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# Stakeholder Assessment of the North Dakota Badlands and Little Missouri River Valley

## White Paper



**May 2016**

**BISMARCK, NORTH DAKOTA**

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## Acronyms

BLM	Bureau of Land Management
BMPs	Best management practices
CCG	Covenant Consulting Group
CIA	Cumulative Impact Assessment
DPG	Dakota Prairie Grasslands
GSI	Grassland Stewardship Initiative
LMNG	Little Missouri National Grassland
LRMP	Land and Resource Management Plan
LTSP	Long Term Strategic Plan
LUP	Land Utilization Program
NSO	No Surface Occupancy
NDCC	North Dakota Century Code
NDDA	North Dakota Department of Agriculture
NDDMR	North Dakota Department of Mineral Resources
NDDTL	North Dakota Department of Trust Lands
NDGFD	North Dakota Game and Fish Department
NDIC	North Dakota Industrial Commission
NDPC	North Dakota Petroleum Council
NDSU	North Dakota State University
NEPA	National Environmental Policy Act
NPS	National Park Service
PGS	Partners for Grassland Stewardship
SCS	Soil Conservation Service
TRNP	Theodore Roosevelt National Park
USACE	U.S. Army Corps of Engineers
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service

## Executive Summary

Due to technological advances and economic opportunity, oil and gas development in western North Dakota, including parts of the Badlands geographic area has increased significantly since the 1950s. The state had roughly 4,500 producing wells in 2009<sup>1</sup> and 13,000 in 2015.<sup>2</sup>

Projections before the current slump in oil prices indicated the potential for nearly 40,000 new wells by 2035.<sup>3</sup> Development of the Bakken and Three Forks shale formations has propelled North Dakota to become the second-leading oil producing state in the nation.

While acknowledging the prosperity and opportunity associated with the energy boom, some North Dakotans believe the state could manage oil and development better and reduce impacts to the Badlands and its associated grasslands and wildlife. In response to these concerns, Covenant Consulting Group (CCG) conducted a stakeholder assessment to understand how North Dakotans from various sectors perceive oil development in the Badlands, and what they believe is needed in the future.

CCG assembled an experienced team of North Dakotans with backgrounds that fit into four key areas: 1) ranching, 2) oil industry, 3) conservation, and 4) government. The team developed confidential questionnaires and surveys to ascertain the views of stakeholders. The project team developed a relatively straightforward goal to guide the assessment: **“To create strategies for how best to develop mineral resources with responsible stewardship of the Badlands.”** The team defined the stewardship principle to include protection of ranching, wildlife, cultural and scenic values. While the goal may appear to be simple, opinions and potential solutions vary.

This project is about gauging North Dakotans’ views of oil and gas production, stewardship of surface resources and the Badlands. It is a starting point to finding those best practices that will accomplish the goal, and retain those surface assets for ranching, wildlife, scenic value, and historical sites. The study is not an attempt to stop or hinder oil development. Rather, the specific goals of the assessment include: 1) understanding perceptions of stakeholders regarding oil development in the Badlands, and 2) creating strategies for how best to develop mineral resources with responsible stewardship of the Badlands.

This report first details the background and history of oil activity in North Dakota, and covers many issues that relate to its impact on surface lands and owners, including overviews of wildlife impacts, reclamation efforts, and environmental reviews. It notes that North Dakota is one of 13 states with no formal environmental review process. It also highlights past efforts that have worked to protect the land, especially highly sensitive areas in the Badlands.

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<sup>1</sup> 2009 Monthly Statistical Update. Industrial Commission of North Dakota, Oil & Gas Division. Updated August 14, 2013.

<sup>2</sup> 2015 Monthly Statistical Update. Industrial Commission of North Dakota, Oil & Gas Division. 2015.

<sup>3</sup> Director’s Cut, North Dakota Producing Counties Update. North Dakota Industrial Commission, Department of Mineral Resources. September 18, 2014.

The CCG team interviewed 71 North Dakotans to get their input on how to accomplish the stated goal. CCG focused on four key sectors to solicit ideas, namely ranching, oil industry, government agencies, and conservation and recreation groups. The questions and interviews were detailed and thorough. We talked to North Dakotans, especially those who are closest to the Badlands and who have experienced oil development activity in their communities and on their land.

The interviews revealed widespread support for protection of surface assets, not just in the Badlands, but throughout North Dakota. At the same time, the CCG team found no one who wanted to stop oil production. The common response was “produce oil, but do it in a way that protects valuable surface resources and recognizes the rights and concerns of those who own the surface.” Most respondents feel the recent Bakken oil boom is a blessing to the state and has brought prosperity and growth that North Dakotans have been looking for. At the same time, because of its rapid development, some participants pointed out that the Bakken boom created duplicate infrastructure. Other participants believe there was not enough concern for surface resources, upfront planning, or reclamation. The fast pace of development has stressed infrastructure and local communities.

While few participants were critical of any individual, government entity or even the oil industry, most recognized the boom came fast and North Dakota was simply not prepared for such an acceleration in activity over such a large area. With that experience to draw on, most feel there is room for improvement in building out future oil development.

The emphasis of this project was to get ideas from North Dakotans. Based on the responses to the questionnaires and surveys, the team identified the following key issues about oil development: 1) Planning, 2) Communication, 3) Reclamation of the Landscape, 4) Regulations, Standards, and Best Management Practices, 5) Cultural Resources and Special Places, and 6) Wildlife Habitat and Access to Public Lands.

The ideas are summarized in the report under [Key Issues from Interviews](#):

- Upfront planning before development activity starts.
- Plan the development on larger units or by geographic areas.
- Get input from local citizens and local governments.
- The surface owner needs a say in development on their land.
- More/better transparency in government and oil company activity.
- More/better communication from government and oil companies to all parties.
- Options for reclamation standards for private property owners.

The report concludes with three recommended strategies to achieve the project's goal of developing mineral resources with responsible stewardship of the Badlands:

1. A collaborative process including all parties;
2. Regulatory and statutory changes; and
3. A landscape-level pilot project that includes all parties.

The report also lays out some specific recommendations based on what we learned in the process:

- The next steps should be undertaken by North Dakotans
- Consider developing an advisory committee to develop specific, practical action steps.
- Produce a plan for North Dakota's long-term future.
- Improve communication and transparency about oil development.
- Consider the past success of the state in developing reclamation standards for the coal industry.

While the report discusses specific impacts to wildlife, ranching, hunting, view sheds and historic sites, the conclusion focuses on land surface protection and reclamation. After conducting the interviews it became very clear that most respondents agreed, the common element of what was best for all these interests was the same thing: protection and proper reclamation of the surface.

The vast majority of the interviewees agree that managing surface development in a planned and thoughtful manner would meet many if not all their needs and goals. It will take a diversity of groups working together to accomplish the goal, focusing on the common concern over the surface.

## Introduction

The Badlands is the common and historic term used to describe a large geographic region in western North Dakota (see map on page 6). It comprises a large landscape in the Northern Great Plains with the Little Missouri National Grassland (LMNG), managed by the U.S. Forest Service (USFS), within the Badlands. The area also has other private, state and federal multiple-use grasslands and Theodore Roosevelt National Park (TRNP), the only national park in North Dakota. The topography in this region is often steep and highly subject to erosion, yet it is rich with native plants and wildlife species.

The Bakken and Three Forks oil-bearing formations underlay these grasslands, and new technologies in the oil and gas industry have allowed developers to tap into previously inaccessible oil and gas resources. The challenges of oil development in the Badlands provide a unique opportunity to engage and collaborate with a variety of local stakeholders in order to lessen impacts to wildlife, ranching, and the historic culture of the Badlands region while enabling mineral owners to access their mineral assets.

In October 2015, North Dakota had 13,190 producing wells, an all-time high, making North Dakota the second highest oil-producing state in the United States.<sup>4</sup> Flaring of natural gas fluctuates and peaked at 36 percent of the state's total produced gas in September of 2011.<sup>5</sup> As of March 2016, flaring is down to 13 percent,<sup>6</sup> with a state plan in place to reduce it to nine percent by 2020.<sup>7</sup> Many analysts are currently predicting up to 40,000 new wells by 2035.<sup>8</sup> As such, development of the Bakken and Three Forks formations is currently in the early stages. When such rapid development occurs, managing the growth and integrating the viewpoints of all local stakeholders is a challenge. While understanding the importance of the jobs and revenue that the oil and gas industry has created since the boom began, some North Dakotans believe the state could manage oil development better and reduce impacts to the Badlands and its associated grasslands and wildlife.

Most of the Northern Great Plains is comprised of private land – 94 million acres of which remain as intact grassland. Some families in the region have maintained ranches for more than 150 years. Keeping ranchers in business leaves grasslands intact, creates habitat for a diversity of birds and other grassland wildlife, moderates run-off, and secures carbon in the soil.

The grasslands of North Dakota, both public and private, are facing a growing conflict with surface disturbance brought on by mineral development. A global economy driven by the need

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<sup>4</sup> Helms, Lynn. Director's Cut. North Dakota Industrial Commission, Department of Mineral Resources. February 17, 2016.

<sup>5</sup> *Ibid.*

<sup>6</sup> Helms, Lynn. Director's Cut. North Dakota Industrial Commission, Department of Mineral Resources. March 11, 2016.

<sup>7</sup> *Ibid.*

<sup>8</sup> Director's Cut, North Dakota Producing Counties Update. North Dakota Industrial Commission, Department of Mineral Resources. September 18, 2014.



for energy is a fact of life. The challenge is how to develop the minerals with minimal disturbance to the surface and to avoid adverse impacts to the landscape. Mineral owners have a right to access their subsurface assets even if they do not own the surface rights. North Dakota's state policy, which recognizes subsurface rights as the dominant estate, sometimes raises questions over how much disturbance mineral development should have on surface resources, individual landowners, or the public who own the grass, trees, cropland, and water.

This assessment was not conducted as a means to hinder or stop mineral extraction. This report fully recognizes the property rights that belong to mineral owners. Rather, the assessment was designed to encourage discussion on whether improvements are desired and if so, what those improvements would mean for wildlife and those who live and ranch in the Badlands. This raises the question: as oil development continues in the Badlands, how can it occur in a way that has less impact to wildlife and ranching compared to development to date?

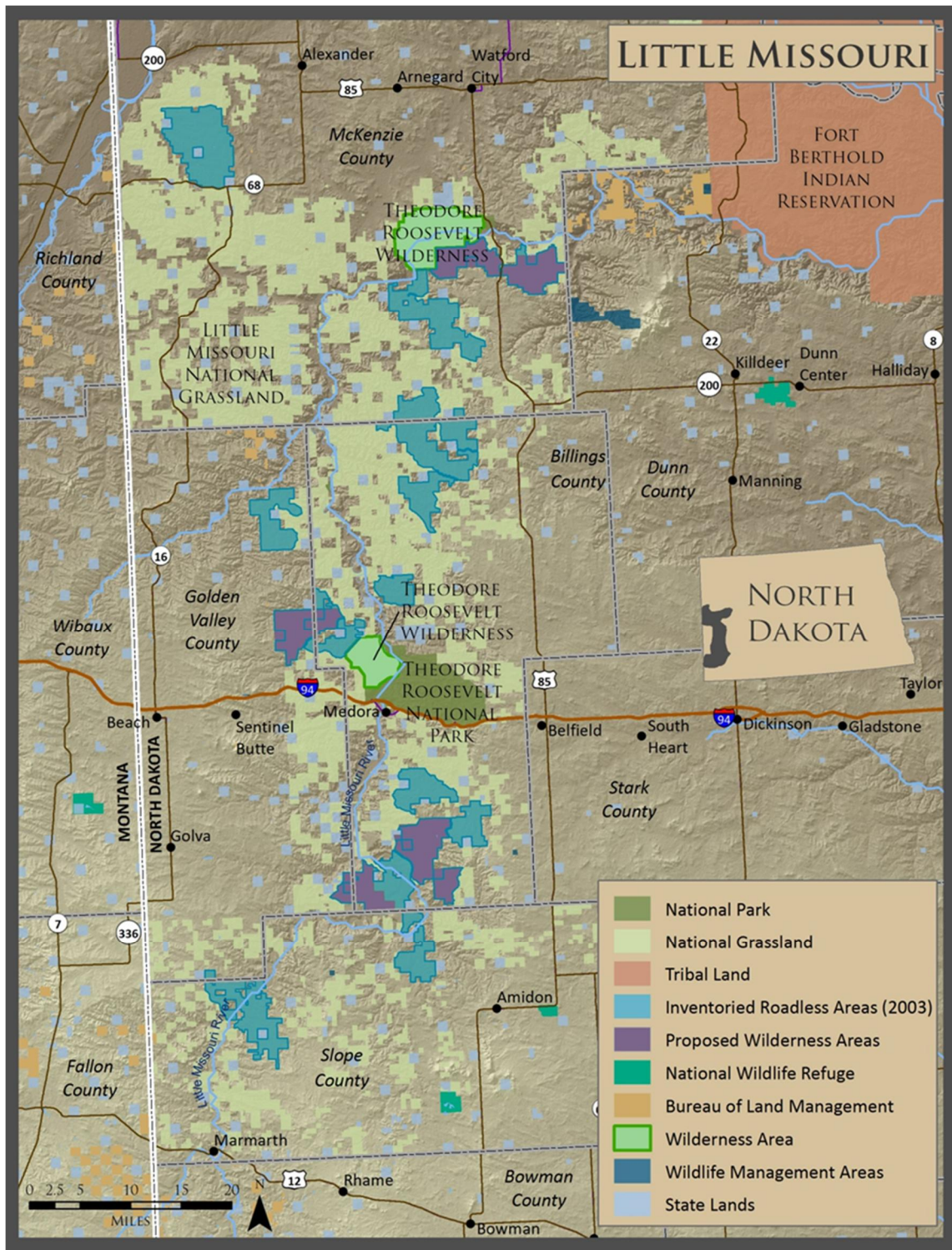


Figure 1. Map of the Badlands of Western North Dakota.

## Project Goals and Objectives

The goals of this project were to 1) understand perceptions of stakeholders regarding oil development in the Badlands, and 2) create strategies for how best to develop mineral resources with responsible stewardship of the Badlands. Stewardship includes maintaining ranching, wildlife, cultural, and scenic value. A key emphasis of this project was to generate ideas from those North Dakotans who live in, work in, and use the Badlands on how best to achieve these goals.

The objectives of the stakeholder assessment were to:

1. Become familiar with the Badlands and how stakeholders value the grassland and surrounding landscape;
2. Determine concerns of all stakeholders;
3. Gain an understanding of North Dakota politics in relation to public and private lands, learning how policymakers and industry think about conservation throughout the state, and particularly in the Badlands area;
4. Gauge reaction of key stakeholder groups to strategy options, including ranchers, the oil and gas industry, state policymakers and conservation groups;
5. Identify constraints and challenges, as well as strengths and opportunities, to each strategy option;
6. Develop an understanding of how federal and state agencies would administratively carry out the various strategy options;
7. Provide recommendations for a strategy to minimize the impact of energy development within and around the Badlands; and
8. Identify partners who might support, politically or through funding, implementation of a proposed strategy.

## Project Methodology

To accomplish the project and its goals, Covenant Consulting Group (CCG) assembled an experienced team of North Dakotans with backgrounds that fit into four key areas – ranching, government, oil industry, and conservation and recreation groups. Rod Backman of CCG led the effort. Team members included:

Ranching	Jim Hauge, a longtime farmer, rancher, and agricultural consultant.
Oil Industry	Robert Harms, an attorney who has worked extensively with and for the oil industry

Conservation	Randy Kreil, former Wildlife Division Chief for the North Dakota Game and Fish Department.
Government	David Pieper, former Grasslands Supervisor for the U.S. Forest Service
Government	Ted Hawn, former District Conservationist with the U.S. Department of Agriculture's Natural Resources Conservation Service.

CCG's approach was to develop a questionnaire to ascertain the views of local stakeholders and then conduct confidential interviews with those stakeholder groups to understand their positions and gather ideas on how current management could be improved. The CCG team developed the questions and selected who to interview based on discussions with individuals in each category without determining in advance how an individual might lean in their opinions. The CCG team wanted to hear from everyone, regardless of positions.

For ranchers, CCG first approached grazing associations and their members. After a few interviews, it became apparent that getting input from ranchers who are currently operating in the Bakken was extremely important because of their experience in dealing with oil development. Although CCG conducted interviews throughout western North Dakota, the team emphasized interviewing ranchers who lived in areas with oil impacts. Within the oil industry, we focused on companies that had good reputations for dealing with landowners, addressing their surface concerns, and using "best practices". Government entities were selected by their connection to either oil industry regulation or management responsibilities in the Badlands. Conservation groups were selected by those who have worked in the Badlands and had expressed interest in the Badlands. The CCG team also selected recreation businesses operating in the Badlands.

As mentioned above, the questionnaires and follow-up interviews were designed specifically to solicit input from North Dakotans who live in, work in, and use the Badlands. The goal was to discover ideas that would lead to recommendations for good stewardship, balancing oil development with protecting the Badlands of North Dakota. We did not consult out-of-state experts about how things should be done. While we did interview ranchers and others in the southern Badlands, many of the ideas and recommendations came from those who have lived with oil development on their ranches and community leaders who have dealt with it firsthand.

This white paper is a compilation and analysis of findings from those interviews. It represents what we heard from North Dakotans and their ideas about the future of the Badlands. A key to generating valuable feedback was the promise of confidentiality for survey respondents and interviewees. That aspect created openness and led to candid answers and discussions.

See Appendix A for the questionnaires for each stakeholder group, Appendix B for subjective survey responses, and Appendix C for tables mapping the responses of different stakeholder groups to various questions.

## Background

In order to understand the responses received during the stakeholder assessment and the strategies CCG is recommending for future action, background on oil development and stewardship in North Dakota is necessary. This section provides information on the history of oil development in western North Dakota, its impacts on wildlife, and the state's efforts at restoration and reclamation. It also summarizes the role of the public lands in western North Dakota, past collaborative stewardship efforts, and the importance of assessing impacts cumulatively. This information provides important context for the report going forward.

### History of Oil Development in North Dakota

Oil and gas development in western North Dakota is nothing new. From the first oil well drilled in the early 1950s, the industry's activity level throughout the decades has corresponded with oil's changing price, improvements in geological understanding, and drilling technologies. From the mid-1980s to the mid-2000s, activity in terms of total operating wells and drilling rigs was fairly stable until a new technology called hydraulic fracturing unlocked the Bakken and Three Forks formations. Oil exploration and drilling activity expanded rapidly because of this technology and escalated further as global oil prices reached near or record highs.

As a point of reference, according to the state's Department of Mineral Resources (DMR), North Dakota had 35 drilling rigs operating in 2006.<sup>9</sup> By January 2012, 200 drilling rigs were operating with each rig able to complete a well every few weeks.<sup>10</sup> Total oil wells in North Dakota increased from approximately 4,500 in 2009<sup>11</sup> to more than 13,000 by the end of 2015.<sup>12</sup> As of January 2016, there were 13,141 active wells and another 907 waiting completion of the fracking and production phases.<sup>13</sup> Projections from the DMR indicate the potential for up to 40,000 new wells by 2035.<sup>14</sup>

In 2015, world oil prices dropped significantly, and drilling operations were scaled back dramatically. By February 2016, the number of drilling rigs operating in the state had fallen to 40.<sup>15</sup> At the time of this report's publication in summer 2016, drilling activity was still holding at a reduced level with activity expected to increase rapidly when oil prices rebound.

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<sup>9</sup> Director's Cut, BSC Energy Conference. North Dakota Industrial Commission, Department of Mineral Resources. January 29, 2014.

<sup>10</sup> *Ibid.*

<sup>11</sup> 2009 Monthly Statistical Update. Industrial Commission of North Dakota, Oil & Gas Division. Updated August 14, 2013.

<sup>12</sup> 2015 Monthly Statistical Update. Industrial Commission of North Dakota, Oil & Gas Division. 2015.

<sup>13</sup> Helms, Lynn. Director's Cut. North Dakota Industrial Commission, Department of Mineral Resources. April 15, 2016.

<sup>14</sup> Director's Cut, North Dakota Producing Counties Update. North Dakota Industrial Commission, Department of Mineral Resources. September 18, 2014.

<sup>15</sup> Helms, Lynn. Director's Cut. North Dakota Industrial Commission, Department of Mineral Resources. March 11, 2016.



## Influences of Oil and Gas Development on Wildlife and Landscapes

North Dakota is largely a rural state with a variety of wildlife species and habitats. Hunting, fishing, and other wildlife-based recreational pursuits are deeply rooted in the state's history, and they offer a significant boost to many people's quality of life. At the same time, western North Dakota and the Badlands provide habitat for many of the state's important and valued species, such as elk, mule deer, white-tailed deer, bighorn sheep, pronghorn, sage grouse, sharp-tailed grouse, golden eagles, and a host of nongame bird species. Because of its variety of wildlife and more than a million acres of public land (see [History of the National Grasslands](#)), the Badlands and the TRNP are key destinations for people, both North Dakota residents and nonresidents, for hunting, bird watching, photography, hiking, biking, and other wildlife-based recreation.

When oil development rapidly expanded in the Bakken and Three Forks formations, hunters, ranchers, and businesses who use the Badlands became increasingly concerned over the direct and indirect impacts oil development might have on wildlife. As a result, in May 2011, the North Dakota Game and Fish Department (NDGFD) completed a document entitled "Potential Impacts of Oil and Gas Development on Select North Dakota Natural Resources".<sup>16</sup> This report was a comprehensive review of current scientific literature related to oil and gas development, an assessment of the potential impacts to a variety of wildlife species, and possible mitigation measures that could reduce any direct and indirect negative impacts.

The report found that, while oil and gas development effects can vary to some degree among species, nearly all wildlife incur immediate and direct impacts in the form of lost habitat due to new oil well pads, roads, and other permanent infrastructure. In some cases, direct loss of wildlife occurs from increased traffic on rural roads and increased vehicle collisions. Oil and saltwater spills that contaminate riparian areas and watercourses also can have a serious negative impact on wildlife and the habitat they use.

In addition, increased disturbance and noise from construction and drilling activities, more roads and traffic, and other human and mechanical activities can cause wildlife to avoid or abandon previously used habitat. Roads and structures fragment or split habitat and can disrupt seasonal movements for mammals such as bighorn sheep, pronghorn, elk, and mule deer. This fragmentation can cause big game species to abandon areas such as bedding and feeding sites, as well as disrupt areas important for breeding. For example, oil activity too close to bighorn sheep lambing grounds has led to populations abandoning those areas for future lambing. Similar avoidance behavior has been documented in avian species such as greater sage grouse and sharp-tailed grouse, where mating leks and nesting areas have been abandoned because of nearby oil and gas development.

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<sup>16</sup> Dyke, S. et al. Potential impacts of oil and gas development on select North Dakota natural resources; a report to the director. North Dakota Game and Fish Department. 2011.

## North Dakota Efforts towards Restoration and Reclamation

Reclamation of surface damages related to oil development is a longstanding issue in North Dakota, and it was especially pronounced during the initial development of the Bakken oil play. With rapid development of roads, well pads, pipelines, electrical lines, and other related infrastructure, reclamation received little attention. As Bakken development expanded over the last decade, many private surface owners were unaware of the proper legal avenues or their rights to ensure appropriate development and reclamation.

Federal and state agencies that manage public land, including USFS, U.S. Bureau of Land Management (BLM), U.S. Army Corps of Engineers (USACE), North Dakota Department of Trust Lands (NDDTL) and NDGFD, have extensive reclamation standards and requirements. These requirements are designed to reduce or minimize surface disturbance during oil development on federal and state land. However, more than 90 percent of North Dakota is privately owned, and there are few regulatory standards requiring reclamation during the development stage, the production stage, or once oil extraction is completed on private land.

Agreements or easements must be negotiated between surface owners and mineral developers that define the developer's responsibility in reclaiming disturbed surface areas on private lands. In response to this important issue, North Dakota State University (NDSU) Extension Service created two publications<sup>17</sup> providing information on rights and responsibilities of private landowners prior to development and during reclamation.

In the 2011 legislative session, the North Dakota Legislature added a section to the North Dakota Century Code (NDCC 6-09.10-04) assigning responsibility for mediation of oil development-based disputes between private landowners and industry related companies to the North Dakota Department of Agriculture (NDDA).<sup>18</sup> This new section of law was added to existing legislation that dealt with agricultural mediation issues and is overseen by the Credit Review Board. Since 2011, the NDDA has dealt with approximately 50 cases related to oil development and private landowners. According to the NDDA, most of these cases have been successfully addressed. They covered such issues as compensation, easement activity, and infrastructure siting.

The Pipeline Restoration and Reclamation Oversight Pilot Program was created by the 2015 North Dakota Legislature (NDCC 4-01-31)<sup>19</sup> to provide technical assistance and support to surface owners and surface tenants on pipeline restoration and reclamation. Funding for the

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<sup>17</sup> Sedivec, K., C. Piper, J. Printz, A. Wick, A. Daigh, R. Limb, 2014. Successful reclamation of lands disturbed by oil and gas development and infrastructure construction – R1728. North Dakota State University Extension Service and the United States Department of Agriculture. 16 pages.

Sedivec, K., and D. Saxowsky, 2015. Reclamation of oil and gas industry-impacted land: a guide and checklist – R1766. North Dakota State University.

<sup>18</sup> Saxowsky, David. Taking Charge of Your Community's Future: Surface Mining Questions. North Dakota State University. April, 2012.

<sup>19</sup> Pilot program helps landowners with pipeline reclamation. North Dakota Department of Agriculture. April 15, 2015.

program and its activities is appropriated out of the Abandoned Oil and Gas Well Plugging and Site Reclamation Fund, which is not to exceed \$400,000 during the 2015-2017 biennium. This pilot program will expire in 2017 unless the North Dakota Legislature reauthorizes and continues funding the program. Making the program permanent and providing sufficient funding would be very helpful in the future if estimates of drilling activity are accurate.

The North Dakota Legislature gave the pilot program the authority to provide technical education, support, and outreach to surface landowners and surface tenants on pipeline-related matters in coordination with other entities. The NDDA has collaborated with the NDSU Extension Service to develop the two publications mentioned above related to pipeline restoration and reclamation. Broader dissemination of these useful publications would be helpful, especially to private surface landowners.

In accordance with this new law, the NDDA also contracted with several individuals to serve as ombudsmen for the purposes of being a resource for technical assistance and follow up on pipeline issues.<sup>20</sup> According to the NDDA as of early 2016, there were 26 active cases being addressed by the ombudsmen and mediation portion of the pilot program. All of these cases are reclamation-based, and the vast majority is located in Mountrail, Williams, Divide, and Burke counties. NDDA anticipates resolution of many of these cases in the spring of 2016.

### Environmental Review in North Dakota

North Dakota is one of 13 states with no formal environmental review requirements.<sup>21</sup> Thirty-seven states have been identified as having state-level environmental review processes, which can be categorized into two tiers.<sup>22</sup> Tier One includes 16 states that have adopted statewide comprehensive protocol for proposed projects across all sectors. These policies mimic the National Environmental Policy Act (NEPA) and require the preparation of environmental review documents following its model. North Dakota's neighboring states, Minnesota, Montana, and South Dakota, all are considered Tier One states. Tier Two includes 21 states where environmental review is required only for certain activities (e.g. power plant construction), in certain natural resource sectors (e.g. forestry, mining), or in the proximity of certain ecologically sensitive geographic areas (e.g. lakeshores).

In North Dakota, federal agencies such as USFS and BLM prepare environmental analyses in accordance with NEPA procedures to implement proposed oil and gas projects and other actions on the national grasslands and other federally administered lands. However, given the patchwork

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<sup>20</sup> These ombudsmen are not allowed under this law to: 1) investigate or assist with any pipeline installed before January 1, 2006; 2) investigate or assist with pipelines regulated by the Public Service Commission under Title 49 of the NDCC; 3) or participate in easement negotiations.

<sup>21</sup> Ma, Zhao et al. 2012. Barriers to and opportunities for effective cumulative impact assessment within state-level environmental review frameworks in the United States, *Journal of Environmental Planning and Management*, 55:7, 961-978.

<sup>22</sup> Ma, Zhao et al. 2009. Assessing cumulative impacts within state environmental review frameworks in the United States. *Environmental Impact Assessment Review*. 29, 390-398.



of public and private land, the inconsistency in environmental review across private, state, and public lands lessens its efficacy where it does occur.

An important component of environmental review is the assessment of cumulative environmental impacts (also cumulative effects). Cumulative environmental impacts are the incremental effects of a single action in the context of related past, present, and foreseeable future actions regardless of who undertakes them.<sup>23</sup> Such impacts are different from direct and indirect environmental impacts. Direct impacts are caused by a single project and occur at the same time and place as the project. A simple example would be the construction of a road and well pad to facilitate drilling operations. The direct impact would be the excavation and movement of soil, removal of vegetation, and perhaps displacement of some wildlife species. Indirect impacts are not immediately related to a project but result from the project and can occur later in time or farther removed in distance. Potential indirect impacts could lead to invasive weeds, soil erosion, and pipeline spills away from the pad. Noise and traffic associated with the project could displace wildlife or affect movement.

A Cumulative Impact Assessment (CIA) is the process of systematically identifying and analyzing additional or interactive environmental effects resulting from the recurrence of actions over time in order to avoid cumulative environmental change in a given geographical area. The concept is based on the fact that small actions or projects, when combined together, form a larger result. For example, gas flaring in North Dakota was relatively negligible in 1999. The state burned off just three percent of its natural gas, and it was a concern to neither the public or regulators.<sup>24</sup> The U.S. Energy Information Agency reported in 2014 that nearly one third of the state's natural gas in recent years was flared rather than consumed on-site or sold.<sup>25</sup> Industry indicated that a lack of pipeline capacity and other infrastructure exacerbated the problem. In addition to wasting an important energy resource, flaring also contributes to hazardous air pollutants and lost revenues for both mineral rights owners and the state.

In 2014, the North Dakota Industrial Commission (NDIC) passed an order to reduce the number, volume, and duration of flared wells. It established annual "gas capture" benchmarks of 77 percent in 2015, 85 percent in 2016, and 90 percent after October 2020.<sup>26</sup> Recent declines in the market have caused the NDIC to adjust these benchmarks, but the intent is still to reduce flaring by the percentages indicated. A CIA on oil and gas development in western North Dakota may have helped both regulators and the public to understand more fully the potential impacts

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<sup>23</sup> Council on Environmental Quality, 1997. Considering cumulative effects under the National Environmental Policy Act. Washington DC: Council on Environmental Quality.

<sup>24</sup> Hvinden, Dave. So why are all these gas flares burning in the oil fields? DMR Newsletter. North Dakota Industrial Commission, Department of Mineral Resources. Winter 2009.

<sup>25</sup> Budzik, Phillip and Michael Ford. North Dakota aims to reduce natural gas flaring. U.S. Energy Information Administration. October 20, 2014.

<sup>26</sup> NDIC March 3, 2014

associated with various levels of oil and gas development. Although the above example focused on flaring, the methodology is particularly applicable to wildlife habitat assessment.

See Appendix F for a discussion on barriers to state participation in CIAs.

