issues in the world that all framing does, but with the additional goal of trying to “mobilize potential adherents and constituents, to garner bystander support, and to demobilize antagonists” (2000: 614).

Work done by Diani (1996) on the populist movement in Italy also showed that the goal of message framing in collective social movements is often to gather support

and mobilize participants. He found that this was best accomplished by linking the movement frames to larger master frames. This was because the linking to master frames, already widely accepted in the culture, made the internalization of movement frames easier for the population. Given the importance of media coverage to groups getting their side of an issue accepted by the public, it is expected that this attempt to connect issue frames to master frames would be undertaken by the anti-fracking movement, and also by the oil and gas industry attempting to increase the support for unconventional development. This will occur both in their direct communications, via press releases and website statements, as well as in their attempts to influence news media to frame coverage in a way that supports their view of it. For this reason it is important to gain an understanding of how frames are used in news coverage of specific issues.

### *Studying Framing in the News Media*

Analyzing frames is most typically done through the use of content analysis. Content analysis is a method of examining the way a communication text is composed with regard to topic covered, linguistic structures used, and elite frames employed, in comparison to other texts (Hardy, Harley, and Phillips 2004). Content analysis can be done in multiple ways to answer different types of questions, but even with these differences many similarities remain. Research using content analysis on news framing has been done on many environmental issues being debated including; salmon recovery

policies (Hall and White 2008), environmental risks in the Baltic Sea (Jonsson 2011), and forestry in British Columbia Canada (Arvai and Mascarenhas 2001).

Of primary importance are the differences between inductive content analysis and deductive content analysis. In inductive content analysis the texts are analyzed without any preexisting classification scheme. Rather the classification of frames is allowed to emerge from the data itself. This requires multiple readings of the texts and in the case of multiple researchers, independent coding of texts which will be compared for intercoder reliability once each researcher has completed their own classifying of the frames. Deductive content analysis occurs when the researchers begin with a predefined set of coding categories that the texts' frames will be fit into. Additionally, it is not uncommon for researchers to use a combination of these forms of analysis; where the inductive coding categories derived from the analysis of a sample of texts or from a different set of related texts is used to code other texts. I provide one example of inductive content analysis, one example of deductive content analysis, and one example of their combined use. Methodological aspects have been borrowed from each of these examples for use in my study.

Jonsson (2011) used inductive analysis to look at how the multiple risks to the ecosystem of the Baltic Sea were presented in Sweden's largest national newspaper. To discover if frames had changed over time the sample was made up of articles from 1993, 1998, 2003, and 2008. What Jonsson found was that the framing used in her sample of articles varied by the particular risk covered, with some risks being covered

much more frequently and with differing causal and prescriptive attributions. For example, she shows that when looking at a proposed gas pipeline planned to run from Russia to Germany the coverage mixed military safety and environmental risk frames; and when looking at coverage of eutrophication (increase of nutrients causing an algae bloom) that it is the most often mentioned risk, but it is rarely the main theme of an article. Important to my study from this research is the use of newspapers as the texts of analysis, and the investigation of temporal changes in the coverage of the issue.

Deductive analysis was used in the Arvai and Mascarenhas (2001) study of a forestry debate in British Columbia Canada. The purpose was to assess if changes in the media coverage of this debate were responsible for the shift in public opinion away from supporting the environmental movement. To accomplish this they used articles from the *Vancouver Sun*, “because of its large and province-wide average daily circulation ... and because it is widely regarded as the province’s most respected and credible newspaper” (2001: 707). Prior to coding the articles sampled they held several workshops at the University of British Columbia’s Department of Forestry and Institute for Resources and Environment. The purpose of these workshops was to analyze *Sun* articles from outside the study period, to develop a list of phrases and key words that would then be compiled into “a two-category dictionary that could be used to differentiate sections of text as being either pro-forestry or pro-environment” (2001: 707).

The researchers coded the articles in two separate iterations; first for the overall article score (pro-industry, pro-environment, or neutral), and then by theme which “involved the classification of whole articles but was based on a search for dominant content categories or themes” (Arvai and Mascarenhas 2001: 707). Each of these steps was done independently by each researcher to monitor intercoder reliability; the article scores produced IRR’s of 78% on 1993 articles and 90% for the 1997 articles. What the researchers found was that while the frames employed in the print media coverage of this issue did change over the sample period, it could not account for the change in public opinion. What was methodologically important from this research was the development and use of a coding ‘dictionary’ based on the analysis of a sample of articles not contained within the main sample frame (i.e. from outside the analyzed years).

Hall and White (2008) investigated the way in which arguments over salmon recovery policies in the Pacific Northwest were framed in congressional testimonies on the subject. To do this they analyzed the transcripts of 109 testimonies, in multiple iterations, where witnesses “were categorized into groups based on the self-identified social role that each declared in the introductory remarks of his or her testimony” (2008: 35-6). Using a ‘team based strategy’ two researchers independently categorized samples of testimony to develop a ‘codebook’ that would be used to code full testimonies into “hierarchical categories and sub-categories of potential responses” (2008: 36). They found two important master frames utilized in this debate; the local

control frame, used by those arguing that recovery efforts are best managed by state agencies, and the science frame, used by both sides to justify their desired policies. They expose the way the science master frame is often used by both sides in natural resource debates, but that each side recognizes different sources of scientific information as being most credible. Their findings highlight the importance of frame resonance in selecting or creating a frame to support the side making the arguments desired perspective. This study highlights the way that inductive and deductive content analysis can be combined to classify frames used in communications. Methodologically, the development of a code-book, or coding dictionary, based on a sample of the analyzed texts and subsequently used to code the full texts is what matters in the context of my research.

*GMOs.* An environmental debate that parallels the debate over unconventional oil and gas development is that of Genetically Modified Organisms (GMOs) in our food supply. I focus specifically on GMOs for, as detailed below, like unconventional development, this debate centers on the use of new technological developments that offer potential benefits, but are accompanied by risks that are unknown or not well understood. Additionally, several of the findings of this research and the methods employed directly translate into the current research project.

Maesele (2011) investigated whether the print media in Belgium framed the debate over GMOs in such a way as to facilitate democratic debate over the issue or whether they “preclude a public debate in favor of technocratic decision-making and/or

(‘free’) market forces” (2011: 90); and whether the sponsors, or interest group representatives, promoting these frames were able to influence the frames used in the media. This focus on the ability of interest groups to influence the frames used in news coverage is an attempt to answer the same question, albeit for a different subject, as my research.

To accomplish this Maesele undertook a discourse analysis of news articles on the subject. His sample of articles was drawn from three elite and two popular Dutch language newspapers, by searching the newspapers (between January 1998 and December 2007) for articles based on a broad set of 51 keywords (not provided). The frame categories Maesele used to classify the frames came from a previous study, where he analyzed communication texts from interest groups, for and against, as well as news coverage of the debate. He found that the frames used by either side are set up to oppose the frames used by the other, either by directly challenging the opposing side’s claims or by offering an alternative understanding of that aspect of the issue. His findings also showed that as a whole, during the sample period, the newspapers drew on both opposition and industrial sources evenly, but that during particular times in the debate the sponsors from either side were used more than the other. This balance was influenced by a number of variables, the most important of which was the ‘stage of the debate’ or the temporal aspect of when the article was published compared to what particular aspect of the debate was actively being discussed.

Similarly, a study by Vos and Wassenaar (2002) used content analysis to investigate how companies involved in promoting GMOs use their communication strategies to shape the social debate over the issue. Similar to my study, they analyzed the websites of nine international companies involved in GMOs and four newspapers from the Netherlands and the United Kingdom to see how the industrial framing of the issue was represented in the mass media. Using sampled articles from between September to December of 2000,<sup>2</sup> they found that while the industrial websites gave large volumes of information, they did so with specific frames intended to persuade the audience of the validity of their point of view over the oppositions, and that the only times proponents addressed the uncertainties related to GMOs was in the context of alleviating them. This finding provides some expectation of what may be found in the analysis of oil and gas industry trade association websites. The researchers concluded that in situations concerning unknown risks, where public involvement and knowledge are generally low, information communicated to the public generally lagged behind what would be necessary for informed decision making. This is important to understand for the current study as the use of hydraulic fracturing in unconventional development has many similarities in unknown risk and importance of communicated information as the GMO debate.

In a study paralleling mine in a number of ways, Perdue (2008) undertook an investigation of GMO framing in the US with the aim to investigate how biotech

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<sup>2</sup> The method used to sample these articles was not given.



companies and anti-GMO organizations framed the GMO debate in their website communications, and to what extent these frames have been incorporated into the print media coverage of the issue. Using a snowball sampling technique to select the industry and opposition organizations, he begins with organizations identified in previous research and followed links on those sites to other affiliated organizations. Reducing this list to the three biotech companies “most closely tied to the US” (2008: 26) he selected three newspapers that are all nationally available, have the top three circulations in the country and represent distinct political orientations: *The Wall Street Journal* (WSJ), *USA Today*, and *The New York Times* (NYT).

Using content analysis on the interest groups’ websites to produce a list of dominant frames employed by each side, he identified five frames, two used by industry, two used by opposition groups, and one utilized by both. The industry framing revolved around themes of benefits, science, and morality. The benefits frame was most dominant on the companies’ websites, and focused on the benefits that GMOs provide to farmers, customers, the environment, and the developing world. The science frame “emphasizes innovation and discovery” (Perdue 2008: 41), displaying to the public that they are on the ‘cutting edge’ of using science to improve society. Anti-GMO frames revolved around themes of risk, rights, and morality. The risk frame is the most common anti-GMO frame and focuses on three primary risks; “environmental, human health, and unknown risk, or ‘Pandora’s Box’” (Perdue 2008: 32). The rights frame “emphasizes how the rights of customers, farmers, and indigenous peoples have been trampled by the

unfettered implementation of GMOs ... around the world” (Perdue 2008: 40). Lastly, the morality frame was used by both sides in attempting to establish their position on the “moral high ground” of the debate. Each side claimed that morality is on their side, whether the individual claims related to the increased ability to feed the world’s hungry or to the “unnatural” tampering with life and “playing God.”

Perdue found that in total the industry’s frames and the anti-GMO movement’s frames were used at nearly the same rate in the newspaper coverage, but that when disaggregated the usage of frames was heavily dependent on the political leanings of the particular news outlet. Overall, what Perdue’s results show is that while the frames promoted by either side in the debate seem to be the source for the frames employed by the news media, they are not used identically by the different communication channels. He concludes that the links between newspaper slant and coverage of the GMO debate suggests a link between “powerful interests in the business world and the general perspective of one of their leading information sources” (Perdue 2008: 52). This is reflective of the issue of elite control of the media covered earlier in this literature review.

*Framing of unconventional development.* In the case of unconventional development, research utilizing content analysis of framing theory appears to be minimally used.<sup>3</sup> Indeed, the only piece located which used framing in relation to

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<sup>3</sup> To search for existing research investigating the framing of unconventional oil and gas development I initially posted a query to the environmental list-serve of the American Sociological Association asking for suggestions for published or unpublished research in

unconventional development was Matz (2013), in his master's thesis. Matz investigated how the oil and gas industry framed the narrative regarding the development of the Marcellus Shale in the public relations campaign titled: *Energy in Depth: Northeast Marcellus Initiative*. For his research, Matz undertook a qualitative content analysis of this public relations initiative's website and accompanying material.

What he found was that the frames used to portray the development in the Marcellus Shale region paralleled the framing used by other extractive industries to either legitimize their activities or to delegitimize the opposition. The first frame identified in his analysis was the use of *patriotism*, where extraction of resources using hydraulic fracturing "is presented as symbolic of personal liberty and freedom while bans, moratoriums, and regulations are depicted as dichotomous with the ideals of freedom" (Matz 2013: 37). Extraction is framed as an opportunity that will benefit all Americans, through facilitating industrial progress, economic growth, and national

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this area. I received one response. I then searched for articles through both ProQuest and Google Scholar. ProQuest is a database search application designed to find documents based on search terms used from a wide variety of sources including; newspapers, academic journals, dissertations and theses, TV and radio broadcasts, wire service and press releases, government documents, books, and business publications. It is available through institutes of higher learning and libraries around the world (ProQuest 2013). Google Scholar is a search engine designed by the Google Corporation to search academic journals, scholarly publications, books, and non-peer reviewed journals. Search terms included: 'framing and unconventional development', 'framing and oil development', 'framing and gas development', 'framing and hydraulic fracturing', 'framing and fracking', 'framing and hydrofracking', 'framing and shale gas', and 'framing and shale oil'. These terms were chose in an attempt to locate as many potentially relevant articles as possible. Articles identified as relevant were then used to find more publications.

security through energy independence. Matz argues that it is through the use of this frame that the oil and gas industry present this activity as “the story of freedom through the free market economy, centered on personal property rights, and limited government intervention” (2013: 37).

The second frame Matz identifies is that of *green washing*, “use of environmental imagery and claims of environmental stewardship as a selling point for a product or practice” (Matz 2013: 68). This practice is commonly used by those industries whose activities can result in damage to the surrounding environment to distract or minimize the attention given to these results. This is done by showing that environmental harms are offset by some other environmental benefits, by normalizing or minimizing the type of harms produced, or by making comparisons of industrial activity to activities common in the average person’s life and not viewed as particularly risky. One way the oil and gas industry does this in the Marcellus Shale is to evoke classic conceptions of conservation - that is - the wise and efficient use of resources, and to place themselves as conservationists as opposed to environmentalists. This is further promoted through industries’ “stewardship of farmland” arguments attempting to show how industry, as conservationists, are doing far more to protect the lands than the environmentalists, “who are merely ideologues engaged in little real world action” (Matz 2013: 70).

The third frame Matz identified was that of “scientific imagery, expertise, and the facts” (2013: 95). This frame attempts to convince the audience that industries’

actions are supported by science. To do this Matz shows they employ a number of strategies, including claims that the opposition willfully ignore ‘the facts’ while promoting an unsupported “alternative reality” (2013: 97); laud modern technology (which they claim the opposition does not understand) as neutralizing the negative effects of industrial activity; contrast the experts who support their claims with the ideologues or activists who oppose them; present themselves as neutral educators rather than an interest group; and claim scientific research that supports their arguments but claim research supporting opposing views as examples of poorly constructed or junk science.

The final frame identified by Matz is delegitimization of the social movement opposing the use of hydraulic fracturing. This frame represents a tactic used regularly by industries attempting to clear themselves of the negative light cast by public opposition movements. One of the main tools used in delegitimization is the use of the scientific imagery framework. Matz argues that science is accorded a place of great respect and trust in our society, if one side in a debate can convince the public of science exclusively supporting them, it will show the opposition arguments to be supported on nothing aside from political or ideological grounds. The purpose of the delegitimization frame is to juxtapose the knowledgeable and reasonable industry with the irrational and ideological opposition movement. Other tactics used in this frame include; framing the opposition as extremists, or as elites who are disconnected with the common person, questioning the oppositions’ understanding of the activity occurring, framing the

opposition as hysterical and over-reacting, and questioning the motives of those involved in the opposition movement. The overarching goal of this frame is to depict the anti-fracking movement as unworthy of public support and as “a relentless ideology” (Matz 2013: 125).

Matz’s work provides an understanding of how the oil and gas industry uses framing in their communications, but does not examine how the issue of unconventional gas and oil development is framed in the news coverage, or by the opposition movement. This lack of research on the framing of unconventional development is a major gap in the literature that I address in this thesis. It is important to understand the framing that is used in the presentation of information about unconventional development because, as shown by Chong and Druckman (2007), the framing influences the way the information is processed.

## CONCLUSION

This review shows that the previous research into unconventional development has done much to bring the perceptions of the residents’ of communities experiencing it to light, illustrating how the framing of information can influence the way people understand a situation or topic. Yet, while understanding what people think about the effects of unconventional development is important in understanding the debate occurring, the previous research falls short in answering the question of how interest groups promoting and opposing this development frame the information they present regarding the topic. We also do not know how newspapers in regions experiencing

unconventional development frame the issues surrounding it in their coverage, or if the interest group framing appears in the newspaper coverage. In short, there is a lacuna in the previous research into unconventional development using hydraulic fracturing. Yet this information is critical for gaining an understanding of why the residents of these development areas perceive the activity in the way they do. Without understanding how messages are framed and how this influences perceptions we as a society cannot fully understand the impact that this development has.

Based on the research covered in this review, theories of elite control (domination) of the media, it is expected that similarities in the presentation of information regarding hydraulic fracturing and unconventional development will be seen between the interest groups websites and the news coverage of this development. But based on the framing theories covered, it is also expected that differences will be found, due to the differences in frame resonance (as will be shown shortly) between the state of Texas and the nation as a whole. I will next address the methods I used in this research project. In addition, I will provide a brief coverage of general information pertaining to the Eagle Ford Shale region.

## CHAPTER III

### BACKGROUND AND METHODS

I begin this chapter by detailing the geography of the Eagle Ford region and provide demographic information on the residents in the Eagle Ford. I then present my research questions and the methods I use to answer them. I detail the oil and gas industry proponent and opponent websites used and how these were selected, I then detail the newspaper articles used, and how they were sampled and analyzed.