### History of the National Grasslands

USFS is responsible for administration of the 191 million acres of federal land that comprise the National Forest System. The system includes 154 national forests that contain more than 188 million acres and 20 national grasslands that consist of roughly 3.8 million acres.<sup>27</sup> About 80 percent of the national grasslands are located in the Great Plains states of Colorado, North Dakota, South Dakota, and Wyoming.<sup>28</sup> The LMNG, located in western North Dakota, is the largest national grassland in the United States and contains just over a million acres. It is almost double the size of the next largest national grassland, the 560,000-acre Thunder Basin in Wyoming.<sup>29</sup> The area also includes the TRNP, managed by the National Park Service (NPS).

Unlike much of the National Forest System, which has always been in federal ownership, the national grasslands were at one time homesteaded and operated as private farms or ranches. However, much of the Great Plains was “submarginal” cropland with low precipitation. Even prior to the Great Depression and Dust Bowl of the late 1920s and early 1930s, many farm families were living in poverty on this submarginal land. These events exacerbated farmers’ problems and caused many mortgage foreclosures, tax delinquencies, and personal hardships. The drought, poor cultivation practices, and neglect also caused significant damage to the land.

Beginning in the 1930s, the Federal Government launched a large-scale Land Utilization Program (LUP) to respond to the agricultural issues plaguing the country. The LUP began as a submarginal land purchase and development program (i.e. the federal government bought back land from willing sellers), but it gradually evolved and expanded into a program designed to transfer land to its most suitable use. The LUP culminated with the passage of the Bankhead-Jones Farm Tenant Act of 1937. Congress has amended this act several times since 1937, including a 1981 amendment that added “developing energy resources” to the list of goals and objectives for which the LUP may be administered. Today, Section 31 of the Act states:

The Secretary is authorized and directed to develop a program of land conservation and land utilization, in order to correct maladjustments in land use, and thus assist in controlling soil erosion, reforestation, protecting fish and wildlife, developing and protecting recreational facilities, mitigating floods, preventing impairment of dams and reservoirs, developing energy resources, conserving surface and subsurface moisture, protecting the watersheds of navigable streams, and protecting the public lands, health, safety and welfare, but not to build industrial parks or establish private industrial or commercial enterprises.

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<sup>27</sup> Land Areas of the National Forest System. USDA Forest Service. Washington, DC: November 2015.

<sup>28</sup> *Ibid.*

<sup>29</sup> *Ibid.*

In 1938, the Soil Conservation Service (SCS) took over administration of slightly more than 7 million acres of LUP lands, including those along the Little Missouri River in the Badlands and rolling prairie of western North Dakota. Ranchers wanting to use the federal lands were told they would have to organize into associations patterned after the Mizpah-Pumpkin Creek rangeland management experiment in Montana. North Dakota passed a law allowing such associations, the SCS suggested articles of incorporation, and the ranchers quickly complied. This is an early example of collaboration among federal, state, and local entities. North Dakota grazing associations are still operating and continue to work with USFS land managers today. USFS assumed responsibility for administering remaining LUPs in 1954. Approximately 1.5 million acres of LUP land in the south and east were incorporated into new or existing national forests. In 1960, approximately 3.8 million acres of LUP land were designated as national grasslands.

In order to put the management authority of the national grasslands in proper perspective, with their varied history and combination of lands in public ownership and land formerly in private ownership but acquired under the LUP, it is helpful to note Section 11(a) of the Forest and Rangeland Renewable Resources Planning Act, which states:

"Congress declares the National Forest System consists of units of federally owned forest, range, and related lands throughout the United States and its territories, united into a nationally significant system dedicated to the long-term benefit for present and future generations, and that it is the purpose of this section to include all such areas into one integral system. The National Forest System shall include all National Forest lands reserved or withdrawn from the public domain of the United States, all National Forest lands acquired through purchase, exchange, donation, or other means, the National Grasslands and land utilization projects administered under Title III of the Bankhead-Jones Farm Tenant Act, and other lands, waters, or interests therein which are administered by the Forest Service as part of a system..."<sup>30</sup>

In other words, the lands that comprise the national grasslands, no matter their origin, prior ownership, or prior use, are all part of a single system managed for the benefit of the public.

### Previous Stewardship Efforts in Western North Dakota

North Dakota has seen several efforts since 2000 to balance development with stewardship of the Badlands and protection of wildlife. Several of these efforts are detailed below, some of which were initiated and endorsed by the state government while others were started by local groups interested in maintaining the Badlands. These initiatives have had varying degrees of success.

#### *Special Places Initiative (2014) (Now called Areas of Interest)*

The purpose of the Special Places Initiative was to protect special or “extraordinary” places, primarily on private, state, and public lands in western North Dakota, which are subject to oil and gas activities. Generally, the proposal would have required staff to look at applications that came in for drilling in those places and try to work with industry, landowners, mineral owners,

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<sup>30</sup> *Forest and Rangeland Renewable Resources Planning Act of 1974.*

associated state and federal agencies, and other interested members of the public to find the best possible placement of oil wells and associated infrastructure.

The idea was to protect extraordinary places and 18 were identified, including specific tracts such as Bullion Butte and Tracy Mountain within the Badlands, more broad areas such as state wildlife management areas, and a zone along the Little Missouri River. The energy industry and segments of the ranching community strongly opposed the initiative. In response, the NDIC revised the policy to apply to public lands only.

See Appendix D for a list of these areas.

#### *North Dakota Outdoor Heritage Fund (2013)*

The creation of the North Dakota Outdoor Heritage Fund was recognition by state leaders that more funding was needed for conservation and access to outdoor recreation areas. Outdoor enthusiasts encouraged and influenced the effort. The Fund was created by the North Dakota Legislature and Governor Dalrymple in 2013 to provide money for conservation projects and to provide access to outdoor recreation areas. The fund dollars come from oil and gas gross production revenues, and the 2013 North Dakota Legislature approved up to \$30 million for the fund. Passage of a 2015 bill allows for funding up to \$40 million for a biennium. However, due to the decline of oil prices the fund is only projected to reach about \$20 million.<sup>31</sup>

To date the Outdoor Heritage Fund has contributed to numerous projects, from small local recreation sites to large habitat creation efforts that have or will enhance thousands of acres for wildlife. It also has provided funds to North Dakota farmers and ranchers to enhance their operations with conservation in mind. Two projects specific to the Badlands area are; Mule Deer Foundation \$480,900 for enhanced habitat and American Bird Conservancy \$29,322 for grasslands conservation for Curlews.

#### *North Dakota Sporting and Oil Industry Forum (2012)*

The North Dakota Energy Forum is an umbrella group of citizens and partners involved in the development of oil and natural gas resources in the Bakken formation. In 2012, the Forum created a subcommittee called the Sporting and Oil Industry Forum. The Sporting and Oil Industry Forum included a smaller group of representatives from wildlife and conservation groups, oil companies, and the North Dakota Petroleum Council (NDPC).

Over several meetings throughout that year, the group discussed wildlife, habitat, and ways to reduce impacts from energy production activities. Prior to that, NDGFD and NDPC had discussed wildlife avoidance, and NDGFD started work on a series of geospatial maps showing the critical habitat of several wildlife species found in western North Dakota. NDGFD also developed a companion document of best management practices to reduce impacts to wildlife

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<sup>31</sup> Nowatzki, Mike. Groups want higher cap on Outdoor Heritage Fund while lawmaker talks possible cut. Grand Forks Herald. January 30, 2015.

from oil development (BMPs).<sup>32</sup> Together, these tools provided energy companies with information they could use to identify areas critical to wildlife and voluntarily develop plans to avoid or minimize disturbance of that habitat when routing and building roads and siting well pads. Since a statewide media conference to announce availability of the maps and BMPs in late November 2012, NDGFD has had little direct interest from oil companies. However, conservation organizations and consulting firms working for oil companies have requested the geospatial data and maps.

Also, as part of this effort, the Sporting and Oil Industry Forum developed a “Projects” committee designed to solicit applications for habitat enhancement projects that could be funded with grants from cooperating energy companies, conservation organizations, and government agencies. Several organizations submitted projects at a meeting in March 2014, but none were funded. An earlier project led by the Mule Deer Foundation for juniper management on Tracy Mountain in the southern Badlands received about \$10,000 in donations from energy companies. The last meeting of the Sporting and Oil Industry Forum took place in June 2014.

#### *Prairie Legacy Wilderness (2008)*

In 2008, the Badlands Conservation Alliance released “Prairie Legacy Wilderness”, a citizen proposal for national wilderness designation on the Dakota Prairie Grasslands (DPG). Acreage included the four noncontiguous areas in the LMNG managed under the 2002 DPG Land and Resource Management Plan (LRMP) as “Suitable for Wilderness”. Long X Divide is immediately south of the north unit of the TRNP and within the northern McKenzie Ranger District. Bullion Butte on the west side of the Little Missouri River and its sister Kendley Plateau across the river to the east, as well as Twin Buttes to the northwest of the south unit of the park, all lie within the Southern Medora Ranger District.

The Prairie Legacy Wilderness proposal also included minor acreage additions to Kendley Plateau and Twin Buttes to facilitate boundary management and area integrity. Lone Butte to the east of Long X Divide had not previously been authorized for mineral lease prior to signing of the LRMP and was included in the wilderness proposal as a special management area. A single 5,410-acre parcel in southeastern North Dakota’s Sheyenne National Grassland, the largest remnant of tallgrass prairie and oak savanna remaining in public ownership, was the final addition. Associated NDDTL (state school land) sections within the proposed areas were included in the citizen proposal (only federal land may be designated by Congress as wilderness) to encourage their protection by the state. Total acreage of Prairie Legacy Wilderness is 67,710 acres or 0.15 percent of the land in North Dakota.

The Prairie Legacy Wilderness effort highlighted the loss of pristine Badland landscapes and called for wilderness protection of roughly 67,000 acres. The proposal served to educate the public and even garnered the endorsement of the Bismarck Tribune, Fargo Forum, and Grand

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<sup>32</sup> Recommended Management Practices for Reducing Oil/Gas Impacts to Wildlife. North Dakota Department of Game and Fish. March 1, 2013.

Forks Herald, calling it a modest proposal. However, the proposal has not been successful in creating wilderness designations in western North Dakota. While wilderness is included under the USFS directive for multiple-use, the DPG as of April 2016 has no designated wilderness.

### *Elkhorn Ranch Acquisition (2006)*

President Roosevelt's conservation philosophy was forged while he lived on the Elkhorn Ranch in the Badlands of western North Dakota, and ultimately gave rise to the American conservation movement. Conservation groups consider the ranch the "Cradle of Conservation." NPS acquired the 218 acres where President Roosevelt's ranch buildings once stood and made it the third unit of TRNP.

After unsuccessful attempts by the NPS and the state of North Dakota to acquire the remaining acreage of Elkhorn Ranch, USFS completed the acquisition of 5,200 acres in September of 2006. Over 50 conservation groups, led by the Boone and Crockett Club and the Rocky Mountain Elk Foundation, collaborated with USFS to make the acquisition a reality. During the acquisition, many local conservation advocates worked with local communities to keep the project going. The primary purpose of the acquisition was to protect and preserve the outstanding historic and scenic qualities of the ranch and the surrounding area. The purchase was only of the surface ownership, no minerals were acquired with the purchase. Conditions of the acquisition included: 1) a no net gain of federal lands; 2) continuing cooperative livestock management with the Medora Grazing Association; and 3) honoring valid existing mineral rights. While USFS manages the Elkhorn Ranchlands, a management plan is not yet in place.

In 2012, the National Trust for Historic Preservation embarked on efforts to protect Roosevelt's Elkhorn Ranch by naming it one of America's 11 Most Endangered Historic Places. As a result, the Trust and numerous partners were instrumental in the eventual designation of roughly 4,400 acres of the LMNG, the TRNP, and private lands as Theodore Roosevelt's Elkhorn Ranch National Historic District.

### *Partners for Grassland Stewardship (February 2002)*

The Partners for Grassland Stewardship (PGS) was formed in February 2002 for "continuing collaborative processes that foster respect and resolve conflicts over uses and management of the LMNG in a way that creates solutions for all stakeholders ensuring sustainable, healthy grasslands that support a diversity of uses." PGS was made up of ranchers, community members, environmentalists, conservationists, industry representatives, and state and federal agency leaders. The Consensus Council, a nonprofit organization that helps to bring diverse viewpoints together to seek common ground, facilitated the effort.

Two important endeavors of PGS included a grassbank proposal, and use of the Society of Range Management's Coordinated Resource Management process to resolve livestock grazing issues through stakeholder-built allotment management plans. Funding to facilitate PGS eventually ended. The partners sought to establish a successor organization through Dickinson State University, but they were unsuccessful and the collaboration ended.



### *Dakota Prairie Grasslands Land and Resource Management Plan (July 2002)*

The DPG was newly organized in 1998 from National Forest System lands formerly administered by the Custer National Forest. The 2002 LRMP for the DPG replaced the 1987 Custer National Forest plan. LRMPS, often referred to as forest or grassland plans, are prepared in accordance with the 1976 National Forest Management Act, the 1969 National Environmental Policy Act, and other laws and associated regulations. The purpose of the LRMP is to guide all resource management activities on the grasslands.

Public involvement and governmental coordination are central to the plan's development. More than 74,000 letters and comments were received during the planning process. The Record of Decision on the final LRMP addresses the needs and desires of all Americans for these national grasslands, not just local, state or regional concerns. In light of all the efforts to develop a well-balanced, multiple-use plan for the DPG, the plan remains controversial, particularly with respect to livestock grazing. Because of the continuing controversy, a pilot demonstration project was proposed in 2006, to develop and implement integrated grazing allotment management plans among all the grazing associations that share in grazing management on the national grasslands. This process is ongoing.

In 2012, USFS announced their intention to prepare a Supplemental Environmental Impact Statement on oil and gas development in the Dakota Prairie Grasslands. USFS noted that since the release of the 2002 LRMP, the manner of oil and gas development has changed drastically. The agency will determine whether the impacts of the changed pattern in oil and gas development are different from those analyzed in preparation of the 2002 LRMP.

### *Badlands 2020 Vision (December 2000)*

In a letter to the DPG supervisor in 2000, commenting on the proposed LRMP, former North Dakota Governor Ed Schafer noted that a coalition of environmentalists had proposed designating nearly 200,000 acres in the DPG as wilderness in 1993. The proposal, called "Badlands on the Brink," intensified the debate regarding the future of western North Dakota and especially the national grasslands. Governor Schafer's response to Badlands on the Brink was "Vision 2020," a plan for a balanced approach to the grasslands that allowed for genuine multiple use, including oil and gas development in select areas, expanded recreational opportunity, wildlife habitat, and grazing. He concluded the issue was broader than just wilderness. As part of his Vision 2020, the governor wanted ranching, oil, and environmental groups to discuss a long-range plan for the rugged territory. He said he could support a substantially smaller version of the Badlands on the Brink plan.

The state took a variety of steps to make the governor's vision a reality. One of the more significant actions included a mineral exchange south of Medora near Bullion Butte and Kendley Plateau that required congressional authorization. The exchange included approximately 9,500 mineral acres, which reduced the "checkerboard" pattern of mineral ownership common to the Badlands, which complicates management of the grasslands. This exchange between Burlington

Resources and USFS was completed in 1997. While many other steps were taken to help achieve the governor's vision, the Vision 2020 initiative has not been pursued following the end of Governor Schafer's term in office in 2000.

#### *Grasslands Stewardship Initiative (March 2000)*

The Grassland Stewardship Initiative (GSI) grew from decades of controversy over resource management and rangeland health in North Dakota's DPG. The effort was facilitated by the Consensus Council, a nonprofit organization that helps to bring diverse viewpoints together to seek common ground, in this case ranchers, conservationists, government agency leaders, and concerned citizens.

Over two years and 17 meetings, the group planned field visits, work groups, and public forums, and developed noxious weed recommendations as well as formal comments on the DPG management plan. A core agreement among the initiative's members included that development of oil and gas resources within the DPG is compatible with other resources and uses when using proper management practices. The GSI final report, issued by the Consensus Council, concluded that the initiative was a successful inaugural effort to open communication and work toward practical solutions to common ground issues.

See Appendix E for reference to similar collaborative stewardship efforts that have occurred outside of North Dakota.

#### *Summary of Results of Stewardship Efforts*

A number of collaborative efforts have taken place in North Dakota over the past 15 years. Many of the efforts, such as the GSI and the PGS project were focused on the state's public lands, particularly the DPG. More recent efforts, such as the Special Places Initiative and the North Dakota Sporting and Oil Industry Forum, were responses to increased oil and gas development activities.

Each effort has had some measureable success. Most of the efforts created a dialogue between interests holding competing or different values. Relationships were developed and lines of communication were opened. There was frequently a shared acknowledgement and understanding, although not always agreement, of other positions and viewpoints. Some efforts were responses to public concerns.

Collaboration has influenced some important outcomes in the state. The public and other stakeholders want a seat at the table to express their concerns and desires. Most likely, any effort in North Dakota undertaken to meet the project's stated goal will involve some form of collaborative effort.



## Interviews

We solicited interviews from the four sectors mentioned previously: ranching, oil industry, government, and conservation. The goal was to interview individuals or representatives of organizations with the greatest experience, responsibility, and stake in the Badlands area. We identified people we thought would best meet the description of local stakeholders, regardless of their attitudes toward oil development. Several times local stakeholders would suggest someone they thought particularly knowledgeable about the issues and we would reach out to them for input. They were selected without reference to how they might respond (i.e. for or against oil development). The goal was not to generate a statistically valid sample, but rather to generate ideas for improvements in overall oil and gas management such that development can occur in concert with land stewardship.

We conducted 57 interviews or surveys with 71 individuals. Some individuals had multiple roles, i.e. they might have been both a rancher and a county commissioner. We received mostly positive responses to our requests for interviews. The oil sector was especially hesitant, and as such we were only able to interview representatives of four oil companies

This resulted in the following makeup of interviewees:

- Conservation – 8
- Recreation Businesses – 6
- Ranchers – 26
- Oil Industry – 4
- State Agencies or Elected Officials – 12
- Federal Agencies – 5
- County Commissioners - 4
- Hunters (by survey) – 6

If there was one overriding message we heard from the surveys and interviews, we would summarize it as: “produce oil and be good stewards of the surface.” A few respondents thought the status quo was adequate, and no one suggested North Dakota stop producing oil. The vast majority indicated North Dakota could do a better job protecting the areas identified in our stewardship definition, “ranching, wildlife, culture, and scenic value.”

## Interview Summaries – Subjective

The questionnaires included a group of subjective questions for each of the four stakeholder groups. This section summarizes the responses from the four groups interviewed.

### *Ranchers*

This category of stakeholders includes individuals or families, and members of organized grazing associations who raise livestock in the Badlands area. The ranchers surveyed live throughout the Badlands, and all geographic areas are represented in the questionnaire and survey process. Not all ranchers had the same level of experience in dealing with oil development. Some had little to no experience, others had minimal experience with small developments that were 20 years old, while others lived in the current oil development area with extensive experience. The most relevant ideas came from those who had current experience with Bakken development over the last few years.

Following is a list of rancher categories that were surveyed:

- Individuals or families who operate on private lands, which they own, rent, or lease;
- Individuals or families who operate on leased land, which may be private, public, or a combination of the two;
- Individuals or families who operate on private land they own and leased public land. Public lands include those managed by USFS, BLM, NDDTL, or NDGFD; and
- Individuals or families who do not operate a livestock grazing ranch but own the land and lease the grazing rights to other private landowners. Many such landowners have purchased land as recreational property or as an investment, or they may have inherited the land.

Some ranchers and rancher groups were reluctant to participate in this study because of a lack of trust and familiarity with the lead organization, and they were concerned that the study's information may be disseminated or used against their livelihood. Other ranchers, however, felt an unbiased study is needed to promote more planning with the oil companies, USFS, and the people living on the land. Most ranchers agreed with the study's goal of "protecting the Badlands and Little Missouri Valley's landscape without impeding oil development."

Ranchers depend on grass for their livelihood. They often manage the grass with some reserve, for the inevitable years with less moisture. These reserves can come from different management functions, such as stocking rate or rotational grazing with rest periods. Additionally, reserves can also come from high structure grasses that are a greater distance from a cattle-watering source. The low and medium structure grasses are usually closer to the cattle-watering source. They also depend on woody draws and other natural protection of the Badlands for inclement weather during calving season.

One important point that came out in the interviews and in other conversations with ranchers was that they live there 365 days of the year and know most coulees, draws, hills and soil types from the top of a horse. They know how to manage the grass long-term, where the wildlife live and migrate, and how oil impacts could be reduced with careful planning. Most oil companies do not consult with ranchers on how to minimize the effect of oil development with siting of wells, roads, or pipelines. Additionally, most ranchers consider themselves conservationists. Their livelihoods depend on taking care of the fragile Badlands area, and some ranchers derive income from wildlife.

Ranchers believe government agencies and conservation groups sometimes have goals or agendas that are contrary to those of ranchers, and there is often mistrust. Even in instances when the goals and agendas are not in conflict, there is disagreement on priorities with economic viability of ranching operations often lower on the priority list of these other constituencies. Some ranchers consider government agencies and outside special interest groups to be a larger threat than oil development, with one exception. The exception is that in some places water sources are limited, and if oil exploration or oil development destroyed the aquifer they depend on, that land would have little ranching value. They are also concerned with outside investors, who purchase land for aesthetics and intrinsic values, and drive up the cost of land higher than what a working rancher can pay based on its productive capacity.

Below are other issues and recommendations that emerged from interviews with ranchers.

- Ranchers living in the Badlands are generally very concerned about updating the 2002 DPG LRMP. Every time the management plan has been revised, ranchers feel they lose as grazing restrictions are tightened and the legally asserted multiple-use concept of these lands is overlooked. Outside special interest groups have more political influence than ranchers to get their agendas into an updated plan. Additionally, a population farther removed from agriculture is not as inclined to stand up for agricultural interests.
- Ranchers believe there needs to be better communication and planning between the oil companies, USFS, USFS permittees, and private landowners. Most of the ranchers interviewed agreed that with better planning and a more open communication process, the duplication of infrastructure and well siting could be improved while protecting the Badland's landscape. Many ranchers feel that better planning, communication, and new technologies will help achieve the stated goal.
- Most ranchers feel that they are at a significant disadvantage when working with the oil industry because the rights of mineral owners are placed ahead of the rights of surface owners in North Dakota. Some ranchers have indicated that surface owners and tenants have limited rights and protections. This could be changed by either oil companies or the North Dakota Legislature through a constitutional change equalizing or at least elevating the rights of surface owners. Additionally, many feel that surface owners should receive annual rental payments for oil well sites similar to what wind tower sites receive.

- Most ranchers indicated they are against new or more regulations if they can be avoided. However, they think industry standards and BMPs are necessary. These standards could be set by a consortium of oil industry representatives and other stakeholders. It would be their preference to try this approach before writing new regulations. There is a lack of trust with government agencies, and regulations seem to have unintended consequences. Whenever possible, voluntary and incentive-based policies should be encouraged.
- Ranchers mostly agreed that oil development has more benefits than drawbacks. Generally, they are happy that local communities are revitalized, school consolidations have stopped, there are more people and jobs, and some of the two-track trails have been upgraded to all-weather roads. Some of the negatives have been increased traffic, poor siting and duplication of infrastructure, a lack of pipeline infrastructure, and people who do not hold “North Dakota values.”
- Most ranchers agreed that reclamation could be improved. In some cases, abandoned oil wells have not been reclaimed, and the reclamation of new pipelines by some companies has been subpar with little or no follow up. In some cases, native grass species have been seeded on state or federal lands while on adjacent private lands, less expensive crested wheatgrass or brome grass seed has been used. While these two species can have a place in some cattle operations, they are not considered as desirable in the semi-arid fragile Badlands areas as the native species. The quality of work often depends on the company.
- Ranchers are concerned about adequate and equal reclamation standards. Reclamation on USFS and NDDTL managed land is often done to higher standards than on private land. Some feel that the state needs to have a better handle on planning and enforcement of existing regulations. Others have suggested the “Art Link” coal model on reclamation.
- Some ranchers recognize the importance of special places and historic sites and feel they should be protected. They believe the viewshed of the Elkhorn Ranch Headquarters is important and should be protected. However, the rest of the Elkhorn Ranchlands should be a working ranch. Additionally, they are generally against USFS’s No Surface Occupancy (NSO). In many cases it has forced oil companies to drill on adjacent private land, which is sometimes more ecologically sensitive than the adjacent USFS land. They also think the number of special places and historic sites should be limited.
- Ranchers generally feel that oil development has had only minimal impacts on wildlife, and that weather is a much bigger factor on wildlife populations than oil development. The deer population is down from its recent historic highs, but most feel that it is still adequate, and the declines are related to weather more than oil development. See Appendix I “Feathers from the Prairie” re: weather impacts.

See Appendix B for specific subjective responses from the rancher interviews.

## *Oil Industry*

CCG's goal was to interview oil industry officials operating in the Badlands areas of North Dakota. We especially wanted to interview individuals from specific companies that were identified by landowners as "good to work with," and those that had a reputation for working with landowners on surface management issues. Questions for the industry officials dealt with the industry's "best practices" that have produced desirable results.

The CCG team made requests to eleven companies, and four officials were willing to be interviewed. Industry representatives were reluctant to participate in this effort because of the nature of the topic, the sponsors, or concerns for the creation of more rules and regulations. Nonetheless, what the CCG team did hear from the industry could be summarized as follows:

- All is well; changes are not necessary. Industry responses suggested little long-term vision for the region, except to develop the resources.
- Industry representatives believe more regulations or rules are not needed. Economic considerations (royalty rates, taxes, costs) drive behavior and decision-making more than regulations.
- Industry is open to more input from landowners. Development would improve if locals had more control and input while federal agencies and out-of-state entities had less. Landowners and state government should be more involved in planning.
- Industry representatives believe that better development planning would be useful and that future projects should draw on the experiences to date in the heavily developed and impacted counties of Williams and McKenzie. Additional larger unitization projects would be positive.<sup>33</sup> Any new ideas and planning efforts should include oil companies at the table.
- Industry representatives believe collaboration among oil producers is uncommon because they see each other as competitors.
- The North Dakota Governor and the NDIC need to lead and develop a long-term vision for future development.

See Appendix B for specific subjective responses from the oil industry interviews.

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<sup>33</sup> Unitizations are generally 1,280 acre tracts used to produce oil and gas. In areas of rough terrain, production and planning of the production within larger units have the potential to reduce infrastructure, cost and surface disturbance. Although not universally approved of, it is viewed by most stakeholders as a positive to reach the stated goal.

### *Government Agencies*

Members of the CCG team have a broad array of experience with government agencies that either regulate the oil and gas industry or manage programs and resources that deal with potential impacts of development activities. Examples of the former would include the North Dakota Department of Mineral Resources (NDDMR) and the North Dakota Department of Health. The latter includes NDGFD and NPS. Some agencies operate in both categories when development activity occurs on land they administer.

Agencies with specific responsibility for managing oil and gas development are typically affiliated with the state of North Dakota and their roles are specifically spelled out in North Dakota Century Code. Other state agencies have responsibilities for dealing with the impacts of oil and gas development but do not have any direct management authority when it comes to oil and gas development activities. Federal agencies, such as USFS and BLM, have both oversight of oil and gas development and are responsible for managing impacts resulting from oil and gas activities. BLM manages both the leasing of all federal minerals and down-hole activities, while USFS manages surface resources under its jurisdiction.

The team identified all federal and state agencies that either regulate or are impacted by oil and gas activities. The team prioritized the list and selected government agencies for interviews that would provide a broad spectrum of views as well as identify opportunities for improvement. Representatives from federal, state, and local entities were either interviewed or mailed a survey.

In general, all interviewees supported the project's goal. Most government officials were either somewhat or very concerned about the future of the Badlands and the Little Missouri River Valley. There was recognition of the fragility of the landscape and soils, the loss of grassland habitat, and impacts to cultural resources and wildlife. It was also somewhat or very important to many interviewees to maintain the Badlands as close to current conditions as possible while developing mineral resources. Ranching, wildlife, scenic value, recreation, historic and cultural, and maintaining environmental quality and economic development interests were mostly very important considerations for all interviewees. A key question expressed by one interviewee is "what can we do together to address all the interests?"

Several government officials expressed that success is about the process of a "shared vision." Effective collaboration and communication needs to occur among landowners, industry, stakeholders, and land managers. Facilitated discussion is needed to work through challenges.

The following includes a summary of other thoughts heard from government officials:

- There is a perception that agencies are more reactive than proactive, and that some are only marginally included in the oil and gas development process. Pro-business climate and inflexibility to do something different drives the process.
- Government officials believe oil and gas activities could be implemented better. Development will happen, but the state needs to be smarter about it. Rather than a

piecemeal approach, there should be a stronger focus on the landscape. Spacing units need to be landscape based rather than a legal description, and North Dakota should adopt better mechanisms for reorienting or expanding spacing units.

- Local planning was recommended to encourage citizen involvement and achieve a “balance” between the rural lifestyle and development. Non-governmental organizations and tourism need more say in the process.
- Planning is haphazard or nonexistent, development is too rapid, and there is no discussion about the end game. State should adopt a formal environmental review process and a pre-environmental review process prior to approval of staking. A number of interviewees recommended land use planning and the need to look at cumulative impacts to address the ability of the environment to assimilate to impacts. One person suggested the Little Missouri River Valley could provide a starting point for a larger planning effort where planning would be done in ten mile segments.
- Reclamation plans need to be in place before development. Reclamation needs to meet standards before bond release. Older, sub-marginal wells are often sold to poor operators.
- There was recognition that some areas are to be avoided due to higher values. Additionally, some agencies felt the use of the NSO stipulation was appropriate and should be used more while others thought its use should be limited to protect values of adjacent state or private lands.
- Many interviewees indicated that no energy development should be allowed around the TRNP. Woody draws and steep slopes, Inventoried Roadless Areas, Blue Buttes (a Native American traditional use area), non-motorized areas, and lands designated suitable for wilderness were also mentioned as areas where development should not occur.
- Most people interviewed felt that responsible energy development could be accomplished through a combination of regulatory and voluntary efforts. None of the interviewees thought responsible energy development could be accomplished voluntarily, and a few thought that only more government regulation and oversight would facilitate responsible development. Regulations should be updated to be consistent with new technology. Proactive approaches are needed to avoid regulatory action such as Endangered Species Act (ESA) listings.
- Any strategy must recognize private property rights (mineral and surface). Some interviewees believe that the state needs to address split estate issues and develop a process to resolve disputes.
- Some interviewees thought industry should play a greater role in protecting key Badland values. It will be their legacy. One thought was to communicate to industry and let it design mitigation necessary to reduce impacts to resources.

See Appendix B for specific subjective responses from the government interviews.

### *Conservation Groups*

A variety of conservation, hunting, and recreational stakeholders were interviewed or surveyed for this project. Some of these groups were local or were considered as an in-state conservation or recreation organization. Others were local or state chapters of regional or national conservation organizations. The CCG team focused on gaining insight from local and state chapter members and did not seek input from national level offices. In addition to representatives of organizations interviewed or surveyed, the CCG team also sought opinions and ideas from individuals who use and value the Badlands for hunting, fishing, and other recreation. These individuals live throughout North Dakota and are not affiliated with any particular organization. They were identified by the CCG team based on individual knowledge or previous contacts.

While each of the interviewees might have come from a different perspective, such as a leader or spokesperson for an organization that works with a particular species, or with an organization that had a focus on the overall ecosystem and scenic values of the Badlands, or simply as an interested and concerned individual who valued spending time in the Badlands, there were clear themes that emerged. For the most part, the issues and concerns brought forth by people identifying themselves as conservationists are similar in many ways to the issues and concerns of ranchers and some government entities.

Themes from conservation comments included:

- In a state where over 90 percent of the land is privately owned, public land is inherently valuable to residents and visitors. Conservation and recreation survey responses were nearly unanimous in their intense interest in the limited public lands in the state.
- Conservation organizations and individuals interested in conservation held the Badlands in high regard as an important place for wildlife, nature, and the wide variety of people who use these resources.
- Many conservationists believe the USFS LRMP needs updating. When the current plan was finalized in 2002, the development of the Bakken and Three Forks oil plays was unknown.
- The intensity and predicted decades-long duration of oil development was a key concern, along with the apparent lack of planning among oil companies and government entities. Conservationists believed that planning, more transparency, and a more inclusive process could, if implemented, reduce the overall impact and footprint of development, thereby reducing impacts to wildlife and wildlife-based recreation.
- There was a great deal of concern about the future of the Badlands in the face of continuing oil and gas development. No one really knows to what extent oil and gas development will continue in areas already impacted or expand into areas that are relatively undisturbed such as south of I-94. This uncertainty is troublesome to people



interested in conservation. More transparency by state regulators and the industry would be beneficial in addressing this concern.

- There was hope that emerging technologies would help reduce the footprint of oil development in the badlands environment, and if oil companies used these technologies to their fullest extent it would go a long way in demonstrating to conservationists they are concerned about the impacts their business can and will have on the Badlands and its values.
- Conservationists were also deeply concerned about reclamation of oil wells and associated infrastructure. Public land entities such as USFS, BLM, NDDTL, and NDGFD do have extensive reclamation standards and requirements. However, over 90 percent of North Dakota is privately owned, and there are few reclamation standards on these lands. As such, minimizing and mitigating surface impacts has not kept pace or has been as effective as on public land. They question whether reclamation will be done effectively with limited or little bonding required. This concern was especially evident when discussing the long-term vision for the Badlands.
- Some conservationists also believed that protecting special places in the Badlands needs another look.

See Appendix B for specific subjective responses from the conservation interviews.

## Interview Summaries – Objective

The questionnaires, interviews, and surveys included a series of common objective questions. All interviewees from the four main stakeholder groups (ranching, government, oil industry, and conservation) were asked to answer this series of identical questions. They responded by ranking beliefs, issues or concepts, using scales such as “very important” to “not at all” or “no opinion.” These objective questions provide an indication of areas of agreement and disagreement. Additionally, comparing and contrasting these responses provides insights into what any strategy moving forward will need to address in terms of differences in philosophy or opinion.

The following discussion looks at some of the common objective questions and corresponding responses. Not all questions are addressed here as some were not readily comparable, or were specific vision statements from the group or person completing the interview or survey.

- 1) Generally speaking, how concerned, if at all, are you about the future of the Badlands and the Little Missouri River Valley?

*Nearly all of the respondents from ranching, conservation and government indicated this was very to somewhat important. The responses from the oil industry group included two “very important”, one “not at all important”, and one “no opinion”. Overall, there was strong concern over the future of the Badlands.*

- 2) How important, if at all, is it to maintain the Badlands area as close to its current condition as possible while developing and extracting the mineral resources?

*Nearly all the respondents from ranching, conservation and government indicated this was very to somewhat important. The responses from the oil industry group included two “very important”, one “only a little bit”, and one “no opinion”.*

- 3) How important is each of the following interests (ranching, wildlife, scenic value, recreation, and historic/cultural) to consider while creating strategies to develop mineral resources with responsible stewardship of the Badlands?

*Interestingly, a large majority of respondents from all four groups ranked all of the interests as “very” to “somewhat important”. The only exception was in the ranching group where an equal number of people said the historic and cultural interests were “important” to “somewhat important”, and the others said it was “only a little bit” to “not at all important”. Ranching placed similar importance on the other interests.*

- 7a) How important, if at all, is protecting the Elkhorn Ranch landscape?

*The conservation and government respondents were strong in their response that the Elkhorn Ranch was important while the oil responses were mixed and the ranching responses included all five options. The controversy surrounding the federal acquisition and management of this property is most likely the primary reason for disagreement.*

- 10) How much more input, if any, into how mineral development happens should there be from each of the following sources?

*In general, responses to this question favored more input from the range of stakeholders. While a significant portion of respondents from all four groups favored more input from most stakeholders, some respondents in all groups identified some stakeholders from which additional input is not needed.*

- 13) Should the state use unitization more often to help meet the stated goal?

*About half the respondents supported use of unitization and only one was opposed. However, nearly half of the respondents had no opinion. The CCG team believes this is related to lack of knowledge about the concept, or how it actually works on the landscape. The only real public discussion about unitization has been around the Corral Creek and Little Missouri Bay State Park example, which received a great deal of media exposure. Even with this media coverage there is a lot of misunderstanding regarding the concept and how it works. We discuss this at length in the [Strategies for Future Action](#) section of the report.*

- 14) Should the state of North Dakota adopt a formal process to provide transparency to inform the public about proposed energy development activities and anticipated impacts?

*The majority of responses from government and conservation supported such a concept as did a large portion of the ranching group. The oil industry group was largely opposed to establishment of a formal process.*

- 15) Should the U.S. Forest Service address changed conditions and assess cumulative impacts of energy development on the Little Missouri National Grasslands (scenic values, roadless areas, wildlife habitat, etc.) which may result in amendment or revision of its current Land and Resource Management Plan (Grassland Plan 2002)?

*This question had the most varied responses amongst the groups. The majority of government and all conservation responses favored a revision. The ranching responses were evenly split along with a few “no opinion”. The responses from those ranchers in the Badlands were generally against opening the LRMP up for revision while some ranchers outside of the Badlands and the absentee Badlands landowners thought it might be appropriate to revise the LRMP. The oil industry group responded with three of the four opposed such a revision and one “no opinion”.*

- 18) What geographic area should the strategy focus on?

*All respondents from the ranching, conservation, and government groups indicated that all three areas (Little Missouri River Valley, southern Badlands, and northern Badlands) should be addressed and included in this effort. In contrast, one respondent from the oil industry group said only the Little Missouri River Valley should be included.*

In summary, analysis of the common objective questions indicates strong to fair consensus on most issues by all four groups. While not every issue or question had unanimous support, the level of agreement on issues was encouraging. The areas of disagreement were few.

See Appendix C for tables of the responses of different stakeholder groups to each question.

## Key Issues from Interviews

The following are the primary common issues resulting from the interview and survey process. While there was a wide range of issues raised by respondents, the most relevant and shared issues are discussed below.

### *Planning*

North Dakota presently has about 13,000 active wells in the state, most of them located in the western part of the state. The DMR Oil and Gas Division, has projected approximately 30,000 wells on the landscape by 2020, nearly 40,000 by 2025, and nearly 60,000 wells by 2050.<sup>34</sup>

Many interviewees expressed concern over the lack of planning in western North Dakota as the oil boom developed. North Dakota's emphasis appears to favor oil development rather than embracing an approach that would achieve a "balance" between the outdoors or rural lifestyle and development. The state has the ability to coordinate better but seems reluctant to do so, focusing on financial benefits and ignoring the impacts of oil development. A dominant theme among many interviewees is that the mineral resource development process should be collaborative among key stakeholders, which could include a long-term strategy for oil development designed for sustainability. While many interviewees supported long-term strategic planning efforts, there was not consensus on how to do it. The conundrum is that while change is desired there is wariness of new rules, regulations, and bureaucratic processes to implement it.

Federal land management agencies in the state, such as USFS and BLM, have a mandate to develop and implement management plans under multiple-use. The plans, particularly the DPG LRMP, have not been without controversy in North Dakota. Interspersed private, state, and federal lands in the Badlands further complicate the management situation. Some interviewees recommended that USFS should address changed land and resource conditions due to energy development through an amendment to or revision of the 2002 DPG LRMP.

Another planning issue occurs because of U.S. Fish and Wildlife Service (USFWS) authority to list species for protection under the ESA. USFWS recently listed the Dakota skipper butterfly and the Poweshiek skipperling butterfly, both of which have habitat in North Dakota. Additional potential listings that could affect the region include the greater sage grouse and monarch butterfly. Although many species of concern are being considered by the USFWS, it is not known when they may become candidates for listing and warrant special protection.

As noted in the [Environmental Review in North Dakota](#) section of the report, North Dakota does not have a formal environmental review requirement. Strategic planning that includes a CIA may be a tool that could be used by the state to avoid cumulative environmental change in a given geographical area. In this context, potential USFWS listings could be averted through preemptive

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<sup>34</sup> Director's Cut, North Dakota Producing Counties Update. North Dakota Industrial Commission, Department of Mineral Resources. September 18, 2014.

actions to avoid listings and loss of important habitat. See Appendix F for barriers to state participation in CIAs.

Long-term planning can also facilitate unitization and mineral exchanges. Given current drilling technology there may be opportunities for larger spacing units to reduce the “footprint” of oil and gas development activities. Mineral exchanges between the state and federal government could also be identified in plans to protect important resource values.

In summary, many interviewees supported long-term strategic planning in western North Dakota. Multiple agencies, jurisdictions, and land ownership patterns add considerable complexity to the management situation. Agency missions and mandates frequently conflict. Collaboration among federal, state, and local agencies to develop oil and gas resources while protecting other resources is paramount to maintaining a functioning Badlands landscape.

### *Communication*

Communication barriers exist due to personalities, attitudes, perceptions, values, interests, and mandates. Greater transparency is needed, and communication should be a key element of planning. The lines of communication should be open between oil companies and stakeholders during the planning process. There is a perception that the energy development process is top-down driven. It was suggested that it is time “to redefine conservation to include industry,” to address challenges through facilitated discussion. The process should identify what needs to be protected, and industry should be encouraged to develop plans to protect what is important.

Many felt local governments do not have enough say in the development process; this was a common theme even with the oil companies. There is also a perception that the NDIC is not communicating or working closely enough with state agencies that have responsibilities related to oil development. The NDIC website needs to be upgraded and made more user-friendly as it is difficult to find information. Even though NDIC accepts some ownerships input, it is not known how the information is being used in the process.

### *Reclamation of the Landscape*

Concern was expressed over impacts to the landscape of the Badlands and the Little Missouri River due to development. Flaring as well as oil and saltwater spills are major concerns. Steep slopes and fragile soils may not support development, and some areas should be avoided altogether due to higher resource values. More research on reclamation methods is necessary. Multi-well pads and directional drilling, including staging water trucks off site, would reduce disturbance and visual impacts.

Reclamation and remediation on private lands with surface ownership but no mineral ownership is a concern. Landowners often do not have access to current BMPs or the latest technology. It was suggested that reclamation work should meet standards and specifications as per the Natural Resource Conservation Service.

Reclamation plans should be in place before development, including specifics for restoration of native species and removal of unneeded infrastructure. Reclamation work should be done to a standard before releasing bonds, and costs should be reviewed periodically to ensure completion of required work. A post-development remediation plan should be developed to show little to no development impacts on the Badlands and its resources.

### *Regulations, Standards, and Best Management Practices*

It is widely understood that it is difficult to slow down or preclude development due to mineral ownership, especially on private lands. Federal and state agencies have more latitude, but once a parcel is leased, the expectation is that the minerals will be developed. Surface owners without mineral rights are concerned that they have little or no influence over mineral activities on their land. Rather than developing more regulations, most of those interviewed believed that existing laws and regulations needed to be enforced to protect historic sites and other resources in need of protection.

While most interviewees thought responsible energy development could be accomplished, some felt responsible energy development could not be accomplished only through voluntary action, or without sound environmental regulations and government oversight. Voluntary pre-planning, conservation, and reclamation actions by oil companies may not be enough. There has to be regulation because companies will not always live up to voluntary standards and practices. Adoption of a pre-environmental review process prior to approval of staking could protect important resources. Some interviewee's stated more or updated regulations are needed while others felt there is already too much federal regulation. Some suggested use of tax or other incentives to promote responsible development.

While the state may seek to avoid impacts to specific sites (i.e., historical, riparian, critical wildlife habitat, etc.), it has no enforceable standards in place on private lands. Mineral exchanges can be an important tool to protect high value areas. However, the State Board of University and School Lands needs broader authority to move forward on exchange proposals.

### *Cultural Resources and Special Places*

Cultural or heritage resources can be defined as the physical remains and conceptual context of an area. Physical remains include artifacts, structures, landscape modifications, rock art, trails, or roads. Conceptual context includes the setting for legendary, historic, or prehistoric events, such as a sacred area for American Indians. Examples in the Badlands include the foundation of Theodore Roosevelt's headquarters on the Elkhorn Ranchlands and the Blue Buttes, an American Indian traditional use area.

Most interviewees agreed that critical areas of scenic or historic value should be protected. They also expressed concern over the protection of "special places". However, there was no clear consensus on the characteristics of special places or where specifically they are located. Ranchers generally agreed with the need for protection of historic sites but felt they should be limited to a small number of key sites.

Although heritage resource professionals clearly understand the nature of the resource they manage, the public likely does not. Special places have not been clearly defined. This lack of clarity regarding cultural resources and special places most likely results from limited knowledge. For example, in the Bakken formation, 27 percent of federal lands have been surveyed to identify cultural and historic sites compared to only five percent of state lands.

While federal land managers have clear mandates to survey and to protect or mitigate impacts to heritage resources, the state needs more information and enforceable standards to protect significant historical resources. On public lands, it was recommended by some interviewees that consideration should be given to expansion of the NSO stipulation to protect significant cultural resources.

### *Wildlife Habitat and Access to Public Lands*

The Badlands contain 1.2 million acres of public land managed for multiple uses by USFS. Conservationists, hunters, and an expanding diversity of other outdoor recreationists are concerned about how these lands are managed now and in the long-term. They are also insistent that public access to these lands should be maintained. It is also important to maintain LMNG's non-motorized areas.

Many interviewees expressed concern about oil and gas development activities and impacts to wildlife habitat. Increased traffic, noise and loss of grasslands is adversely affecting wildlife habitat. Strategic planning which could include cumulative effects analysis is supported by many interviewees to assess habitat impacts and consequences to specific wildlife species.

NDGFD published a study in 2011 that assessed impacts to wildlife.<sup>35</sup> The introduction stated that huge financial gains from energy production could not be expected without potential impacts to two major industries, agriculture, and tourism. As the footprint of oil development expands and the cumulative impacts to natural resources such as water supplies and wildlife habitat increase, maintaining the sustainability of the state's rich natural resources will become increasingly challenging.

The report also noted that energy development is important to the state's economy, but large-scale development often adversely affects fish and wildlife resources that are a vital part of the state's tourism industry. If future energy development occurs at the expense of our fish and wildlife resources, losses in tourism dollars can be expected and the quality of life to which most residents are accustomed could be diminished.

Some interviewees believed that the NDGFD should be more involved in oil and gas development activities. Interviewees also expressed concern over ESA listings and suggested that proactive approaches are needed to avoid potential listings. Industry needs to be advised of solutions and be part of the process. The use of lease stipulations should be explored to protect

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<sup>35</sup> Dyke, S. et al. Potential impacts of oil and gas development on select North Dakota natural resources; a report to the director. North Dakota Game and Fish Department. 2011.

important habitat. It was also suggested that industry needs to develop wildlife management areas and establish a “no net loss of habitat” policy.

#### *Other Key Issues*

1. Legacy concerns – personal and agency (i.e., “not demolished on my watch!”);
2. Impacts to recreation;
3. Better planning and limited development near the river;
4. Complexity – multiple land and mineral ownerships;
5. Well spacing and buffer zones;
6. Water quantity and quality;
7. Air quality;
8. Research and development on reclamation standards and BMPs; and
9. Pipeline placement (i.e., locate in existing rights-of-way).



## Interview Conclusions

If there is one overriding message we heard from the surveys and interviews, we would summarize it as; “produce oil and be good stewards of the surface.” A few respondents thought the status quo was adequate, and no one suggested North Dakota stop producing oil. The vast majority indicated North Dakota could do a better job protecting the areas identified in our stewardship definition, “ranching, wildlife, culture, and scenic value.”

Long-term management and protection of native rangeland and other vegetative communities such as woody draws and riparian areas is especially important for both the ranching community and wildlife. Wildlife need the combination of low, high, and mid-structure grasses and forbs that land managed for beef production can provide. Invasive species of grasses and noxious weeds are a threat to that preservation of native rangeland. Every time the native soil is opened up for whatever purpose, it provides an opportunity for invasive species and noxious weeds to become established.

Many ranchers in areas where development occurred a couple of decades ago expressed frustration over the lack of maintenance on pipelines, which continue to cause excessive erosion to their land. They also identified old well sites that were never reclaimed even though production stopped years ago. Ranchers are also concerned about adequate and equal reclamation standards. In some cases, native grass species have been seeded on state or federal lands while on adjacent private lands, less expensive crested wheatgrass or brome grass seed has been used. Crested wheatgrass and brome grass, when grown on reclaimed lands, have a tendency to spread their seeds to adjacent lands.

Financial gain from oil royalties perhaps cushions some of the concern over surface disruptions. It should be noted that scores of oil companies operate in the state and they all have their own policies and standards for dealing with surface owners. During this process, a number of oil companies were recognized as easy to deal with and accommodating to the surface owner, while others were not.

Surface owners without any ownership of underlying minerals have generally felt like they have had little or no say on disturbance to their property. The issues involve where to site roads, well pads, gathering lines, and pipeline routes. Thus, while mineral owners clearly and legally have a right to access their underlying minerals, surface owners often feel a sense of violation of their property rights. Surface owners who also own the underlying minerals generally have more say as to where and how the development occurs on their property. There is a real sense that oil companies are more accommodating to surface owners who also own the mineral rights. This is widely cited not only by those without mineral rights, but also by their neighbors with mineral rights who have attested to the difference.

Surface owners now have much more information available than they did when the Bakken development started. Publications from NDSU, NDDA, and groups like the Northwest Landowners Association all provide surface owners with information for negotiations,

understanding of their rights, guidance on the issues to look for, and how to track the performance of contractors who are working on the property. Our work revealed a sense of frustration by some surface owners who have had bad experiences on their property. Others who already had the knowledge and experience to insist on certain standards relating to reclamation and cleanup of their property were less frustrated.

Many respondents suggested oil development and wells sites should not be within two miles of the Little Missouri River. NDDTL policy recommends avoiding locations near drainages. This is a recommendation that creates some differences of opinion between scenic value and wildlife interests. Avoiding direct oil and gas development adjacent to the Little Missouri River and its tributaries is important to those with ranching, wildlife, and scenic concerns. In many areas, this can be accomplished by placing infrastructure along existing areas of development such as roadways, pipeline corridors and other areas with existing disturbance.

Individuals and organizations concerned primarily about wildlife tend to prefer that development occur in such areas where infrastructure already exists to avoid duplicate infrastructure and lessen the footprint of oil and gas development. Their position is that it is better to locate development near existing roads and powerlines rather than to build more roads that further disrupt native rangeland, woody draws, and other wildlife habitats. In situations where the existing road network and other developments are close to the Little Missouri River and other riparian areas, customized, advance planning of new oil and gas development infrastructure in each specific area may successfully address this concern.

One agency suggested landscape wide development planning for the Little Missouri River Valley either in 10-mile river segments or by major drainages. Larger scale unitizations have also been recommended. These would allow planning for development over a wider area and thus provide more options for development nearer to existing infrastructure to avoid drainages, steep topographies and other sensitive areas. More unitization is favored by almost everyone, including conservation groups and oil companies, but it does create some concerns with mineral owners, especially where development has already started.

Federal agencies have touted their use of Master Development Plans, but they are not yet fully in place. Such plans and other improvements in planning, reclamation and restoration need to be shared amongst all surface owners. Such planning on a larger landscape area will benefit the broader area and is preferable to surface owners only being concerned about their property, to the detriment of the larger landscape.

## Strategies for Future Action

Some of the issues involved are controversial and political. If resolution of these issues were easy, solutions would have already happened. Even the CCG team had disagreements about the importance of some issues and the potential solutions. For the most part, the issues and concerns brought forth by people identifying themselves as conservationists are similar in many ways to the issues and concerns of ranchers and some government entities.

Surface protection and reclamation is the common factor that brings all the issues and concerns together. It is the ultimate goal and desire of almost all stakeholders to minimize impacts to the surface while supporting the production of oil and gas. Many surface owner issues in the Bakken deal with siting of well pads, pipelines and reclamation. While government agencies issue permits for drilling and siting, the responsibility for reclamation and actual location of the well pads has largely been an issue of private negotiations between the oil producer and the surface owner. Oil production will cause surface disturbance but it should not cause surface destruction. Protecting or properly reclaiming the surface is good for wildlife, ranching, scenic views, and historic sites. All the key issues of planning, reclamation, implementing best practices, and protecting habitat, and water quality are addressed by protecting and reclaiming the surface.

If North Dakota does truly have in its future more than 40,000 additional wells by 2035<sup>36</sup> and the accompanying related infrastructure, then larger scale long-term planning is critical for the Badlands, and the state as a whole. This will not happen easily or quickly, but it will require all interested parties at the table to get it right. Thus, in addition to individual specific recommendations, the first and most important next step is a discussion on how best to structure the standards and best practices for development of all mineral development sites in the state.

Getting all the parties involved at the table to find a solution can happen and it can provide for a Badlands area in which oil development, ranching, and wildlife can cohabitate on a healthy basis for all. Critical issues to consider include:

1. Education and information for surface owners;
2. Better understanding of lease and easement agreements;
3. Reclamation standards that are best practices;
4. Larger landscape planning;
5. More use of larger unitizations;
6. Use of submersible pumps in highly sensitive areas
7. Addressing or altering the existing DPG LRMP, and

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<sup>36</sup> Director's Cut, North Dakota Producing Counties Update. North Dakota Industrial Commission, Department of Mineral Resources. September 18, 2014.

## 8. Upfront development plans that include reclamation plans.

Success is only possible with a detailed understanding of North Dakota's internal politics, approach to business development, and the variety of social realities and past interactions that are woven throughout the relationships between each of the groups surveyed in this project. The questionnaire and interview results reveal many similarities in what people, regardless of category, believe is important. Significant differences come from how they believe the goal is most likely to be accomplished. The CCG team considered these factors when developing possible strategies for moving forward. These strategies attempt to find common ground not only in what people believe is important, but also how to achieve the project's goal.

The three "strategies" for future actions include:

1. A collaborative process including all parties;
2. Regulatory and statutory changes; and
3. A landscape pilot project that includes all parties.

These strategies attempt to integrate the necessary understanding in light of the above factors and with the recognition that the groups surveyed have not always been in agreement on a variety of issues. Therefore, developing a shared vision and approach will require building a process that creates an atmosphere of trust and cooperation. This open and inclusive process will also need to stay focused on the goal stated above.

### A Collaborative Process

This strategy focuses on creating an atmosphere of "cohabitation" of ranching, wildlife, scenic, and cultural values while developing oil and gas resources and encouraging oil companies to adopt best management practices and technologies.

Tactics to accomplish this strategy include:

- **Better planning that voluntarily brings interested parties together** to develop specific site or area plans for accessing oil and gas resources. Ideally this planning effort would occur early on in the process thereby giving all parties time to provide recommendations on how to best proceed while minimizing the footprint and impact of development.
- **Improved collaboration among state and local government for oil and gas infrastructure and expenditures.** This tactic would require not only voluntary cooperation between government entities at all levels, but also the participation of the NDIC and the North Dakota Legislature. It would also require state funding, which would necessitate all parties to come together as a coalition and work to seek funding from the NDIC or the North Dakota Legislature.
- **Open communication and avoidance of new statutes or regulations except where deemed necessary.** The open communication or collaboration strategy is based on the concept of voluntary participation and cooperation among all interested parties, and most

of the recommended tactics would need such voluntary commitments. However, there may be instances and issues that would require some level of rulemaking by either the NDIC or the North Dakota Legislature in order to promote or provide for such actions. Therefore, it would be important to have the NDIC and North Dakota Legislature represented in developing and implementing the tactics in this strategy.

- **A North Dakota-based entity leading a successful planning effort**, whether it is a government agency or a coalition of partners. Having this a North Dakota led process will provide credibility and trust among partners and the North Dakota public. Such an approach will lend itself to being more inclusive and transparent, which were frequently mentioned concerns by participants in the survey process.
- **Consider unitization.** Unitization was a common theme in many interviews and questionnaire responses as a way to improve planning and leave a smaller oil and gas development footprint on the landscape. However, many people participating in the survey process were not exactly clear on how unitization works and its potential unintended consequences. The CCG team recognizes the value and opportunities that unitization provides and understands that it would not work in every situation. Unitization works best with larger areas of land with a limited number of mineral and surface owners, which means fewer economic consequences to address when planning.
- **Consider use of new technology.** New technologies were also a popular concept with most survey participants, although few had actual insight into what these technologies might be and how they would function on the landscape. The hope was that such technological advances would help address a variety of impacts associated with oil and gas development. The CCG team believes the use of new technologies is critically important and will accomplish, in some cases, the desired objective of a reduced footprint and more efficient development. This strategy would encourage use of these new technologies but would not require them under statute.
- **Address reclamation and bonding issues.** Reclamation is an important issue to nearly all those surveyed or interviewed. The need for better upfront reclamation planning was mentioned many times, as was the need for more stringent reclamation standards. Additionally, the issue of appropriate bonding was recommended by some as a method to ensure proper and timely reclamation occurs when an oil well and its associated infrastructure are no longer needed. Some people believe that current bonding levels are either nonexistent or cannot ensure that sites were reclaimed as close as possible to their original condition. All strategies should include reclamation as an important component.
- **Build on and utilize previous relevant work:**
  - The NDGFD report mentioned earlier in the Background section formed the basis for a collaborative effort between the agency and the NDPC to develop a second document entitled “Recommended Management Practices for Reducing Oil/Gas

Impacts to Wildlife.”<sup>37</sup> See Appendix H for the document’s specific recommendations.

- A collaborative process may want to consider the findings in “Energy Development and Wildlife Conservation in Western North America”.<sup>38</sup> It describes what has occurred in other Western states and provides useful guidance on future development in North Dakota and the Badlands. Contributing authors demonstrate how science can help craft solutions to conflicts between wildlife and energy development. One of the main points of the book is that adaptive management or flexibility in decision-making is important to crafting solutions that work for all involved, and that collaboration between stakeholders is critical to successful completion of any project. By identifying areas of concern through science, and bringing together multiple stakeholders, workable solutions are not only possible, but are the likely outcome.

#### SWOT ANALYSIS

Strategy-Collaborative Process

<p><b>S</b> <b>Strengths</b></p> <ul style="list-style-type: none"> <li>• Inclusive—includes all interested parties</li> <li>• Allows for landowner input</li> <li>• Timely (fast process)</li> <li>• Not restrained (open to all topics/ideas)</li> <li>• Flexible—as new data &amp; technology emerge</li> <li>• Builds relationships—face to face discussions</li> </ul>	<p><b>W</b> <b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>• Getting everybody to the table=a challenge</li> <li>• Voluntary approach may not work</li> <li>• Time consuming</li> <li>• Absence of official state authority</li> <li>• No consequences for failure to perform</li> <li>• No accountability</li> </ul>
<p><b>O</b> <b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Builds relationships &amp; trust</li> <li>• Win-win, if it works</li> <li>• Ability to reduce footprint</li> <li>• Optimizes resource development</li> <li>• Cost savings to oil companies</li> <li>• Better info to the public</li> <li>• Avoids unnecessary impacts to landscape</li> </ul>	<p><b>T</b> <b>Threats</b></p> <ul style="list-style-type: none"> <li>• Not everyone participates</li> <li>• Resistance from some stakeholders</li> <li>• Mistrust among groups (from the past)</li> </ul>

<sup>37</sup> Recommended Management Practices for Reducing Oil/Gas Impacts to Wildlife. North Dakota Department of Game and Fish. March 1, 2013.

<sup>38</sup> Naugle, D. E., et al, 2011. Energy development and wildlife conservation in western North America. Island Press, Washington, D.C. 305 p.

## Regulatory and Statutory Changes

This strategy would rely on the NDIC and the North Dakota Legislature to make changes to how oil and gas development occurs in the state. A next step to implement this strategy would be to identify a group or contractor to pinpoint the specific state policy changes needed to address each of the major concerns/issues. Here, as in the other strategies, a North Dakota group with representatives from all the stakeholder groups would be important to advancing a final product to the North Dakota Legislature.

This approach would require identification of specific statute or policy amendments needed to address the key areas of concern raised by the study. Developing this strategy would require an analysis of which issues can be accomplished voluntarily and a discussion of which issues the state needs to address with policy changes.

For example, reclamation standards are improving and educational material for surface owners is more readily available than what existed a few years ago. This has been an improvement for those landowners who can oversee reclamation activities on their land. The question of policy arises when you have absentee landowners or elderly landowners who are not available to oversee protection of their property. Should the state establish reclamation standards that apply to all lands regardless of surface ownership or the landowner's ability to oversee reclamation?

### SWOT ANALYSIS Strategy-Regulatory & Statutory

<b>S</b> <b>Strengths</b> <ul style="list-style-type: none"><li>• Enforceability of law</li><li>• Consequences for action or lack of</li><li>• Certainty</li><li>• Written rules=clarity</li><li>• Consistency over time (know the rules)</li></ul>	<b>W</b> <b>Weaknesses</b> <ul style="list-style-type: none"><li>• Difficulty to enact/achieve</li><li>• Lack of political will</li><li>• Negative of more "regulations"</li><li>• Rigid once in place (hard to change)</li><li>• Not designed correctly=negative results</li><li>• Unintended consequences</li></ul>
<b>O</b> <b>Opportunities</b> <ul style="list-style-type: none"><li>• You know the rules</li><li>• Easier to plan for the future</li></ul>	<b>T</b> <b>Threats</b> <ul style="list-style-type: none"><li>• Concern or fear of retribution</li><li>• End result does not work</li></ul>



## A Landscape Pilot Project

A pilot based strategy would focus on a subset of the North Dakota Badlands and address the concerns expressed by interviewees with oil and gas development and impacts to natural resources, heritage resources, and visual quality. The cumulative effects of oil development should be analyzed.

At the outset, the effort should be inclusive with clear goals. It should be time-sensitive and facilitated by local and state interests. Those leading the pilot project should develop an overview of the suggested strategy and ask local communities if they would like to participate in the project. Project leaders should then present the project proposal at local community meetings.

A pilot landscape would include private, state, and federal lands located within the Little Missouri River Valley or near the TRNP. A pilot project could occur on either unleased or leased lands, or both. No matter the leasing status, the process should include industry. The objective of the effort would be to accommodate energy development while still protecting key resources across the landscape.

Stakeholders would agree to and develop resource surveys, best management practices, mitigation recommendations, and areas to be protected. State-of-the-art industry technology and peer-reviewed science would be paramount to the process. Project leaders would make recommendations to federal and state agencies if additional authority were needed to accomplish the stated goal. For example, land exchanges or mineral exchanges between the federal government and the state would need additional authority or legislation.