#### EAGLE FORD BACKGROUND

The area selected for this research is South Texas' Eagle Ford Shale play.<sup>4</sup> The Eagle Ford Shale is a region recently identified as having the potential for lucrative development of its unconventional oil and gas resources utilizing hydraulic fracturing techniques. The Eagle Ford Shale is a geologic formation named for the town of Eagle Ford, TX, where the shale rock formation reaches the surface. While the entire geologic formation lays beneath some 30 counties in South Texas, 11 counties are considered to be the core area and have experienced the majority of the development activity. These

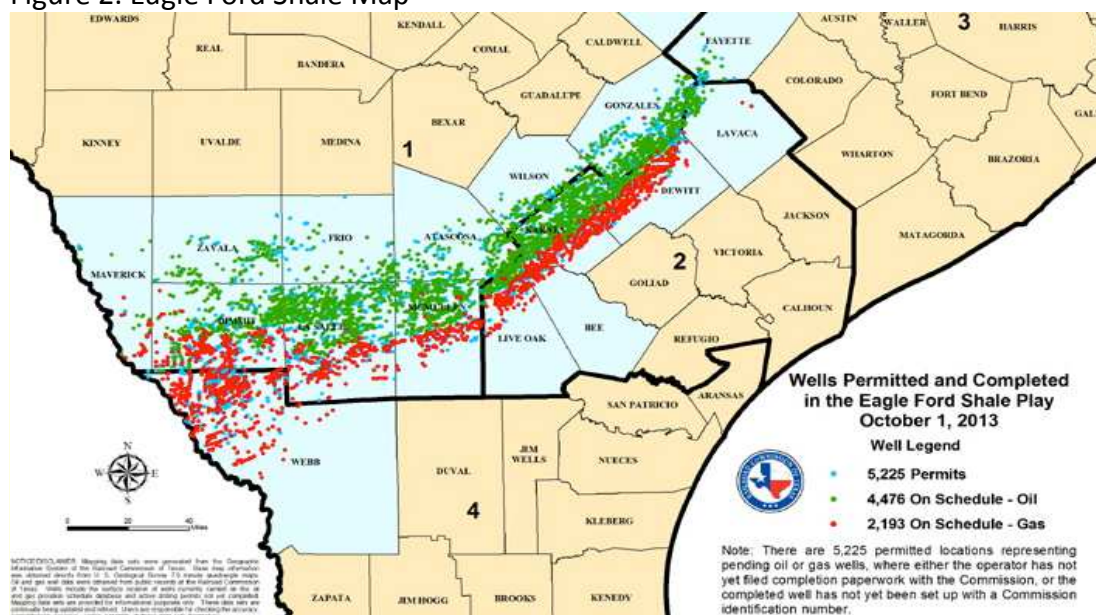
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<sup>4</sup> Eagle Ford was selected due to the connection of this thesis project to a larger study being conducted in the region. This larger project is funded by the US Department of Energy, through a partnership with the Houston Area Research Center (HARC), and is focused on assessing the perceptions of local residents of the oil and gas industry and the rapid expansion of development that is occurring in their communities. The goal of the larger project is to create a communications toolkit that will assist in improving the two-way communication between the oil and gas industry and residents of communities where this development is taking place.



include, from west to east, Webb, Dimmit, La Salle, McMullen, Atascosa, Live Oak, Bee, Karnes, Wilson, DeWitt, and Gonzales counties (Fig. 2). The core of the Eagle Ford is located in a very rural region of South Texas, and has only a single metropolitan area within its boundaries, Laredo (eaglefordshale.com). Laredo lies on the US-Mexico border and as of the 2010 census has a population of 236,091, with 95.6% of the city's population being of Hispanic descent (US Census 2010). One of the features that makes the Eagle Ford unique and more financially attractive to the industry (when compared to other shale plays in the country) is that depending on the location, natural gas, wet gas condensates, and oil can all be found within this single geologic formation (eaglefordshale.com).

Figure 2. Eagle Ford Shale Map



The 11 core counties cover an area of approximately 13,982 square miles, with individual counties ranging from Karnes County's 747 sq. mi. to Webb County's 3,361 sq.

mi. The population of these counties typically lies within the range of just under 7,000 to just fewer than 45,000; with two outliers, McMullen with 707 people and Webb with 250,304 people, most of whom live within the Laredo city limits. With the exception of Webb County, the county population sizes tend to increase as the counties move east and north, closer to the cities of San Antonio and Austin. The majority of the population in these core counties is made up of individuals of Anglo and Hispanic origins. Those counties closest to the Mexican border have Hispanic populations well over 75%, with the highest being Webb County, where over 95% of the residents are of Hispanic heritage. The percentage of Hispanic residents declines as one moves east, with a low of 33.3% in DeWitt County (US Census 2010).

## METHODS

Similar to Perdue's (2008) work, I use a two-fold examination of how the issue of unconventional development is framed by national interest groups and in the regional newspaper coverage of oil and gas activity. I employ content analysis to examine how the frames created and endorsed by the proponents and opponents of unconventional development are incorporated into the news coverage of this activity in South Texas. Content analysis is the most widely accepted method of researching framing in written communication documents. The articles discussed in the literature review represent accepted use of content analysis in the analysis of the framing used in newspaper articles and other documents (Arvai and Mascarenhas 2001; Hall and White 2008;

Jonsson 2011; Matz 2013). These studies were used as a guide in the use of content analysis in my research.

Weigle's findings, as covered in the literature review, concerning the differences in the use of print communications versus internet communications have some bearing on this study here, as both internet and print communications are analyzed. Unfortunately in his study he only differentiates by channel of communication, and not the source of the communication. As it pertains to this study it provides some validity to the examination of interest group communications, as much of their communications occurs through the internet. And while it might seem to portray newspapers (print communications) as a little used source of information, that conclusion is not supported. This is because news media is distributed through multiple channels, including internet, print, and television. A recent Deloitte<sup>5</sup> (2012) survey showed that 79% of residents in mature shale plays (which included Texas, Louisiana, and Arkansas) used the news media, undifferentiated by channel, as their primary source of information.

I first examined the websites of both proponent and opponent groups to discover the conceptual categories used by each to frame the issue of unconventional development in ways most favorable to their position. There were two primary purposes for examining these group's websites: 1) to develop a list of conceptual frames utilized by each side, and 2) to develop a 'dictionary' of words and phrases that

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<sup>5</sup> Deloitte Center for Energy Solutions is an industrial consulting company focused on bringing together energy researchers and energy industry representatives to address complex energy challenges.

represented each conceptual frame. These categories, along with the dictionary of words and phrases identified in the website analysis, were used in the second stage of this project to identify the frames used by the metropolitan area newspapers in South Texas, in framing their coverage of the impacts of unconventional development.

My specific research questions are:

RQ1: In the websites analysis: what conceptual frames are used by proponent and opponent organizations in the discussion of unconventional development utilizing hydraulic fracturing?

RQ2: In the newspaper analysis: what conceptual frames are used in Texas newspapers serving regions that are experiencing unconventional development, in their coverage of the positive and negative impacts of this activity?

RQ3: How do the frames used by proponent and opponent organizations (found in RQ1) compare with the frames used in the regional metro newspapers in South Texas (found in RQ2)?

### *Website Analysis*

The first step in this research project was the analysis of proponent and opponent websites. Two organizations' websites were selected to represent each side's views. Several decision rules were used in the selection of these organizations to ensure that selection was not biased by my familiarity with certain websites. For the organizations that represented the gas and oil industry's views; the rules are that they

must: 1) be national industry trade associations, 2) be active in lobbying for policies favorable to the industry, 3) be active in the creation and distribution of media communications promoting the benefits of unconventional development, and 4) have a broad membership base representing a significant portion of the industrial players. I focused on trade organizations because these organizations often serve as the mouthpiece for their industry. They should be national to best represent the framing used by the industry as a whole, rather than being reflective of regional differences. I concluded that associations active in lobbying and the creation and distribution of media communications would best reflect the public framing of the issue that the industry is promoting; and that those trade associations with large and diverse membership (including not just producers and service companies, but up-stream and down-stream economic players as well)<sup>6</sup> would provide the best representation of the industry.

*Selection of proponent websites.* To identify the list of oil and gas trade associations considered for selection, a Google search for “US oil and natural gas trade

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<sup>6</sup> While producers (those that own and distribute the minerals being extracted) and service companies (those who perform most of the well site development activity like drilling and hydraulic fracturing) are what most readily come to mind when thinking of gas and oil companies; a wide variety of other companies are important in the oil and gas lifecycle. These include up-stream companies, which supply the input products necessary to perform the mineral extraction and well site development (such as the manufacturers of drilling equipment, and suppliers of frac sand or chemicals). As well as down-stream companies, which transport the minerals (such as pipeline or rail companies) or buy the minerals (such as refineries, natural gas distributors, or industries that use the produced minerals as input for their products).

associations” was performed. This search produced over 18 million results. I went through the results creating a list of associations, until saturation of organizations was reached, approximately on the fifth page of results. Excluded from this list were state or regional trade associations. From this list of search results approximately a dozen oil and gas industry webpages that provided lists of active trade associations were also found. After eliminating state and regional associations from these lists, 24 national trade associations were identified. I examined these websites, with special attention paid to the description of the organization’s activities and the membership lists provided. Based on the decision rules described previously, the two national organizations selected to represent the oil and gas industries’ views were the American Petroleum Institute (API) and America’s Natural Gas Alliance (ANGA).

The API states on their website that they are “the only national trade association that represents all aspects of America’s oil and natural gas industry... from the largest major oil corporation to the smallest of independents” (API Overview and Mission, API 2013). They claim their membership consists of over 550 different corporations active in the oil and gas industry, from international production companies like BP and Shell Oil to gasoline distributors like Chevron Corporation and everything in-between. Their stated mission is “to influence public policy in support of a strong, viable U.S. oil and natural gas industry essential to meet the energy needs of consumers in an efficient and environmentally responsible manner” (Industry Mission, API 2013).

ANGA positions itself as the most influential natural gas trade association in the U.S. and states on their website that they represent “North America’s leading independent natural gas exploration and production companies.” Their mission is “to promote the economic, environmental and national security benefits of greater use of clean, abundant, domestic natural gas” and to “promote growing demand for and use of our nation’s vast domestic natural gas resources for a cleaner and more secure energy future” (About us, ANGA 2013). To accomplish this, they note, they work “with industry, government and customer stakeholders to promote increased demand for our nation’s abundant natural gas resource for a cleaner and more secure energy future and to ensure its continued availability” (About us, ANGA 2013). While membership is not as widely representative as the API’s (expected as ANGA focus solely on natural gas rather than all petroleum products) they still represent a large swath of the most influential natural gas companies in the US, 21 are listed as members on the website. Additionally, they portray themselves as the most active of the US oil and natural gas trade associations in promoting to the public, through communication channels like television commercials and print advertising, the importance and benefits of their products.

*Selection of opponent websites.* For groups representing the views of the opposition movement I selected organizations based on the following rules, that these organizations must: 1) be national in scale, 2) be active in organizing protests against unconventional development and hydraulic fracturing, at either the national or local level, 3) be active in assisting the organization of local opposition groups, 4) be actively

engaged in attempting to influence policy regarding hydraulic fracturing and unconventional development, and 5) have a large and diverse membership. These selection rules were used for the following reasons. Organizations national in scale are necessary to be on the same spatial level of operation with the national industry trade associations. Activity in organizing protests is important as this is one of the primary ways the opposition movement brings attention to their views. Actively assisting local organizations is one way the opposition movement expands their number of supporters, as localized opposition is important to their credibility as representing the local resident. Attempting to influence policy is required as it was thought this will keep the focus on the larger opposition organizations; and having a diverse membership is seen as representing a larger swath of the public opponent views than less diverse organizations (diverse membership is judged by the organizations' association with large numbers of local or regionally based opposition groups, not by individual citizen membership).

To select these groups a google search was performed for "US anti fracking groups" and "groups opposed to hydraulic fracturing in the United States." Each of these searches produced over 5 million results. The majority of these results, however, were links to news stories covering the anti-fracking movement and local regional and state based anti-fracking organizations. Only two national groups were identified that focused solely on unconventional development; Stop the Frack Attack (STFA) and American's Against Fracking (AAF). While STFA met all of the decision rules and was selected, AAF did not. While AAF was national in scale and actively involved with



regional anti-fracking groups, they do not directly participate in policy matters or organize their own protests. Additionally, while not a specific decision rule it was found that their website did not contain significant amounts of information regarding hydraulic fracturing. Overall they appear to be an organization more focused on using celebrities (three of the four members of their executive board are celebrities) and emotional appeals to draw people to the cause than directly addressing the effects of the activity and were therefore excluded.

To find a second national opponent group, national environmental organizations were examined to measure their involvement in the issue. Two organizations were identified as meeting all decision rules; the Sierra Club and Earthworks. Of these two, Earthworks' focus is on extractive industries exclusively, while the Sierra Club is involved in a very wide variety of environmental issues. Due to their exclusive focus on extractive industries, Earthwork was selected for inclusion in my study.

The first opponent group selected, STFA, is a social movement organization that began in the summer of 2012 as a three-day-long protest march in Washington DC over the use of hydraulic fracturing. STFA's website states that over 5000 concerned citizens participated in this march and from there it has grown into a "national coalition of local grassroots groups, concerned individuals, and national NOGs" (Frack Attack National Summit, paragraph 1, STFA 2014). In fact, the list of members includes over 140 organizations representing groups as large and well known as the Sierra Club and

Greenpeace, and as small and local as Gas Truth of Central PA<sup>7</sup> or the Ohio Valley

Environmental Coalition<sup>8</sup>. STFA's mission statement reads:

As the oil and gas industry expands into new communities more and more people are being directly and indirectly affected by the oil and gas drilling boom. ... This creates a unique opportunity to build a concerted national movement for justice even as we continue to campaign locally and in the states for positive change. It is clear that the emerging movement demanding oil and gas justice needs ways to collaborate, coordinate, share resources, create tools, take action, build skills, engage new allies, and aggregate our collective grassroots power around strategic initiatives and campaigns that can protect communities from the impacts of fracking and spur the transition to a clean, renewable energy future. Stop the Frack Attack ... is now evolving into a social movement hub and network for individuals and organizations nationwide to come together and work to meet these critical needs

(About, paragraph 2-4, STFA 2014)

Earthworks is a member organization to STFA and an American NGO whose focus is on the mineral extraction industries, including both precious metal mining and energy extraction. It was formed in 2005 when two separate mining reform organizations; the Mineral Policy Center and the Oil and Gas Accountability Project (OGAP)<sup>9</sup>, came together in their fight to reform mining policy and practices to better protect the communities experiencing these activities. The OGAP is still one of the major initiatives undertaken by Earthworks and state level OGAP projects have begun to be set up in

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<sup>7</sup> This is a local group of citizens in central Pennsylvania which opposes hydraulic fracturing in the Marcellus Shale.

<sup>8</sup> This is a local environmental organization based in the Ohio Valley in West Virginia that works to stop environmentally damaging mining practices such as hydraulic fracturing and mountain top removal.

<sup>9</sup> Information regarding these organizations prior to their merger is not available as they have not existed independently for nearly 10 years.

states where the oil and gas boom is occurring (e.g. Texas and Pennsylvania) and focuses on “serving drilling impacts communities around the country” ([http://www.earthworksaction.org/reform\\_governments/oil\\_gas\\_accountability\\_project](http://www.earthworksaction.org/reform_governments/oil_gas_accountability_project), paragraph 1). Earthworks states in their mission that they are “a nonprofit organization dedicated to protecting communities and the environment for the adverse impacts of mineral and energy development while promoting sustainable solutions,” and that they “stand for clean air, water, and land, health communities, and corporate accountability” (About Earthworks, paragraph 1-2, Earthworks 2013).

*Content analysis.* The purpose of the website content analysis was first, to inductively determine the frames used by each organization in the public discussion concerning unconventional development; second, to compare and contrast the conceptual frames used by each side; and third, to create a typology that could be used in the analysis of newspaper coverage of unconventional development. When analyzing the selected organizations’ websites I examined the content on all pages of the website; including webpages that were hyperlinked but were not necessarily part of the organization’s website, as well as accompanying materials such as pdfs and slideshow presentations. I confined my research to the text and video clip dialog on these webpages; visual aspects such as pictures and the images on the video clips were not analyzed in depth (the visual images were typically associated with the subject of the text).

Due to my previous experience with the subject matter, I had some expectations of how certain frames would be used, but remained open to allow other frames to emerge (Aronson 1994). There were two goals at this stage; 1) to develop coding categories of the frames used by each side in the debate over unconventional development, and 2) to identify a list of words, phrases, and subjects to represent each of these frame categories. These frame categories were then used when assessing the frames used in newspaper coverage of the development in South Texas. The identified frames were checked for consistency and mutual exclusivity by a cohort working in a similar research area. This was done to ensure intercoder reliability, that is, checking the reliability of the coding by having two researchers code that same material independently and comparing the results (Adler and Clark 2008).

The websites were analyzed inductively to identify emergent frames used to structure the arguments regarding unconventional development (for or against). After identifying the frames used, the websites were analyzed to understand how the frames were being used; i.e. how much information was given regarding any given frame (Vos and Wassenaar 2002), and how often they were used, which revealed dominance on the websites.

### *Newspaper Analysis*

Newspapers selected for the analysis were chosen in two ways. The website [abyznewslinks.com](http://abyznewslinks.com) was used to identify a list of newspapers for each city. A second website, The Alliance for Audited Media (2014), provided circulation counts that

identified the primary newspaper for each city. The Alliance for Audited Media, formerly known as the Audit Bureau of Circulations, was founded in 1914 by advertisers and publishers to provide accurate reporting of circulation numbers. It has over time become one of the premier organization serving to link advertisers with information related to published and digital distribution figures for newspapers and magazines (Elliott, NYT 11/14/12).

While the Eagle Ford Shale region of South Texas is extremely rural, home to only one large metropolitan city, Laredo, San Antonio is located just outside of its boundary. San Antonio has been one of the metro areas most impacted by the recent boom in oil and gas development in the Eagle Ford region (SAEN 2013). Not only is it the largest city in close physical proximity to the shale play, but since the increase in development it has become a hub for the regional offices of several major oil field service and production companies (SAEN 2013). The major newspaper for each of these cities was selected to provide the population of news articles to be sampled from.

Once the newspapers were selected, their website's article archives were searched for the following combination of terms: "Eagle Ford Shale," plus "energy development," "oil development," "gas development," "drilling site communities," "hydraulic fracturing," and "fracking." Additionally, the names of the core Eagle Ford Shale counties (Dimmit, Webb, La Salle, McMullen, Live Oak, Atascosa, Wilson, Karnes, DeWitt, and Gonzales) were searched in combination with the terms "gas" and "oil." The list of search terms was kept broad to capture all articles related to the

development in the Eagle Ford region. Hit counts for each combination of search terms from each newspaper are listed in table 1.

Table 1.<sup>10</sup> Search Terms

Newspaper	San Antonio	Laredo
Total articles found	561	118
search terms: EFS +		
Energy development	456	71
Oil Development	536	96
Gas Development	486	102
Drilling Site Communities	35	12
Hydraulic Fracturing	248	57
Fracking	149	45
Dimmit + Oil	84	29
Dimmit + Gas	77	23
Webb + Oil	87	325
Webb + Gas	79	432
La Salle + Oil	111	31
La Salle + Gas	109	30
McMullen + Oil	72	18
McMullen + Gas	66	15
Live Oak + Oil	162	16
Live Oak + Gas	110	28
Atascosa + Oil	85	10
Atascosa + Gas	75	9
Wilson + Oil	94	32
Wilson + Gas	104	40
Karnes + Oil	119	18
Karnes + Gas	101	15
Gonzales + Oil	89	16
Gonzales + Gas	74	33
DeWitt + Oil	69	12
DeWitt + Gas	65	10

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<sup>10</sup> Individual search term hit counts contain duplicate articles with other search terms. Total article numbers (given in other sections) are after duplicate articles have been removed.

All articles produced by this search made up the initial study population frame. The articles were then checked for duplicates and stories pulled from the Associated Press (AP)<sup>11</sup> (and thus not written by journalists from the selected papers) both of which were eliminated. If the listed author(s) were recognized as staff writers for the specific newspaper sourcing the article or if the AP article was written in partnership with the staff of the specific newspaper, it was included. Also excluded were articles which focused on the Barnett Shale in the Dallas/Fort Worth, industry press releases, PR statements, paid articles, as well as local community/business calendars of events. While the Barnett Shale articles could certainly provide useful data for analysis of a shale play several years more developed than the Eagle Ford, this project is focused on the news coverage of Eagle Ford Shale exclusively. The other exclusions were made due to the fact that they are not reflective of the newspaper or journalists' framing of the issues surrounding unconventional development and hydraulic fracturing; rather they are reflective of the framing the sponsoring organization wants to portray.