### SWOT ANALYSIS Strategy-Pilot based





## Conclusion

In summary, the goal of this project is **“to create strategies for how best to develop mineral resources with responsible stewardship of the Badlands.”** While the goal is straightforward enough, implementation of possible strategies will not come easily and will require an extensive commitment of time and patience. In addition, success is only possible with a detailed understanding of North Dakota’s internal politics, approach to business development, and the variety of social realities and past interactions that are woven throughout the relationships between each of the groups surveyed in this project.

The CCG team considered these issues and factors in developing the strategies along with the findings from the interviews and questionnaires. The strategies attempt to integrate the necessary understanding in light of the above factors and with the recognition that the groups surveyed have not always agreed on a variety of issues. Therefore, developing a shared vision and approach will require building a process that creates an atmosphere of trust and cooperation. This open and inclusive process will also need to stay focused on the goal stated above.

The questionnaire and interview results reveal many similarities in what people, regardless of category, believe is important. Significant differences come from how they believe the goal is most likely to be accomplished. The strategies recommended by the CCG team attempt to find common ground not only in what people believe is important, but also how to achieve the goal.

## Recommendations

The reality is that any future action to accomplish the stated goal will likely require a combination of all of the recommended strategies, and should incorporate the following recommendations:

1. **Include all local stakeholders and ensure they lead the process.** Ranching, hunting, and wildlife groups from North Dakota should take the lead on the next step to address their concerns and implement the recommended strategies or a combination thereof.
2. **Consider developing an advisory committee to develop specific, practical action steps.** We recommend the next step consider the use of an advisory committee to identify and work out the practical details of an action plan needed to accomplish the stated goal. The committee should be comprised of knowledgeable, concerned individuals who are not affiliated with any specific organizations (that may have a stake in outcomes) and who do not carry any perceived bias. We envision individuals who are respected for their experiences in dealing with oil and gas development on their own land, or in their communities. Committee members should have practical experience and take a common-sense approach to "what works and what doesn't" in their communities of interest. Their objectives would include the following: 1) to think big picture - landscape level; 2) to prioritize the key issues that are most

important and achievable; and 3) to identify those practical, achievable action steps that would promote land stewardship. The use of such a committee would complement any of the three strategies. Identification of priorities and action steps would inform and guide any collaborative process, specific changes to state policy, or a pilot project.

3. **Produce a plan for North Dakota's long-term future.** The state of North Dakota should develop a long-term strategic plan (LTSP) to prepare for future energy development. If the state truly does have 40,000 new wells in its future, a well-developed, written plan is a logical key factor for dealing with that future development. This plan could encompass the next 20 to 30 years or beyond and could help provide a road map for what North Dakota could or should look like during and after that period. Many of the interviewees suggested that there is no plan, or at least not an adequate plan. Some of the interviewees suggested that North Dakota has been reacting since the start of the Bakken oil boom and a LTSP could help overcome this. See Appendix G for a sample LTSP and outline.<sup>39</sup>
4. **Improve communication and transparency about oil development.** The state of North Dakota should improve its transparency in the data related to oil development and planned oil activity. This might include a dashboard format among state agencies that aggregate data in one location, well permits, legal descriptions, operator, development plans, surface facilities, etc. Almost every interviewee mentioned this as a problem. Finding data is difficult and getting assistance or questions answered is even more difficult. We do not believe the lack of transparency is intentional, but rather it is simply not a priority for state government, and it is likely that much of the data being sought is available somewhere, but finding it is the problem. We even found government agency representatives who complained about the lack of transparent data. The state of North Dakota needs to adopt a formal process and mechanism to provide transparent data to the public. The state also needs more transparent and interactive sharing of data between agencies.
5. **Consider the past success of the state in developing reclamation standards for the coal industry.** To help achieve the desired outcomes, regardless of which strategy or combination thereof is chosen, the successes and lessons learned from the coal industry in North Dakota need to be reviewed. Perhaps the coal statutes could be a starting point for making the changes necessary for meeting the stated goal and as a pattern for oil development and reclamation. North Dakota experienced fast-paced coal development in the 1970s, similar to what has happened recently with oil. It now has 35 years of experience in statutes, policy, and regulations to draw on. The coal

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<sup>39</sup> The Appendix example is for discussion purposes only. It is not meant to be inclusive or exclusive of what an actual plan might be or look like. It is meant to show the reader an example and the value of a LTSP.

industry and the state have made significant progress, and the coal industry now views its reclamation record as a source of pride. They have achieved what many in our interviews said they would like to see in the oil patch 50 years from now. That is, not being able to know that mineral development had ever existed.

This assessment has revealed some important issues relating to surface protection in North Dakota. Many who responded to the surveys clearly recognize the impacts to their land and to the state, and have concerns about not only the Badlands, but all lands in North Dakota. They believe taking the next steps to find solutions is important to the future of North Dakota, as is achieving the stated goal “to create strategies for how best to develop minerals with responsible stewardship of the Badlands.”

## Bibliography

2009 Monthly Statistical Update. Industrial Commission of North Dakota, Oil & Gas Division. Updated August 14, 2013.

2015 Monthly Statistical Update. Industrial Commission of North Dakota, Oil & Gas Division. 2015.

Budzik, Phillip and Michael Ford. North Dakota aims to reduce natural gas flaring. U.S. Energy Information Administration. October 20, 2014.

Council on Environmental Quality, 1997. Considering cumulative effects under the National Environmental Policy Act. Washington DC: Council on Environmental Quality.

Dakota Prairie Grasslands Oil and Gas Leasing Record of Decision. USDA Forest Service, Dakota Prairie Grasslands. Bismarck, North Dakota: June 12, 2003.

Director's Cut, BSC Energy Conference. North Dakota Industrial Commission, Department of Mineral Resources. January 29, 2014.

Director's Cut, North Dakota Producing Counties Update. North Dakota Industrial Commission, Department of Mineral Resources. September 18, 2014.

Draft Reasonable Foreseeable Oil and Gas Development Analysis for Dakota Prairie Grasslands. USDA Forest Service. Bismarck, North Dakota: March 15, 2013.

Dyke, S., D. Fryda, D. Kleyer, J. Williams, B. Hosek, W. Jensen, S. Johnson, A. Robinson, F. Ryckman, B. Stillings, M. Szymanski, S. Tucker, and B. Wiedmann, 2011. Potential Impacts of Oil and Gas Development on Select North Dakota Natural Resources; a report to the director. North Dakota Game and Fish Department.

Forest and Rangeland Renewable Resources Planning Act of 1974. 16 U.S.C. 1600, 1974.

Helms, Lynn. Director's Cut. North Dakota Industrial Commission, Department of Mineral Resources. February 17, 2016.

Helms, Lynn. Director's Cut. North Dakota Industrial Commission, Department of Mineral Resources. March 11, 2016.

Helms, Lynn. Director's Cut. North Dakota Industrial Commission, Department of Mineral Resources. April 15, 2016.

Hvinden, Dave. So why are all these gas flares burning in the oil fields? DMR Newsletter. North Dakota Department of Mineral Resources. Winter 2009.

Johnson, M. D., 1964. Feathers From the Prairie: a short history of upland game birds. North Dakota Game and Fish Department.

Land Areas of the National Forest System. USDA Forest Service. Washington, DC: November 2015.

Ma, Zhao, Dennis R. Becker, Michael A. Kilgore. 2009. Assessing cumulative impacts within state environmental review frameworks in the United States. Environmental Impact Assessment Review. 29, 390-398.

Ma, Zhao, D. R. Becker, and M. A. Kilgore, 2012. Barriers to and opportunities for effective cumulative impact assessment within state-level environmental review frameworks in the United States, *Journal of Environmental Planning and Management*, 55:7, 961-978.

Naugle, D. E., et al, 2011. *Energy development and wildlife conservation in western North America*. Island Press, Washington, D.C. 305 p.

North Dakota Century Code 6-09. 10-04. Request for assistance – negotiation – mediation.

North Dakota Century Code 4-01-31. Pipeline restoration and reclamation oversight pilot program.

North Dakota Department of Mineral Resources, 2014. North Dakota producing counties update. Power point presentation. 45 p.

Nowatzki, Mike. Groups want higher cap on Outdoor Heritage Fund while lawmaker talks possible cut. *Grand Forks Herald*. January 30, 2015.

Olson, E., 1997. National grassland management – a primer. Natural Resources Division, Office of the General Counsel, US Department of Agriculture. 49 p.

Pilot program helps landowners with pipeline reclamation. North Dakota Department of Agriculture. April 15, 2015.

Recommended Management Practices for Reducing Oil/Gas Impacts to Wildlife. North Dakota Department of Game and Fish. March 1, 2013.

Saxowsky, David. Taking Charge of Your Community's Future: Surface Mining Questions. North Dakota State University. April, 2012.

Sedivec, K., C. Piper, J. Printz, A. Wick, A. Daigh, R. Limb, 2014. Successful reclamation of lands disturbed by oil and gas development and infrastructure construction – R1728. North Dakota State University Extension Service and the United States Department of Agriculture. 16 pages.

Sedivec, K., and D. Saxowsky, 2015. Reclamation of oil and gas industry-impacted land: a guide and checklist – R1766. North Dakota State University.

US Department of Agriculture Forest Service. 2002. Record of decision for Dakota Prairie Grasslands final environmental impact statement and land and resource management plan.

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CCG would like to thank the North Dakotans who participated in the assessment and sacrificed time for interviews and surveys to share their thoughts with the CCG team. Their responses were invaluable to informing this report's conclusions and recommendations.

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CCG would also like to acknowledge the following organizations for their generous support of this project: U.S. Forest Service, the North Dakota Natural Resources Trust, Badlands Conservation Alliance, North Dakota Wildlife Federation, and the Logging Camp Ranch.

**STATED GOAL: TO CREATE STRATEGIES FOR HOW BEST TO DEVELOP MINERAL RESOURCES WITH RESPONSIBLE STEWARDSHIP OF THE BADLANDS**

## Appendix A: Questionnaires

### General

The first 18 questions are the same for all respondents. After question 18, the questions are specific to the four main sectors: ranching, oil industry, government, and conservation and recreation. Government included federal agencies, state agencies, and local government, usually at the county level.

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**All responses and respondents will be kept confidential. Responses may be compiled in a report, but we will not disclose who made the statements or recommendations.**

This questionnaire is drafted with the understanding that mineral owners have a right to access their minerals and that oil development will occur in the Badlands. In that light, we are attempting to solicit input from stakeholders for their ideas. **The goal is to create strategies for how best to develop mineral resources with responsible stewardship of the Badlands.** Stewardship includes protection of ranching, wildlife, culture, and scenic value.

1. Generally speaking, how concerned, if at all, are you about the future of the Badlands and the Little Missouri River Valley?

\_\_\_\_ Very    \_\_\_\_ Somewhat    \_\_\_\_ Only a little bit    \_\_\_\_ Not at all    \_\_\_\_ No opinion

If you have concerns, please describe.

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2. How important, if at all, is it to maintain the Badlands area as close to its current condition as possible while developing and extracting the mineral resources?

\_\_\_\_ Very    \_\_\_\_ Somewhat    \_\_\_\_ Only a little bit    \_\_\_\_ Not at all    \_\_\_\_ No opinion

3. As to surface development of mineral resources, which lands in the North Dakota Badlands, if any, should no energy development be allowed because grassland agriculture, scenic, wildlife, or cultural heritage interests are too important?

If any, please list specific area(s) and specific interest(s) protected.

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4. How important is each of the following interests to consider while creating strategies to develop mineral resources with responsible stewardship of the Badlands?

	Very	Somewhat	Only a little bit	Not at all	No opinion
Ranching	_____	_____	_____	_____	_____



**STATED GOAL: TO CREATE STRATEGIES FOR HOW BEST TO DEVELOP  
MINERAL RESOURCES WITH RESPONSIBLE STEWARDSHIP OF THE BADLANDS**

Wildlife	_____	_____	_____	_____	_____
Scenic value	_____	_____	_____	_____	_____
Recreation	_____	_____	_____	_____	_____
Historic/Cultural	_____	_____	_____	_____	_____

5. What is your vision of the Badlands area and the Little Missouri River Valley in 20 years (during development)?

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6. What is your vision of the Badlands area and the Little Missouri River Valley in 50 years (post development)?

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a. What do you see as the greatest opportunities to your vision?

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b. What do you see as the greatest challenges to your vision?

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c. Have you considered your personal/agency/company legacy related to the Badlands?

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7. What association do you have, if any, with historic places in western North Dakota such as Theodore Roosevelt's Elkhorn Ranch, Blue Buttes area, etc.? (If any, please describe relationship/association as specifically as possible.)

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a. How important, if at all, is protecting the Elkhorn Ranch landscape?

\_\_\_\_ Very \_\_\_\_ Somewhat \_\_\_\_ Only a little bit \_\_\_\_ Not at all \_\_\_\_ No opinion

b. Please list areas you think should be protected and rank (very, somewhat, etc.).

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**STATED GOAL: TO CREATE STRATEGIES FOR HOW BEST TO DEVELOP MINERAL RESOURCES WITH RESPONSIBLE STEWARDSHIP OF THE BADLANDS**

8. What specific mechanisms should be in place to protect historic places in western North Dakota while being balanced with potential benefits derived from energy development?

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9. Please rank the importance of the following considerations for siting of wells, new road construction, and other infrastructure (high, medium, low).

- \_\_\_\_\_ Economics
- \_\_\_\_\_ Convenience
- \_\_\_\_\_ Environment
- \_\_\_\_\_ Existing roads, power lines, etc.
- \_\_\_\_\_ Fencing
- \_\_\_\_\_ Wildlife movement and habitat
- \_\_\_\_\_ Scenic value
- \_\_\_\_\_ Historical and cultural values
- \_\_\_\_\_ Occupied residences
- \_\_\_\_\_ Regulations
- \_\_\_\_\_ Reclamation Plan
- \_\_\_\_\_ Other. Please specify and rank. \_\_\_\_\_

10. How much more input, if any, into how mineral development happens should there be from each of the following sources?

	A lot	Some	A little	None	No opinion
Local governments	_____	_____	_____	_____	_____
State government	_____	_____	_____	_____	_____
Federal government	_____	_____	_____	_____	_____
Private landowners	_____	_____	_____	_____	_____
Public land permittees	_____	_____	_____	_____	_____
Other stakeholders regarding public lands	_____	_____	_____	_____	_____

**STATED GOAL: TO CREATE STRATEGIES FOR HOW BEST TO DEVELOP  
MINERAL RESOURCES WITH RESPONSIBLE STEWARDSHIP OF THE BADLANDS**

a. How could the process be improved?

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11. What current practices in oil production help meet the stated goal?

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12. What additional or new practices should be added to meet the stated goal?

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13. Should the State use unitization more often to help meet the stated goal?

☐ Yes      ☐ No      ☐ No opinion

14. Should the state of North Dakota adopt a formal process to provide transparency to inform the public about proposed energy development activities and anticipated impacts?

☐ Yes      ☐ No      ☐ No opinion

15. Should the U.S. Forest Service address changed conditions and assess cumulative impacts of energy development on the Little Missouri National Grasslands (scenic values, roadless areas, wildlife habitat, etc.) which may result in amendment or revision of its current Land and Resource Management Plan (Grassland Plan 2002)?

☐ Yes      ☐ No      ☐ No opinion

16. Which state policies, if any, do you think should be changed to achieve the stated goal? (If any, please specify.)

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17. Which federal policies, if any, do you think should be changed to achieve the stated goal? (If any, please specify.)

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18. What geographic area should the strategy focus on? (Check all that apply.)

- ☐ Little Missouri River Valley only  
☐ Southern Badlands/South of I-94 (Where development has been limited to date.)  
☐ Northern Badlands/North of I-94

**STATED GOAL: TO CREATE STRATEGIES FOR HOW BEST TO DEVELOP  
MINERAL RESOURCES WITH RESPONSIBLE STEWARDSHIP OF THE BADLANDS**

**Ranching**

19. What do you see as the greatest risks to your ranching operation?

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20. How much, if any, active oil exploration and drilling is there in your area?

\_\_\_ A lot    \_\_\_ Some    \_\_\_ A little    \_\_\_ None    \_\_\_ Don't know/No opinion

21. How much, if any, of the landscape in your area is affected by oil development?

\_\_\_ A lot    \_\_\_ Some    \_\_\_ A little    \_\_\_ None    \_\_\_ Don't know/No opinion

22. How much, if any, productive agricultural lands have you lost because of oil development?

\_\_\_ A lot    \_\_\_ Some    \_\_\_ A little    \_\_\_ None    \_\_\_ Don't know/No opinion

23. How much, if any, recreational/hunter income have you lost because of oil development?

\_\_\_ A lot    \_\_\_ Some    \_\_\_ A little    \_\_\_ None    \_\_\_ Don't know/No opinion

24. How much, if at all, has oil development affected your ranching operation?

\_\_\_ A lot    \_\_\_ Some    \_\_\_ A little    \_\_\_ None    \_\_\_ Don't know/No opinion

a. If so, how? (Please explain below.)

Livestock? \_\_\_\_\_

Range health? \_\_\_\_\_

Haying operation? \_\_\_\_\_

Fencing? \_\_\_\_\_

Road dust? \_\_\_\_\_

Road traffic? \_\_\_\_\_

Noxious weeds? \_\_\_\_\_

Reclamation (grass seeding)? \_\_\_\_\_

Water resources? \_\_\_\_\_

Quality of life? \_\_\_\_\_

Other? \_\_\_\_\_

**STATED GOAL: TO CREATE STRATEGIES FOR HOW BEST TO DEVELOP  
MINERAL RESOURCES WITH RESPONSIBLE STEWARDSHIP OF THE BADLANDS**

25. What could the oil companies do to lessen the negative effect, if any, on your operation?

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26. Are there positive things the oil companies are doing or could do to help your operation?

\_\_\_\_ Yes      \_\_\_\_ No      \_\_\_\_ Maybe      \_\_\_\_ Don't know/No opinion

a. If so, please specify.

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27. How much, if at all, is oil development (roads, wells, etc.) affecting wildlife and wildlife habitat in your area?

\_\_\_\_ A lot      \_\_\_\_ Some      \_\_\_\_ A little      \_\_\_\_ None      \_\_\_\_ Don't know/No opinion

a. If so, which species?

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b. How?

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28. Overall, are the oil company roads a benefit or a detriment to your operation and/or access to your headquarters?

\_\_\_\_ Benefit      \_\_\_\_ Detriment      \_\_\_\_ Neither      \_\_\_\_ Don't know/No opinion

a. If so, how?

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b. Do you think any of these roads are unnecessary, should be modified, have better signs, or be closed?

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**STATED GOAL: TO CREATE STRATEGIES FOR HOW BEST TO DEVELOP MINERAL RESOURCES WITH RESPONSIBLE STEWARDSHIP OF THE BADLANDS**

*Rancher input regarding oil development:*

29. What has been your personal experience with input for oil development?

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a. How might this be changed, if at all?

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30. How much input, if any, should you have with regards to oil development impacting your land?

\_\_\_\_ A lot    \_\_\_\_ Some    \_\_\_\_ A little    \_\_\_\_ None    \_\_\_\_ Don't know/No opinion

31. How much input, if any, should you have with regards to oil development impacting public lands on which you hold a grazing permit?

\_\_\_\_ A lot    \_\_\_\_ Some    \_\_\_\_ A little    \_\_\_\_ None    \_\_\_\_ Don't know/No opinion

a. If so, what kind of input?

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b. How could this be accomplished?

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32. What recommendations would you make to the oil companies regarding the footprint of oil development?

Road placement

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Road design

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Road densities

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Well placement

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**STATED GOAL: TO CREATE STRATEGIES FOR HOW BEST TO DEVELOP  
MINERAL RESOURCES WITH RESPONSIBLE STEWARDSHIP OF THE BADLANDS**

Tank batteries

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Electrical lines

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Pipelines

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Other (timing of activities, noise levels, air quality, etc.)

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33. What would you consider success for the stated goal to look like?

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34. What results do you think could be achieved?

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35. Please share any other comments or suggestions.

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**All responses and respondents will be kept confidential. Responses may be compiled in a report, but we will not disclose who made the statements or recommendations.**



**STATED GOAL: TO CREATE STRATEGIES FOR HOW BEST TO DEVELOP  
MINERAL RESOURCES WITH RESPONSIBLE STEWARDSHIP OF THE BADLANDS**

**Oil Industry**

19. Do you plan to drill multiple well pads in North Dakota?

\_\_\_\_ Yes      \_\_\_\_ No      \_\_\_\_ Don't know/No opinion

a. If yes/maybe, what percentage of pads will include multiple wells? (10%, 25%, 50%, 100%)

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20. How many wells do you expect to drill in the Badlands?

	<u>Next 2 years</u>	<u>3-5 years</u>	<u>After 5 years</u>
Dunn County	_____	_____	_____
McKenzie County	_____	_____	_____
Billings County	_____	_____	_____
Golden Valley County	_____	_____	_____
Slope County	_____	_____	_____

21. How will the price of oil in the next 18 months impact your planning and rate of development in the Badlands?

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22. Does your company use any form of integrated planning for well placement, that considers local landscapes, roads, existing pipelines, gathering systems, gas plants, and other surface facilities?

\_\_\_\_ Yes      \_\_\_\_ No      \_\_\_\_ Don't know/No opinion

a. If so, generally, what are the steps in the planning process?

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**STATED GOAL: TO CREATE STRATEGIES FOR HOW BEST TO DEVELOP  
MINERAL RESOURCES WITH RESPONSIBLE STEWARDSHIP OF THE BADLANDS**

23. How much consideration, if any, is given to each of the following during planning for well placement, a lot, some, only a little bit, or none at all?

A lot	Some	A little	None	Don't know/No opinion
Impact of new roads	___	___	___	___
Road construction costs	___	___	___	___
Road maintenance costs	___	___	___	___
Availability of other road choices during road development	___	___	___	___
Drilling pad location and drilling efficiency	___	___	___	___
Impact to the Badland's and Little Missouri River Valley's present landscape	___	___	___	___
Impact to wildlife and wildlife habitat	___	___	___	___
Consideration of other resources such as botanical, archeological, etc.	___	___	___	___
Potential impact to water resources or access to water resources	___	___	___	___
Impact/objections from landowner	___	___	___	___
Scenic value	___	___	___	___
Nearby recreational and natural resources	___	___	___	___

24. Do you make a site visit before final decision is made on well placement?

\_\_\_ Yes      \_\_\_ No      \_\_\_ Don't know/No opinion

a. If yes, please describe.

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b. If a site visit occurs, is it done by your company or contracted with a third party?

\_\_\_ Company      \_\_\_ 3<sup>rd</sup> party      \_\_\_ Don't know/No opinion

c. Does that include a visit with the landowner?

\_\_\_ Yes      \_\_\_ No      \_\_\_ Don't know/No opinion

**STATED GOAL: TO CREATE STRATEGIES FOR HOW BEST TO DEVELOP MINERAL RESOURCES WITH RESPONSIBLE STEWARDSHIP OF THE BADLANDS**

d. Does your company do an internal cost evaluation for field activities, to improve efficiencies, and reduce costs by collocating facilities, wells, pipelines (gas, water, oil and produced water)?

\_\_\_\_ Yes      \_\_\_\_ No      \_\_\_\_ Don't know/No opinion

e. Do you coordinate any of the above activities with other companies in the vicinity?

\_\_\_\_ Yes      \_\_\_\_ No      \_\_\_\_ Don't know/No opinion

25. Do you consider public perception or opinion in selecting well and surface equipment placement and design?

\_\_\_\_ Yes      \_\_\_\_ No      \_\_\_\_ Don't know/No opinion

a. If yes, how do you assess public perception?

\_\_\_\_\_  
\_\_\_\_\_

b. What groups, organizations, or individuals do you consider as reliable indicators of public opinion?

\_\_\_\_\_  
\_\_\_\_\_

c. What tools do you use to assess public perception or opinion?

\_\_\_\_\_  
\_\_\_\_\_

26. Do you have a company representative assigned to interact with the:

US Forest Service?      \_\_\_\_ Yes      \_\_\_\_ No      \_\_\_\_ Don't know/No opinion

The BLM?      \_\_\_\_ Yes      \_\_\_\_ No      \_\_\_\_ Don't know/No opinion

The National Park Service?      \_\_\_\_ Yes      \_\_\_\_ No      \_\_\_\_ Don't know/No opinion

27. In early stages of development, in order to reduce impacts or increase efficiencies, how often do you confer with the following when deciding upon the location of a well site, or surface facility?

	Always	Frequently	Sometimes	Seldomly	Never	No opinion
Surface Owner	____	____	____	____	____	____
Township Officer(s)	____	____	____	____	____	____
County Commission	____	____	____	____	____	____
County Planning Office	____	____	____	____	____	____
County Road/Highway	____	____	____	____	____	____

**STATED GOAL: TO CREATE STRATEGIES FOR HOW BEST TO DEVELOP  
MINERAL RESOURCES WITH RESPONSIBLE STEWARDSHIP OF THE BADLANDS**

Department	_____	_____	_____	_____	_____	_____
State Land Department	_____	_____	_____	_____	_____	_____
ND Game and Fish	_____	_____	_____	_____	_____	_____
ND Public Service	_____	_____	_____	_____	_____	_____
Commission	_____	_____	_____	_____	_____	_____
ND-Dept. of Mineral	_____	_____	_____	_____	_____	_____
Resources	_____	_____	_____	_____	_____	_____
ND State Water	_____	_____	_____	_____	_____	_____
Commission	_____	_____	_____	_____	_____	_____
ND Dept. of Health	_____	_____	_____	_____	_____	_____

28. Could stewardship (defined as combining drilling and economic efficiency with protection of ranching, wildlife, culture, and scenic value) be accomplished on a voluntary basis?

\_\_\_\_\_ Yes      \_\_\_\_\_ No      \_\_\_\_\_ Don't know/No opinion

a. If so, what might a voluntary program look like?

\_\_\_\_\_  
\_\_\_\_\_

b. In your opinion, could it avoid a regulatory mandate for stewardship?

\_\_\_\_\_ Yes      \_\_\_\_\_ No      \_\_\_\_\_ Don't know/No opinion

29. Does your company consider the potential for lateral well bores, longer than 2 miles in long-term planning of well locations?

\_\_\_\_\_ Yes      \_\_\_\_\_ No      \_\_\_\_\_ Don't know/No opinion

a. If yes, please describe.

\_\_\_\_\_  
\_\_\_\_\_

30. Would your company consider long-term development planning that includes consideration of values related to undisturbed surface areas in the Badlands and meets the stated goal?

\_\_\_\_\_ Yes      \_\_\_\_\_ No      \_\_\_\_\_ Don't know/No opinion

31. If there was the legal ability and the political will, are there more efficient ways to develop the oil and gas resource in North Dakota that would save your company money and meet the stated goal?

\_\_\_\_\_ Yes      \_\_\_\_\_ No      \_\_\_\_\_ Don't know/No opinion

**STATED GOAL: TO CREATE STRATEGIES FOR HOW BEST TO DEVELOP  
MINERAL RESOURCES WITH RESPONSIBLE STEWARDSHIP OF THE BADLANDS**

- a. If yes/maybe, please describe some examples (e.g. coordination among producers; collaboration among state agencies; cooperation between local governments---such as county and township, county and state; etc.).

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32. What would you consider success for the stated goal to look like?

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33. What results do you think could be achieved?

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34. Please share any other comments or suggestions. -

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**All responses and respondents will be kept confidential. Responses may be compiled in a report, but we will not disclose who made the statements or recommendations.**

**STATED GOAL: TO CREATE STRATEGIES FOR HOW BEST TO DEVELOP  
MINERAL RESOURCES WITH RESPONSIBLE STEWARDSHIP OF THE BADLANDS**

**Government**

**Below is a series of statements. Please check whether you Strongly Agree, Mildly Agree, are Neutral, Mildly Disagree, Strongly Disagree or have No Opinion.**

19. Long-term strategic planning and infrastructure development (roads, pipelines, disposal sites, etc.) have kept pace with energy development in western North Dakota.

Strongly Mildly Strongly Mildly No  
\_\_\_\_ Agree \_\_\_\_ Agree \_\_\_\_ Neutral \_\_\_\_ Disagree \_\_\_\_ Disagree \_\_\_\_ Opinion

20. The social, economic and environmental consequences of energy development have been adequately considered by all levels of government.

Strongly Mildly Strongly Mildly No  
\_\_\_\_ Agree \_\_\_\_ Agree \_\_\_\_ Neutral \_\_\_\_ Disagree \_\_\_\_ Disagree \_\_\_\_ Opinion

21. Local governments have adequate procedures and resources in place to manage energy development.

Strongly Mildly Strongly Mildly No  
\_\_\_\_ Agree \_\_\_\_ Agree \_\_\_\_ Neutral \_\_\_\_ Disagree \_\_\_\_ Disagree \_\_\_\_ Opinion

22. State government has adequate procedures and resources in place to manage energy development.

Strongly Mildly Strongly Mildly No  
\_\_\_\_ Agree \_\_\_\_ Agree \_\_\_\_ Neutral \_\_\_\_ Disagree \_\_\_\_ Disagree \_\_\_\_ Opinion

23. Federal agencies (U.S. Forest Service and the Bureau of Land Management) have adequate procedures and resources in place to manage energy development on lands under their respective jurisdictions.

Strongly Mildly Strongly Mildly No  
\_\_\_\_ Agree \_\_\_\_ Agree \_\_\_\_ Neutral \_\_\_\_ Disagree \_\_\_\_ Disagree \_\_\_\_ Opinion

24. Attention should be given to scenic quality and noise impacts to Theodore Roosevelt National Park and the 41,520 acres of the 1-million-acre Little Missouri National Grassland identified by the U.S. Forest Service as "roadless areas" suitable for wilderness.

Strongly Mildly Strongly Mildly No  
\_\_\_\_ Agree \_\_\_\_ Agree \_\_\_\_ Neutral \_\_\_\_ Disagree \_\_\_\_ Disagree \_\_\_\_ Opinion

25. The U.S. Forest Service should include an oil and gas lease stipulation that would minimize flaring on public lands.

Strongly Mildly Strongly Mildly No  
\_\_\_\_ Agree \_\_\_\_ Agree \_\_\_\_ Neutral \_\_\_\_ Disagree \_\_\_\_ Disagree \_\_\_\_ Opinion

26. The State Land Department should include an oil and gas lease stipulation that would minimize flaring on state lands.

Strongly Mildly Strongly Mildly No  
\_\_\_\_ Agree \_\_\_\_ Agree \_\_\_\_ Neutral \_\_\_\_ Disagree \_\_\_\_ Disagree \_\_\_\_ Opinion

**STATED GOAL: TO CREATE STRATEGIES FOR HOW BEST TO DEVELOP  
MINERAL RESOURCES WITH RESPONSIBLE STEWARDSHIP OF THE BADLANDS**

27. Drilling permit approval should take into consideration infrastructure needs (such as pipeline availability and capacity, roads, disposal sites, etc.) of energy development.

Strongly Mildly Strongly Mildly No  
\_\_\_\_ Agree \_\_\_\_ Agree \_\_\_\_ Neutral \_\_\_\_ Disagree \_\_\_\_ Disagree \_\_\_\_ Opinion

28. The current mineral extraction reclamation standards and procedures are adequate to meet the stated goal.

Strongly Mildly Strongly Mildly No  
\_\_\_\_ Agree \_\_\_\_ Agree \_\_\_\_ Neutral \_\_\_\_ Disagree \_\_\_\_ Disagree \_\_\_\_ Opinion

29. Standards for landscape condition should be established by the State on state lands to achieve the stated goal?

Strongly Mildly Strongly Mildly No  
\_\_\_\_ Agree \_\_\_\_ Agree \_\_\_\_ Neutral \_\_\_\_ Disagree \_\_\_\_ Disagree \_\_\_\_ Opinion

30. Private landowners should be allowed to adopt those same state standards on their private land?

Strongly Mildly Strongly Mildly No  
\_\_\_\_ Agree \_\_\_\_ Agree \_\_\_\_ Neutral \_\_\_\_ Disagree \_\_\_\_ Disagree \_\_\_\_ Opinion

31. Consideration should be given for federal and state land and mineral exchanges in sensitive or strategic areas to accomplish the stated goal.

Strongly Mildly Strongly Mildly No  
\_\_\_\_ Agree \_\_\_\_ Agree \_\_\_\_ Neutral \_\_\_\_ Disagree \_\_\_\_ Disagree \_\_\_\_ Opinion

32. With respect to the many uses associated with the Little Missouri River Valley and Badlands, responsible energy development: (Please check all that apply.)

\_\_\_\_ Can be accomplished voluntarily.

\_\_\_\_ Can be accomplished only with sound environmental regulations and government oversight.

\_\_\_\_ Can be accomplished with sound environmental regulations and voluntary actions working in concert.

\_\_\_\_ Other comments or suggestions?

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33. You are provided adequate review time of proposed energy projects and the opportunity to provide meaningful input.

Strongly Mildly Strongly Mildly No  
\_\_\_\_ Agree \_\_\_\_ Agree \_\_\_\_ Neutral \_\_\_\_ Disagree \_\_\_\_ Disagree \_\_\_\_ Opinion



**STATED GOAL: TO CREATE STRATEGIES FOR HOW BEST TO DEVELOP  
MINERAL RESOURCES WITH RESPONSIBLE STEWARDSHIP OF THE BADLANDS**

34. The No Surface Occupancy (NSO) concept could be used more effectively to accomplish the stated goal.

Strongly Mildly Strongly Mildly No  
\_\_\_\_ Agree \_\_\_\_ Agree \_\_\_\_ Neutral \_\_\_\_ Disagree \_\_\_\_ Disagree \_\_\_\_ Opinion

35. What would you consider success for the stated goal to look like?

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36. What results do you think could be achieved?

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37. Please share any other comments or suggestions. -

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**STATED GOAL: TO CREATE STRATEGIES FOR HOW BEST TO DEVELOP  
MINERAL RESOURCES WITH RESPONSIBLE STEWARDSHIP OF THE BADLANDS**

**Conservation**

**Below is a series of statements. Please check whether you Strongly Agree (SA), Mildly Agree (MA), are Neutral (N), Mildly Disagree (MD), Strongly Disagree (SD) or have No Opinion (NO).**

	SA	MA	Neut	MD	SD	NO
19. The Little Missouri River Valley and Badlands of western North Dakota are a conservation priority for the state.	___	___	___	___	___	___

20. Land stewardship values such as grassland agriculture, wildlife habitat and scenic quality have been adequately considered as energy resources are being developed.	___	___	___	___	___	___
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21. The activity and disturbance associated with energy development has an impact on:						
grassland agriculture.	___	___	___	___	___	___
wildlife habitat.	___	___	___	___	___	___
scenic quality.	___	___	___	___	___	___
heritage resources.	___	___	___	___	___	___
recreational opportunities.	___	___	___	___	___	___

22. The energy development “footprint” such as well pads, roads, storage facilities, waste facilities, etc. has an impact on:						
grassland agriculture.	___	___	___	___	___	___
wildlife habitat.	___	___	___	___	___	___
scenic quality.	___	___	___	___	___	___
heritage resources.	___	___	___	___	___	___
recreational opportunities.	___	___	___	___	___	___

23. In relation to the above four statements, what changes would you recommend be made relating to the impacts of energy development?

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**STATED GOAL: TO CREATE STRATEGIES FOR HOW BEST TO DEVELOP MINERAL RESOURCES WITH RESPONSIBLE STEWARDSHIP OF THE BADLANDS**

24. What strategies would you propose to accomplish the stated goal?

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a. Have you done any conservation planning, collaboration, outreach to ranchers, oil companies, and state and federal agencies to promote your vision of the Badlands?

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25. Below is a list of wildlife species. Please check whether you agree or disagree that each should be considered a priority in future planning efforts.

	SA	MA	Neut	MD	SD	NO
Mule deer	—	—	—	—	—	—
Bighorn sheep	—	—	—	—	—	—
Elk	—	—	—	—	—	—
White-tailed deer	—	—	—	—	—	—
Pronghorn (antelope)	—	—	—	—	—	—
Sage grouse	—	—	—	—	—	—
Sharp-tailed grouse	—	—	—	—	—	—
Wild turkeys	—	—	—	—	—	—
Raptors (golden eagles, prairie falcons, hawks, owls)	—	—	—	—	—	—
Passerine birds (songbirds)	—	—	—	—	—	—
Others (please specify) _____	—	—	—	—	—	—
_____	—	—	—	—	—	—
_____	—	—	—	—	—	—

26. Stakeholders concerned about wildlife, habitat, conservation, the future of hunting, heritage resources, and other recreational uses have had an opportunity for meaningful input into the manner of energy development.

SA	MA	Neut	MD	SD	NO
—	—	—	—	—	—

27. What would you consider success for the stated goal to look like?

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**STATED GOAL: TO CREATE STRATEGIES FOR HOW BEST TO DEVELOP  
MINERAL RESOURCES WITH RESPONSIBLE STEWARDSHIP OF THE BADLANDS**

28. What results do you think could be achieved?

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29. Please share any other comments or suggestions.

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## Appendix B: Subjective Survey Responses

### Ranching

#### *Key concerns for preserving the ranching culture:*

1. USFS
  - Ranchers are more concerned with USFS and special interest groups than oil development regarding the future of ranching in the Badlands.
  - USFS over reach, using book standards instead of NDSU standards or common sense approaches.
  - USFS being influenced by outside environmental groups and being infiltrated by like thinking individuals.
  - Outside special interest groups suing or threatening to sue if they don't get their way.
  - Other threats include EPA, Endangered Species Act and the Clean Water Act.
2. Outside investors
  - Outside investors have created hyper-inflated land values in the Badlands area based on aesthetics and intrinsic values.
  - Bidding up land values higher than what it will return from ranching, makes it difficult for ranching families to expand or pass the ranch down generationally.
  - Building "Glass Houses" (log cabins) on the top of bluffs (view shed).
3. Ground water aquifers
  - The possibility that the Foxhill Sand aquifer could be damaged by oil development or oil exploration.
  - That the US Army Corps of Engineers is putting restrictions on Lake Sakakawea waters, putting additional pressure on groundwater aquifers.

#### *Key issues:*

1. Don't reopen the USFS 2002 management plan.
  - Ranchers lose every time this has been revised.
2. There needs be better communication between oil companies, USFS, USFS permittees, and private landowners.
  - In oil pad sites, roads, pipelines, electric lines, etc.
  - The local rancher, who is there 365 days, could offer helpful input into these decisions; i.e. how the snow lays on roads, view shed, erosion potential, cattle grazing, wildlife movement, etc.
    - The surface owner/USFS permittee should have some input into these decisions.
  - USFS has been difficult to work with, very little communication with the permittees.
3. Reclamation

- Private lands should have the same reclamation standards as state lands.
  - Use Best Management Practices (BMP) for reclamation, with follow up.
  - Some older abandoned wells have not been reclaimed.
4. Regulations
    - Most ranchers are against new regulations because of the unintended consequences, but recognize that the industry must develop its own BMP, with state and local input, to avoid additional regulations.
  5. USFS siting restrictions on their land puts the burden on adjacent private land.
    - No Surface Occupancy (NSO) restrictions.
    - In some cases the private land is more environmentally sensitive than the USFS land.
    - In some cases the private land is more conducive to wildlife than adjacent USFS land.
  6. Reduce flaring
  7. Reduce truck traffic with adequate infrastructure, i.e. pipelines.
  8. Ranchers recognize the value of some historic sites.
    - Elkhorn Ranch headquarters' view shed should be protected.
    - Some feel the Elkhorn Ranch should be a working ranch.
    - The number of sites should be limited.
  9. Wildlife
    - Weather is a much larger factor for wildlife populations than oil development.
    - In most cases, there is an abundance of wildlife.
    - Mule deer and bighorn sheep have bedded down on oil pad sites.
  10. Ranchers feel that surface owners should receive annual rent for well sites, similar to wind tower rents.
    - The state should revisit the subject of surface owner rights.

#### *Recommendations to achieve stated goal:*

1. Communication and planning
  - There needs be better communication between oil companies, USFS, USFS permittees, and private landowners.
    - In oil pad sites, roads, pipelines, electric lines, etc.
    - The local rancher, who is there 365 days, could offer helpful input into these decisions; i.e. how the snow lays on roads, view shed, erosion potential, cattle grazing, wildlife movement, etc.
      - The surface owner/USFS permittee should have some input into these decisions.
  - Develop some system where the local individuals or local government agencies have some input into the planning process.
    - Oil pad placement, infrastructure placement and timetable.

- Work on eliminating infrastructure duplication; i.e. two roads or pipelines running parallel to each other.
    - This may involve competing oil companies talking to each other, sharing costs, or making their roads public vs. private.
  - Oil companies, state and local governments, and local individuals collectively create Best Management Practices (BMP).
    - Oil companies work on adhering to BMP similar to other industries (what is acceptable and what is not).
    - The consequence for not self-policing is probably more regulations.
  - Oil companies need to plan infrastructure needs before drilling (when drilling success is almost assured).
2. Best Management Practices (BMP) and Reclamation Standards.
- Reclamation standards without making a regulation.
    - Setting private land reclamation standards similar to state land.
    - Using these standards in the bidding process.
    - Using only pipeline companies that have a record of good work.
    - Don't build pipelines in the winter.
    - State to enforce existing regulations on abandoned or non-producing oil well sites.
  - Advocate developing BMP and adequate reclamation standards, without creating new regulations.
    - Regulations often have unintended consequences.
  - Have a contingency plan for spills.
  - Work on reducing flaring either with infrastructure or technology.
3. Technology
- Use the most advanced technology to protect ground water aquifers.
  - Use technology to protect the Badlands landscape.
    - Horizontal drilling.
    - Multiple wells on one site.
    - Improved reclamation.
    - To reduce flaring.
    - In some sensitive areas, submersible pumps.
  - Use technology for reclamation.
  - Technology will continue to increase which should help minimize the oil industry's footprint and impact on the badlands.
4. USFS
- More open communication with permit holders.
  - USFS should be open to using NDSU's rangeland work and expertise; i.e. USFS's book says you need a certain type of grass and the soil types of that area won't support that grass specie.

5. Federal lands should consider unitizing to reduce footprint.
6. State should have a 50-80 year projection or plan.

## Non-Ranching Landowners

### *Key concerns:*

1. Lack of planning by the oil companies and the state.
2. Property rights and protecting their investment.
  - Little or no say in well siting and infrastructure development siting.
  - Oil development may decrease the value of their investment.
3. Reclamation
  - Old abandoned wells not reclaimed.
  - Impossible to get back to original state.
4. Spills and pipeline breaks.
5. Increased traffic.

### *Key issues:*

1. Oil development moves faster than infrastructure development.
  - Increased traffic congestion on roadways.
  - Human safety concerns from increased traffic.
  - Wildlife displacement from increased traffic.
2. Spills and pipeline breaks.
3. Getting too close to the Little Missouri River and drainages.
4. Oil development will make resale property more difficult and may lower the value of their property.
5. There is very little that private landowners can do to protect themselves from surface disturbances that come with oil development.
6. Reclamation cannot be done to the standard of close to its original state due to the erosive nature of the area.
7. Private property rights are important, both the surface and mineral owner's rights.

### *Recommendations to achieve stated goal:*

1. More up-front planning.
  - More thought on infrastructure requirements prior to drilling.
  - More input from local impacted landowners.
  - The oil play will last longer than predicted because of new and improved technology.
  - Hopes that infrastructure will catch up to oil development, to reduce truck traffic.
2. Using current and future technology.
  4. Minimize the number of pads, with larger spacing.



5. Minimal footprint with adequate reclamation.
3. Adequate reclamation.
  - Solid plan to reclaim as close to original as possible.
  - Does not have much confidence in oil pad reclamation judging by un-reclaimed abandoned well sites.
4. USFS management plan needs to be updated because it was written prior to the Bakken Oil boom.
5. Stronger bonding requirements

## Oil Industry

### *Key concerns and issues:*

9. Planning
  - No long-term view/perspective---“where are we going?”
  - No project manager for billions to be invested in coming years.
  - Access to land is key – job #1 for producers. Creating any kind of structure or process that makes that more difficult would be problematic.
  - Their company tries to work with landowners/surface owners and uses the surface use agreement to build the relationship, because the company is going to be in ND a long time.
  - Local landowners should help direct development, more than state government.
  - Operators try to do their best in siting wells and to mitigate impacts to landowners, where they know of them and have options.
  - Less “willie-nillie” development/well placement without conferring with landowner. Confer with landowner to allow them their own planning
10. Regulation
  - Don’t need more rules/regulations, but more thoughtful consideration of likely development. Governor and NDIC must lead. Learn from mistakes in round 1, in Williams and McKenzie counties. Don’t repeat.
  - State spacing rules – 1,280 acres spacing units, probably reduced creativity among producers in the long-run, but created business certainty that probably enhanced/encouraged development.
  - Access to land is key – job #1 for producers. Creating any kind of structure or process that makes that more difficult would be problematic.
11. Reclamation and other
  - Badlands area is a treasure in ND; very important to take care of area.
  - Complete confidence industry will reclaim landscape once extraction is completed. (Placing importance on reclamation).
  - Interference from outside influence of preservation movement.

- Not concerned about Badlands at all (i.e., development is not threatening Badlands).
- Overreach and interference from federal land agencies are key issues.

*Recommendations to achieve stated goal:*

- Planning
  - Any new suggestion/paradigm should include oil companies “at the table.”
  - Broader use of surface use agreements; more collaboration with landowners to nurture the long-term relationship necessary for both (oil and landowners).
  - Collaboration with other producers is unusual, but the industry did collaborate on flaring, so it can be done.
  - Nothing to lose, and everything to gain by better process for development.
  - More input/advance planning by state, local governments, and private landowners.
  - Develop a master plan for all development; timing for drilling, access, acreage involved, infrastructure, well locations, etc.
  - Need more input from local and state government, and private landowners.
  - Use unitization more often.
  - Listen to local leaders, local people regarding location of wells and surface facilities/equipment.
  - Local control of development is key.
- Regulation
  - Urge against more rules and legislation; not the direction oil industry wants.
  - Broader use of surface use agreements; more collaboration with landowners to nurture the long-term relationship necessary for both (oil and landowners).
  - No changes in rules recommended.
  - No changes to state law recommended.
  - Taxation and regulations impede business practices/development.
  - Use unitization more often.
- Reclamation
  - Develop as responsibly as physically possible.
- Other
  - High transparency in development scenario.
  - Compensate for areas not developed because of policy/value choices made.
  - Eliminate federal land agencies (includes Forest Service specifically).

## Government

### *Key concerns:*

#### 1) Planning and communication.

- Business interests, property rights, surface vs. mineral are challenges.
- Water protection
- Need better up front planning. (2)
  - Sitting down with the oil companies; getting their cooperation. (2)
  - What can be done to address all interests.
  - Need fewer well pads.
  - Should build infrastructure by existing infrastructure.
  - I want it all – oil development and protection of the land.
  - Minimize footprint.
- Topographical features such as slope and soils may not support development.
- Difficult to slow down or preclude development due to minerals ownership.
- Communication barriers (personalities, attitudes and perceptions).
- Achieving a “balance” between the outdoors/rural life, economics, and development.(2)
- Southern Badlands.
- Energy development process is top-down driven.

#### 2) Reclamation and landscape

- Concern over impacts to the landscape and geology of the Badlands and reclamation to the original state. (3)
- Topographical features such as slope and soils may not support development.
- Technological advancements will further reduce the impact on wildlife habitat.
- Controlling development that does not take into account impacts on the natural environment.
- Noise and view shed pollution.
- It’s not just the oil development, but the increase in population that causes issues.
- Protect park and topographically sensitive areas to prevent erosion.
- Critical of USFS and tribes pushing infrastructure off their lands and onto adjacent private lands.
- Need to concentrate on reclamation plans.
- Some older wells are sold to submarginal operators (bottom feeders), creating reclamation issues (abandonment/enforcement).

#### 3) Transparency

- Lots of mistrust.
- With respect to input into mineral development, more “transparency” and open communication is needed.

- Although on some ownerships input is allowed, it is not known how the information is being used in the process.
- 4) Regulations, standards, and Best Management Practices (BMP)
- Regulations.
    - Developing minerals responsibly and according to regulations.
    - Many regulations are outdated.
    - Water protection.
    - Private landowners need protection.
    - Current state standards are not adequate for wildlife.
    - Industry does things because they have to, not voluntarily.
    - Too much federal regulation and mistrust of regulators. Agenda driven.
    - Need more regulations, but it will be difficult to achieve.
  - State seeks avoidance of impacting high value sites (i.e., historical, riparian, wildlife habitat, etc.) but has no enforceable standards in place.
  - Difficult to slow down or preclude development due to minerals ownership.
  - Need some balance; it is all on the oil/economic side now
- 5) Cultural resources and special places
- Expressed concern over the view sheds of the Elkhorn Ranch and associated “sound shed” (i.e., pumpjack and traffic noise) and TRNP. (4)
  - State should be required to conduct heritage resource surveys on State Trust lands.
    - Not enough staff funding to conduct heritage resource surveys.
  - A major concern is the lack of information provided by the ND Industrial Commission and oil companies.
- 6) Flaring
- Flaring. National average is about 1%. (2)
- 7) Other—water, unitization
- Inflexibility to do things differently (i.e., spacing units greater than 1,280 acres).
  - Change is constrained by elected officials based on the requirement of consensus among stakeholders/key interests.
  - Expanded use of NSO could impact vertical well locations.
  - Loss of grassland habitat, traffic and noise.
  - Attractions in the oil development areas and associated tourist businesses have seen a decrease in public use of state parks and this is a concern. (2)
  - Oil companies – some good, some less so.

#### *Key issues:*

- 1) Planning and communication
- Private landowners need protection.

- Rapid development and haphazard planning. (2)
  - Need more planning at the local level and need to get locals informed. (3)
  - State has no long-term plan. (2)
  - Well siting.
- 2) Reclamation and landscape
- Need improvements in reclamation
  - Department of Trust Lands needs standards so when oil extraction is completed you will not be able to tell we were ever in the Badlands.
  - Reclamation of disturbed sites.
- 3) Transparency
- Although state leaders may believe the process is transparent, it is more important that it is transparent in the eyes of the beholder (i.e., public and stakeholders).
- 4) Regulations, standards, and Best Management Practices (BMP)
- Many regulations are outdated.
  - Surface owners without minerals need more rights.
  - Regulation/policy formation and lack of enforcement, particularly the state.
- 5) Cultural resources and special places
- The Elkhorn Ranch issue is also important to adjacent properties and the historic site.
  - Enforcement of current laws and regulations (ARPA, LRMP, etc.) to protect historic sites.
- 6) Other – water, unitization
- Supportive of federal and state land and mineral exchanges in sensitive areas.
  - For expiring leases, unitization could cause significant loss of leasing bonuses if parcels were not reoffered.

*Recommendations to achieve stated goal:*

- 1) Planning, communication and dialogue
- Planning
    - Reasoned and planned development for multiple uses of the natural resource with local input. (8)
    - All stakeholders need to sit down and work it out through a good collaboration process. (2)
    - Larger planning units for federal minerals.
    - Industry-wide communication within and between companies. (3)
    - Proactive approaches to avoid listing of species as threatened or endangered.
    - Use state/local expertise. Boots on the ground.
    - Oil companies need to use “good” reps/landmen.

- Oil companies need to treat landowners without minerals better.
- Should build infrastructure by existing infrastructure. (2)
- Geography
  - To help protect the Badlands, more education on the geology and history of the area should be provided.
  - Geographic Information System (GIS) layers should be developed for all resources.
  - Cultural resource surveys of areas proposed to be disturbed.
  - Spacing units should be based on geography. (3)
- Landscape (Big Picture) Plan
  - Need larger vision (landscape level) of land stewardship. (6)
  - Re-evaluate spacing unit requirements.
  - Time to redefine conservation to include industry as a partner. (2)
  - The mineral resource development process should be collaborative among key stakeholders.
  - Proactive approaches to avoid listing of species as threatened or endangered.
  - Reasoned, balanced, and planned development for multiple uses of natural resources. (5)
  - ND Game and Fish needs to do a 30-year habitat projection based on current practices.
  - He likes the “outside-in versus inside-out” approach to development in sensitive areas.
  - There needs to be more input from state agencies in pre-planning oil development instead of it just being the Industrial Commission. (2)
- Reclamation
  - Reclamation plans should be in place before development and mitigation contingency plans.(3)
- Transparency
  - The Industrial Commission website needs to be upgraded and made more user-friendly. It is very difficult to find information on the current website.
- Regulation
  - Believes the Forest Plan needs to be updated to meet the demands of impending oil development that was not envisioned in 2002.
  - Voluntary pre-planning, conservation, and reclamation actions by oil companies are not enough. There has to be regulations because companies will not always live up to voluntary standards and practices.
  - Development of Master Development Plans (USFS) where appropriate (not all companies get along).

- Enhance state land leasing stipulations for more resource protection. Enforce flaring regulations and spill fines.
  - Other:
    - Swapping state revenue streams with trust land revenue to protect high value resources.
    - Local decision bodies or groups (multi-interest local group, bottom to top) in contrast to top-down process.
    - Emphasis on a coordinated approach between state and federal government.
    - Lessons learned should apply to the southern Badlands.
    - Protect sensitive sites by drilling from outside the sites.
    - Surface owners should have same protection as state lands.
- 2) Reclamation and physical landscape
- Reclaim surface disturbance to original condition or better.
    - Removal of unneeded infrastructure and restoration of native landscapes.
    - Make the industry proud (coal model in ND)
    - Resource extraction does not have to come at the cost of other natural resources. There should be a balance over time and space. (4)
  - Align reclamation with development.
    - Reclamation plans should be in place before development.
    - Need to look at cumulative impacts and the ability of the environment to assimilate impacts.
    - Pipeline reclamation, owners need to be able to say reclamation needs to be approved by NRCS.
    - Enhance state land leasing stipulations for more resource protection. Enforce flaring regulations and spill fines.
  - Other:
    - There needs to be more research on reclamation methods.
    - Recognition that some areas are to be avoided due to higher values. (2)
    - Use of accepted scientific practices. (2)
    - Plant trees around well pads for view protection. (2)
    - Ensure reclamation is to standard before releasing bonds.
- 3) Regulations, standards, and Best Management Practices (BMP)
- Update regulations and/or industry standards.
    - Regulations need to be updated and consistent with new technology. (5)
    - USFS should address changed conditions due to energy development through a plan amendment or revision. (2)
    - Will need state law to hold upfront public discussions/too much pressure on elected officials to get this done in current process.
    - State trust lands mineral exchange authority.

- Federal mineral unit size (unitization of federal lands).
- Swapping State revenue streams with trust land revenue to protect high value resources.
- State should conduct environmental reviews.
- Continued coordination among federal agencies to promote efficient permitting process.
- Surface owners should have same protection as state lands
- Increase regulations/statutes
  - Enhance state planning and land leasing stipulations for more resource protection. Enforce flaring regulations and spill fines. (5)
  - Protection of core areas and associated values such as the Elkhorn Ranch view shed) and associated “sound shed,” by drilling outside the sites and using NSOs.(3)
  - Minimum 4-mile spacing between well pads. (2)
  - Voluntary pre-planning, conservation, and reclamation actions by oil companies are not enough. There has to be regulations because companies will not always live up to voluntary standards and practices.
  - Concerned that bonding requirements are not adequate, and ensure reclamation is to standard before releasing bonds. (2)
- The same or fewer regulations, or voluntary.
  - Instead of regulations, develop a process that identifies what needs to be protected and allow industry to develop a plan to protect what’s important (site specific solutions). (2)
  - Re: USFS revised plan probably should be done but people are upset with the agency. US government is not a good neighbor.

#### 4) Technology

- Using existing technology:
  - Unitization may allow for more upfront planning (i.e., well siting and other infrastructure). (2)
  - Multiple well pads and drilling close to roads minimize impacts.
  - Reorientation and/or expansion of spacing units.(2)
  - Continuous process of assessment following accepted scientific practices that includes local/state decision makers.
  - Use of accepted scientific practices.
- New technology or research:
  - Use of different technologies, greater attention to timing of drilling operations and more communication with companies.
  - Pilot projects with industry to highlight new technologies and smaller landscapes. (3)



- Submersible pumps are an option; there could be great value to using this technology especially in scenic and sensitive areas. (2)
- Monitoring of well sites and infrastructure, enforcement of spill reclamation, and strict inspections of all disturbed sites.

#### 5) Transparency

- Access inventory list of historic sites
- Process should be transparent with open communications.
- There needs to be better and more transparent information coming from the ND Industrial Commission and the oil industry.
- Re: state transparency, just need to find data in one place

## Conservation

### *Key concerns:*

- 1) Loss of functioning ecosystem resulting in loss of agricultural, wildlife, recreational, and historic uses and values.
  - Concerned about the Badlands and western North Dakota being transformed into an “industrial park” and the impact on North Dakota’s wildlife habitat and populations.
  - In the future there should be concern over the damage of chemicals, toxins, radioactive waste and other materials that may have a negative impact long after the mineral extraction process is over.
  - The concern includes the fact that subcontractors as well as major oil companies will happily forfeit small bonds in order to separate themselves from ongoing responsibilities.
  - Ranching culture should be respected by surface owner protection in proximity to ranching headquarters. There remains an imbalance between the rights of mineral owners and surface owners.
  - Success for a full and honest dialogue involving all groups with the shared goal of identifying and prioritizing important values across all interest areas and doing oil and gas development in a way that causes the least damage to other resources and values.
- 2) Special places: the effort to identify and protect special places should be ongoing and the list should be allowed to change over time.
  - Concerned about State Historical Society and their lack of an adequate inventory of important places.
  - Concern over the lack of input from the tribes and their inherent inability to be engaged in the oil and gas development process.
  - The state process for commenting on oil development in Areas of Interest (special places) needs to be longer than 10 calendar days. He recommended 30 days.

- 3) Water – a limited and precious resource.
  - Over-utilization and pollution of natural wetlands, streams, and waterways.
- 4) Vision: development needs to be defined and constrained through comprehensive planning, consolidation of infrastructure, and protection of important areas such as TRNP units, areas suitable for wilderness, and other environmentally and historically significant areas.
  - North Dakota public policy regarding oil and gas development favors speed and income over care of the land, people, and the existing way of life.
  - The oil and gas industry needs to show they care and that they implement the best practices they can to have the minimum impact on the land and its people.
  - There is a “lull in the game” right now that would allow a process to be developed and implemented that would allow the state to find a balance between oil development and conserving the values stated in the goal for this project.
- 5) There is a need for more and better leadership from state decision makers on all aspects related to oil development and its impacts on the state.
  - There is concern that citizen's dollars in the form of money from the Oil and Gas Division is being granted to the ND Petroleum Council to fund "propaganda" through the Oil Can advertising program.
- 6) There is a need for more transparency in the oil and mineral development process.
  - The Department of Mineral Resources will not give out information on wells located in or near "extraordinary places" because companies claim confidentiality.
  - There needs to be more transparency in how oil development is managed and regulated in the state. The Oil and Gas Division website is very difficult to use and information is hard to find.

#### *Key issues:*

1. Loss of functioning ecosystem resulting in loss of agricultural, wildlife, recreational, and historic uses and values.
  - Weed infestation due to development and increased traffic. These infestations negatively impact grasslands, ranching and wildlife habitat.
  - Key issues related to oil development in the Badlands include: habitat loss and fragmentation, too many roads, dust, introduction of noxious weeds, industrial impacts (noise, facilities, spills, etc.).
  - Crucial wildlife habitats should be avoided. Oil development should take into account the detailed wildlife species information available through the ND Game and Fish Department.
  - The “human view shed” is not as important as the resource values that exist in these places.
  - The oil industry focuses too much on “convenience.”
2. Water – a limited and precious resource.

- Over utilization and pollution of natural wetlands, streams and waterways.
  - Riparian area spills – oil, salt water, and chemical. They are concerned about the placement of wells and facilities too close to riparian areas.
3. Vision: development needs to be defined and constrained through comprehensive planning and consolidation of infrastructure.
- Protection of important areas such as TRNP units, areas suitable for wilderness, and other environmentally and historically significant areas.
  - It is necessary to work with industry and agencies to find mutual agreement on how oil development can proceed with the minimum amount of impact to ranching, wildlife and other resources.
  - Apparent lack of upfront planning and coordination for oil development that involves all stakeholders. Use Best Management Practices for all values in all developments.
  - Their vision – in 20 years to not lose the important areas while intensive development is occurring by minimizing roads, pads, and other infrastructure. In 50 years be able to say the land was left better than it was before development.
  - Surface owners, including public land owners and permittees, do not have input or control due to the severed rights laws. People with surface interests are left with little input and all the problems.
4. There is a need for more and better leadership from state decision makers on all aspects related to oil development and its impacts on the state.
- Reclamation:
    - There does not seem to be an accurate inventory of wells and other facilities that are inactive or “mothballed.”
    - Lack of adequate reclamation standards or regulations.
  - Concerned about State Historical Society and their lack of an adequate inventory of important places.
  - Surface owners, including public land owners and permittees, do not have input or control due to the severed rights laws.
  - The biggest weakness in our approach to energy development is lack of attention to planning, coordination and communication with the goal of avoiding impacts.
5. There is a need for more transparency in the oil and mineral development process.
- Right now information is buried and difficult to access so the public is unable to intelligently comment on issues.

#### *Recommendations to achieve stated goal:*

- 1) What the state should do:
  - Ask Scott Davis, State Indian Affairs Commissioner, to help provide a comprehensive list of important Native American sites of significance.