Once the excluded articles were removed the final population was set ( $N_{SA} = 561$ ,  $N_L = 118$ ). From the population of articles covering the effects of unconventional oil and gas development in each newspaper, a random sample of 100 articles were selected randomly using Microsoft Excel. When an article was discovered to not fit the criteria, i.e. it had been missed in the initial exclusion process, it was eliminated and the next article on the randomly ordered list was included. One article was eliminated in this

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<sup>11</sup> AP articles are noted as such, in the area of the title, when viewed in electronic form.

manner from the population of the *Laredo Morning Times*, and two articles were eliminated the *San Antonio Express-News*. Once the sample was obtained, the articles were then analyzed to assess how national proponent and opponent frames are used in the local coverage of the effects of the unconventional development boom.

Using the framing typology from the website analysis and staying alert for new frames; I performed semi-deductive content analysis (detailed below) on the newspaper articles which discuss the effects of the oil and gas boom in South Texas. Using inductive methods in the website analysis and deductive methods in the newspaper article analysis allows for the discovery of whether or not the framing of these issues that is promoted at the national levels is reflected in the coverage in the newspapers at the local level. I focused on whether the framing of unconventional development used in the newspapers was dominated by either the proponent's or opponent's framing of the issue. I then analyzed how contrasting frames were used in articles dominated by other frames.

The semi-deductive process used in the coding of sampled newspaper articles was done similarly to the framing analyses of newspaper articles discussed in the literature review (Arvai and Mascarenhas 2001; Maesele 2011; Perdue 2008). Article coding was done in multiple iterations, with the first being a simple coding of articles into pro-development, opposed to development, or balanced - neutral categories. This was done based on the overall tone of the article, including the impression given by the title. Mazur and Lee (1993) argue that since people do not give their undivided attention



to processing the media they consume, they most often only form impressions based upon the simple image produced by the “headline, accompanying picture and its caption, and perhaps the first paragraph or two of text” (1993: 683). This view is echoed by Pan and Kosicki (1993) when they view the signifying elements of a news text (i.e. the headline, lead, episodes, background, and closure) as declining in salience the farther down the list, in the order presented here, the story moves. These criteria were used to determine whether the article was primarily focused on positive or negative impacts, or if it had a balanced presentation equitably highlighting both positive and negative impacts. The balanced articles were used as a “measuring stick,” representing the traditionally expected role of journalism (that is to give a balanced presentation of both sides of the subject), to compare with the frequency of articles slanted to one side or the other. Balanced articles were also identified in the next iteration by recognizing the use of frames from both interest groups. Additionally, articles initially classified in one category or another were moved based on the actual frames that appeared in the body of the text if they did not match with the original classification.

In the second iteration I coded each article into a single specific dominant frame category used by either the industry or opposition which emerged in the analysis of their websites, or as a new frame if the article emphasized an aspect different from the proponent or opponent arguments. Decision rules in this iteration were based on the appearance of a frame and if multiple frames appeared, the time-space rule was used where whichever theme was given the most space was coded as the article’s dominant

theme. At this point articles were identified as being balanced based on the use of both proponent and opponent framing. To be considered balanced an article had to split the coverage of proponent and opponent frames in no greater difference than 60/40 to either side. The 60/40 split was chosen as the cutoff point as balanced articles are rarely a perfectly even split and it is not uncommon to see that even if slightly more space is given to one side's frames, more of the other side's frames appear in the article. If the dominant frame category conflicted with the initial classification, the article was recoded into the appropriate primary category.

Once all articles were coded the rates of frame usage were calculated for the entire sample from the two newspapers, as well as for each newspaper individually. This allows for comparisons to be made and for differences in coverage by different newspapers to be evaluated. Intra-coder reliability was fulfilled through the consistent use of the decision rules specified in the coding procedures and through multiple iterations of coding. Problematic aspects of the frame dictionaries that resulted in differences in article coding were adjusted, and the frames were applied to the analysis of the entire sample.

In the next chapter I analyze the findings from the website portion of the analysis. The dominant frames found in the analysis of the proponent websites will be discussed first, followed by the dominant frames found in the opponent websites. The chapter will wrap up with a discussion comparing the frame usage by each side in this debate and offering some theoretical explanations for the findings.

## CHAPTER IV

### WEBSITE FINDINGS AND ANALYSIS

In this chapter I present the dominant frames which emerged in the analysis of proponent and opponent interest group websites. I first present and discuss the proponent frames, then the opponent frames. I then compare and contrast the way these frames are used by each side in the debate over unconventional development. While many more frames, and claims within each frame, were identified in the website analysis, the primary focus of my discussion is on the most dominant frames and claims.

#### PROPONENT FRAMES

Four dominant frames were identified in the proponent websites. These include: 1) economic benefits, 2) environmental impacts, 3) necessity, and 4) science (non-dominant frames include; regulatory strength, nationalism, communication, and concern for communities). Several of these frames contain sub-frames as well. I detail each dominant frame and sub-frame below and provide quotes from the websites as data to illustrate these.

#### *Economic Benefits*

The economic benefits frame was the most heavily used message frame by the proponents of unconventional development utilizing hydraulic fracturing. Included in this frame are the sub-frames of jobs and broader economic impacts.

*Jobs.* Statements by the proponents in this sub-frame focus on how the oil and gas boom is providing a lot of good jobs for Americans at a time when they are needed most. These include jobs for both those that are directly involved in the oil and gas industry and in other arenas affected by the development boom as well. This is evidenced below.

Natural gas is ... putting Americans to work in all 50 states. How many jobs? IHS Global Insight estimates that as of 2008, total natural gas production supported more than 2.8 million jobs in the United States. Increasing the development of our nation's unconventional sources of gas alone will add more than 1.4 million U.S. jobs by 2035. A recent study by PricewaterhouseCoopers for the National Association of Manufacturers forecasts an additional 1 million U.S. jobs in manufacturing by 2025, thanks to our nation's vast, affordable supplies of natural gas.

The claim regarding jobs continues:

Opportunities stretch far beyond natural gas to jobs in industries that support responsible natural gas development and those that rely on affordable energy and feedstock to do their work. For example, jobs are being created for U.S. steel workers who are fabricating the pipes that keep our operations safe.

Issues and Policy: Jobs, paragraph 1, 4, ANGA (2013)

And at times is as simple as stating numbers:

The [oil and natural gas] industry supports nearly 10 million American.

Policy Issues: The people of the US oil and natural gas industry are changing the vision of our energy future, paragraph 1, API (2013)

The jobs sub-frame is used by proponents of unconventional development to draw people's attention to one of the most concrete positive impacts of the oil and gas boom, its effect on employment. Key terms used to recognize this sub-frame include employment, jobs, hiring, ripple effect and unemployment rate. This sub-frame is used

by proponents to argue that the benefits to the American workers of the boom should be one of the primary ways we evaluate the impacts of the oil and gas industry.

*Broader economic impacts.* The broader economic impacts sub-frame deals with proponent claims that what occurs in the oil and gas industry impacts multiple different areas of the economy, from local to national, affecting not only households but also government, other industries and national economic indicators.

New research released today from The Boston Consulting Group (BCG) says natural gas production is saving families between \$425 to \$725 per year and that number could grow to as much as \$1,200 per year by 2020. This equates to 3 to 6 percent in additional discretionary spending per year for each household.

American families are saving big money with natural gas, paragraph 1,  
ANGA (2013)

Proponents of development also point to the effect that the oil and gas industry have on the nation's economy as a whole, as shown in this quote:

The [oil and natural gas] industry ... makes significant economic contributions as an employer and purchaser of American goods and services. In 2011, the most recent year for which data are available, the industry supported a total value added to the national economy of more than \$1 trillion or 8 percent of the U.S. gross domestic product.

Policy Issues: The people of the US oil and natural gas industry are changing the vision of our energy future, paragraph 1, API (2013)

The broader economic impacts sub-frame is another example of proponents using concrete positive impacts as a central focus of their arguments supporting unconventional development. Key terms used to identify this sub-frame include taxes, GDP, disposable/personal income, economic development, support of other industries, and up/down stream impacts. As a whole, the economic benefits frame attempts to

direct the attention of the public to the most positive impacts that oil and gas development have on the economy and employment in the US.

### *Environmental Impacts*

A second dominant proponent frame is environmental impacts; which pertains to any claims that connect unconventional development to the physical environment. The proponents of industrial development commonly make claims that the activity associated with oil and gas development is not harmful to the environment and that environmental protection and industry activity are not mutually exclusive. Sub-frames in the environmental impacts frame include continual improvement, and climate benefits.

*Continual improvement.* The continual improvement sub-frame is comprised of industry claims regarding the large sums of money that the oil and gas industry reinvest in efforts to improve their environmental performance and references to how the environmental impacts associated with development are much better in recent years than they have been in the past due to these advances. A key point the proponents communicate with this frame is that they have invested heavily in the creation of advanced technologies and methods, and the implementation of these new technologies and methods have allowed them to greatly reduce the negative impacts that are associated with industrial development, as seen in these quotes:

Industry practice has changed a lot in the past 50 years, even the past 10 years. Advancements in technology allow us to conduct many aspects of our operations far more efficiently than just a few years ago. This efficiency translates to smaller "footprints" (the amount of surface area

disturbed), less waste generated, cleaner and safer operations, and greater compatibility with the environment.

Policy and Issues: Advances in technology reduce environmental impacts, paragraph 1, API (2013)

Through the complex process of finding, developing, transporting, refining, and providing you with the oil and natural gas products we all need each day, we have developed creative ways to do so in a manner that respects the earth. In fact, we have spent \$253 billion dollars since 1990 to improve our environmental performance. Like you, we want a clean and healthy environment for ourselves, our neighbors and our families.

Environment, Health and Safety, Environmental performance, paragraph 2, API (2013)

The proponents also provide specific examples of how the industry has worked to continuously improve the effects associated with development activity (such as well site emissions), as shown in this quote:

The companies that develop our domestic natural gas supplies are committed to finding ways to power their own operations with the same fuel that they produce. One company, Seneca Resources, recently embraced that challenge and announced it has converted two of its Pennsylvania drilling rigs to run on natural gas. ... Using a dedicated natural gas engine to power a drilling rig has the potential to reduce nitrogen oxide (NOx) emissions by 64 tons per year; and a dedicated natural gas powered drilling rig can reduce particulate matter by 1.7 tons per year [as compared to a diesel powered drilling rig].

Blog: Natural gas companies powering their own operations with natural gas, paragraph 1, 4, ANGA (2013)

The proponents argue that with this continual improvement they are working to protect the environment. Much of this improvement, they argue, is based upon scientific studies; the results of which are implemented to improve their environmental performance, as shown in this quote:

We have invested in many scientific studies to learn about possible effects of products and activities on the environment, aquatic life and human health. We use this information to modify and improve environmental and business practices to care for this important resource.

Environment, Health, and Safety: Clean water, paragraph 1, API (2013)

The continual improvement sub-frame is an attempt by the proponents of development to assuage the public's concerns about the potential for environmental damage to result from the production process. Key terms used to identify this sub-frame include reinvestment, improved performance, new technology/methods, reduced emissions and preventative planning. This sub-frame is used to show that the oil and gas industry is concerned about the environmental effects of their industry and that they are actively addressing these issues.

*Climate benefits.* The second environmental impacts sub-frame found in the proponent websites is that by increased use of unconventional development, in particular the increased production of natural gas, climate benefits are produced. This sub-frame claims that emissions are reduced with increased use of natural gas; that natural gas can be used as a partner with renewable energy sources of power generation; and that it has potential as a replacement fuel in the transportation industry.

On the proponent websites natural gas is framed as a solution to the problems of emissions from coal fired power plants, because of its cleaner burning nature. The proponents point to decreases in the CO<sub>2</sub> emissions from the power generation sector as proof of this.



The U.S. Energy Information Administration's April 2013 Monthly Energy Review, *Energy-related carbon dioxide emissions declined in 2012 [italics in original]*, indicates that in 2012, energy-related carbon dioxide emissions in the United States were the lowest since 1994 at 5.3 billion metric tons of CO<sub>2</sub>. With the exception of 2010, emissions have declined every year since 2007.

Environment, Health and Safety: US carbon dioxide emissions 2012,  
paragraph 1, API (2013)

The proponents also claim that natural gas has a place in the future of power generation as a solution to the inconsistency of renewables in generating a steady supply of energy.

Natural gas is helping make it possible for electric utilities to reliably incorporate more renewable sources of energy – such as solar – to meet the ever-growing demands of customers in a growing economy. One of the nation's largest utilities, Florida Power & Light (FPL), uses natural gas and solar to provide clean electricity day and night, rain or shine. ... When the sun is shining, the plant makes good use of the Sunshine State's greatest asset, but also uses natural gas to ensure its plant produces power at full capacity. At night and on cloudy days, natural gas ensures that FPL customers can still rely on the power they need to live their lives.

Blog: Natural gas enables solar-powered electricity in Florida, paragraph  
1, 2, 3, ANGA (2013)

The other key point made here is that the expanded use of natural gas as a fuel in the transportation sector has the potential to make as big (or bigger) a difference on the emissions from vehicles as it has in the power sector. A bulleted list of facts about transportation related pollution is provided on the proponent websites, several of which relate to the climate benefits of natural gas:

- "Transportation accounts for 30% of U.S. CO<sub>2</sub> emissions,"
- "Natural gas vehicles run 25% cleaner than vehicles powered by traditional gasoline or diesel."
- "Natural gas vehicles also reduce smog-producing pollutants by up to 90%."

Issues and Policy: Transportation – cleaner air, paragraph 2, ANGA  
(2013)

The purpose of the climate benefits sub-frame is to allow proponents to argue that fossil fuels, in particular natural gas, still have a role in our energy portfolio, even while focusing our efforts on combating climate change. This, they claim, is due to natural gas's cleaning burning nature, as compared to other fossil fuels. Key terms used to identify this sub-frame include bridge fuel, reduced CO<sub>2</sub> emissions, power generation, partner with renewables and transportation fuel. Overall, proponents use the environmental impacts frame to address concerns voiced about the ways that the oil and gas industry and their products affect the environment, and to show how these concerns are being addressed and rectified.

### *Necessity*

A third dominant frame used by proponents is the necessity frame, focused on showing that oil and gas are necessary components of modern life. Proponents argue that oil and gas are needed for everyday life and that hydraulic fracturing is needed for the energy security of the nation.

*Needed for everyday life.* The first proponent sub-frame of necessity is that oil and gas are needed for everyday life. The proponents claim that oil and natural gas development is necessary to modern life and many products we depend on. They argue the central role that gas and oil play in our modern world is expressed by emphasizing the multiple uses it has. This is apparent in the following quotes:

When you stop and think about it, it's amazing how many things get their start from oil and natural gas. Comfy synthetic fabrics we wear year-round. Medicines that make us feel better. Transportation fuels that help

us get around. Fertilizers that help our gardens grow. And just about every toy we play with. Oil and natural gas - they're the stuff of life. Learn more about oil and natural gas and how they touch your life in amazing ways.

Oil and natural Gas Overview: Consumer information, paragraph 1, API (2013)

Natural gas is widely recognized as one of the most versatile and valuable of our North American energy resources because it can be used in so many important ways.

- A clean generating source for almost a quarter of the nation's electric power.
- Cleaner transportation for our highways.
- Efficient heating, water heating and cooking for homes and businesses.
- A raw material for fertilizers and a component in the manufacture of pharmaceuticals, cosmetics, medical implants, sports equipment, electronics, plastic toys and paints.
- A heat source for generating steam used in numerous industrial and commercial applications, including the steel, plastics, automotive and pulp and paper industries as well as schools, hospitals and military bases.

Why Natural Gas: How it's used, paragraph 1, ANGA (2013)

The quotes and claims of this sub-frame focus on reminding the public of the myriad of ways the things we rely on for everyday living that are provided by oil and gas production. Key terms used to recognize this sub-frame include essential, feed stock, everyday products, central, critical, and versatility. Proponents use this sub-frame to highlight the central role that oil and gas play in our daily lives and how many of their uses are not what first come to mind when people think about the ways that gas and oil are used.

*Energy security.* The second necessity sub-frame is that unconventional development is necessary for our nation's energy security. Proponents argue that to

ensure the energy security of the United States we must accept that hydraulic fracturing is necessary. They do this first by showing the need for energy security, then by showing how hydraulic fracturing can achieve this, as shown in these quotes:

With current global uncertainty and turmoil in oil and natural gas producing regions, America needs to regain control of its energy future by increasing oil and natural gas production here at home. Greater domestic production provides U.S. families and businesses a buffer against supply disruptions, and the oil and natural gas industry's ability to reliably provide these supplies is fundamental to U.S. national and energy security.

Policy Issues: Energy Security, paragraph 1, API (2013)

At a time when we need all the energy we can find, increasing access to domestic sources of oil and natural gas would enhance our energy security. We have enough oil and natural gas resources to power 65 million cars for 60 years and heat 60 million households for 160 years.

Oil and natural Gas Overview: natural gas supply and demand, paragraph 4, API (2013)

The necessity of hydraulic fracturing to energy security is argued in multiple ways, two of which are illustrated here:

Hydraulic fracturing and horizontal drilling apply the latest technologies and make it commercially viable to recover shale gas and oil. Without it, we would lose 45 percent of domestic natural gas production and 17 percent of our oil production within 5 years.

Oil and Natural Gas Overview: 10 facts everyone should know about shale energy, paragraph 1, API (2013)

The vast increases in our domestic natural gas supplies over the last several years have been made possible by two technologies that allow us to tap into deep supplies of natural gas that were once thought to be inaccessible. ... The first of these technologies is horizontal drilling. ... The other technique that allows us to tap into new supplies of natural gas is hydraulic fracturing.

Issues and Policy: Safe and responsible development, paragraph 7, 8, 9, ANGA (2013)

The energy security sub-frame argues that access to our domestic oil and gas reserves is needed to provide a secure energy future for the nation, and that the only way to access these reserves is by using hydraulic fracturing. Key terms used to identify this sub-frame include energy security/future, energy demands, loss of production, and accessing reserves. As a whole, the necessity frame is used to reinforce the notion that modern life, as we are accustomed to it, is only possible with the use of oil and gas; and that the only way to domestically produce those essential products is through the use of hydraulic fracturing.

### *Scientific Truth*

The scientific truth frame consists of claims made by proponents of development about how the safety and effectiveness of unconventional development using hydraulic fracturing is supported by the “valid” scientific research on the subject and how the industry works with researchers to produce the best possible research. This was evident in the earlier quote linking scientific findings to the improved environmental performance of the oil and gas industry. The proponent’s claims are also argued by citing specific studies that support proponent claims or with more general comments about how scientific studies have proven the process’s safety, as is shown in the following quotes:

Regarding hydraulic fracturing, Stanford University geophysicist Mark Zoback stated "As there has been an appreciable increase in hydraulic fracturing associated with shale gas development in recent years, it should be pointed out that the water injection associated with hydraulic fracturing is not responsible for the triggered seismicity in question." ... In

response to press attention focused on the release of a brief abstract of a U.S. Geological Survey study expected to be released this summer, Bill Ellsworth, a lead author of the report stated that "there's almost no relationship between hydraulic fracturing and earthquakes. And this has really been a problem in the media confusing the process of stimulating the reservoirs so they produce gas. This does not produce earthquakes that are of concern.

Links & Resources: Seismic activity, paragraph 7-8, ANGA (2013)

The studies that the oil and gas industry participate in are viewed by proponents of development as being the best research possible, seen in this quote:

API partners with leading scholars, researchers, world-class qualitative and quantitative analysis firms and data analysts to produce unparalleled studies and research.

Policy and Issues: Recent Studies and Research, paragraph 1, API (2013)

Included in this frame are scientific rebuttals to the opposition's claims, particularly that hydraulic fracturing activity has resulted in an increase in earthquakes and that it contaminates ground water.

It is important to put seismic activity in general and seismic activity in natural gas development areas into context. Minor and imperceptible seismic activity is extremely common. For instance, roughly 1.3 million 2-2.9 magnitude quakes happen every year around the world. You can visit the U.S. Geological Survey site to see seismic activity that is taking place every day.

Links and Resources: Seismic activity, paragraph 1, ANGA (2013)

Studies by the U.S. EPA and the Ground Water Protection Council have confirmed no direct link between hydraulic fracturing operations and groundwater impacts.

Oil and natural gas overview: Hydraulic fracturing Q&A, paragraph 4, API (2013)

A significant body of both government and private research, including DOI's own research finalized since the original May 2012 proposed rule for hydraulic fracturing on public lands, continues to show that there are

no documented cases of hydraulic fracturing contaminating groundwater, from the Marcellus Shale to California.

Oil and natural gas overview: What US government officials have said about hydraulic fracturing, paragraph 1, API (2013)

The proponents refer to the documentary Gasland<sup>12</sup> to argue how the facts about unconventional development and hydraulic fracturing are misrepresented by the opposition movement:

In the film's signature moment Mike Markham, a landowner, ignites his tap water. The film leaves the viewer with the false impression that the flaming tap water is a result of natural gas drilling. However, according to the Colorado Oil and Gas Conservation Commission, which tested Markham's water in 2008, there were "no indications of oil & gas related impacts to water well." Instead the investigation found that the methane was "biogenic" in nature, meaning it was naturally occurring and that his water well was drilled into a natural gas pocket. This is one of several examples where the film veers from the facts. ... In an article in the Philadelphia Inquirer, John Hanger, the secretary of the Pennsylvania Department of Environmental Protection said the film is "fundamentally dishonest" and "a deliberately false presentation for dramatic effect."

The Truth about Gasland pdf, paragraph 2-3, 6, ANGA (2013)

The scientific truth frame is the proponents attempt to utilize the master frame of science in the debate over unconventional development. Key terms used in this frame include research, supported by science, unfounded/unsupported, questionable design/methods, and substandard analysis. Proponents also rely on use of "experts" with this frame – for example citing the Stanford geophysicist, "leading scholars", the US

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<sup>12</sup> Gasland is a documentary film by director Josh Fox detailing the negative impacts and regulatory failure of the unconventional development boom, and more specifically hydraulic fracturing.

EPA, US Geological Survey and other “scientific” organizations to support their claims and to denounce the opponents.

### *Summary*

The frames and sub-frames uncovered in the analysis of proponent websites all work together to try and accomplish the goals of the proponents of oil and gas development. They are used to direct the public’s attention toward the aspects of the oil and gas boom that are most favorable to their side. The four frames discussed here do not encompass the entirety of the proponent’s arguments in favor of unconventional development using hydraulic fracturing, but do represent the most dominant of these arguments. Two of these, economic considerations and environmental considerations, are also areas of concern identified in the previous research into the public perceptions of oil and gas development covered in the literature review (Kinchy 2013; Kriesky et. al. 2013; Weigle 2011). The other two, necessity and science, were not identified in this research, although the scientific truth frame was a dominant frame also identified by Matz (2013) as one of the primary frames used by proponents in their discussion of unconventional development.

### OPPONENT FRAMES

The opponent frames of unconventional development using hydraulic fracturing identified from the websites also fall into four dominant frames. These include 1) community impacts, 2) environmental impacts, 3) regulatory problems, and 4) scientific



truth. Non-dominant frames include communication, democracy (including themes of social and environmental justice) and success stories. Unlike the proponent frames where the purpose was to highlight specific positive attributes of the unconventional development process, with the hopes of influencing how the public would subsequently think about the activity; these collective action frames serve the purpose of social movement frames as laid out by Snow and Benford (1988). They fulfill the diagnostic purpose by identifying the problems associated with unconventional development and laying the blame for these at the feet of the industry. The prognostic purpose is fulfilled by identifying potential solutions for the problems they identify, which range from stricter regulations and enhanced enforcement of them to halting unconventional development completely. Finally, they address the motivational aspect by showing how it is up to the public to become active to address these issues.

### *Community Impacts*

Opposition claims within the community impacts frame are the most common of any frame used by the opponents of unconventional development. It has three sub-frames contained within it, which include; public health risks, quality of life, and economic costs.

*Public health risks.* The first opponent sub-frame of the community impacts frame is public health risks. This encompasses claims related to the negative effects of unconventional development on public health, and the health risks of the chemicals used in fracfluids. The effects that exposure of community members to the chemicals

and pollutants are linked to a large list of health impacts on the websites, and as the opponents claim, have been shown to be known effects of exposure to the types of chemicals used in unconventional development. The following quote displays this:

Fracking can release dangerous petroleum hydrocarbons, including benzene, toluene and xylene. It can increase levels of ground-level ozone, a key risk factor for respiratory illness. The pollutants in fracking water can also enter our air when that water is dumped into waste pits and then evaporates. Air pollution caused by fracking may contribute to health problems in people living near natural-gas drilling sites, according to a study by researchers with the Colorado School of Public Health.

Fracking in California, paragraph 9, STFA (2013)

The Earthworks OGAP working group states that they conducted the largest study to date on the effects that living surrounded by unconventional development activity has on resident's health. By conducting a health survey of individuals who live in the oil and gas patch, they claim to have shown that activity of this sort is a public health risk:

It is interesting to note, ... that a higher percentage of those who perceived that they [residents surrounded by oil and gas wells] had problems with water reported symptoms such as diarrhea and skin issues – symptoms that may be associated to ingesting or bathing in water that contains contaminants. Those who perceived that air exposure to gas-related contaminants was a primary concern more often reported severe headaches and throat irritation, which may be associated with breathing in air contaminants.

Issues: Gas Patch Roulette: Differences in symptoms based on respondents with air and water testing, paragraph 4, Earthworks (2013)

Other public health researchers cited on the opponent websites have identified a trend where the closer people live to the wells the more likely they are to experience negative health effects, as seen here:

Researchers found that people who live within a half mile of a fracking well are at a high risk of developing health problems because of the emissions, especially during the well completion period in which fracking fluids and natural gas return to the surface.

Air Pollution near Fracking Wells May Create an Incredibly Long List of  
Health Problems pdf, paragraph 4, STFA (2013)

The purpose of the public health risks sub-frame is for the opponents of unconventional development to show that living near this activity is not benign, as the proponents claim, and actively threatens the health of those residents. Key terms used in this sub-frame include exposure, proximity, toxic chemicals, carcinogens, neurotoxins, and health surveys. Opponents use this sub-frame to argue that there are very real and very dangerous side effects of hydraulic fracturing on the health of the public.

*Quality of life.* The second community impacts sub-frame focuses on the impacts of unconventional development on the quality of life for residents living near the activity. This sub-frame is related to the changes caused by industrial development to the character of local communities, and the change in rural areas due to the activity (e.g. noise, lights and odors). These issues are encompassed in these two quotes which show the various ways that quality of life can be impacted, as opponents state on their websites:

A decline in quality of life may result from: economic issues that arise from energy development (e.g., decline in property values; attorney fees related to negotiations with companies); noise; water well depletion or loss; degradation of water quality; land disturbance and soil erosion; vegetation die-off; the presence of industrial facilities (unsightly buildings and odors); damage to roads; and traffic congestion. ...

Many landowners choose to live in rural areas because they want to live a peaceful life. Oil and gas development, however, can greatly affect the

peace and tranquility of rural areas, and can become a major annoyance to those living close to oil and gas facilities. This, in turn, may affect a person's health and quality of life. Noise from oil and gas development comes from a number of sources: truck traffic, drilling and completion activities, well pumps and compressors.

Landowner Guidebook 2005, pg. I-43-44, STFA (2013)

The opponents of hydraulic fracturing often use the real stories of people living in the vicinity of oil and gas development to support the contentions they make.

Although these are called anecdotal by the proponents, they make a compelling case for the effects that development can have on residents' quality of life. For example, this community resident living in the Eagle Ford Shale region (my region of study), noted:

"My son [Cameron] is 15. We only have a few more special childhood years with him remaining. He and I used to enjoy a long, almost 6 mile walk... we had set a goal of riding 4 miles up to the corner store, eating lunch, and then riding home. We had managed to come very close to achieving this goal, but the traffic has made it impossible to take part in either of these mother and son moments ever again... They have taken what would have been cherished memories and bonding moments away from us. That can't be expressed in words." – Myra Cerny, lives in Karnes County, TX near Karnes City.

Reckless Endangerment – full report pdf, pg. 8, Earthworks (2013)

This second quote is from residents living in the Barnett Shale outside of the Dallas/Fort Worth area, but shows the same effects as those opponents argue are occurring in the Eagle Ford Shale.

My husband Tim, daughter Reilly, and I purchased 10 acres and a wonderful home in Wise County, TX about six years ago. We thought that country life would be the best life for our daughter given her love of animals and nature. We have lived a peaceful life, improving our home when we could and striving to provide the best childhood possible for Reilly. Aruba Petroleum turned that life upside down on August 29th 2009 with no regard for property or human health. We learned shortly after that day that our 10 acres were, unfortunately, a part of the 920

acre Wright lease held by Aruba Petroleum (as was our neighbors). One morning, I saw bulldozer leveling the lawn in front of our neighbor's home. My neighbor called minutes later to say that a gas well was going to be drilled and there was nothing that he could do about it.

Voices: Tim and Christine Ruggiero, paragraph 2-4, Earthworks (2013)

The quality of life sub-frame is used by opponents to argue that the growth of oil and gas development in an area can result in the loss of aspects of the region that are most treasured by the residents, as well as causing changes in the way they live their lives. Key terms of this sub-frames include industrialization of the area, noise/lights/odors, rural atmosphere, driving safety and constraints on movement/travel. The goal of this sub-frame by the opponents is to show that not all changes in a community attributable to oil and gas development are positive.

*Economic costs.* The third community impacts sub-frame is the claim that the expansion of unconventional development harms the local economy in affected communities. Opponents argue this occurs in a number of ways such as; the long and short term costs externalized onto communities by the oil and gas industry, conflicts with other industries, decreases in home/property values, associated decrease in municipal taxes, and increases in cost of living in development communities. These effects are evidenced below:

We [the citizens of the US] need to look at the true cost of fossil fuel extraction and use. What is the ultimate cost to clean up the mess they are making? ... What is the cost of droughts and dying crops when our water supply has been depleted due to withdrawals for fracking operations and increasing planet temperature? What happens when the gasmen come to town? Do we really see increased and improved economic impacts? ... - Hundreds of jobs are not created. Locally there is

actually a decrease in jobs and economic stability.

Blog: Dirty Little Secrets, paragraph 9-10, STFA (2013)

In these hard economic times, promises of huge lease bonuses or taxes to fund local government coffers can sound extremely appealing. But the reality of development is often quite different. And citizens and local governments are too often left wishing they had done more to protect their land, environment, health and communities ... starting from the moment the industry first arrived.

Serve Communities, paragraph 2-3, Earthworks (2013)

In the 1980s, a study on the benefits and costs of oil and gas development to ranchers in New Mexico was conducted [research organization not listed].... The authors of the study discussed the fact that almost all of the cash benefits (an average of \$28,000 over the life of the well) occurred early in the exploration and development process, and that most were one-time payments. Meanwhile, the costs to ranchers averaged \$5,750, per year, for the life of the oil or gas operation. The report concluded that for ranchers not receiving annual royalty payments: it is evident *the rancher is a net income loser if the life of the oil field exceeds six years.* [Italics in original]

Landowner Guidebook 2005, pg. I-41, STFA (2013)

In addition to the above quotes, the STFA website provides a list of liabilities for local communities, including:

- “Lost tax revenues from lost home/property value and from the reduction in industries being pushed out by development, like tourism or agriculture.”
- “The unknown long-term health care costs of those exposed to pollution or chemicals by development.”
- “Community infrastructure costs like repairing roads damaged by heavy truck traffic.”
- “Increased public service costs for services like fire departments, ambulances and hospitals, and law enforcement that are increased as the populations swell.”

It is argued by opponents of unconventional development that one of the common places that individuals living in the oil and gas fields lose financially is through decreased value of their homes and property. The following quote refers to the

Ruggiero family, who live on the Barnett Shale in North Texas, and shows how this can occur.

In September, the Wise County Appraisal Board devalued their property 75%. Originally on the 2010 tax rolls for \$257,330, their home and 10-acre horse property are now worth \$75,240. "I wouldn't sell it for \$78,000" said Patsy Slimp, a board member and former real estate agent. "I could not sell this house in a clear conscience."

Voices: Tim and Christine Ruggiero, paragraph 9, Earthworks (2013)

The economic costs sub-frame is a way for opponents to counter the proponent narrative that the unconventional development boom produces a plethora of positive economic benefits. They are not disputing the positive effects, but rather pointing out the ways in which oil and gas development can also produce negative economic outcomes and increase the costs borne by the local communities and residents. Key terms used to argue this sub-frame include externalized costs, home/property devaluation, cost of living, public services and infrastructure costs. As a whole the community impacts frame encompasses the opponents attempt to focus public attention onto the negative effects of development on the local communities that are often ignored by those outside of development areas.

### *Environmental Impacts*

The second dominant frame discussed on the opponents' websites is that of environmental impacts. In opposition to the proponents' arguments regarding the environment, the opponent sub-frames argue that unconventional development using hydraulic fracturing is not environmentally benign; due to the fact that (1) there are

multiple pathways for environmental damage to occur and that (2) unconventional development is bad for the climate.

*Multiple pathways to environmental damage.* Reading the opposition websites produces a long list of why they consider environmental damage inevitable; this list includes the multiple pathways that exist for contamination to occur, and the need to consider all activities involved with unconventional development holistically. These points are evidenced in the following quotes:

There are numerous potential pathways for contamination of water and air by fracking fluids.

1. The most direct connection is if fracking fluids are injected directly into rock formations that also serve as freshwater aquifers and underground sources of drinking water. According to EPA, there are coalbed methane formations that undergo hydraulic fracturing, but also serve as freshwater aquifers.
2. Fracking chemicals have the potential to migrate, as liquids or gases, from leaky wellbores into adjacent groundwater aquifers. There is the possibility that migration may occur, as well, through vertical and horizontal fractures into groundwater or even to surface water.
3. Even if the fracking chemicals, themselves, do not migrate into groundwater, the hydraulic fracturing operation may change the underground geology in such a way that new pathways are formed that allow hydrocarbons such as methane, and benzene, to migrate away from their original location. Fracturing, which causes mini-seismic events underground, may also introduce more sediment into groundwater aquifers, changing the water quality temporarily, or possibly permanently.
4. A final pathway for contamination is if fracking fluids are spilled onto the ground or into waterways.

Issues: Contaminated pathways, paragraph 5, Earthworks (2013)



The opposition points out that examining the effects of any particular aspect of unconventional development allows for cumulative effects to be overlooked and so all aspects should be considered together when discussing the impacts of unconventional development:

The impacts of “fracking” include all aspects of the oil and gas exploration and development process, including the impacts associated with ingredients such as frack sands, infrastructure such as compressor stations and transportation such as pipelines and liquid natural gas export terminals, as well as impacts that occur during exploration, drilling and hydraulic fracturing itself.

About, paragraph 5, STFA (2013)

The multiple pathways for environmental damage sub-frame is the argument opponents of unconventional development use to highlight the many ways that oil and gas development can negatively impact the environment. Key terms and phrases included in this sub-frame include; damage is inevitable, spills/accidents, leaking/failed well casings, fluid migration, impacts of all related activities, emissions and pollution. The central opponent point being made here is that no amount of precaution or technology can fully prevent development from causing harm to the environment.

*Unconventional development is bad for the climate.* The second environmental impacts sub-frame argued by opponents is that unconventional development is bad for the climate, with a particular emphasis on the release of methane through industrial activity.

Fracking often releases large amounts of methane, a *highly* [emphasis in original] potent greenhouse gas that traps heat at least 86 times more effectively than carbon dioxide over a 20-year period. Fracked shale gas wells, for example, may have methane leakage rates of as high as 9

percent Studies have shown that leakage rates of more than about 3 percent would make burning natural gas in a power plant even worse for the climate than burning coal.

Fracking in America: 10 Key Questions, paragraph 8, STFA (2013)

Methane is a potent greenhouse gas – more than 72 times as harmful as carbon dioxide according to the Intergovernmental Panel on Climate Change -- that is often simply released to the atmosphere during oil and gas development.

Blog: Begging data from the oil and gas industry, paragraph 3, Earthworks (2013)

The opposition argues that pursuing fossil fuel extraction from unconventional resources is merely a way for the oil and gas industry to delay the necessary transition to renewables sources of energy and only serves to produce more CO<sub>2</sub> when it is used, which only serves to exacerbate the climate change situation. This is expressed on the STFA site thusly:

As climate change grows increasingly dangerous, fracking only postpones our necessary transition to an economy that doesn't depend on fossil fuels. The real path to energy independence is through investments in clean-energy technology that we can develop here at home.

Fracking in America: 10 Key Questions, paragraph 20, STFA (2013)

The unconventional development is bad for the climate sub-frame is argued by opponents to show that the boom in unconventional development only serves to exacerbate what may be the biggest danger facing modern society, climate change. Key terms used to argue this sub-frame include; fugitive emissions, methane leaks, greenhouse gas (GHG), detracting from renewables, delaying transition off of fossil fuels, and more potent than CO<sub>2</sub>.