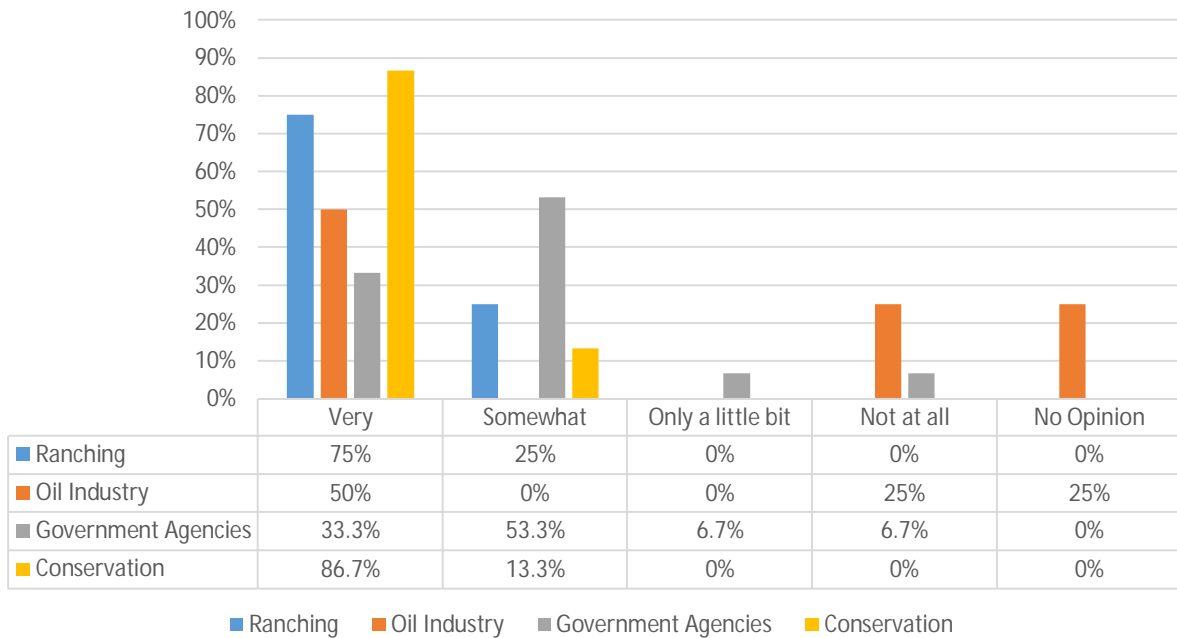
- There needs to be a state sanctioned and supported “Landowner Bill of Rights” and that landowners have access to state standards for reclamation and access to information that lets them understand their options.
  - The team needs to review North Dakota's enabling statutes and regulations dealing with oil and gas in comparison to the long-standing and successful coal mining statutes and regulations.
  - The Oil and Gas Division needs to develop an accurate inventory of all “mothballed” or no longer useful development infrastructures such as pads, roads, tank batteries, etc. Once the inventory is complete then require reclamation of those facilities no longer in use.
  - Improve state policies with regards to development of NSO areas, better public information efforts (transparency), and specific criteria need to be developed to identify and protect important areas from oil development.
  - When it comes to developing minerals adjacent to important areas, pre-planning should be done to organize development from the edge outward instead of the current practice of developing from the outside inward. The Industrial Commission could do this and it would help in the protection of the integrity of special places.
  - Develop a distance for wells and other facilities from riparian areas and strongly encourage (as part of the permitting process) that oil companies work with the Game and Fish Department to obtain and use their GIS layers showing important wildlife habitat areas.
  - Department of Trust Lands needs to seek out and/or be open to mineral exchanges to facilitate protection of important areas.
  - Request the governor’s office to add a staff position that would serve as an ombudsman (not devoted to promoting oil development) for dealing with energy development issues and strategies.
  - The roles of regulator and industry “cheerleader” need to be separated, with the mission of the Department of Mineral Resources being clearly regulatory, and promotion of the industry housed elsewhere.
  - Industry “dictates” when state-owned tracts get leased through the nomination process. This should be changed to the state deciding when tracts get leased.
- 2) Planning and a Long Term Strategic Plan for oil development:
- There needs to be much more emphasis on stewardship and cumulative impacts considered up front.
  - Reclamation and minimizing the foot print can be accomplished with more upfront planning and the use of technology.
- Ensure that private landowners have access to state standards for reclamation and access to information that helps them understand their options.

- Use pre-development advance planning to lay out oil fields to avoid unnecessary and duplicative infrastructure.
  - There needs to be a “round table” established to work through the issues surrounding oil development. This round table needs to include all the stakeholders identified in this report.
  - The oil industry should have the goal of “leaving the land in better condition than they found it.”
  - The recycling of water is a concept that is being explored and has tremendous potential benefits.
  - Specific criteria need to be developed to identify and protect important areas from oil development.
  - Protect important areas “from the inside out” through adequate and open pre-planning.
- 3) Transparency
- Require the Department of Mineral Resources to provide the public with all information about wells located in or near the list of special places or areas of interest.
- 4) Reclamation
- The team needs to review North Dakota's enabling statutes and regulations dealing with oil and gas in comparison to the long-standing and successful coal mining statutes and regulations.
  - There needs to be common and adequate standards for reclamation once oil recovery is complete. These standards need to be readily available to private landowners.
  - The oil industry should have the goal of “leaving the land in better condition than they found it.”
  - Reclamation and minimizing the foot print can be accomplished with more upfront planning and the use of technology.
- 5) USFS Management Plan
- The US Forest Service Plan needs to be updated because when the current plan was implemented in 2002 no one envisioned the Bakken and its intense activity.

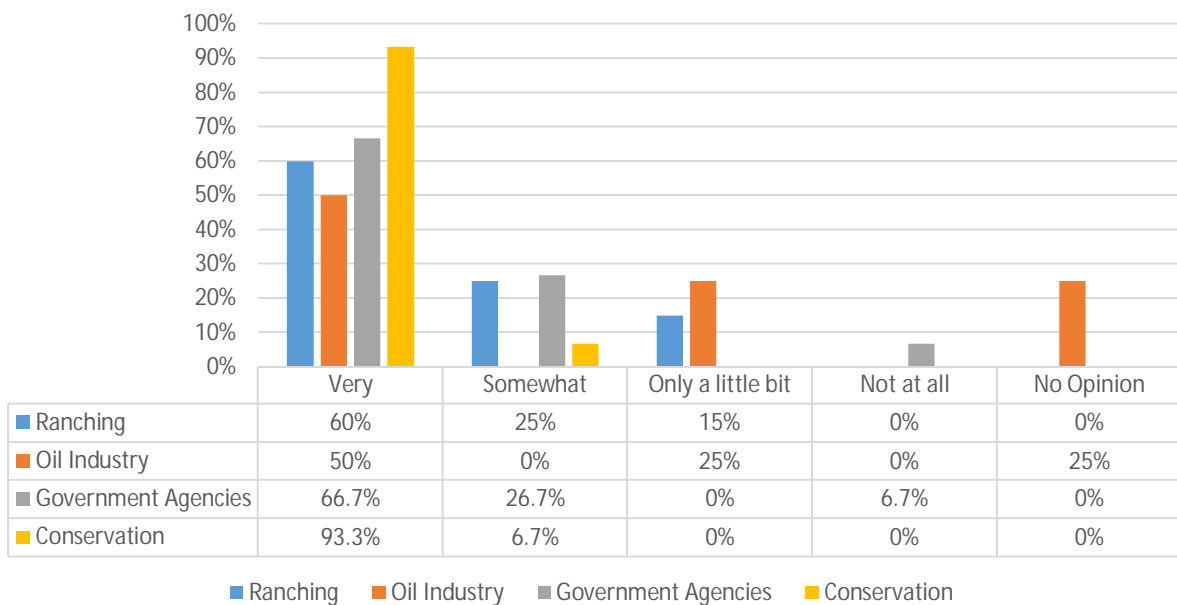
## Appendix C: Objective Survey Responses

### General

1. Generally speaking, how concerned, if at all, are you about the future of the Badlands and the Little Missouri River Valley?

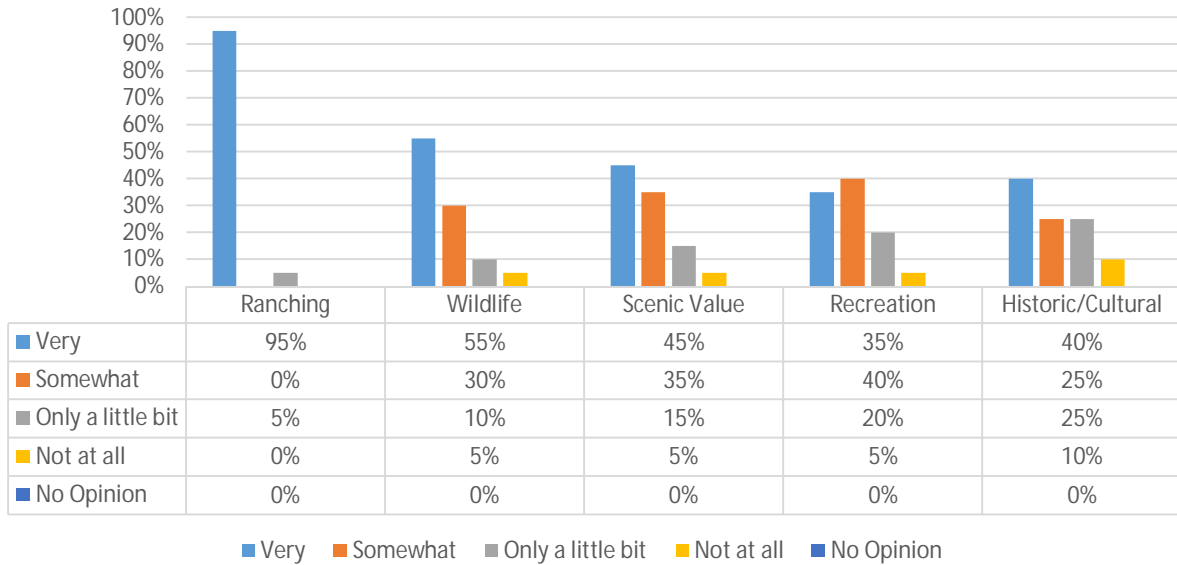


2. How important, if at all, is it to maintain the Badlands area as close to its current condition as possible while developing and extracting the mineral resources?



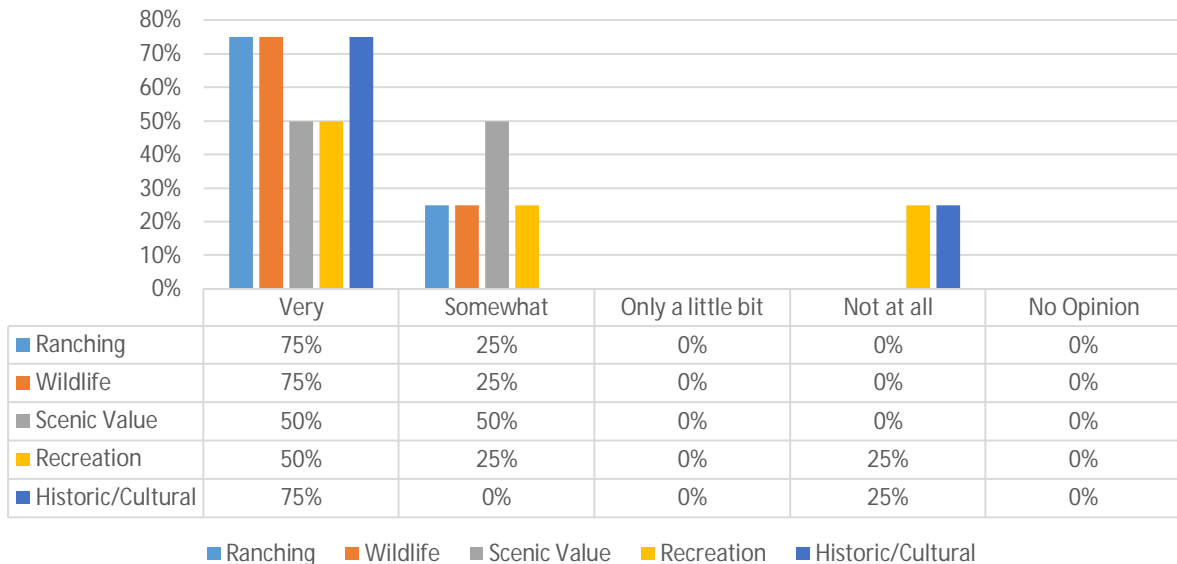
### Ranching

4. How important is each of the following interests to consider while creating strategies to develop mineral resources with responsible stewardship of the Badlands?



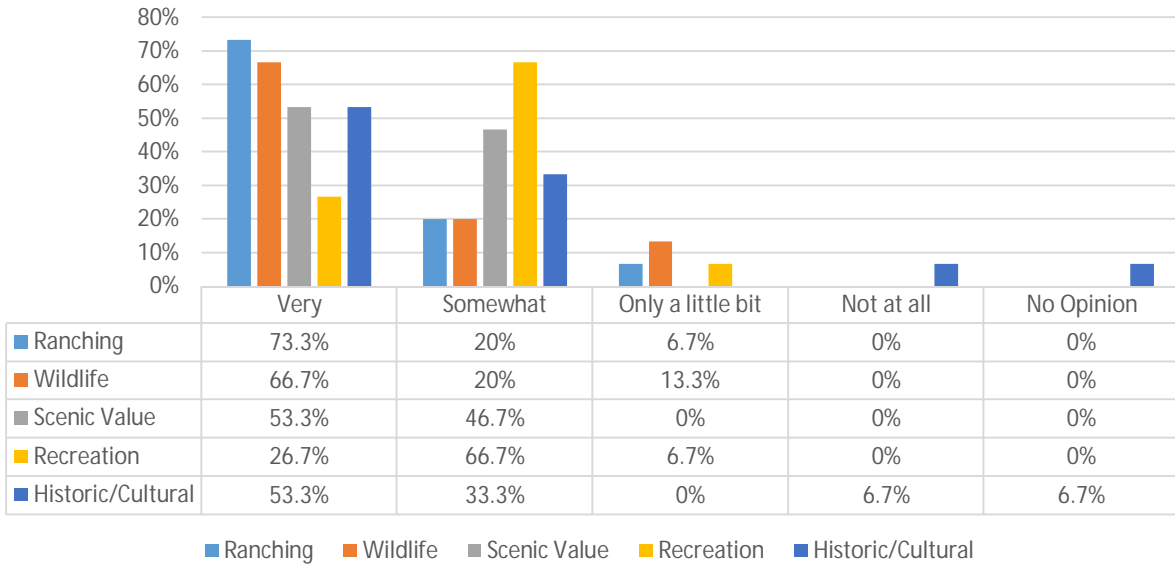
### Oil Industry

4. How important is each of the following interests to consider while creating strategies to develop mineral resources with responsible stewardship of the Badlands?



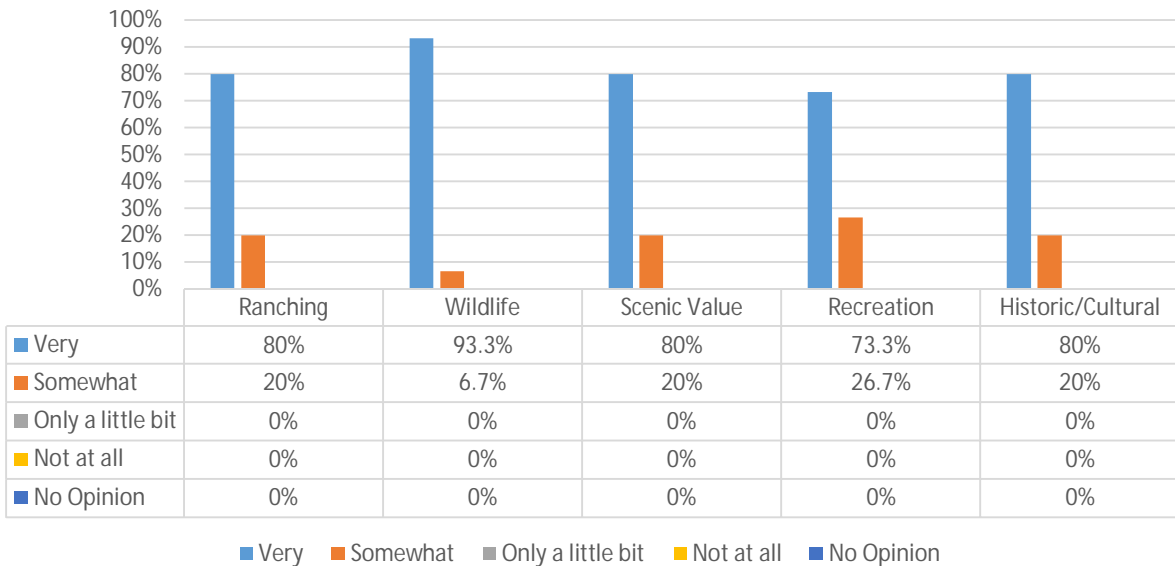
#### Government Agencies

4. How important is each of the following interests to consider while creating strategies to develop mineral resources with responsible stewardship of the Badlands?



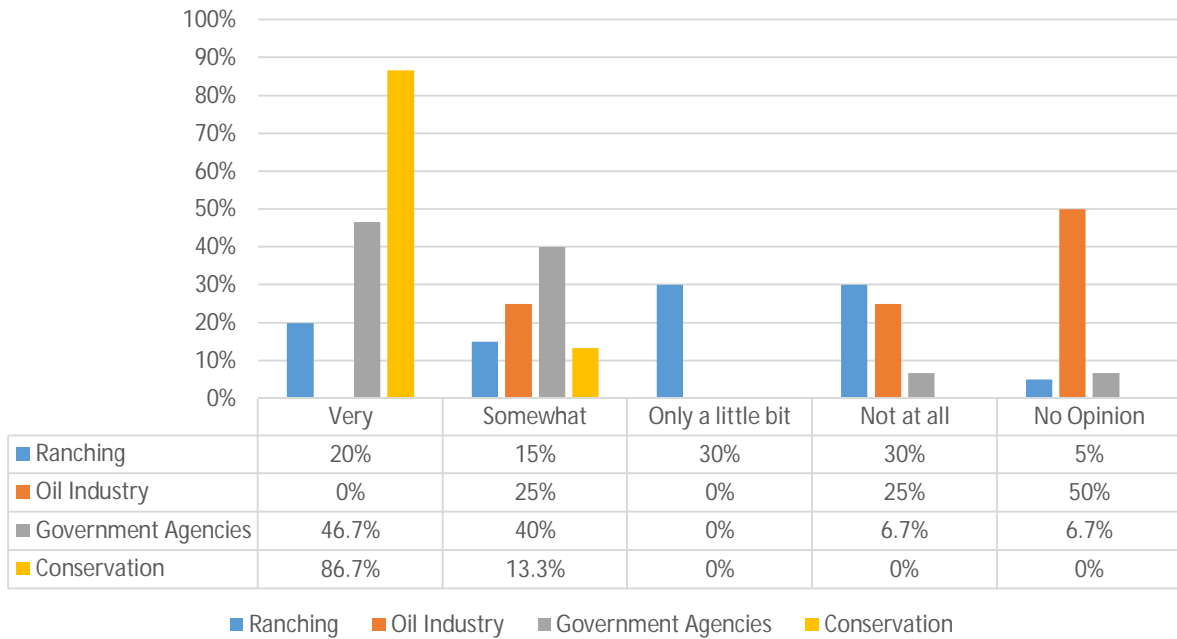
#### Conservation

4. How important is each of the following interests to consider while creating strategies to develop mineral resources with responsible stewardship of the Badlands?



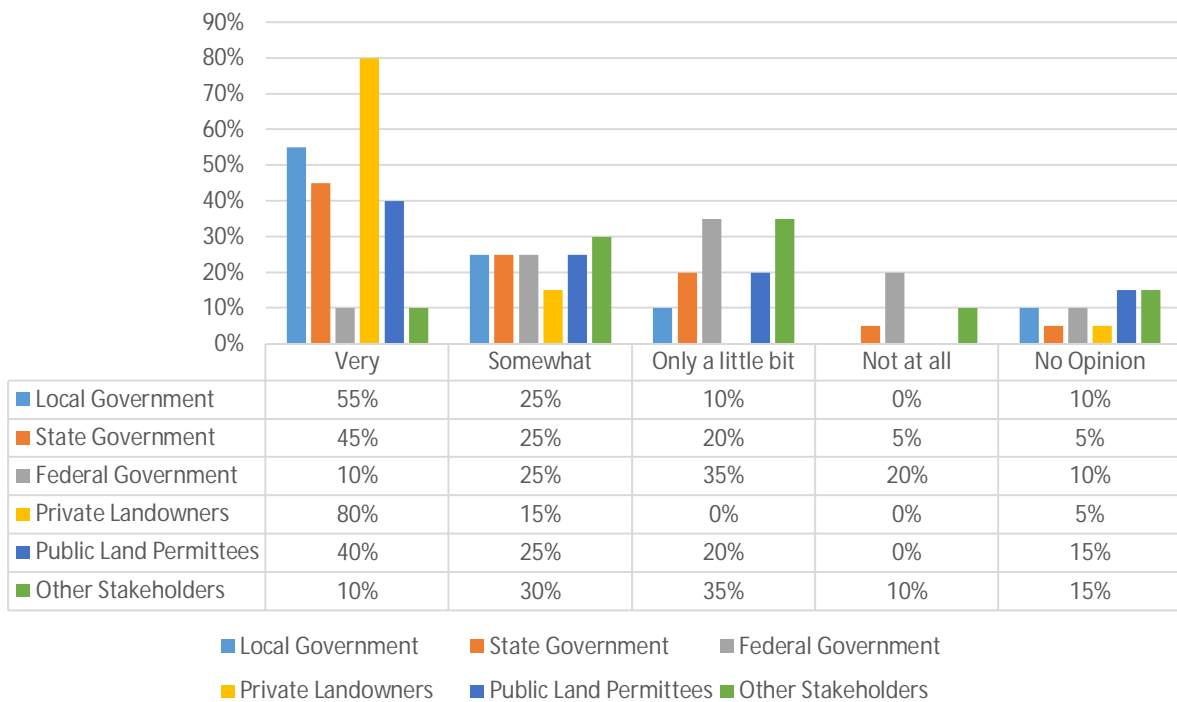


7a. How important, if at all, is protecting the Elkhorn Ranch landscape?



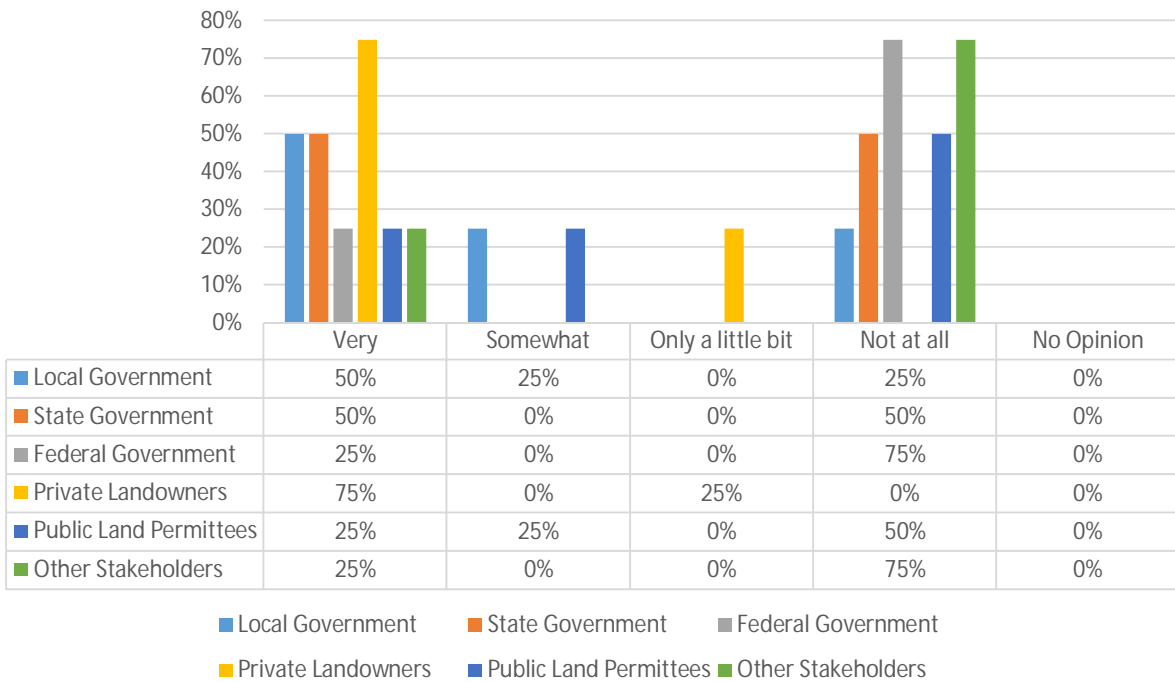
Ranching

10. How much more input, if any, into how mineral development happens should there be from each of the following sources?



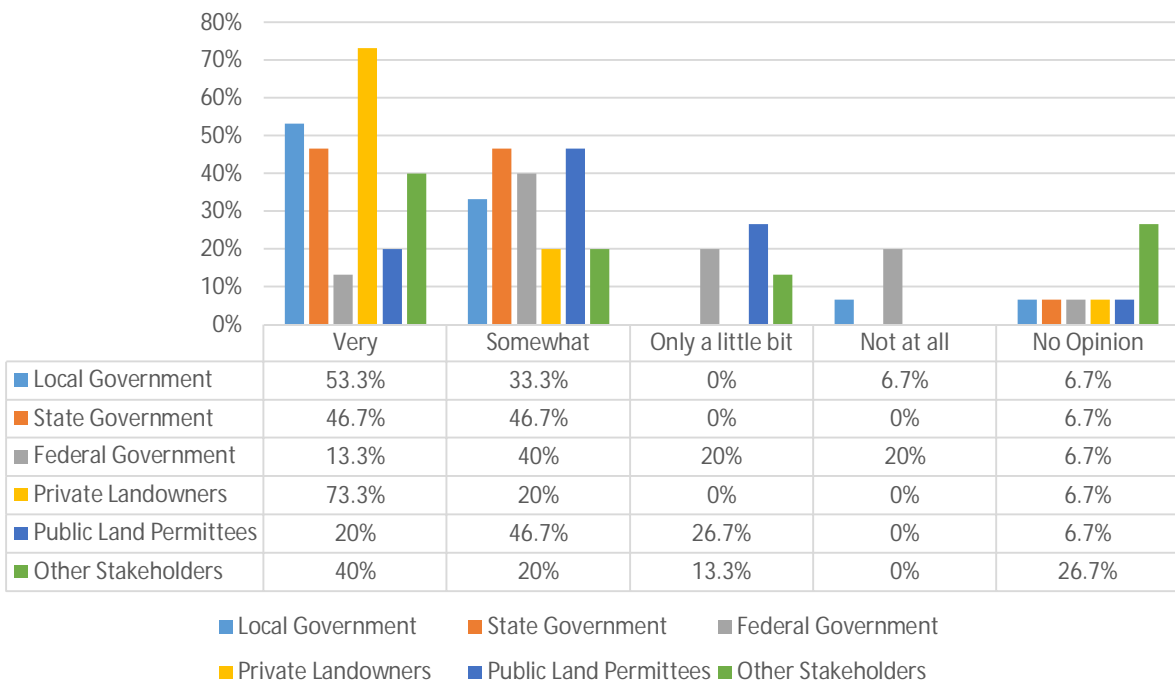
### Oil Industry

10. How much more input, if any, into how mineral development happens should there be from each of the following sources?



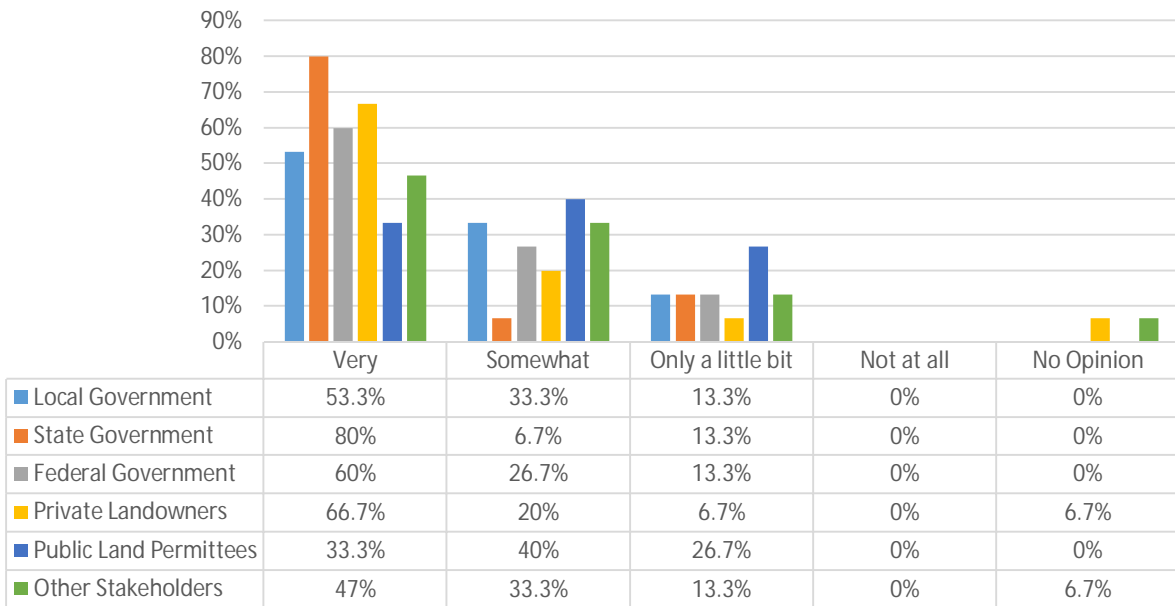
### Government Agencies

10. How much more input, if any, into how mineral development happens should there be from each of the following sources?



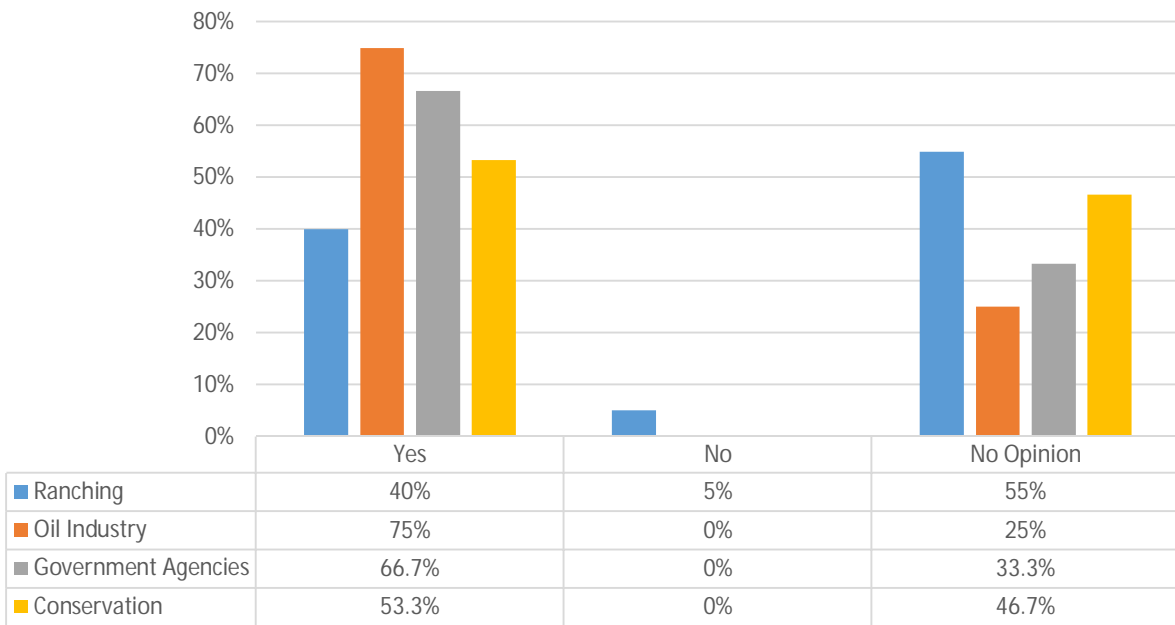
### Conservation

10. How much more input, if any, into how mineral development happens should there be from each of the following sources?