### *Regulatory Problems*

The third dominant frame argued by opponents is that of regulatory problems. This frame pertains to opponent arguments regarding the ineffectiveness of the current regulatory structure and the need for new regulations. The regulatory problems frame consists of claims regarding the insufficiency of current regulations, industry exemptions from federal environmental laws, how current regulations are not being enforced, how regulating agencies have a conflict of interest which has produced a situation of regulatory capture, and the need for new regulations. One of the major points made by the opposition is that the majority of problems that result from unconventional development using hydraulic fracturing result from problems with the regulatory system. These ideas are summed up well in these two quotes:

Without exception – rules governing oil and gas development are inadequate to protect the public. What rules there are, are inadequately enforced.

Reckless Endangerment Summary pdf, pg. 1, 2, Earthworks (2013)

The oil and gas industry is exempt from key provisions of seven major federal environmental laws ... allowing practices that would otherwise be illegal. Some exemptions date back decades. Others were adopted as recently as 2005. While states and tribes have tried to fill the gaps with their own rules and regulations, they vary widely in effectiveness and enforcement. Federal laws provide consistent standards that equally protect all Americans. That's why it's essential to reverse these federal loopholes.

Library: Loopholes for polluters, paragraph 1-2, Earthworks (2013)

The issue of regulating agencies being subject to conflicts of interests and regulatory capture are extremely important to opponents of unconventional development. In most states regulating agencies hold the dual roles of promoting

industrial development as well as maintaining the safety of these operations.

Opponents argue that these two goals are conflicting in that often times protecting the public means slowing or stopping development, which is directly counter to their other mandate. The opposition claims that this can produce situations where regulators are forced to choose between protecting the public and environment or maximizing production, and that they often choose what benefits the oil and gas industry over the public good, as shown in these quotes:

A new report released today, September 19th, provides an important window into a disturbing national pattern regarding the oversight of fracking-enabled oil and gas development: regulators charged with protecting the public, are actively avoiding evidence that fracking is harming the public. The report focuses on Karnes County, TX in an attempt to illuminate a growing national pattern of absentee regulators. Media, News report: Fracking pollution sickens residents in TX, regulators walk away, paragraph 1, Earthworks (2013)

We have compiled and collected data on the serious health effects of gas drilling, hydraulic fracturing (e.g., fracking) and production on Texans throughout the Barnett Shale; water contamination and depletion; air pollution and other impacts. We have also documented that the state's present regulations, laws and enforcement policies are far too weak. Not only are the resources for dealing with the health and environmental impacts of gas production insufficient to meet the scale of the boom, but state regulators consistently downplay the risks, take sides with industry against landowners, and respond to complaints feebly, if at all.

Library: Natural Gas Flowback: The dark side of the boom, paragraph 2, Earthworks (2013)

This situation where the dual goals of these regulating agencies come into conflict is exacerbated by the influence that the oil and gas industry has over both the regulating agencies and the state governments that oversee them. In some cases the

state governments have actually sided with the oil and gas industry against their own regulators, as seen here:

At one point, state regulators seemed poised to take a more active role overseeing the state's extreme energy rush. When an oil field worker was sucked underground and boiled alive in a grisly accident at a steam extraction site, Elena Miller, of the state agency in charge of regulating the industry—Division of Oil, Gas, and Geothermal Resources (DOGGR)—moved to clamp down on the practice. She and her boss Derek Chernow, the acting director at the state Department of Conservation, held up drilling permits in order to get more information from the industry. After the industry complained, however, Miller and Chernow were both fired by Gov. Jerry Brown. Miller's replacement, Tim Kustic, has proved a far less conscientious regulator.

Extreme Energy: Out of control out West, paragraph 10-11, STFA (2013)

The regulatory problems frame is used by opponents to highlight the failure of governments, local and national, to protect the population from the negative impacts of industrial activity. Their argument primarily focuses on the ineffectiveness of current regulations and the insufficiency of enforcement efforts. Key terms used to argue this sub-frame include conflict of interest, regulatory capture, legal exemptions, enforcement, regulations and oversight.

### *Scientific Truth*

The fourth dominant frame found in the analysis of opposition websites is that of scientific truth, which is also used as a base for previous frames in that science is used to support claims of negative health impacts and environmental damage. This frame includes two sub-frames; scientific support and lack of knowledge.

*Scientific support.* Scientific support focuses on claims that the “valid” scientific research on hydraulic fracturing supports the opposition arguments that this activity is unsafe and produces a variety of negative impacts. This is illustrated in the quotes below:

The largest health survey to-date of Marcellus Shale residents living near oil and gas development shows a clear pattern of negative health impacts associated with living near gas facilities, according to a new report released by Earthworks’ Oil & Gas Accountability Project today. ... For too long, the oil and gas industry and state regulators have dismissed community members’ health complaints as ‘false’ or ‘anecdotal’.” said Nadia Steinzor, Earthworks’ Eastern program coordinator and the project’s lead author. She continued, “The industry tries to shift blame onto residents themselves or onto any other possible source than oil and gas facilities, now we know better. With this research, they cannot credibly ignore communities any longer.”

Media: New research links health problems with oil and natural gas development, paragraph 1, 5, Earthworks (2013)

A recent study points to underground injection as a key factor in a 5.7 quake outside of Prague, Oklahoma, that did hundreds of thousands of dollars’ worth of damage to local homes. Scientists also concluded that a series of earthquakes in Youngstown, Ohio, were induced by underground wastewater injection.

Fracking in America: 10 key questions, paragraph 11, STFA (2013)

Just as the proponents, opponent websites also used examples to show that the studies proponents use to support their claims do not constitute good scientific research. The opponents claim that the oil and gas industry spin and misuse scientific findings to argue in favor of unconventional development. For example, one study where opponents claim that the industry does this regularly is with the 2004 EPA study of the effects on groundwater of hydraulic fracturing. They point to several problems with this study, including claims of unsupported conclusions:

A 2004 EPA study of hydraulic fracturing in coalbed methane wells concluded that hydraulic fracturing "poses little or no threat" to drinking water and that no further study was necessary. There have been many criticisms of this study as being insufficient and scientifically unsound—in fact, an EPA whistleblower noted that the conclusions were "unsupportable" and that some members of the study's review panel had conflicts of interest. It is also critical to note that the study only considered coalbed methane wells, not shale gas plays or other locations where hydraulic fracturing takes place.

Library: Hydraulic fracturing and the FRAC act": frequently asked questions, paragraph 20-21, Earthworks (2013)

Another problem opponents point to is that the oil and gas industry often select the well sites where these studies are performed, rather than randomly selecting them as is required for a truly scientific study.

The AP today reports that a "landmark" study of **one** [emphasis in original] fracked well shows that, over a year's time, it did not contaminate groundwater. We're very glad this is the case, especially for the neighboring community. ... The fact that one well didn't contaminate groundwater doesn't prove that fracking is safe. No one has ever claimed that every instance of fracking pollutes groundwater. As any statistician worth their salt will tell you, a sample size of one does not a valid study make.

Blog: One fracking test does not safety make, paragraph 1-3, Earthworks (2013)

A report released in 2013 by the Environmental Defense Fund where they partnered with the natural gas industry to measure the emissions of methane that occurred during the completions of 27 gas wells is identified for the lack of sound scientific methods.

**What is most notable about today's report is that the methane measurements were all made at sites offered by the industry participants – they were not a random sample of typical gas well sites** [bolded in original]. Participating companies cherry-picked sites for the study, and the scientists went and studied them.

Blog: Why the new EDF report doesn't mean natural gas is a climate friendly fuel, paragraph 6, Earthworks (2013)

The scientific support sub-frame is the opponents attempt to link their arguments with the master frame of science, and thus to show that their claims, and not the proponent's, are the ones supported by the legitimate research in the area. Key terms used in this frame include research shows/supports/implies, study design/methods, misuse/misrepresents, flawed analysis, unsupportable and unfounded.

*Lack of knowledge (Uncertainty).* In addition to the issues with scientific studies, lack of research and knowledge is a second sub-frame within the scientific truth frame and consists of claims regarding the need for more scientific research to fully understand both the short and long term impacts of industrial development. The way the lack of information is claimed to effect scientific studies is shown below:

The primary reason that public health risks posed by increasing gas development are disputed:

- A lack of established science. Widespread scientific investigation has only recently begun to investigate the relationship between gas development and public health impacts.

Library: Gas Patch Roulette, summary report, paragraph 2, Earthworks (2013)

It is difficult to implicate fracking with absolute certainty because in most states there is no law requiring hydrofracturing companies to disclose the proprietary chemicals they use, Oswald [a researcher investigating the effects of exposure to chemicals used in hydraulic fracturing] said. Nondisclosure agreements similarly prevent a thorough investigation of all possible data, he said. "That's where we hit the wall as researchers," Oswald said, "and where others doing health research will hit the wall too."

Catskill Citizens: Get the facts, paragraph 8-9, STFA (2013)



The opponents also claim that the lack of scientific information is one of the main reasons that the oil and gas industry is able to deny or downplay the occurrence of negative impacts.

Too often citizen testimonies of health effects or evidence gathered by citizens, as in this report, are dismissed as anecdotal evidence and as long as each case is treated as an isolated incident the larger pattern is ignored. But when so many citizens across almost two dozen counties report similar complaints and symptoms associated with gas drilling, something is wrong. More thorough research is needed to determine if drilling and fracking can be done more safely and under what conditions and locations they should or should not be permitted. At the same time immediate action is warranted to protect public health and the environment.

Library: Natural gas flow back: the dark side of the boom, paragraph 3,  
Earthworks (2013)

The lack of knowledge sub-frame is representative of opponent arguments that, as a society, we lack the understanding necessary to make informed decisions in regard to unconventional development. Key terms in this sub-frame include lack of knowledge/research, incomplete understanding, short-term vs long-term impacts, and denial. The opposition movement uses this sub-frame to draw attention to the incomplete nature of our current state of knowledge regarding hydraulic fracturing and unconventional development.

## DISCUSSION

The website analysis reveals various answers to my first research question: what conceptual frames are used by proponent and opponent organizations in the discussion of unconventional development utilizing hydraulic fracturing? As shown in table 2 and

as previously discussed, four dominant frames emerged for each side. For Proponents these include: for proponents; economic impacts, environmental impacts, necessity, and science. For the opponents these include; community impacts, environmental impacts, regulatory problems, and scientific truth. The non-dominant frames are also displayed in this table to show how the frames used by one side compare to the frames used by the other.

These findings are both similar and different from previous research on hydraulic fracturing, in several distinct ways. First, one of the most noticeable aspects of the frames used by interest groups in the debate over unconventional development is the way that those used by the proponents and opponents tend to parallel each other. This supports Maesele's (2011) findings where he argued that proponent and opponent interest groups in the GMO debate set their frames up in such a way as to oppose the framing of the issue used by the other side. Two dominant frames identified in my study were the same for both groups; environmental impacts and scientific truth. Within these frames, the arguments made by each side tended to counter the other, suggesting that as the debate over the use of hydraulic fracturing grew and took shape, the interest groups were attentive to the claims made by the other side and crafted their arguments in a way to explicitly oppose these claims and to offer an alternative interpretation.

For example, the most dominant frame used by the proponents of development was that of economic benefits, with a specific focus on the jobs created and the way

development positively affected the broader economy. While the opponents of development did not have a frame that directly countered the claims made here, they did highlight that not all of the economic impacts were positive and point out the many ways that oil and gas development can have a negative impact on communities in development regions. The major argument is that the oil and gas industry externalize many of the costs associated with development, such as damage to infrastructure and additional stress on social services, on to the communities they operate in. The opponents also argue that the economic gains that are produced by the increase in industrial activity rarely are sufficient to cover the additional costs imposed on the community.

We also see the parallel frames occurring with the environmental impacts frame. Here the sub-frames used by both sides directly counter each other. The proponent sub-frame of continual improvement, which focuses on industrial efforts to improve their environmental footprint, is countered by the opponent sub-frame of multiple pathways to environmental damage, which argues that no amount of improvement or advanced technology employed by the oil and gas industry can fully prevent all environmental harm due to the fact the human error and technological failures will still occur.

Table 2. Interest Group Frames

Dominant Frames and Sub-frames <sup>13</sup>			
Proponent Frames	Sub-Frames	Opponent Frames	Sub-Frames
Economic Impacts	Jobs	Community Impacts	Public Health Risks
	Broader Impacts		Quality of Life
Environmental Impacts	Continual Improvement		Economic Costs
	Climate Benefits	Environmental Impacts	Multiple Pathways
Necessity	Daily Life		Bad for Climate
	Energy Security	Regulatory Problems	
Scientific Truth		Scientific Truth	Scientific Support
Strong Regulation			Lack of Knowledge
Nationalism		Communication	Non-Transparency
Communication	Transparency		Misinformation
	Normalization	Democracy	
	Opposition Movement	Success Stories	
Concerned with Communities			

The second sub-frame regarding impacts on the climate also parallel each other.

Proponents claim that through the use of the natural gas provided by unconventional development, the climate actually benefits because less CO<sub>2</sub> is released when it is burned. Opponents do not dispute that natural gas releases less CO<sub>2</sub> when used, but

<sup>13</sup> Frames are organized in descending order of dominance.

claim that this ignores the other aspects of the development process, where methane can be released directly into the atmosphere.

A final dominant frame for both interest groups was the use of “science.” The scientific truth frame is unique in that both sides use it in nearly the same way; to support their arguments and to discredit opposing arguments. This is most often done through dueling results from different scientific studies. Each side points to research that has produced results that support their claims, and yet each side typically claims that the research used by the other is flawed in some major way, and thus discredited. Perdue (2008) identified science as one of the dominant frames used by proponents of GMOs, but did not find it as a dominant frame for those opposed to GMOs. One extremely interesting finding from this frame is that each side views research where the other side was a participant as biased by their participation, and yet each views the research that they participate in as unbiased. This double standard from both sides implies that they will never acknowledge research opposing their orientation as valid.

The literature on message framing tells us that the goal of framing is to make certain aspects of reality more salient than others (Entman 1993). This is a major component of the framing chosen by proponent and opponent groups in their communications regarding unconventional development. Each side clearly has a specific purpose in their communications regarding unconventional development, which is to convince the public that their views are the ones that should be accepted. To achieve this they focus their messages on aspects, or attributes, of this development and its

impacts that have the greatest possibility of convincing the public that their arguments should be accepted.

According to the work of Diani (1996), the most effective way of gathering public support for the views of an interest group is by connecting their framing of the issue to cultural master frames which are widely accepted in society. That this was also found in the current analysis was unsurprising, based on Diani's (1996) findings of and the work of Hall and White (2008). Three of the four dominant frames employed by each side could be argued to be master frames in American society. The proponent frame of economic impacts definitely could be a master frame in capitalistic societies, as it pertains to the growth of the nation's (or region's) economy; as one of primary goal of capitalism is to make money. Additionally, a recent national Gallup (2014) social series poll showed that a majority of the population (88%) worried about economic concerns a "great deal" or a "fair amount," a result that adds strength to the argument that economic frames are master frames in our society.

Similarly, the opponent's community impacts frame could also possibly be considered a master frame because it relates to the American ideal of positively contributing to one community and society in general. Two of these three sub-frames (quality of life and economic costs) are closely related and many impacts of development affect both the quality of life of the residents and impose additional costs on the community. A good example of this interaction is seen in the effects of the boom on social services or local infrastructure. The increased strain caused by the boom on

something like housing means that the quality of life of some residents is affected by the lack of available housing AND that those that are able to secure housing must also absorb the cost of increasing rents. In a case like this, the sub-frames are identified by whether the reference was made to the effect on people's lives or to the economic effects on individuals or the community.

While not as predominant in our society as economic or community concerns, concern about the environment can be argued to have become a master frame to a large portion of our population over the past several decades. The 2014 Gallup social series also showed that 66% of respondents were concerned "a great deal" or "a fair amount" about the quality of the environment. Both the proponents and opponents of development capitalize on the nation's growing concern for the environment by highlighting different aspects of the way oil and gas development affect the environment. The opponents try to focus the public's attention on the negative impacts that the oil and gas industry have on the environment; whereas the proponents try to focus attention on the many ways that the oil and gas industry have improved their environmental performance as compared to the past, and to the environmental benefits of using natural gas instead of other fossil fuels.

The scientific truth frame can also be viewed as a master frame due to the fact that many, if not most, people in modern society look to science to provide factual answers to questions about the world. According to Gauchat's (2012) study the cumulative data from the General Social Survey (GSS) from between 1972 through 2010

showed that 87% of Americans surveyed “some” or a “great deal” of trust in science. This shows that many in modern society view science as the best source for reliable facts about the world, which makes the ability of interest groups to use science to support their claims all the more important when trying to gain wide spread acceptance of their views. Whether or not science is capable of truly providing unbiased and irrefutable answers to people’s questions is debatable, but beyond the scope of this project; what is important is that people look to science for answers. Because of this belief that science is the best method of producing facts, both sides rely on the result of scientific research to support their other contentions. This can be seen in the way that each group regularly makes reference to studies that support their claims or that refute the claims made by the other side. This frame is centrally important due to its role as providing support to the rest of the arguments used by proponents of unconventional development.

Several of the frames identified in this research were consistent with the frames identified by Matz (2013) in his website analysis of the energy in-depth website. His first frame, patriotism, was seen on the proponent websites (although I labeled it nationalism) but was not dominant enough to be discussed in depth. His second frame, green-wash, referred to attempts by the oil and gas industry to appear environmentally sensitive or benign. This is very similar to the way the proponent websites use the environmental impacts frame to portray the industry as concerned about the environmental impacts of their activity and as working to reduce these impacts. His



third frame, scientific imagery, is directly transferable to the scientific truth frame identified in this research; in that both show how science is used to support the contentions they make. His fourth and final frame, delegitimization of opposition, was also identified to be used on the proponent's websites. I viewed this as a sub-frame within a larger communication frame, which was not a dominant frame in my analysis.

Differences in the websites chosen may explain the differences between my findings and those of Matz (2013). In his study he analyzed a single proponent website, *Energy in Depth: Northeast Marcellus Initiative*, which is a site comprised primarily of blog posts, whereas I sampled two proponent websites, API and ANGA, which are both oil and gas industry trade associations. Each of these websites fulfills a different purpose for the oil and gas industry. Matz identified the primary purpose of the *Energy in Depth: Northeast Marcellus Initiative* website as being of public relations (PR) nature. This is different than the trade association websites, where although they do have a PR component they have a much broader focus on education and promoting their role as an organization. Additionally, blog posts are typically singular, short articles written by various authors focused on putting real world occurrences and putting topics into a perspective supporting a particular view, and are not necessarily interconnected beyond their focus on similar themes. This is quite different than the trade association websites where they are attempting to provide a complete picture of development activity in a way that supports their perspective.