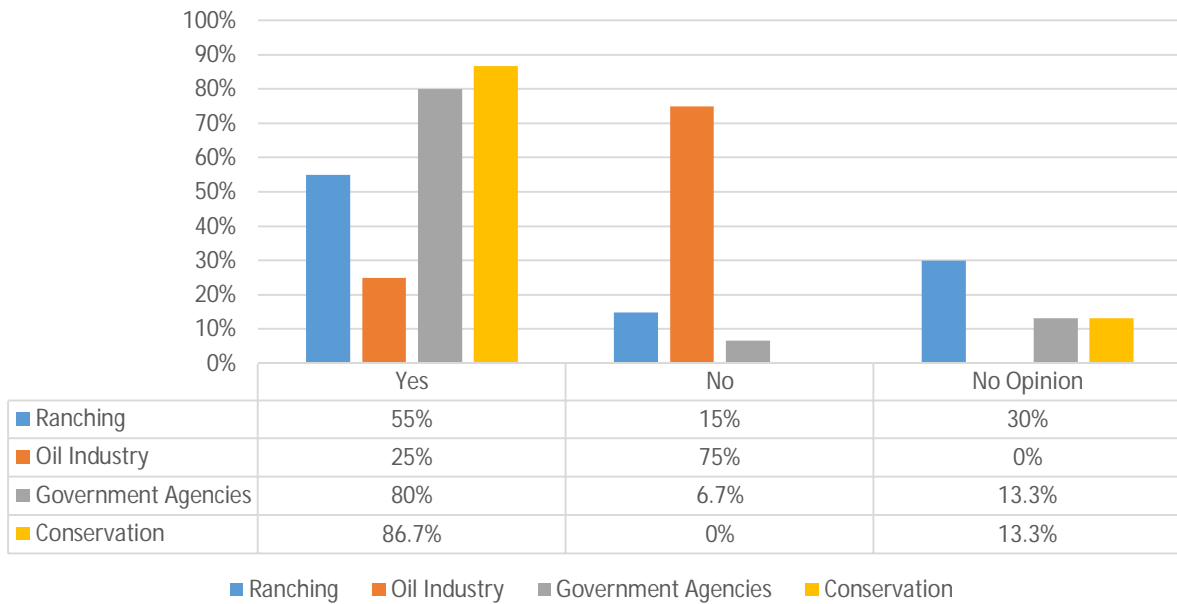
■ Local Government    ■ State Government    ■ Federal Government  
■ Private Landowners    ■ Public Land Permittees    ■ Other Stakeholders

13. Should the State use unitization more often to help meet the stated goal?

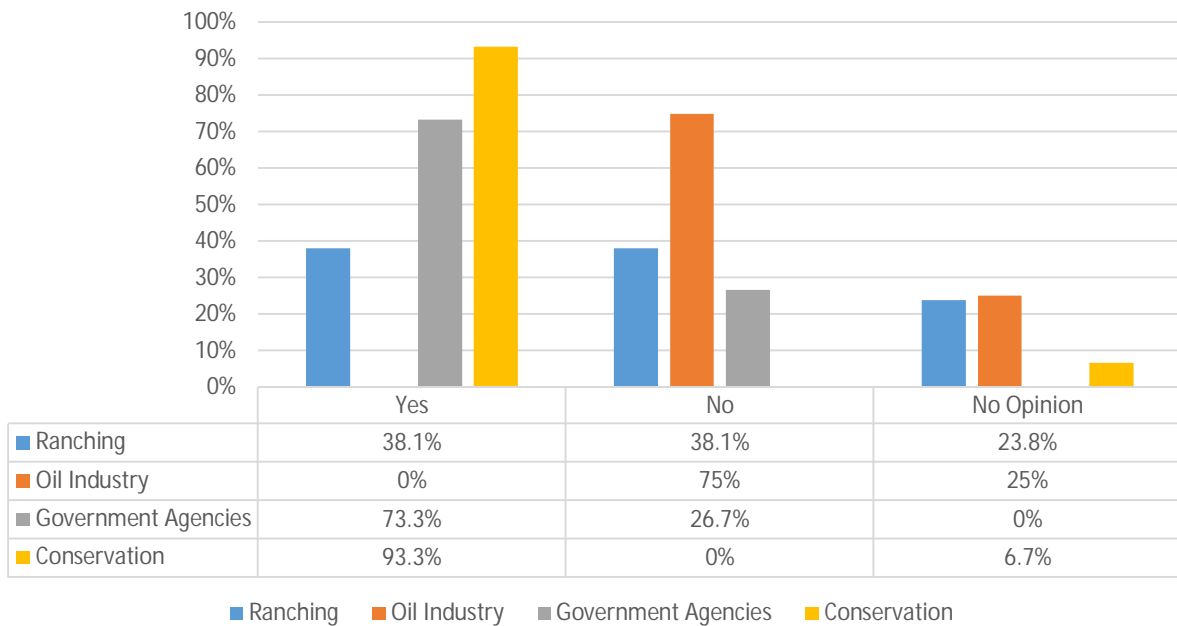


■ Ranching    ■ Oil Industry    ■ Government Agencies    ■ Conservation

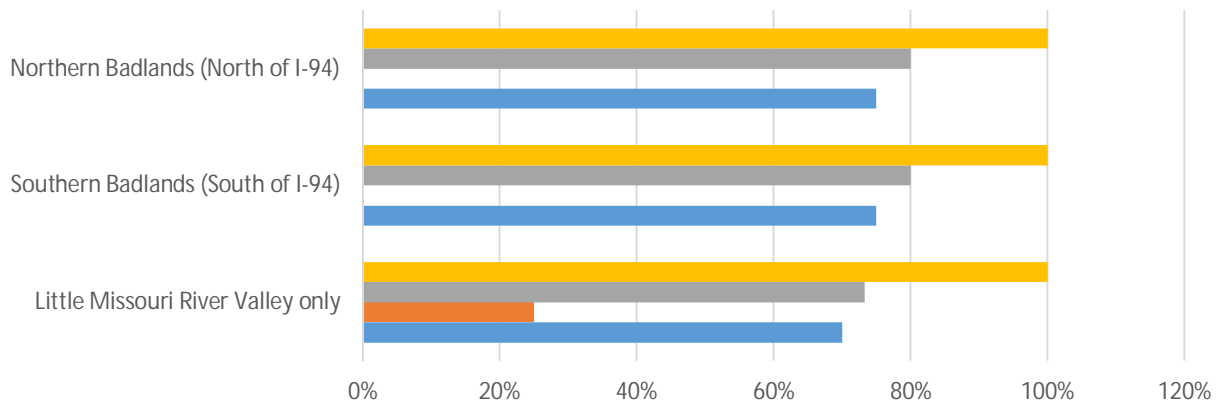
14. Should the state of North Dakota adopt a formal process to provide transparency to inform the public about proposed energy development activities and anticipated impacts?



15. Should the U.S. Forest Service address changed conditions and assess cumulative impacts of energy development on the Little Missouri National Grasslands (scenic values, roadless areas, wildlife habitat, etc.) which may result in amendment or revision



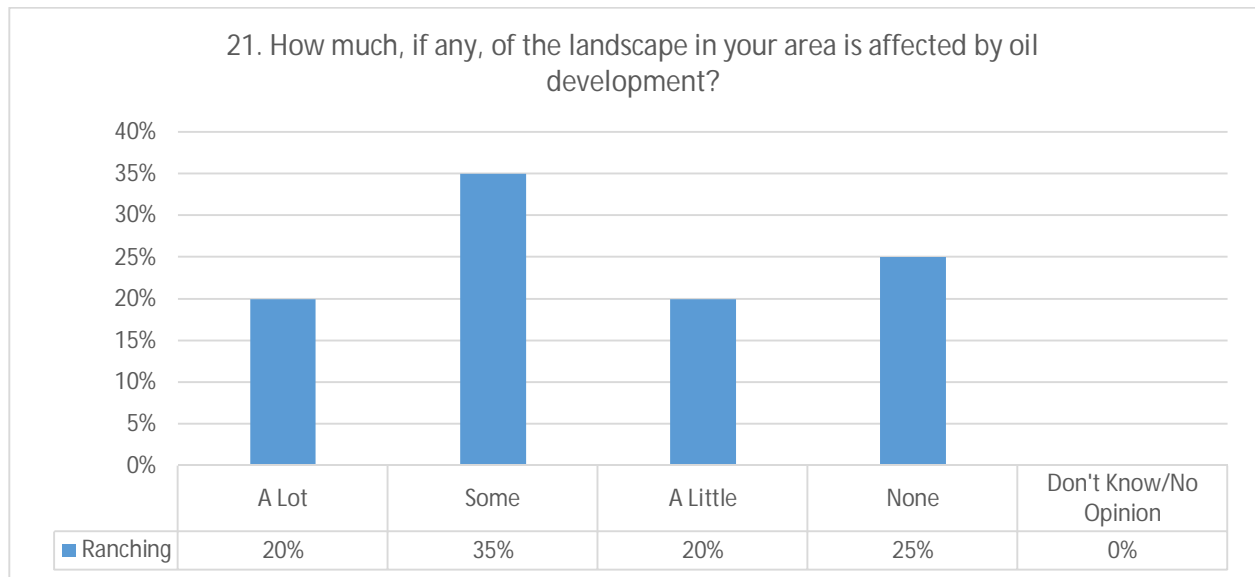
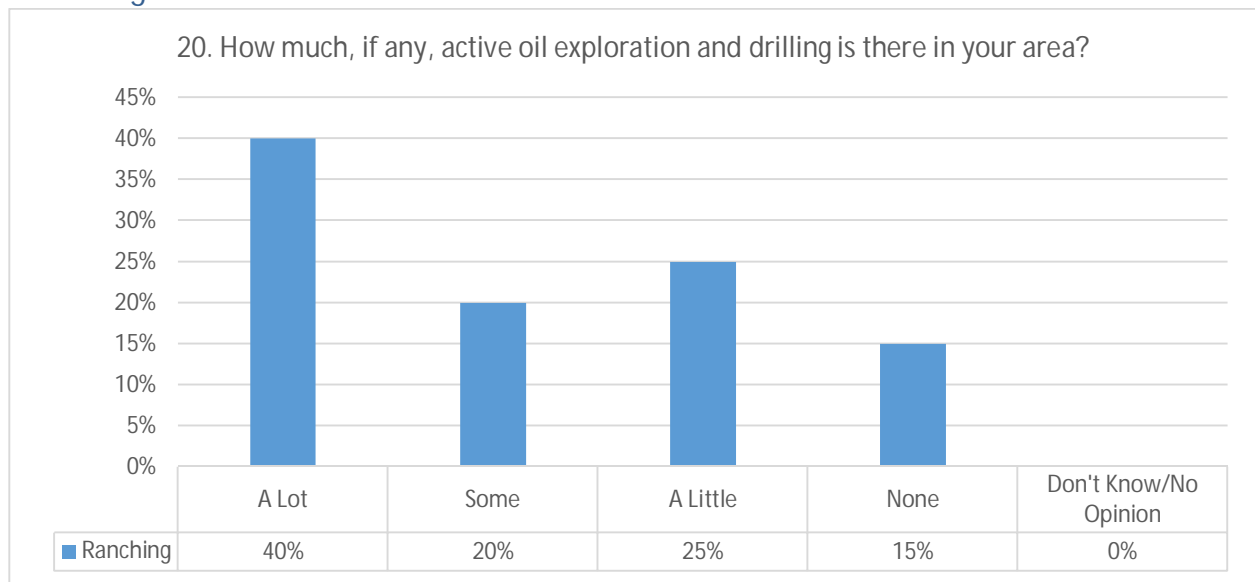
18. What geographic area should the strategy focus on? (Check all that apply.)



	Little Missouri River Valley only	Southern Badlands (South of I-94)	Northern Badlands (North of I-94)
Conservation	100%	100%	100%
Government Agencies	73.3%	80%	80%
Oil Industry	25%	0%	0%
Ranching	70%	75%	75%

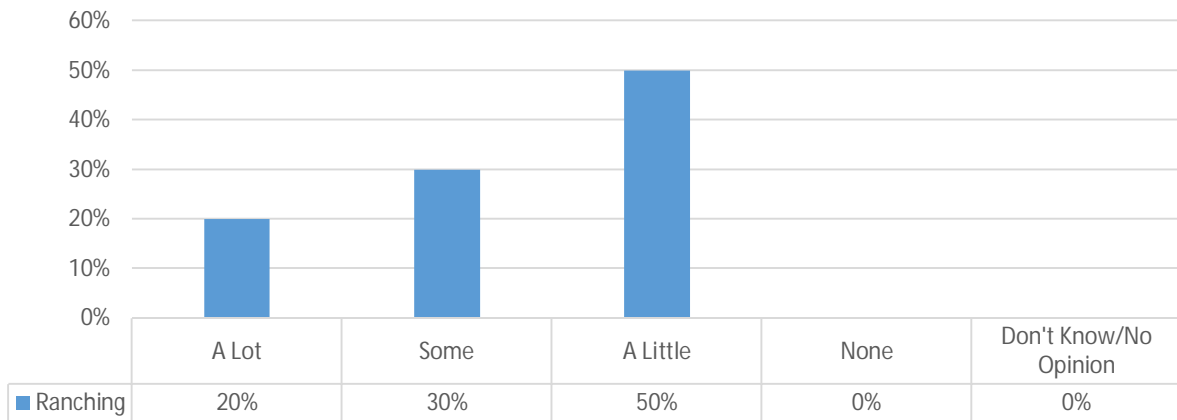
Conservation Government Agencies Oil Industry Ranching

## Ranching



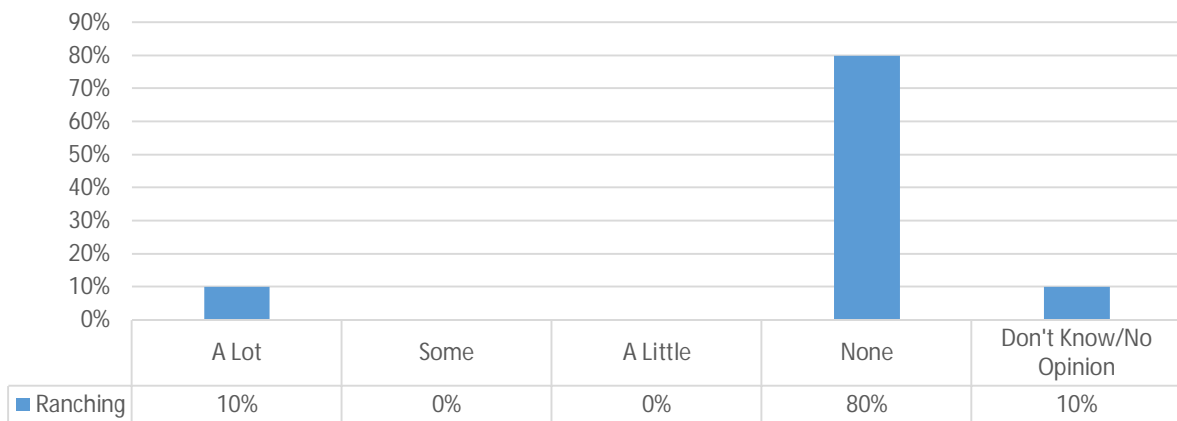
22. How much, if any, productive agricultural lands have you lost because of oil development?\*

\*These results only apply to ranchers in current production areas.



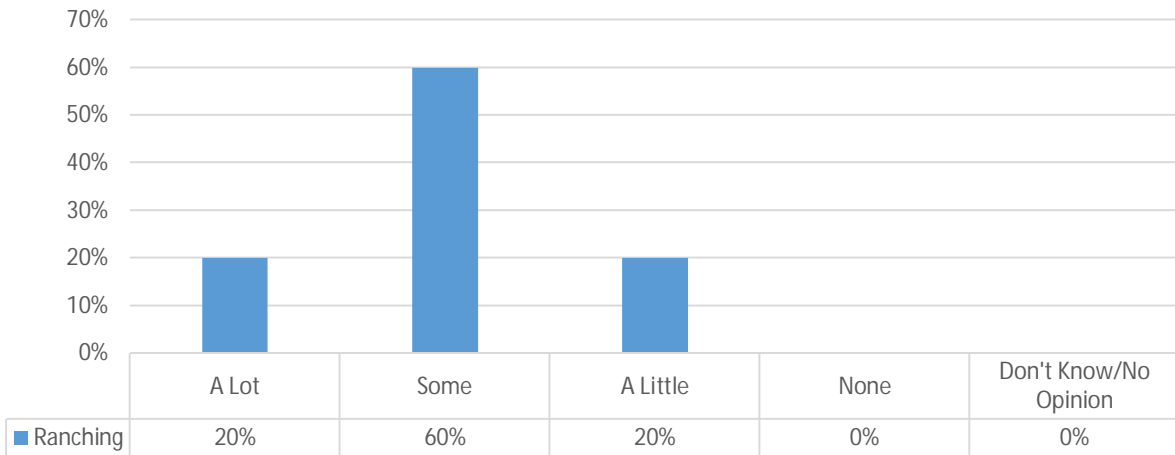
23. How much, if any, recreational/hunter income have you lost because of oil development?\*

\*These results only apply to ranchers in current production areas.



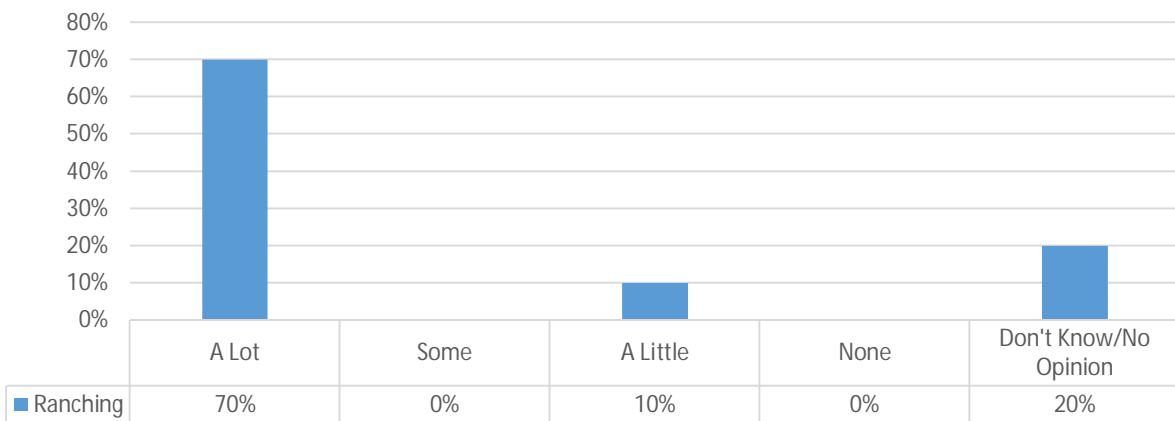
24. How much, if at all, has oil development affected your ranching operation?\*

\*These results only apply to ranchers in current production areas.



26. Are there positive things the oil companies are doing or could do to help your operation?\*

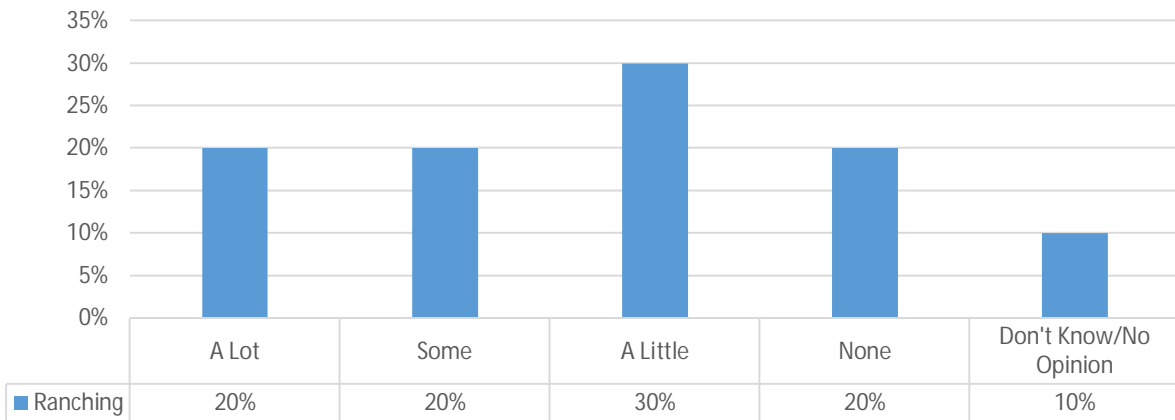
\*These results only apply to ranchers in current production areas.





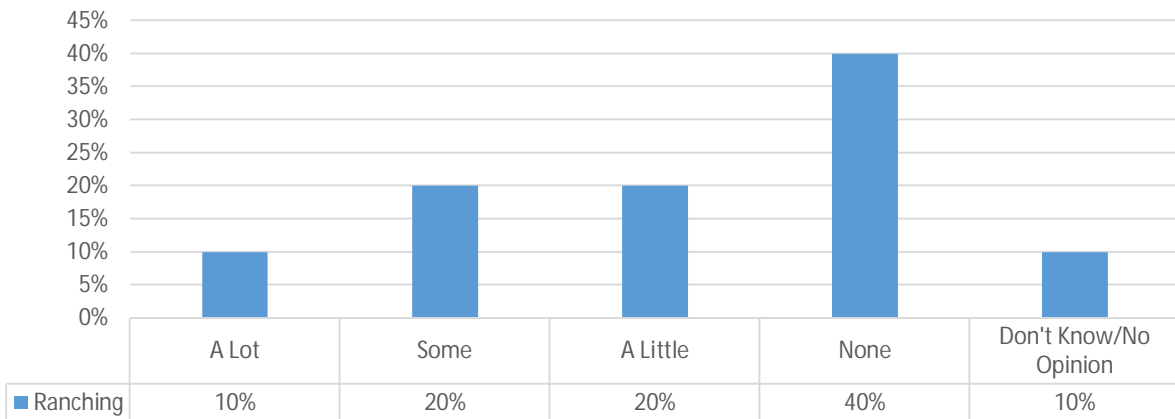
27. How much, if at all, is oil development (roads, wells, etc.) affecting wildlife and wildlife habitat in your area?\*

\*These results only apply to ranchers in current production areas.



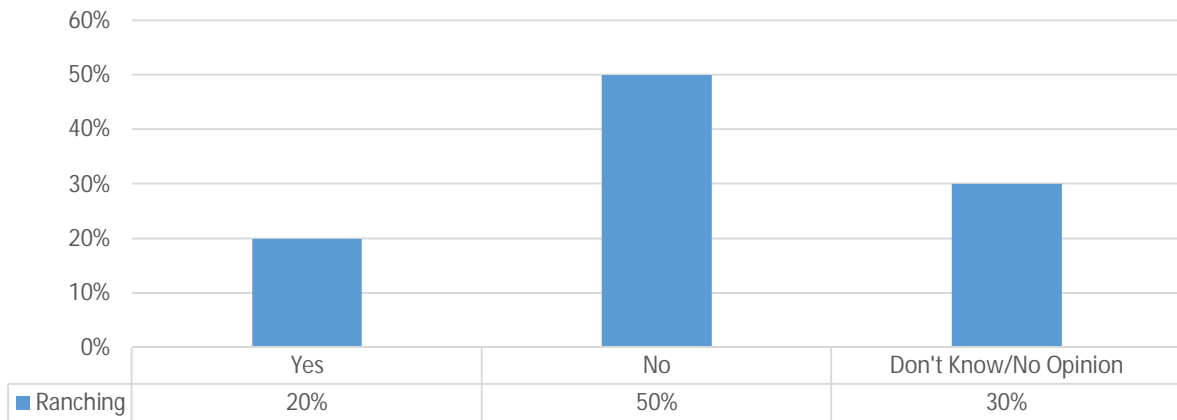
28a. Overall, are the oil company roads a benefit or a detriment to your operation and/or access to your headquarters?\*

\*These results only apply to ranchers in current production areas.



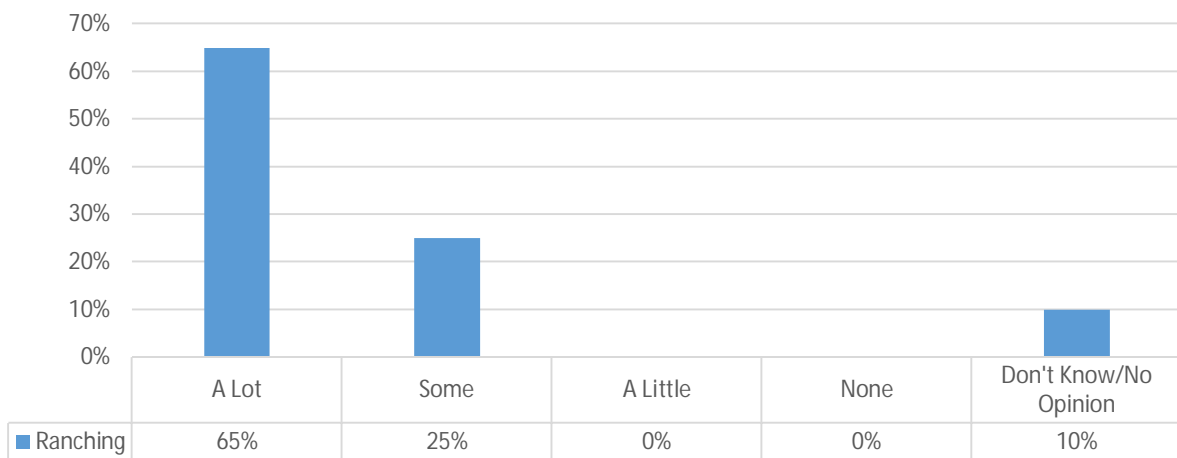
28b. Do you think any of these roads are unnecessary, should be modified, have better signs, or be closed?\*

\*These results only apply to ranchers in current production areas.

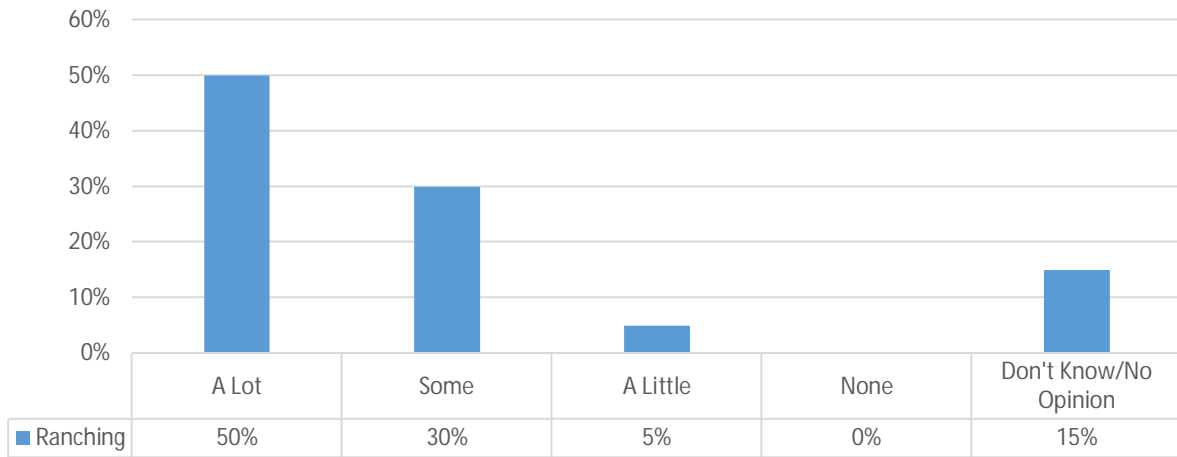


### Rancher Input Regarding Oil Development

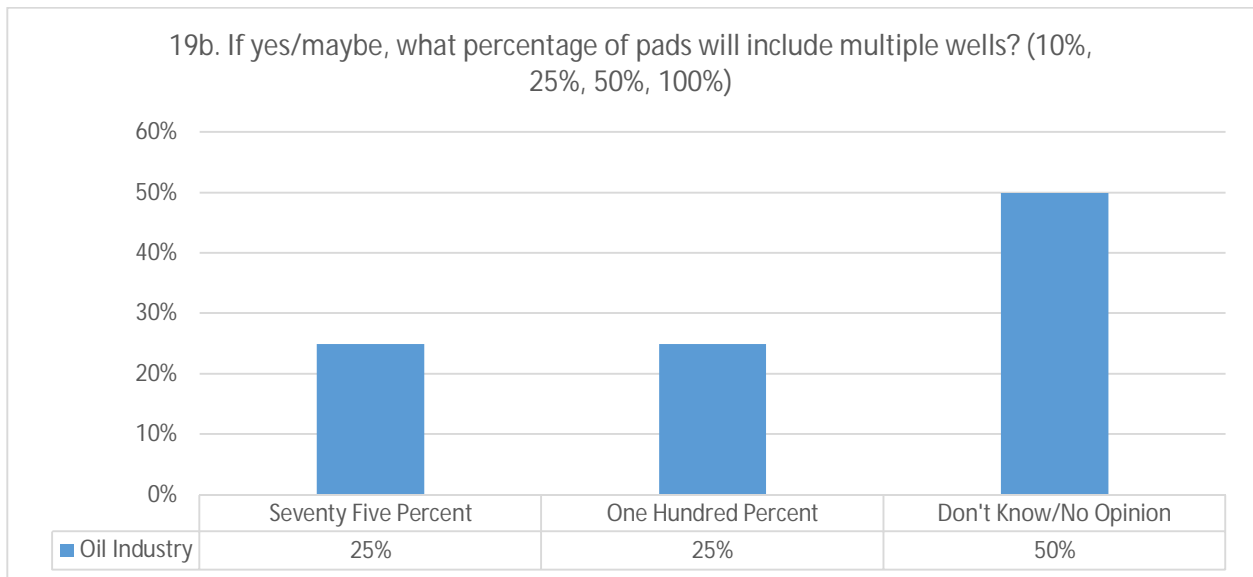
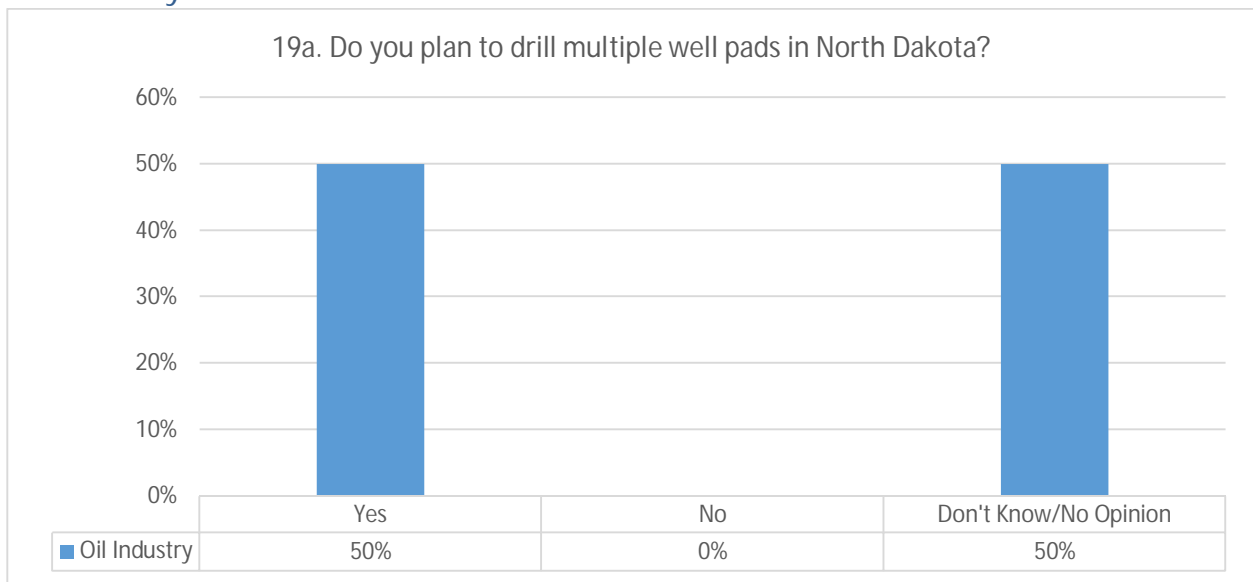
30. How much input, if any, should you have with regards to oil development impacting your land?