In conclusion, the theoretical aspects of framing and the expectations drawn from these theories were largely confirmed by the analysis of interest group websites in the debate over unconventional development. Frames were used in the expected manner, and were shown to be connected to widely accepted societal values, as would have been predicted by the theoretical work of framing researchers (Benford and Snow 2000; Diani 1996; Ettema 2005). Additionally, the dominant frames identified in this research offer support to the findings of Maesele (2011) in that they appear to parallel the dominant frames used by opposing sides in his research; and to the some extent are similar to frames identified by Matz (2013) in his work.

I now turn to analysis of the regional newspapers, to examine the dominant frames used in articles covering hydraulic fracturing and unconventional development in the Eagle Ford Shale region of South Texas.

## CHAPTER V

### NEWSPAPER ARTICLE FINDINGS AND ANALYSIS

#### INTRODUCTION

In this chapter I present results from the content analysis of newspaper articles' frames in the coverage of unconventional development and its impacts in the Eagle Ford Shale region of South Texas. I first present and compare the frequency of the use of proponent, opponent, and balanced frames. I then highlight the proponent and opponent frames that are used most heavily in the sampled articles, providing quotes from the articles as examples to show how they are used. I then examine the way in which frame usage in the sampled articles changes over time. I conclude by comparing the way proponent and opponent frames are used similarly and differently by each of the two sampled newspapers and discuss how my findings compare to previous research.

Of the sample of newspaper articles (N=200), 97 (48.5%) primarily utilized proponent frames in the story coverage, 42 (21%) primarily utilized opponent frames, 18 (9%) used proponent and opponent frames in a balanced way.<sup>14</sup> Again, the focus of the coding was on whether the articles employed either proponent or opponent (or

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<sup>14</sup> 30 articles (15%) of the sample presented coverage of general industry activity, and 13 (6.5%) did not utilize proponent or opponent frames. These articles were not included in the final analysis. The full sample N, adjusted accordingly, is 157 and this N is used from henceforth.

other) frames, not if the articles were explicitly pro or anti-development. I begin by presenting the dominant proponent frames found in the newspapers.

## PROPONENT FRAMES

A complete list of proponent frames used as the main framing of articles is given in table 3. Of the readjusted N (157), 52.9% of the sampled articles focused on proponent frames in their coverage of oil and gas activity in the Eagle Ford Shale. Of these frames, one in particular dominated; that of economic benefits, specifically broader economic impacts and jobs. The second most commonly used frame is the environmental impacts frame, where the continual improvement sub-frame was the most common.

### *Economic Benefits*

The economic benefits frame accounted for the dominant frame used in 52.9% of all sampled articles and 85.6% of all proponent framed articles. When frames used in the balanced articles are included, this frame is used in 59.9% of all sampled articles. The broader impacts sub-frame is used in 68% of the proponent framed articles and 42.0% of the entire sample; while the jobs sub-frame accounts for 17.5% of proponent framed articles, and 10.8% of the total sample.

Table 3. Dominant Proponent News Frames

Total Pro-Development Articles Dominant Frame (DF) Used									
Proponent Frames	Sub-frames	Total SAEN* (n=100)	Total LMT* (n=100)	Combined Total	DF as % of Pro- Develop- ment Articles	% of Proponent DF in Sample (N=157)	DFs Used in Balanced Articles	DF Use Total (Pro + Balanced)	% of Sample (N=157) (Pro + Balanced)
Economics		39	44	83	85.6%	52.9%	11	94	59.9%
	Broader Impacts	33	33	66	68.0%	42.0%	0	66	42.0%
	Jobs	6	11	17	17.5%	10.8%	11	28	17.8%
Environment		5	3	8	8.2%	5.1%	1	9	5.7%
	Continual Improvement	4	2	6	6.2%	3.8%	0	6	3.8%
	Climate Benefits	1	1	2	2.1%	1.3%	1	3	1.9%
Necessity		3	0	3	3.1%	1.9%	0	3	1.9%
	Energy Security	2	0	2	2.1%	1.3%	0	2	1.3%
	Modern Life	1	0	1	1.0%	0.6%	0	1	0.6%
Community	Concern	0	2	2	2.1%	1.3%	0	2	1.3%
Science	Support	1	0	1	1.0%	0.6%	0	1	0.6%
Regulations	Strong	0	0	0	0.0%	0.0%	2	2	1.3%
Nationalism		0	0	0	0.0%	0.0%	0	0	0.0%
Total Articles in Category		48	49	97	100.0%	61.8%	14	111	70.7%

\* SAEN: San Antonio Express News, LMT: Laredo Morning Time

*Broader Impacts.*

The broader impacts sub-frame is used in reference to economic impacts beyond the job market and includes references to economic growth in the shale region, taxes collected by local governments, and growth in economic areas supporting the oil and gas boom, as shown in the following quotes:

Wherever oil and natural gas comes out of the ground, plenty of people make money, from the landowners and investors to the drilling equipment companies and crew workers. So do the companies that provide services to those people. (SAEN 2011)

Webb County has seen sales tax revenues jump 25 percent this summer over the same time a year before, putting the county on pace to surpass its peak of \$12.8 million in revenues in 2008. The county has also reported a 28 percent increase over 2010 in revenues from the motor vehicle sales and use tax. County officials say at least part of the growth in those revenues can be attributed to activity related to oil-and-gas drilling on the Eagle Ford Shale. “The activity with the Eagle Ford Shale, people staying here for various events, I think all of those are factors that have contributed to this increase,” said County Judge Danny Valdez. “I think 2012 is going to be a fabulous year for Webb County, and I think a lot of people have been very optimistic,” said County Tax Assessor-Collector Patricia Barrera. “Eagle Ford is responsible for that.” ... Other South Texas counties on the shale play have seen significant growth in sales tax revenue as well. Dimmit and Karnes counties have both collected more than \$1.6 million in sales tax revenues this year — more than four times all sales tax revenues from 2009 in either county. Silver Vasquez, a spokesman for Chesapeake Energy, said oil-and-gas drilling on the recently developed play has had a big impact on local government coffers. (Kreighbaum and Fitzgerald 2011)

The references to the regional economic growth were discussed both by articles providing general information about the total economic contributions of the Eagle Ford Shale and growth affecting specific areas near the shale.

In total, county governments impacted by the lucrative fracking industry earned about \$1 billion from the oil and gas industry last year. The study estimates continued growth, with the industry's economic impact increasing from about \$61 billion to almost \$90 billion by 2022. (Rodriguez 2013a)

A 1,000-acre rail yard is in the works just south of San Antonio — part of a South Texas railroad boom that's followed the surging oil and gas activity in the Eagle Ford Shale region. ... Plans call for the site, [near a local town] to be a center for oil field service companies working in the Eagle Ford, shipping anything from sand for hydraulic fracturing to crude oil. (Hiller 2013a)

The broader economic impacts sub-frame was the most common frame or sub-frame to appear in the coverage of unconventional development and was used more than three times as often as the jobs sub-frame, which was still used more than twice as often as the environmental frame. Key terms seen in the sampled articles that identify them as using the broader economic impacts sub-frame include; making money, tax revenues, continued growth, economic impacts, and surging activity.

*Jobs.* The jobs sub-frame is used in the articles to show the effect that the unconventional development boom has had on unemployment rates and the number of jobs it has produced. This is displayed in the following quotes from the sampled articles.

The number of U.S. energy workers has grown by 143,000 in the last four years. Data from the Bureau of Labor Statistics show that the workforce is up 41 percent through July 2013. ... Paul Caplan of Rigzone says the growth “outstrips anything” happening in other industries, and any previous post-recession growth in the oil and gas field. (Hiller 2013d)

Laredo's unemployment rate dropped by half a percentage point to 7.7 percent in October, according to the latest figures from the Texas Workforce Commission. Texas as a whole had a jobless rate of 8 percent in October. ... Miguel Conchas, president of the Laredo Chamber of Commerce, said the job growth could likely be attributed to Mexican shoppers fueling the retail sector and the development of the oil and gas-

rich Eagle Ford Shale. ... According to data from the workforce commission, Texas has added 43,300 jobs in mining and logging, which includes the energy industry, since October 2010. (Kreighbaum 2011e)

Key terms used to code articles as using this sub-frame include; jobs, employment, unemployment rate, workforce, job growth, and hiring. In addition, the economic impacts sub-frames of broader economic impacts and jobs are interrelated and appear together in 44 articles or 45.4% of the proponent framed articles (28% of the entire sample). This is due to a feedback relationship between the two variables; economic growth typically produces more jobs in a region, while greater availability of better paying jobs can provide residents with more disposable income which in turn goes back into the economy. This interrelatedness is apparent in the following quotes:

An economic impact study from the University of Texas at San Antonio found that by 2020, the Eagle Ford Shale is expected to create \$21.6 billion in economic activity and support more than 67,000 full-time jobs across the state. (Kreighbaum 2011d)

Anadarko Petroleum Corp., a major player in the Eagle Ford Shale, has begun construction on a natural-gas processing plant in La Salle County, a company spokeswoman said this week. ... Anadarko's plant "is a good deal all around," said Leodoro Martinez Jr., executive director of the Middle Rio Grande Development Council, based in Carrizo Springs. "First of all, there's the actual construction, and the fact that they're investing — and that will go on the tax rolls," he said. When the plant is completed, it will create permanent jobs, and "the permanent jobs are starting to add up," Martinez said. "These are good-paying jobs that cause people to move into communities." (Vaughan 2012b)

### *Environmental Impacts*

While the second most dominant frame is the environmental impacts frame, it was not used heavily in the South Texas newspapers, appearing in just 8.2% of



proponent framed articles and 5.1% of the total sample. This frame was used in articles that highlighted the way that the oil and gas industry are continuously improving their environmental performance.

*Continual improvement.* The continual improvement sub-frame is the only one to appear with regularity in the sampled articles and shows the reader that the oil and gas industry care about the environment by emphasizing the improvements in the production process that have been made to reduce their environmental impacts. This sub-frame was used in 6.2% of the proponent framed articles and 3.8% of the total sample. While there are many ways that a company can improve their environmental performance, the most commonly cited topic is the use of water recycling technologies.

This is shown below:

A Texas water recycling firm announced Thursday it had reached an agreement to place two water treatment units in [a town] to recycle water used in hydraulic fracturing operations. ... The deal ... could lead drillers throughout the Eagle Ford counties to recycle and conserve water in their operations. (Kreighbaum 2011b)

There's a lot of talk of treating and reusing water in the oil field. ... Treating wastewater near the well sites lowers the cost and limits the traffic and environmental impact of trucking water to disposal wells that may be far away in other counties, the company [Purestream Services] said. ... The treated water can be discharged and is "cleaner than U.S. drinking water quality standards. (Hiller 2013c)

The focus of the authors on the implementation of water recycling technologies is fitting as Texas has been in a state of extreme drought for a number of years (National Oceanic and Atmospheric Administration 2014). Key terms appearing in the articles

utilizing this sub-frame include; drought, water recycling, conserving water, treating/reusing water, and water use.

#### OPPONENT FRAMES

A full list of opponent frames used as main frames is given in table 4. The most dominant opponent frame found in the articles focused on the negative impacts of unconventional development was that of community impacts. This frame appeared in 64.3% of opponent framed articles and 17.2% of the whole sample. When balanced articles are included in the count it appears in 23.6% of the sample. The second most common opposition framing involved the use of the regulatory problems frame. This was followed closely by the environmental impacts frame.

#### *Community Impacts*

The most common opposition framing involved the use of the community impacts frame. This frame accounts for 17.2% of the frames used in the entire sample and 64.3% of the opponent framed articles. When the balanced articles are included it appears in 23.6% of the sample. Three sub-frames, road and traffic issues, quality of life and economic costs, account for the majority of the community impacts frame. The roads and traffic issues sub-frame alone drives the majority of this frame, accounting for just less than 2/3 of the frame categories use. It appears in 40.5% of the opposition framed articles and 10.8% of the entire sample (12.7% when balanced articles are included). The quality of life sub-frame is used as the primary frame in 9.5% of the

opposition framed articles and 2.5% of the total sample of articles (this increases to 3.2% when balanced articles are included) while the economic costs sub-frame is also the primary frame used in 2.5% of the total sample, and 9.5% of the articles using opponent frames (although its greater use in balanced articles brings this to 5.7% of the sample when balanced articles are included).

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	Continual Improvement	4	2	6	6.2%	3.8%	0	6	3.8%
	Climate Benefits	1	1	2	2.1%	1.3%	1	3	1.9%
Necessity		3	0	3	3.1%	1.9%	0	3	1.9%
	Energy Security	2	0	2	2.1%	1.3%	0	2	1.3%
	Modern Life	1	0	1	1.0%	0.6%	0	1	0.6%
Community	Concern	0	2	2	2.1%	1.3%	0	2	1.3%
Science	Support	1	0	1	1.0%	0.6%	0	1	0.6%
Regulations	Strong	0	0	0	0.0%	0.0%	2	2	1.3%
Nationalism		0	0	0	0.0%	0.0%	0	0	0.0%
Total Articles in Category		48	49	97	100.0%	61.8%	14	111	70.7%

\* SAEN: San Antonio Express News, LMT: Laredo Morning Time

*Road and traffic issues.* The road and traffic issues sub-frame was not found in the website analysis, because these issues were included in the quality of life and economic costs sub-frames. On the opponent websites infrastructure issues were rarely mentioned, whereas in the articles they are heavily used and encompass one of the most visible and widespread negative impacts of the growth of unconventional development, the way it damages roadways and increases the danger faced by residents driving on them. For this reason they were designated as their own sub-frame, within the community impacts frame.

But there's something more than just traffic crowding the town's streets these days. There's fear. "You take your life in your own hands by being out on the road right now," Karnes County Sheriff David Jalufka said. Karnes is one of more than a dozen counties inundated with traffic from the Eagle Ford Shale energy boom. In the past six months, Karnes County alone has seen 12 people die in traffic accidents, according to Jalufka. That's 12 times the number of fatalities reported to the Texas Department of Transportation in 2008, just as oil and gas drilling started to take off. (Konnath 2012)

According to Dr. Thomas Tunstall, director of community and business research at the University of Texas at San Antonio, repaving one mile of road costs about \$250,000. Tunstall said though counties like Webb gain sales and appraisal taxes from oil and gas production, those funds may not balance the costs associated with supporting the industry. "I think it's just probably not realistic for a lot of these cities and counties to repair a lot of road damage because even if (revenues) are up, they're not up enough to cover (costs) like that," Tunstall said. (Rodriguez 2013b)

A fiery Sunday morning accident that killed a 26-year-old truck driver and injured another just south of this town is the latest reminder that the oil boom has brought more than economic prosperity to South Texas. Truck crashes, traffic and long commutes have woven their way into the fabric of daily life in once-quiet McMullen County, about 60 miles south of San Antonio. (Hiller 2012a)

The heavy use of the road and traffic issues frame in the newspaper coverage of the impacts of unconventional development is reflective of the desire of news outlets to focus coverage on tangible episodic events. And represents the most visible and pervasive of the negative impacts that industrial activity is having on these communities. Key terms found in articles using this frame include safety, roads, traffic, fear, traffic accidents, deaths, damage, and cost of repair.

*Quality of life.* The quality of life sub-frame is used to show how development has affected the lives of those people living in areas experiencing development. The ways that development can affect the quality of life of community residents can vary, but often focus on how the boom has added stress to residents' daily lives or the way they experience life in the community, as shown in these quotes:

Since the oil boom began two years ago, Carrizo Springs' schools have been seeing a more transient student population, a higher number of children of single parents and more homeless students. The number of homeless students in the district has risen to 200 today from 87 a year ago, Dobie said. Part of that is because the district classifies students living in RVs as homeless. And more students are living in RVs because rising rents — as much as \$1,800 to \$2,000 a month — have pushed out more longtime residents. ...

The San Antonio Food Bank, which covers 16 counties, including many in the shale, is seeing a rising number of requests for food, said Jose Patterson, director of strategic workforce development. The food bank had been receiving an increasing number of requests for food every day. Many of the requests come from families and seniors in the Eagle Ford Shale who are struggling with higher prices for housing and services, he said. (Vaughan 2012c)

The company, Texas Energy Services, operates a saltwater disposal site in San Ygnacio where saline fluids that have been used in the oilfield are injected into a well to prevent runoff. Residents said the facility can produce a foul odor depending on the direction of the wind, but that it

would be nothing compared to what the company had been proposing [a new surface waste disposal facility]. The chief executive officer of the company, John Crisp, countered many of the points made about the risk of contamination, but didn't deny the waste site could produce an "irritable" smell. (Velasquez 2012b)

The quality of life sub-frame focuses the reader's attention on the ways that oil and gas development can alter the daily lives of residents in the communities experiencing it. This can occur in many ways such as increases in the homeless populations in the area, stresses on local services like schools and hospitals, increased reliance on services for the financially impaired, as well as changes to the way they experience the environment in the region. Key terms used in articles using this sub-frame include; homelessness, student populations, housing services, and irritable odors.

*Economic costs.* The economic costs sub-frame is used to display the additional costs imposed on communities by the boom in unconventional development. The costs that are imposed on the communities experiencing oil and gas development can vary, as the influx of people and businesses can affect many area finances, from loss of individuals' incomes to effects on the areas' other economic activities. This is shown in the following quotes:

Offering deer leases or guided hunts has been a way that ranch owners have been able to pay the bills and keep their properties intact over the years. ... In some other cases, the mineral ownership and the surface ownership have been split, which can leave someone with a hunting property with all of the hassle and none of the benefit of oil and gas production. (Hiller 2012b)

The proposed expansion [of an oil field waste facility] would run afoul of Zapata County's plan to boost eco-tourism in the area, said Hector Uribe, an attorney who offers legal counseling to the county. Uribe, of Austin, helped advise county officials on their plan to make birding, hunting,

fishing and hiking central to the area's economy, which has relied on the oil and gas industry. Zapata County has long been a destination for so-called winter Texans and other eco-tourists looking for the outdoors experience Zapata offers, especially regarding fishing. So as drilling production diminishes in the Zapata area, the county has planned a transition from an economy that relies on oil and gas production to one whose focal point is the outdoors and the people it attracts to the area, Uribe said. (Velasquez 2012a)

The economic costs sub-frame draws the reader's attention to the ways that unconventional energy development can impose additional costs onto the communities, costs that the economic contributions of the development may not be sufficient to cover. Key terms in these articles include; hassle without benefits, impacts on other industries, eco-tourism, hunting and fishing.

### *Regulatory Problems*

The second most common opposition frame is entirely driven by its use in articles from LMT. It appears as the primary frame in 6 LMT articles, which is 14.3% of opponent framed articles and 3.8% of the entire sample. The only time it is used in the SAEN is a single appearance in a balanced article. This produces a used rate of 5.1% when balanced articles are included. This frame is used to show that the current regulatory situation regarding unconventional oil and gas extraction is not capable of properly protecting the public, as shown in the following quote:

A former mayor of a North Texas town in the middle of natural gas development told Laredoans on Friday not to expect the Texas Railroad Commission to be their savior if they encounter problems with drilling in Webb County. "This industry is not being held accountable at least in the state of Texas," said Calvin Tillman, a former mayor of Dish, a town 25 miles from Fort Worth in the heart of the Barnett Shale. ... Tillman said Dish had experienced air-quality problems and pollution from



wastewater produced by hydraulic fracturing of natural gas wells, with little response from the Railroad Commission. Gil Bujano, the director of the oil and gas division at the Railroad Commission, said the commission's staffers are faced with both jurisdictional and staffing challenges in regulating drilling. He added that the commission's staff has been reduced from 720 to 320 in recent years. "The commission is understaffed, and I don't think you'll find anybody there who will dispute that," he said. (Kreighbaum 2011a)

It also is used to highlight how specific portions of the development process are largely unregulated:

This much is certain: Water used for fracking comes from three sources, one of which is virtually unregulated and the primary source of water for industry. (Kreighbaum 2011c)

This frame also encompasses claims by the opposition movement that the regulations in place are too vague to be effective and were not designed with the current methods of extraction in mind. These claims are actually supported by statements made by the regulating agency in Texas, as seen in this quote:

Operators in the Eagle Ford Shale need greater clarity of the rules to ensure that they can prosper and protect the environment, the founder of the Eagle Ford Task Force said Wednesday. "Everybody on the regulatory side and the industry side wants to keep up with the technology," Railroad Commissioner David Porter said. "What was standard two or three years ago is now almost obsolete." Many operators want to convert idle wells to disposal wells, and Porter said he wants to make sure the converted wells meet the same standards as newly permitted disposal wells. "Some casing is 50 years old," he said. "(Concrete) deteriorates, and we want to make sure it's like new. We need to make sure the integrity of the well is OK." Doug Johnson, the Railroad Commission's manager of injection and storage permits, said there are about 32,000 active disposal wells now in Texas. Task force member Teresa Carrillo asked if the commission requires monitoring wells to be placed near disposal pits. No, Johnson said, but operators should consider, as a "best practices" move, installing monitoring wells to protect groundwater. Michael Sims, manager of the commission's environmental permits, discussed rules for storage pits. The key rule, he

said, “is pretty vague,” as it basically says, “don't pollute groundwater.” (Vaughan 2012a)

The regulatory problems frame brings to the readers' attention the issues that exist with the regulations and regulating agencies that are meant to protect the public from the negative impacts of industrial activity. Key terms in this frame include; lack of industry accountability, lack of regulator response, insufficient/unenforceable regulations, conflicting goals and regulatory capture.

### *Environmental Issues*

The environmental impacts frame was the third dominant frame, when balanced articles are not included it is used in 9.5% of opponent framed articles (2.5% of the sample); but when balanced articles are included its usage jumps to 5.1%, tying with regulator problems as the second most used opponent frame. While there are three sub-frames contained within it, usage in news articles primarily focus on the multiple pathways for environmental contamination sub-frame. This sub-frame is used in the sampled articles to show that there are many different ways that industrial activity can contaminate the surrounding environment, as seen in these quotes:

For years now, industry has repeated the mantra that fracking has never been directly tied to water contamination. But for residents of Pavillion, Wyo., who are drinking bottled water because local aquifers are tainted, or Dimock, Pa., who have dealt with contaminated water wells and a blowout that sent chemically laced water into nearby streams, that rings hollow. Fracking, which is often just a two- or three-day process, may not have directly caused contamination, but the activities on either side — the drilling, well casing, cement jobs and then production of the well — have been implicated. ...

It continues:

Groat [the director of the Center for International Energy and Environmental Policy and the Energy and Mineral Resources Graduate Program at UT Austin] is leading a nine-month, \$300,000 study that will look at the entire drilling process and the allegations of environmental harm associated with it, including water and air contamination, even earthquakes. It's important to look beyond fracking, Groat agrees. The assumption has been that when something has gone wrong it's because of fracking, he said. But scientists and regulators are coming to understand that contamination could be the result of any part of the drilling process. (Hamilton 2011)

It also includes the claim that contamination can occur from multiple sources:

A new report authored by chemist Wilma Subra and the nonprofit ShaleTest has sampled sites in five South Texas counties — DeWitt, Gonzales, Lavaca, Wilson and Victoria — and found toxic emissions at drilling and hydraulic fracturing sites, production sites, at storage tanks, and coming from flares, compressors and injection well facilities. (Hiller 2013b)

The primary purpose of this sub-frames use is to make clear that industrial activity has negative effects on the surrounding environment, and that these effects come from many sources and can occur in many ways. Key terms used in articles employing this sub-frame include; toxic emissions, water contamination, industrial accidents, unavoidable, environmental damage, and entire drilling process.

#### BALANCED FRAMES

The balanced category is used when the content of the articles utilizes frame from both the proponents of unconventional development using hydraulic fracturing, and the opponents of this development, in a roughly equivalent manner. An article was coded as balanced using the time-space decision rule discussed in the methods section.

The article would need to split the coverage of proponent and opponent frames in no greater difference than 60/40 to either side. Balanced frames were found in 18 articles, 11.5% of the total sample. The frames most commonly combined together in the balanced category are the proponent economic benefits frame and the opponent community impacts frame, specifically the broader impacts sub-frame and the economic costs sub-frame. These are used together in 7 of the balanced articles, accounting for 39% of the articles coded as balanced. This combination of proponent and opponent frames highlights that the boom has both positive and negative economic impacts in the regions that are experiencing the boom in oil and gas activity. Additionally, the appearance of articles with a balanced use of frames varies by the year the articles were published in, as shown in table 5. With the vast majority of balanced articles appearing in 2011, the year that industrial activity really exploded in the region. Examples of balanced coverage are shown in the quotes below:

To inform lawmakers of future infrastructural roadblocks Webb County may encounter due to heightened oil and gas activity, county Commissioner Jaime Canales traveled to the state Capitol to testify Wednesday before the Texas House of Representatives county affairs committee. Increased activity in the Eagle Ford Shale play north of Webb County has boosted sales tax revenue significantly in 2011-12. The county's taxable assessed value is also expected to climb to a high of about \$15.2 billion in 2013 due to increased mineral values, according to Fitch Ratings. The caveat, Canales said, is the strain oil and gas companies place on the county's transportation funds. The county spent almost \$7 million on road and bridge needs during the 2011-12 fiscal years. (Rodriguez 2012)

The Eagle Ford Shale is a tremendous economic asset to South Texas, but increased truck traffic has strained our rural roadways, threatening public safety and commerce," said Zaffirini [a Texas state senator], whose

district includes the majority of rigs and production and the top-producing counties. (SAEN 2013)

The balanced frame category was infrequently used, but displayed the traditional role of the news media in that they provide information about both positive and negative aspects of a subject. The articles showing balance most often involved the conflicting economic effects of development. Key terms used in this category of articles include; caveat, balanced, and conflicting.

#### TEMPORAL ANALYSIS

When analyzing the articles temporally, a clear pattern emerges for the use of frames in the sample. The number of articles and the category of frames they employ that appeared in each year of the sample are shown in table 5. This table shows that coverage of the developing shale play started in 2009, the year after the first commercially successful well started production in 2008. But that coverage did not take off until 2011. This was also the first year that articles using opponent frames appeared. Even in the years where opponent frames are used, the difference in frequency of usage between proponent and opponent frames is somewhat dramatic, with proponent frames used two to three times more often in most years, when looking at both newspapers in combination. This finding is consistent over the time frame of the articles examined in this study.

## DISCUSSION

In this section I first discuss several main findings in general, and then turn to a discussion of framing differences between the two newspapers used.

Table 5. Balanced Frame Use (compared to proponent or opponent frames)

	Proponent	Opponent	Balanced
2009	1	0	0
2010	5	0	0
2011	27	10	13
2012	29	16	3
2013	33	16	1
2014	3	0	1
Total	97	42	18

One of the most interesting findings in the analysis is that the articles examined are rarely balanced. This lack of balance was expected based on the theories of new values covered in the literature (Price et al. 1997), and supports the findings of the work of Angelique and Cunningham (2006) and Mazur and Lee (1993). Additionally, I found that balanced use of the frames from both sides was rare overall; but that often an opposing frame is briefly mentioned in an article primarily using the frames of one side or the other, highlighting some of the concerns of the side not primarily represented in the article's framing. This may reflect the authors desire to try and balance the information presented by at least acknowledging the other side of the argument, but does not meet the decision criteria (as laid out for this study) that would qualify these articles as being balanced. The following quote shows the way a proponent frame,

continual improvement, is mentioned in an article primarily focused on opponent concerns about the amount of water used by hydraulic fracturing:

He [Jean-Phillipe Nicot, a research scientist at the Bureau of Economic Geology at the University of Texas] said less water-intensive fracking processes have been developed — fracking with foam for example. But those processes are also more expensive. (Kreighbaum 2011c)

In the San Antonio paper, articles that presented frames opposing the main article frame appear seven times in each of the proponent and opponent framed articles. Similarly, in the Laredo paper this pattern was seen in 10 articles in each of the proponent and opponent framed articles. So while numerically opposing information was presented evenly for proponent and opponent framed articles, 17 in each group, the difference in the total quantity of articles in each of these categories makes the percentage of this situation vastly different. Opposing information is presented in just 17.5% of the proponent framed articles, but appears in 40.5% of the opponent framed articles. This seems to reflect the overall trend in the sample for proponent frames to be used more often than opponent framing of information. This finding is similar to the work of Angelique and Cunningham (2006) and Mazur and Lee (1993), who found that balanced presentations are no longer typical of news coverage in late capitalism, as explained in the literature review.

There are several other potential explanations for this, which will be explored more deeply in the next chapter. First is that the influence of pro-development interest groups trumps the influence of opposition interest groups and therefore has a larger impact on how coverage is presented. This view would support the theoretical work of

Culley et al. (2010) and Hodgetts and Chamberlain (2007). Second is that the cultural (frame) resonance (Ettema 2005; Kubal 1998) of pro-development themes being more accepted in Texas than anti-development themes (according to the US Census Bureau oil is the number one export of the state). This view is supported by the work of Diani (1996) who found that those frames that most resonated with the audience had the most influence on their views. A final possibility is that it is just an artifact of sampling error.

When examining how proponent and opponent frames are utilized by each of the two newspapers separately, there are several interesting findings. First, in several ways the frames were used in generally the same way (proponent frames are used roughly equally between the newspapers, with 48 SAEN articles being framed primarily as proponents and 49 of the LMT articles coded as such), and referred to mostly the same topics within each frame/sub-frame. In both papers the economic benefits frame was dominant. Thirty-three articles from each paper utilized the broader impacts sub-frame as the main frame, comprising 69% of the proponent framed articles from each news outlet. Additionally this was the dominant proponent sub-frame for each.

The differences in the use of opponent frames by each paper are more pronounced than with proponent frames. The overall use of opponent frames was again very close; dominant in 20 of the SAEN articles and 22 of the LMT articles. In each case the frame that dominated as the main frame was community impacts. While each paper used the roads and traffic issues sub-frame the most, each of the papers used the other sub-frames differently. In the SAEN articles the quality of life sub-frame was more



common, appearing in 15% of the opponent framed articles, while the LMT articles used the economic costs sub-frame more, in 10% of the opponent framed articles.

Additionally, when looked at separately, the environmental impacts frame is second most used by the SAEN, whereas in the Laredo articles a different opponent frame was identified as more common, i.e. the regulatory problems frame. This was used in 27.3% of the LMT opposition framed articles, as compared to the environmental impacts frame which was used in 10% of the SAEN opponent framed articles.

The biggest differences, aside from the regulatory problems/environmental issues difference, between the uses of frames between the news outlets came out in the comparison of the balanced category. This category was used in 2% of the SAEN articles and 16% of the LMT articles. Of the 18 balanced articles, only 2 (11%) came from the SAEN sample. In the LMT sample the remaining 16 articles, or 89%, qualified in the balanced category. Overall, what is observed when comparing the two sampled newspapers is that the Laredo paper presented information in a more balanced manner and utilized more frames in presenting this information. They also focused less on the corporate activities of the oil and gas industry, and more on actual events that had occurred in the oil and gas fields.

Several possible explanations could account for these disparities. The first is the location of each city relative to the shale play. Laredo is located on the shale itself, whereas San Antonio is near but not actually on the shale. This results in different types of activity related to the development of the Eagle Ford taking place in each city. In San Antonio the primary effects being seen are the economic impacts of the industrial

growth related to the development of the Eagle Ford Shale (as shown by the frequency of articles focused on the broader economic impacts). Laredo is also seeing the effects of economic growth, but as they reside on the shale itself it is likely that they are also seeing more of the negative impacts associated with development.

A second possible explanation could be the differences in economic activity related to the shale. Since the development of the Eagle Ford, San Antonio has seen several of the largest oil and gas companies in the world, such as Halliburton and Schlumberger, open regional offices there (Vaughan 2011). This could produce a situation where the business activities of oil and gas production companies are of much more interest to the readers of the San Antonio than would otherwise be the case. This can also be seen in difference in the number of articles covering general industry activity seen in each paper (25 in SAEN, and 5 in LMT). The majority of the economic development discussed in the Laredo paper has to do with industries that support the oil and gas industry and the employees working in the field, such as the housing and dining industries and oil field related companies (i.e. those that provide pipelines or transportation).

The information provided by the temporal analysis shows coverage of the problematic impacts of development did not begin until a couple of years after coverage of the potential for the positive economic impacts. This could reflect a desire of the newspapers to focus on episodic events that have actually occurred rather than the thematic coverage of the potential for events to occur as suggested by Hallahan (1999) and Singer and Endreny (1994). But this focus should also imply that coverage of the

economic benefits of development would have waited until these benefits started to materialize before covering the potential for them to occur, which was not the case. This might be explained by the fact that economic impacts statements, looking at the projected impacts, had been released by the industry and regional educational institutes well before the major pick up in development and production that occurred in the early 2010's. Or alternatively, it might be related to the culture of Texas being very pro oil and gas development (between 10 and 20% of the Texas state economy is driven by the oil and gas industry, depending on the year) (<http://www.cbpp.org/cms/?fa=view&id=3739>, paragraph 22), and that positive predictions of its impact may be more acceptable to the state's residents (and to the newspapers customers) before they occur than predictions of negative impacts that have not yet occurred.

This chapter has presented the findings of the analysis of the sampled newspaper articles from the San Antonio Express-News and The Laredo Morning Times. In doing so I have shown that overall proponent frames are utilized far more often than opponent frames in these articles, and that major differences exist in how each of the sampled news outlets incorporate the frames of the opposing interest groups. One potential result of this imbalance in frame usage is in regard to the role of frames in agenda setting. By covering the positive aspects of development far more than the negative aspects there is the potential that the readers of these newspapers will be led to believe that positive impacts occur far more often than negative ones, even though this is not stated in any sampled articles. If the readers are influenced in this way they

could regard the negative effects as being just a minor side effect of the boom. This may be intentional or not, depending on whether theories of elite control of the media can account for the differences in pro versus con frame usage. The changes in coverage of industrial activity and its effects were also viewed in light of temporal considerations and it was shown that proponent frames were utilized earlier in the coverage of industrial impacts than were opponent frames. In the next chapter, I bring together the findings of the website analysis and the newspaper analysis and explore the relationship between the two.

## CHAPTER VI

### BRINGING IT TOGETHER

#### INTRODUCTION

In this chapter I address research question 3; how do the frames used by proponent and opponent organizations (found in RQ1) compare with the frames used in the regional metro newspapers in South Texas (found in RQ2)? To answer this question I compare and contrast the frames that are used, and how they are used, between the interest group websites analyzed in chapter IV and the newspaper articles analyzed in chapter V. In analyzing these comparisons I discuss the framing theories presented in the literature review.

#### FRAME USAGE COMPARISON

Table 6 contains all dominant proponent frames and sub-frames found in the various analyses. As detailed in the table, proponent frames heavily dominate the news frames used. Table 7 shows all dominant opponent frames and sub-frames found in the preceding analyses. As seen in the table opposition frames are used much less frequently in the news articles. In the comparison of interest groups' frames used on their websites and the incorporation of these frames into the news media coverage of oil and gas development in South Texas, proponent group frames are more used more often and in a more similar fashion than the opponent group frames. Several theories pertaining to the use of frames in the news coverage of world events offer possibilities

that could explain this. These include theories of news values, frame resonance, and elite control of the media.

Table 6. Proponent Frame Comparison<sup>15</sup>

Proponent Website and Newspaper Article Frames		
Proponent Website Frames	Proponent Newspaper Frames	Total Use in Articles Counts
<b>Economic Impacts</b>	<b>Economic Impacts</b>	94
Jobs	Jobs	66
Broader Impacts	Broader economic Impacts	28
<b>Environmental Impacts</b>	<b>Environmental Impacts</b>	9
Continual Improvement	Continual Improvement	6
Climate Benefits	Climate Benefits	3
<b>Necessity</b>	<b>Necessity</b>	3
Energy Security	Energy Security	2
Daily Life	Daily Life	1
<b>Scientific Truth</b>	<b>Scientific Truth</b>	1

The theories of news value framing (Price et al. 1997) states news outlets choose the frames used in their coverage of events based on established news norms, primarily on the balanced presentation of information and on what stories will be of the most interest to their consumers. The imbalance of frame implementation and limited use of balanced articles seems to disprove the use of balanced presentation norms, as previously discussed. But the norm of focusing coverage on topics that would be of the most interest to media consumers is still fitting, as I detail below.

Between 10 and 20% of the Texas economy (depending on the year) is

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<sup>15</sup> Frames in tables 6 and 7 are presented in order of dominance, which varies between their use in interest group websites and newspaper articles. Hence the order is different in each column.

Table 7. Opponent Frame Comparison

Opponent Website and Newspaper Article Frames		
Opponent Website Frames	Opponent Newspaper Frames	Total Use in Articles Counts
<b>Community Impacts</b>	<b>Community Impacts</b>	37
	Road and Traffic issues	20
Public Health Risks	Economic Costs	9
Quality of Life	Quality of Life	5
Economic Costs	Public Health Risks	3
<b>Environmental Impacts</b>	<b>Regulatory Problems</b>	8
Multiple Pathways	<b>Environmental Impacts</b>	8
Bad for Climate	Multiple Pathways	5
Water Use	Bad for Climate	2
<b>Regulatory Problems</b>	Water Use	1
<b>Scientific Truth</b>	<b>Scientific Truth</b>	2
Scientific Support	Scientific Support	1
Lack of Knowledge	Lack of Knowledge	1

based on the oil and gas industry (<http://www.cbpp.org/cms/?fa=view&id=3739>, paragraph 22). This suggests that a fairly large portion of the state's population is either employed in the industry (or a connected industry) or has a direct connection to the industry through family member's employment or through financial connections, such as leasing or royalty payments or ownership of industry stocks. The findings of previous research in the Marcellus Shale (Kriesky et. al. 2013) and the Barnett Shale (Theodori 2009) also suggest that these sorts of economic connections would bias individuals toward positive perceptions of the industry.

This, then, may imply that media consumers are more interested in the positive impacts of industrial development, like economic benefits, that directly affect themselves or their family members, or in topics that justify and support continued industry expansion like positive environmental impacts or necessity, than they are in topics regarding the way the industry negatively impacts others or the environment.

Additionally, a 2014 poll conducted jointly by the University of Texas, Austin and the Texas Tribune<sup>16</sup> newspaper showed that state residents saw economic concerns to be more important than environmental concerns, within the state, by over a 2:1 margin, 5% and 2% respectively. This difference was even more pronounced when asked about national concerns, 18% saw the economy as the most important problem while only 2% viewed the environment in this way. Considering the fact that the choice in industrial development is often framed as the economic impact concerns versus environmental impact concerns, it is clear which Texans will choose. No data was available specific to Texans views of community concerns.

Similarly, the deep historical and cultural connections to the oil and gas industry to the state of Texas could produce a situation where articles that utilized the opponents' frames would not resonate with the readership. The theories and research findings regarding frame (or cultural) resonance (Benford and Snow 2000; Diani 1996; Ettema 2005; Kubal 1998; Zemanova 2009) would predict that the frames focused on by both social movement groups and the news media would be those that have the greatest likelihood of connecting with the master frames of the targeted culture. The data just presented on concern for the environment as compared to the economy, and the predominance of oil and gas in the state's economy (being 10-20% of it) would imply that in a state like Texas, pro-development frames would resonate more and thus be utilized more often, which is exactly what we see in the sample of newspaper articles.

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<sup>16</sup> The Texas Tribune is a state wide digital newspaper not specifically attached to any city. It is based in Austin and focuses on increasing civic engagement by Texas residents.



A final theory of why certain frames are chosen for the framing of news stories is that of the elite control of the media. The theory of elite control of the media predicts that interest groups will use what power and influence they possess to influence the coverage of events, pertaining to their interests, in ways that are most favorable to the position they promote (Culley et al. 2010; Hodgetts and Chamberlain 2007; Scheufele 1999). While both the pro-development and anti-development groups would qualify as elites, only one of these groups possesses significant power and influence in the state of Texas.

This power and influence could potentially affect the coverage of unconventional development in two ways, directly and indirectly. Direct influence would entail industrial interests pushing the editors or owners of the local newspapers to focus on coverage of the positive impacts of the expansion of unconventional development. This would be rather nefarious and hopefully is not occurring. An indirect influence situation would be one where the owners, editors, or journalists are aware of the power and influence of oil and gas interests and slant their coverage in pro-development direction, without any actual prodding by industrial interests; but because they were concerned about the possible blowback if they spent too much coverage on frames opposing this development.

### *Proponent Frames*

Examining Table 6 proponent frames in the websites and the newspaper articles, the dominant proponent frame for both are essentially the same. While not statistically

quantified in the website analysis, the economic benefits frame was by far the most dominant on the API and ANGA websites. In the newspaper articles it was the main focus in 47% of the total sample and 85.6% of the articles coded as pro-development. In addition, both of the sub-frames identified from the websites, broad economic impacts and jobs, were frequently used in the news coverage of the oil and gas activity in the Eagle Ford Shale Region; appearing in 33% and 14% of the sample, and 68% and 17.5% of proponent framed articles respectively. Thus, clearly the role that positive economic benefits can play with unconventional energy development is front and center when discussing positive impacts of this development.

The second most dominant frame in the proponent websites, environmental impacts, was also the second most used frame in the sample of articles, used in 4.5% of the sample and 8.2% of proponent framed articles. In terms of sub-frames though, the websites and articles vary. While there were two environmental sub-frames on the websites, continual improvement and climate benefits, only one environmental sub-frame was used with any frequency in the sample of articles, continual improvement. This is probably due to the fact that in Texas climate change is not widely accepted as a result of human activities by most people. According to the summary of the results of a study (Climate Change in the Texan Mind) posted to the Yale school of environmental studies website (<http://environment.yale.edu/climate-communication/article/climate-change-in-the-texan-mind>) only 44% of Texans believe that climate change is anthropogenic, while about a third see it as the result of natural causes.

Similarly, the use of the remaining proponent frames drops dramatically after this. For example, the necessity frame, the third dominant frame in the proponent website analysis, appears in only 1.5% of the newspaper articles. Likewise, the scientific truth frame, the fourth dominant frame in the website analysis, is used in only 0.5% of the newspaper articles. While several possible explanations for this disparity exist, I believe the most likely is related to the theory of frame resonance. As has been shown, Texas is a very oil and gas friendly state; it is likely that the audience of these newspapers is not viewed as needing to be convinced of the importance of oil and gas, which is what the primary purpose of the necessity frame. Similarly, the purpose of the scientific truth frame is to show that the proponent claims are supported by the research; if Texans are already convinced that oil and gas exploration and production is done well, than they would not need the additional evidence provided by the scientific research.

*Opponent Frames.* When examining how opponent frames compare between the websites and newspaper article analysis,<sup>17</sup> there is much less consistency between the two and much more variation. For example, the dominant frame in the articles – road and traffic issues (10% of the entire sample and 40.5% of all articles in opposition) - was not a frame identified in the opponent websites.

The most dominant frame on the Earthworks and STFA websites - community impacts - was second most used in the newspaper sample, appearing in 8.5% of the

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<sup>17</sup> Refer to table 6 and 7.

sample and 23.8% of the opponent framed articles. The environmental impacts frame (second most dominant on the websites) and the regulatory problems frame (third most dominant) were very similar in the way they were used in the respective newspaper coverage of unconventional development in South Texas. The environmental impacts frame was used in 4% of the sampled articles, 9.5% of opponent framed articles. The regulatory problems frame also appeared in 4% of the entire sample, but it was used more often, 14.3% of the time, in proponent articles; the latter difference being due to the use of the environmental frame in balanced articles. Similar to its use in proponent framed articles, the scientific trust frame was negligibly used in the coverage of unconventional development in the sample of articles, appearing in only 1% of the sample (4.8% of opponent framed articles).

I believe that the most likely explanation for the difference in usage of the opponent frames, specifically, between the websites and newspapers has to do with the preference in news coverage to focus on episodic stories rather than thematic stories (Singer and Endreny 1994). Impacts of development like damage to roadways, changes in the community, or the occurrence of negative environmental impacts are all actual (episodic) events; whereas concerns over regulatory issues or the scientific evidence supporting opposition points are more thematic until they actually produce tangible effects.

## THEORETICAL IMPLICATIONS

Of the three theories presented as possible explanations for the use of interest group frames in the newspaper coverage of unconventional development and its impacts in South Texas; each explains part of the situation. All three theories help explain the dominance of proponent frames over opponent frames in this coverage, but vary in their ability to explain the incorporation of opposition frames.

Theories of elite control of the media would predict that the more powerful and influential interest group would be better able to influence the media into framing events in a way that is favorable to their continuing interests. In the case of unconventional development, this would mean that framing that favored the oil and gas industry would be represented more often in the media. This is certainly the case in the South Texas news coverage of unconventional development. With such a large proportion of the sampled articles slanted toward pro-development interests it is hard to argue that the influence of an industry that produces 10-20% of the state's economy does not at least play a part.

Although the elite control theory accounts for the dominance of pro-development frames in the local newspapers, it does not offer an explanation of why the frames that are used on the opponent websites and newspaper articles vary so widely. According to this theory, the influence of the opponent interest groups should have produced opposition frames usage in the articles that are much closer to the way they are used in the opponent websites. The of lack of power of opposition interest

groups in Texas may explain the differences in use of their frames, but not the variation between opposition website frames and the newspapers' opponent frame uses.

The news values theory may account for the difference in the use of opposition frames between the opponent websites and the sample of articles. This theory predicts that authors of these articles write about topics that are of interest to their customer base. The use of road and traffic issues as its own sub-frame (under the community concerns frame) in the news articles could be a reflection of issues of the most importance and interest to readers. Frame (or cultural) resonance theories predict that the frames chosen by both the proponent and opponent interest groups on their websites *and* the frames chosen by the newspapers in their coverage of the unconventional development activity are those that will best resonate with the target audiences.

This may explain both the dominance of pro-development frames, and the differences in the use of opposition frames between the interest group websites and South Texas newspapers. These findings may reflect the cultural history of oil and gas development in Texas and show the difference in how Texans and national anti-unconventional development movement see not just the negative side-effects of industrial development, but perhaps the oil and gas industry as a whole. The more widespread nature of the master frames related to the pro-development frame of economic benefits trumps the master frames related to community concerns. The proponent frame of positive environmental impacts resonates more with Texans than opponent frames of negative environmental impacts. Even articles focused on the road

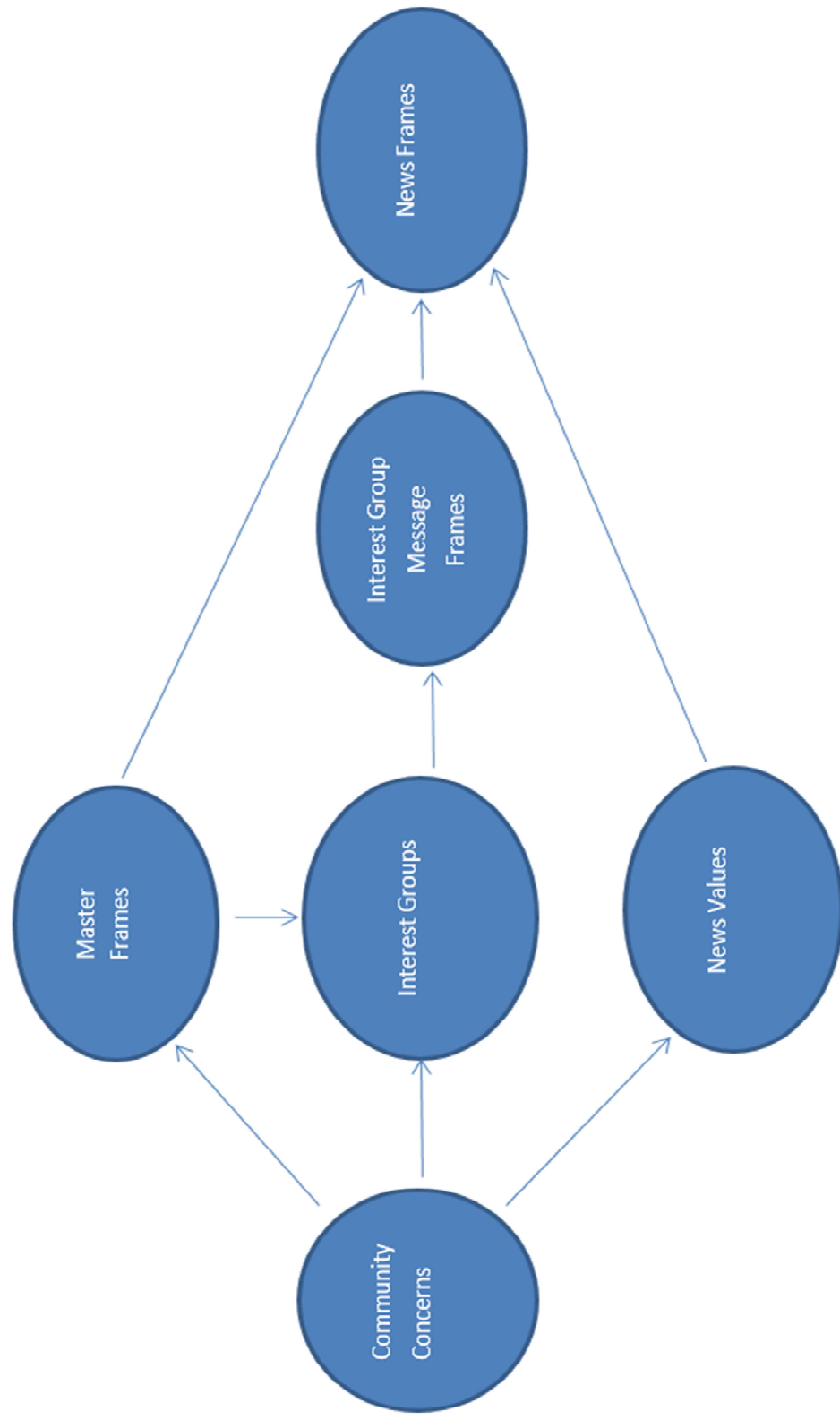
and traffic issues often contained mention of the positive economic impacts that the oil and gas boom was having on the region.

The explanation I feel best explains the findings comes from previous work done on the public perceptions of the effects of unconventional development. The findings of some of these studies show that the most frequent concerns of the residents in these areas were along the lines of economic concerns (Kriesky et al. 2013; Weigle 2011), environmental concerns (hopes for improved performance due to technological improvements and potential negative impacts) (Kinchy 2013; Weigle 2011), and community concerns (i.e. public health and safety and quality of life) (Weigle 2011; Willits, Filteau et. al. unpublished).

It is possible that these concerns of residents are the variable that is driving both the frames chosen the proponent and opponent interest groups and the frames chosen by the newspapers in their coverage of oil and gas development in the Eagle Ford Shale region. A Venn diagram displaying this relationship is shown in figure 3. This is also supported by the theory of frame (cultural) resonance as the issues that most concern people would also be the issues that most resonant with them. With the additional influence that the oil and gas industry have in the state of Texas, I believe that the most likely reasons for the differences in frame usage between the interest group websites and the newspaper coverage may be understood in this way.

In general, the findings of this study could be used as support for any of the listed theoretical explanations of frame choice in the news coverage of unconventional

Figure 3. Theorized Relationship of Influences on News Frames





development in South Texas. Independently they each explain certain aspects of the use of interest group frames better than others, do a good job of explaining the dominance of proponent frames over opponent frames, but have varying ability to explain the differences in the use of opponent frame. In the final section I will provide several examples of how the findings of this research can be applied to understanding the ways in which development is affecting residents of the eagle ford region, whether media coverage portrays these experiences accurately, and how future research can bridge the gap between media analysis and residential perceptions. I will also address the limitations of this current research project.

## CHAPTER VII

## CONCLUSIONS

In this thesis, I have examined the way that interest groups on both sides of the debate over unconventional development and hydraulic fracturing frame the messages pertaining to it on their websites, the way the print news media in two South Texas cities frame their coverage of the impacts of this type of activity, the similarities and differences between the implementation of frames at these two levels and the theoretical explanations that may account for the findings. This research fills an important lacuna in the current body of research on the topic of unconventional development as it provides information about the construction of the messages the public receives, which have been shown to influence how they interpret the subjects of the message.

Without an understanding of the sources of information that contribute to the community resident's perceptions of oil and gas development, we can never hope to fully understand the perceptions themselves. By applying the findings of this research to investigations of how these communities experience this development, we can better represent their views in the political and public debate over the use of hydraulic fracturing in unconventional energy development. The findings from this research have shown that pro-development frames are used far more than opposition frames in the coverage on oil and gas activity in the Eagle Ford region of Texas, but due to the nature of this project, definitive conclusions as to why this occurs is beyond the scope.

However, we can draw potential conclusions about the affects this may have.

The first, mentioned earlier, has to do with the ability of news frames to set the agenda that the consumers of those news outlets may use to think about the topic. In this case the dominance of proponent frames could lead readers to view negative impacts as less common than they are or, due to the main negative impacts focused on being road and traffic issues, to view them merely as temporary side effects of the boom rather than thinking of more long term effects such as those on the environment. Second, this slant of coverage could serve to reinforce an ideology that is already present in Texas; such as knowing that oil and gas development has some negative impacts, but that these are far outweighed by the positive impacts it provides. The predominance of the oil and gas industry in the state lends strength to this conclusion. Lastly, the lack of opposition frames in the news coverage could also serve to stifle the growth of an anti-fracking movement in Texas. According to the work of Benford and Snow (2000) for frames to successfully mobilize an opposition movement they must be diagnostic, prognostic, and motivational. By primarily focusing on opposition frames of community impacts and regulatory problems, the negative impacts of development are shown to be short term and things that can be solved by working through the system, rather than by opposing it.

As with any study there are several limitations to the generalizability of the study findings. First, only two newspapers were used in the media sample, thus limiting the ability to make broader claims about the coverage of unconventional development in the state of Texas. A second limitation applies to the applicability of the findings of the

temporal analysis. The use of a truly random sample of articles from the population generated from each news source means that years with more articles published will be over represented. To gain a better and more accurate understanding of how the coverage of unconventional development has changed over time, a sample stratified by year would produce more representative results. Finally, the lack of information, specific to the timeframe of the development boom, on the differences in the economic influence of the oil and gas industry in the respective cities, severely limits the ability to reach definitive conclusions that explain the differences in frame implementation.

Despite these limitations, this research adds to the work on framing and unconventional development in several ways. First it has provided a look at the way both proponents of unconventional development using hydraulic fracturing and opponents of this development use frames in the promotion of their positions on the subject through communication efforts on their websites. It also provides insight into the way pro-development and anti-development frames are used in the print media's coverage of the various impacts of this development. This fills an important missing piece in the study of the public perceptions of unconventional development, for to truly understand the perceptions that individuals have, we must also understand all the variables that influence these perceptions.

Studies that have thus far been conducted on public perceptions of unconventional development have mostly neglected to differentiate the various sources of personal knowledge regarding the subject. And those few studies that did consider the sources of information were primarily concerned with what sources were most used

and most trusted. None have yet examined the structure of the messages that provided this information. This is important to understand if we are to fully comprehend the perceptions people hold regarding unconventional development and the various effects it can have on the development area. As it pertains to the framing theory literature, this research has provided partial support for several theoretical explanations of what influence different variables may have on the way the news media reports on events.

Future research on this topic could expand this study by including more news sources and by analyzing the frames used by state level interest groups. The addition of state level group websites would facilitate the ability to compare and contrast the use of frames at three spatial levels: national, state, and regional. In addition, a temporal analysis with more newspapers included and a stratified random sample was used, the findings would strengthen.

A second step for future research would be to connect the findings of this research to the actual frames used by the residents of these areas in their perceptions of unconventional development. This could be done through interviewing or surveying the population of select South Texas communities to discover how they perceive the oil and gas development, and then comparing the frames used by residents to the frames found in the news coverage. This would allow for differentiating residents' perceptions by socio-economic status, by occupational role, or geographical location, allowing for differences in residents' perceptions to be further explored and providing a more nuanced understanding of the public perceptions of unconventional development.

With the increase of unconventional energy development occurring in the US, there are many avenues for future research. This current study begins to fill the missing gaps in the literature on the influences of how community residents' perceive the activity occurring around them; which is necessary for policy makers to understand as they will undoubtedly be having more and more debates regarding this type of development, and its positive and negative implications for residents, states, and the nation as a whole.

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