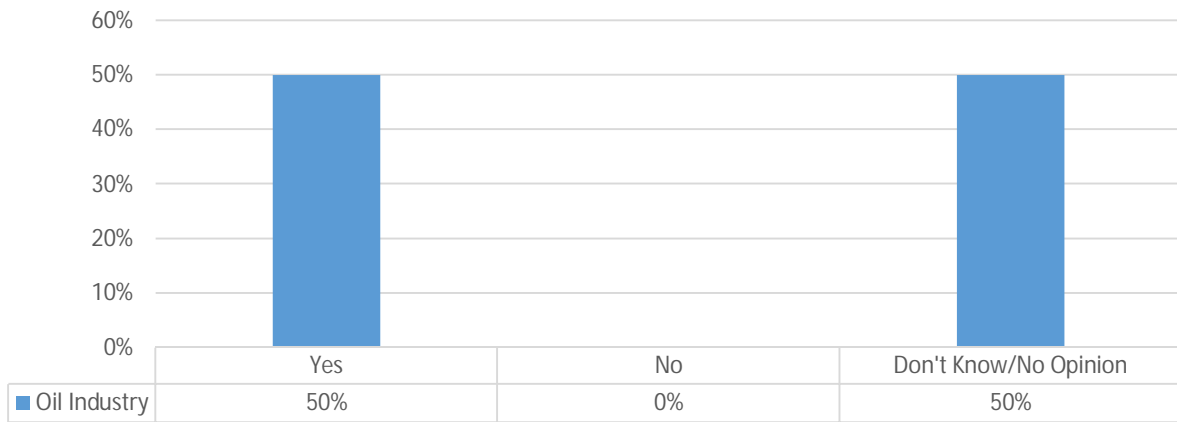
31. How much input, if any, should you have with regards to oil development impacting public lands on which you hold a grazing permit?



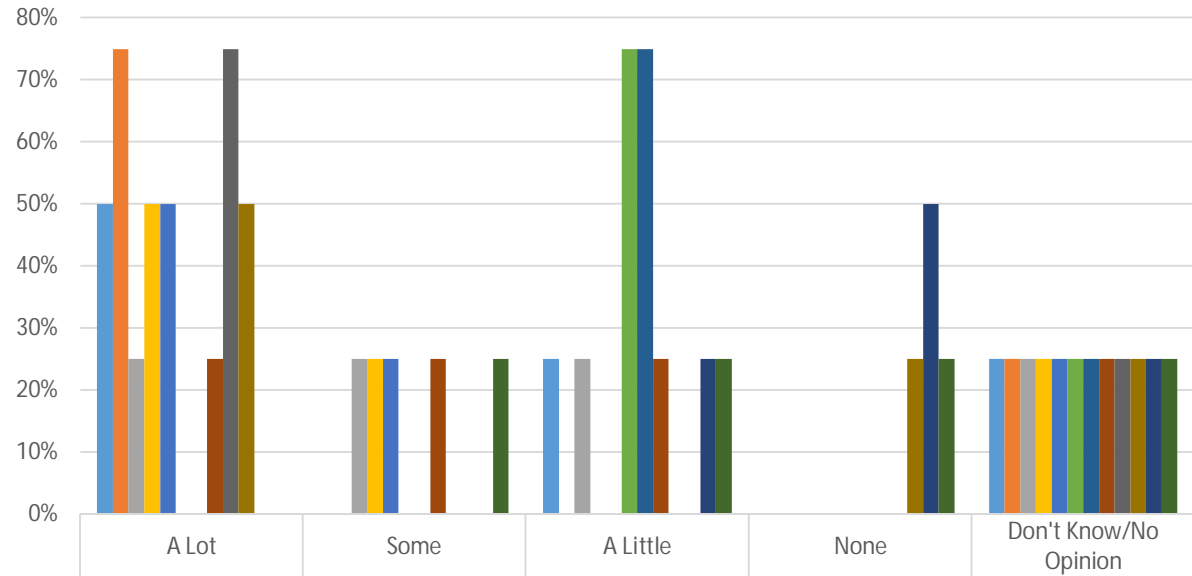
## Oil Industry



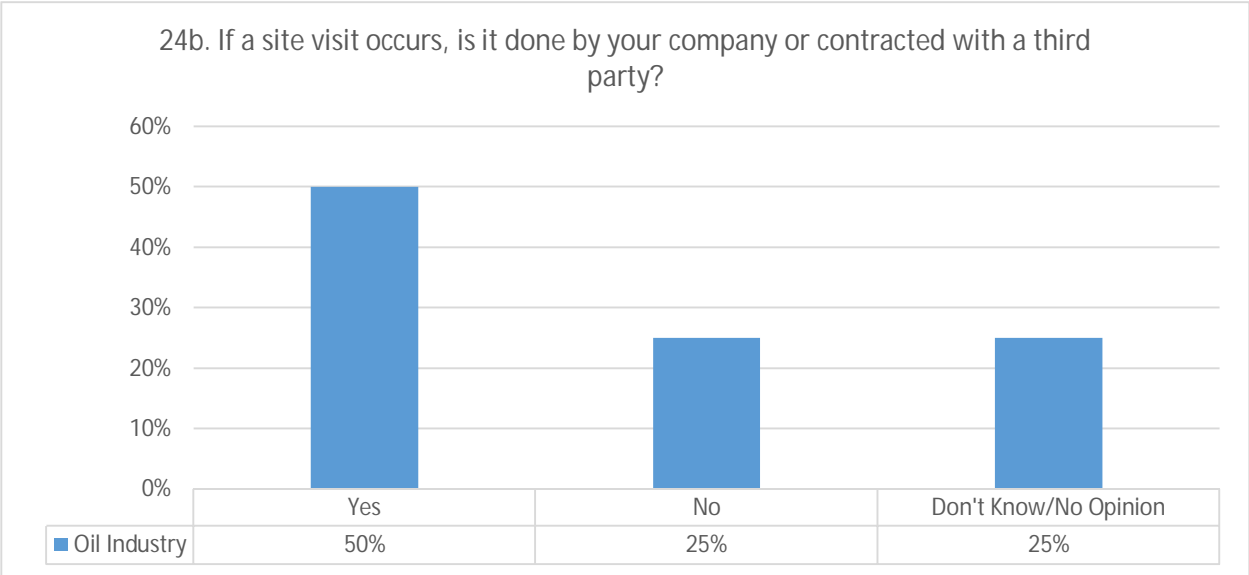
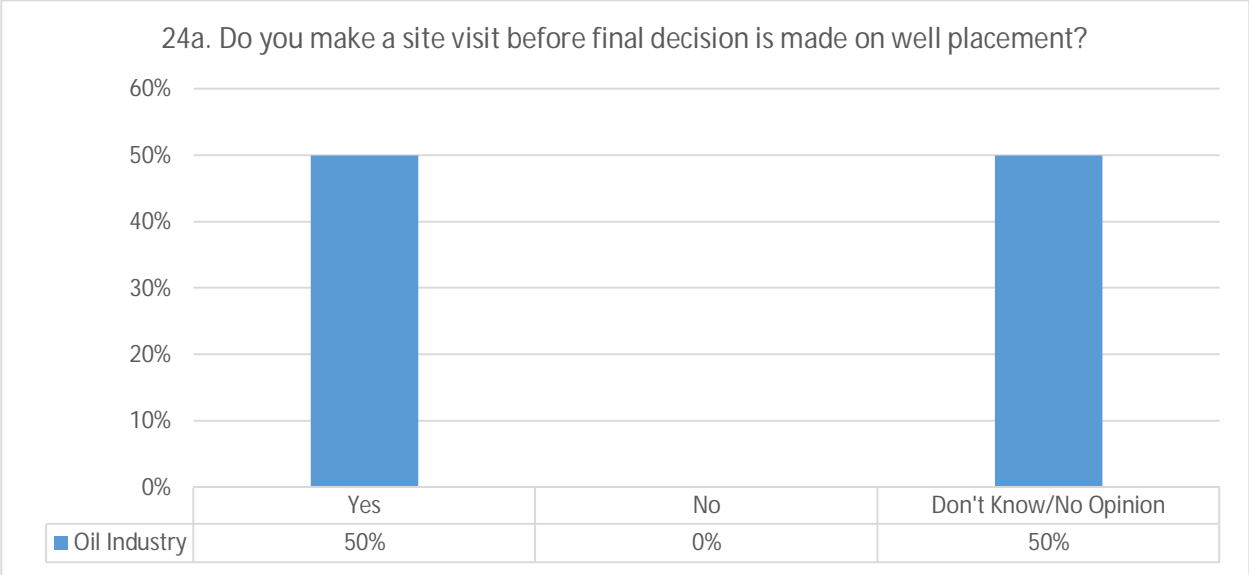
22. Does your company use any form of integrated planning for well placement, that considers local landscapes, roads, existing pipelines, gathering systems, gas plants, and other surface facilities?

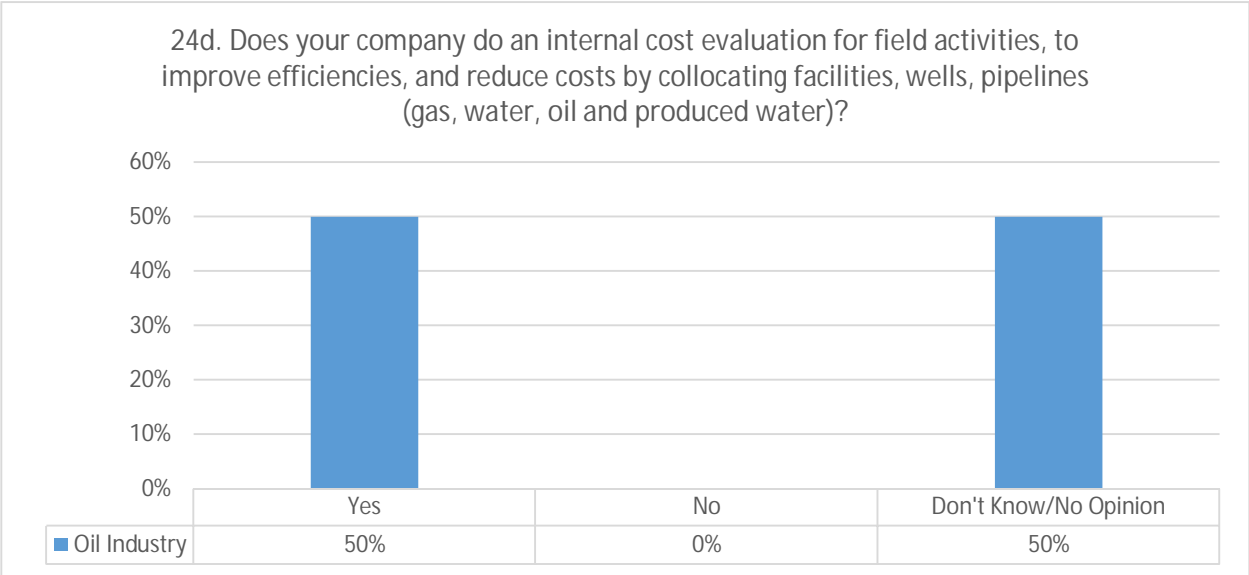
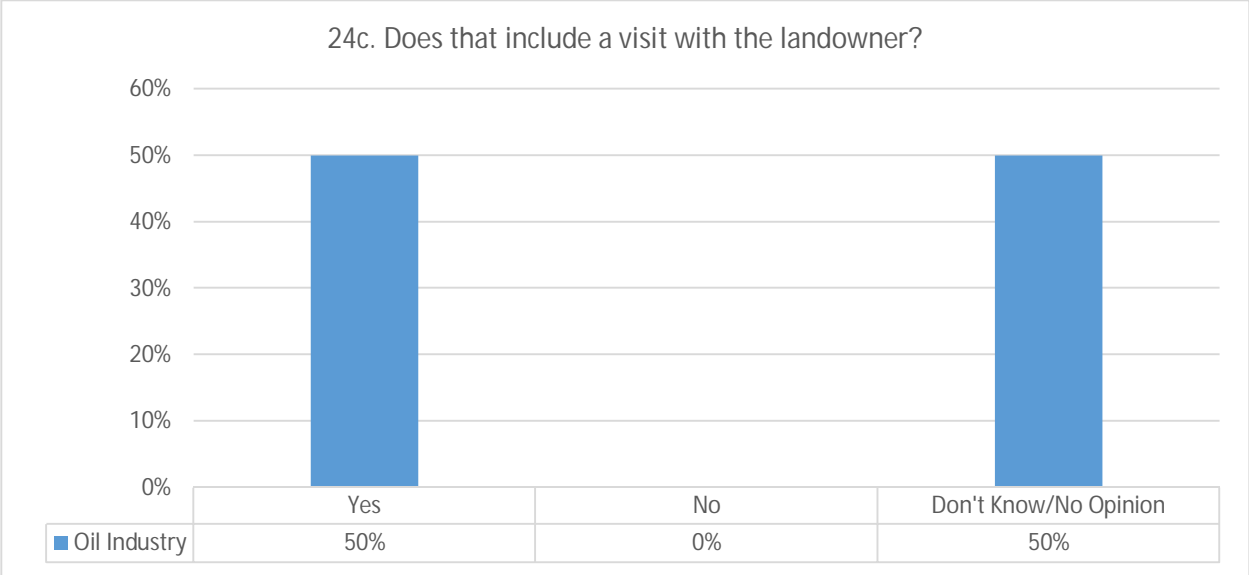


23. How much more input, if any, into how mineral development happens should there be from each of the following sources?

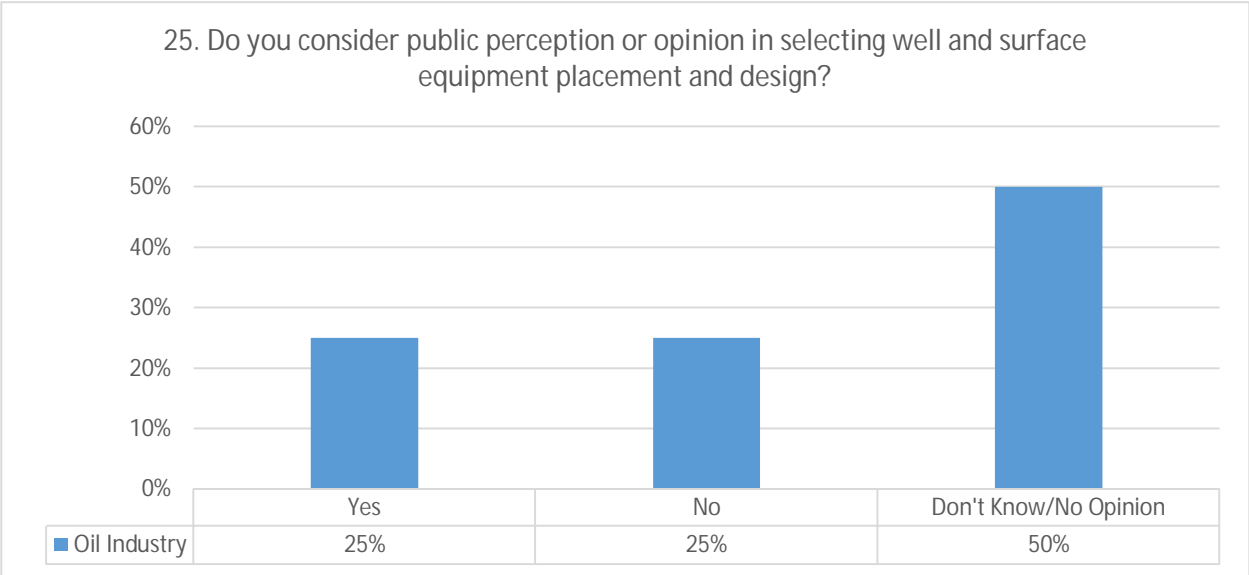
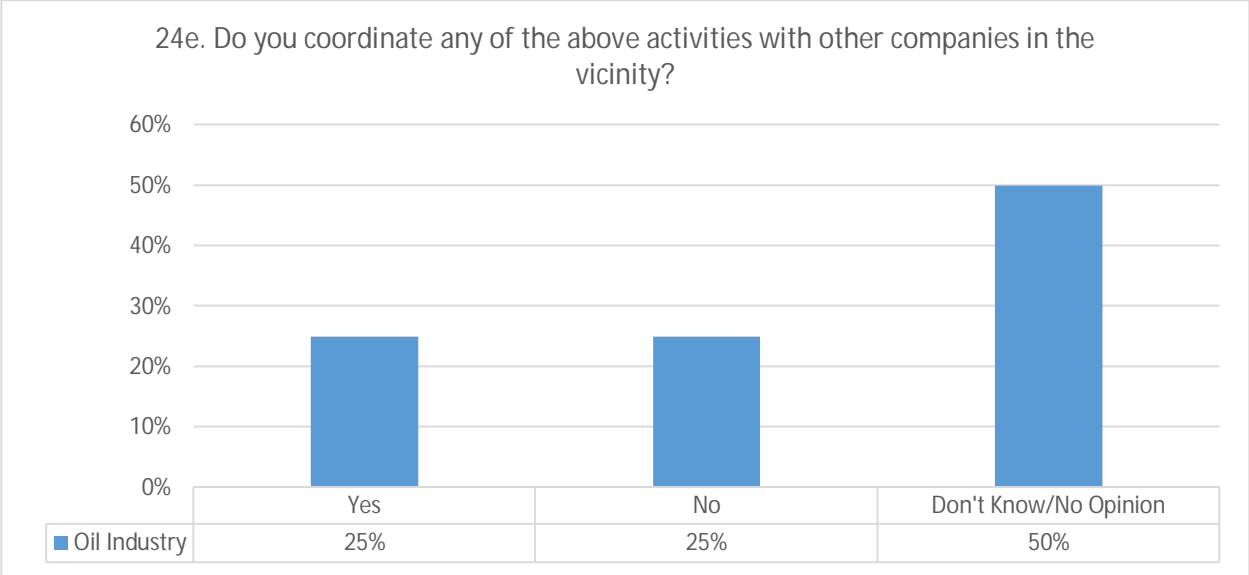


■ Impact of new roads	50%	0%	25%	0%	25%
■ Road construction costs	75%	0%	0%	0%	25%
■ Road maintenance costs	25%	25%	25%	0%	25%
■ Availability of other road choices during road development	50%	25%	0%	0%	25%
■ Drilling pad location and drilling efficiency	50%	25%	0%	0%	25%
■ Impact to the Badlands and Little Missouri River Valley's present landscape	0%	0%	75%	0%	25%
■ Impact to wildlife and habitat	0%	0%	75%	0%	25%
■ Consideration of other resources such as botanical, archeological, etc.	25%	25%	25%	0%	25%
■ Potential impact to or access to water resources	75%	0%	0%	0%	25%
■ Impact/objections from landowner	50%	0%	0%	25%	25%
■ Scenic value	0%	0%	25%	50%	25%
■ Nearby recreational and natural resources	0%	25%	25%	25%	25%

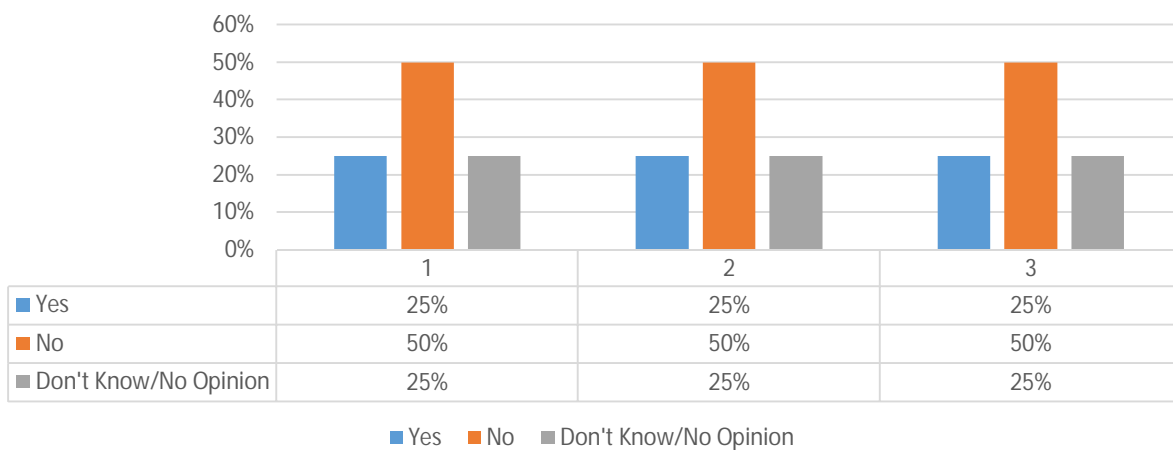




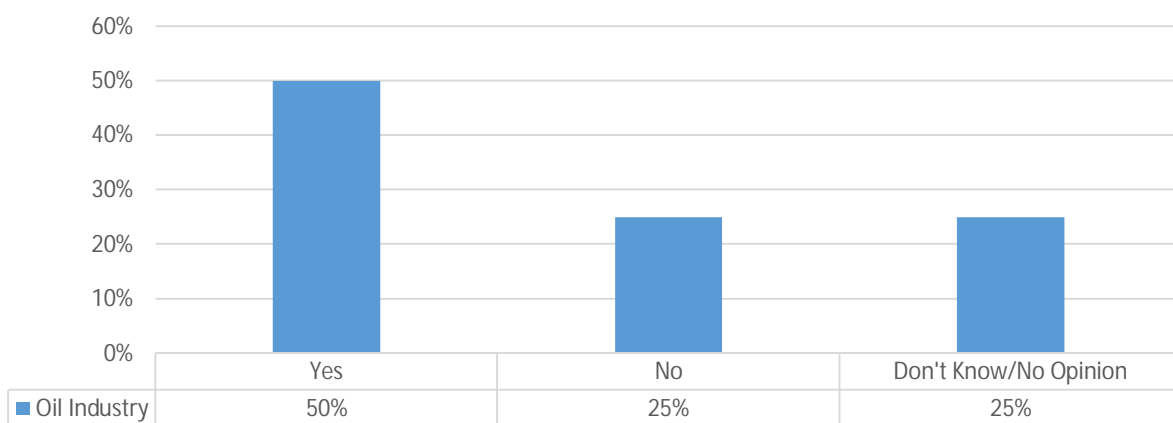


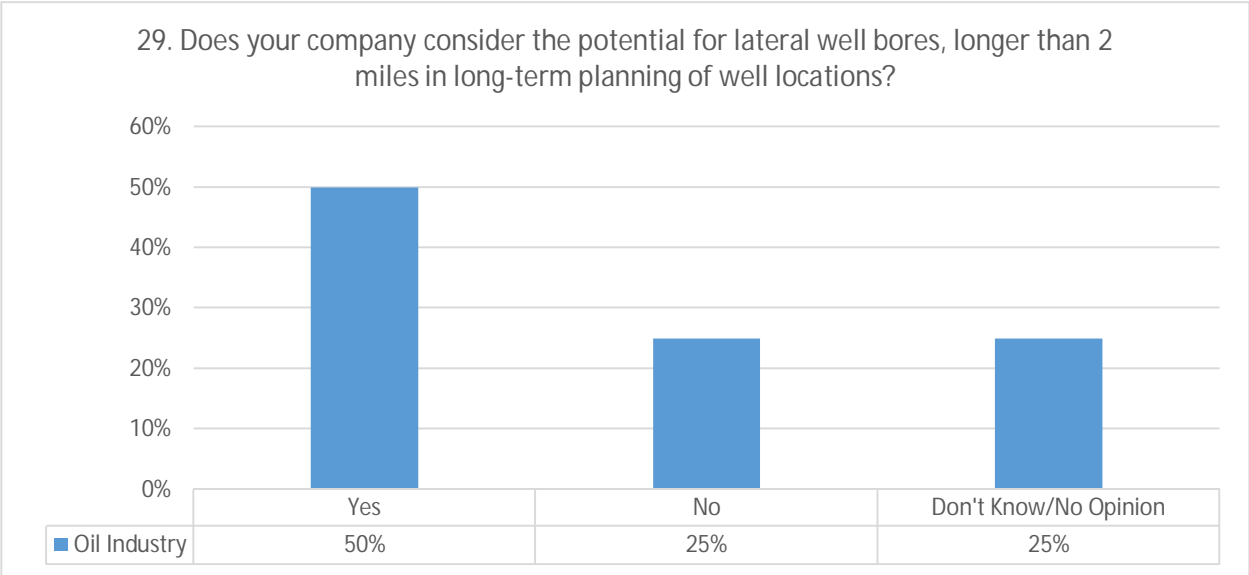
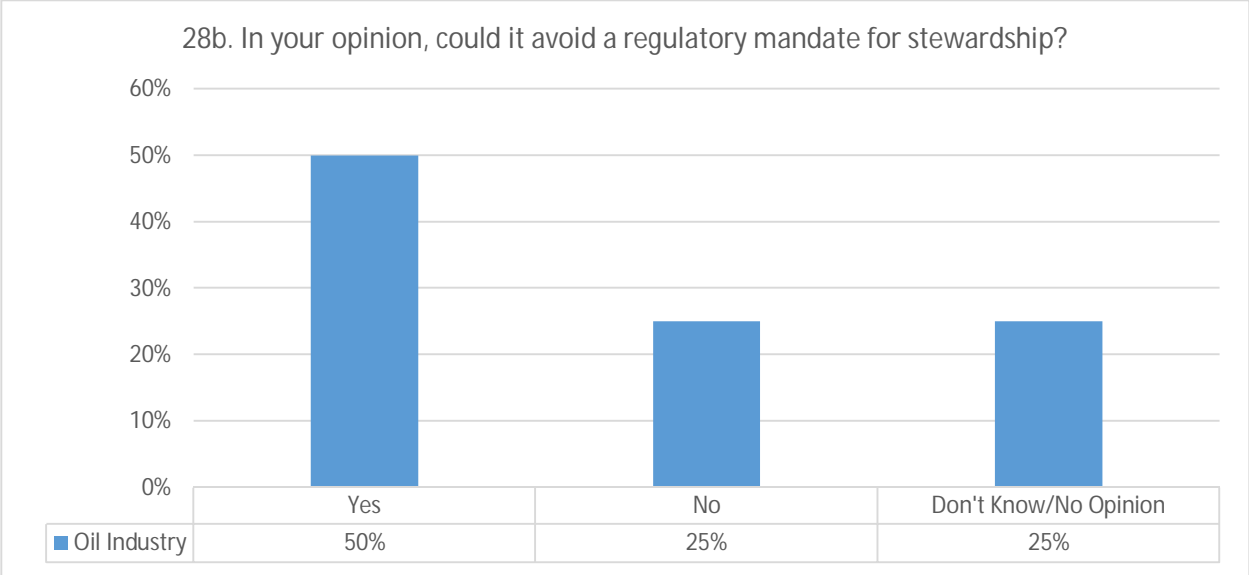


26. Do you have a company representative assigned to interact with the following agencies?

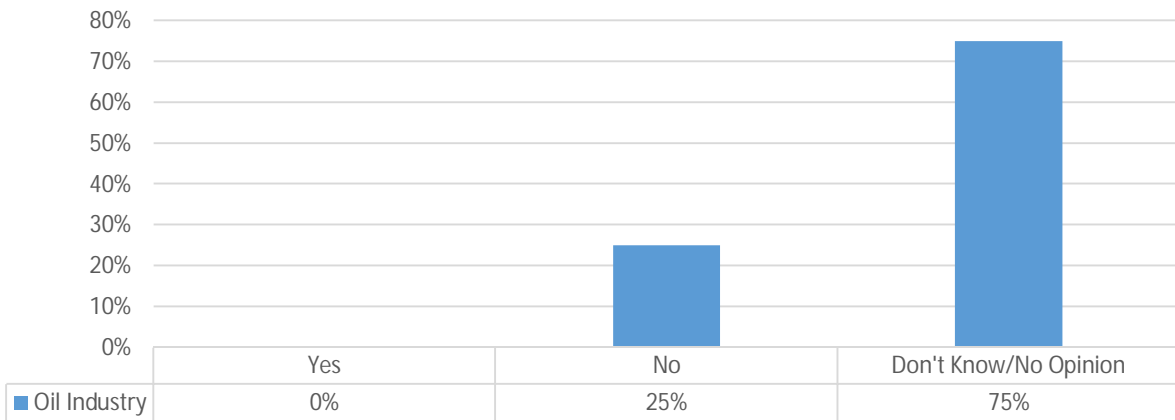


28a. Could stewardship (defined as combining drilling and economic efficiency with protection of ranching, wildlife, culture and scenic value) be accomplished on a voluntary basis?

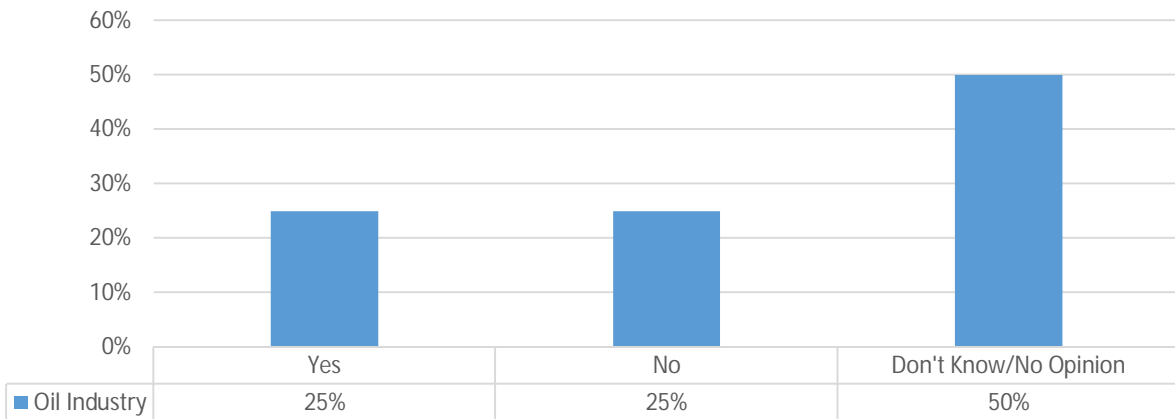




30. Would your company consider long-term development planning that includes consideration of values related to undisturbed surface areas in the Badlands and meets the stated goal?

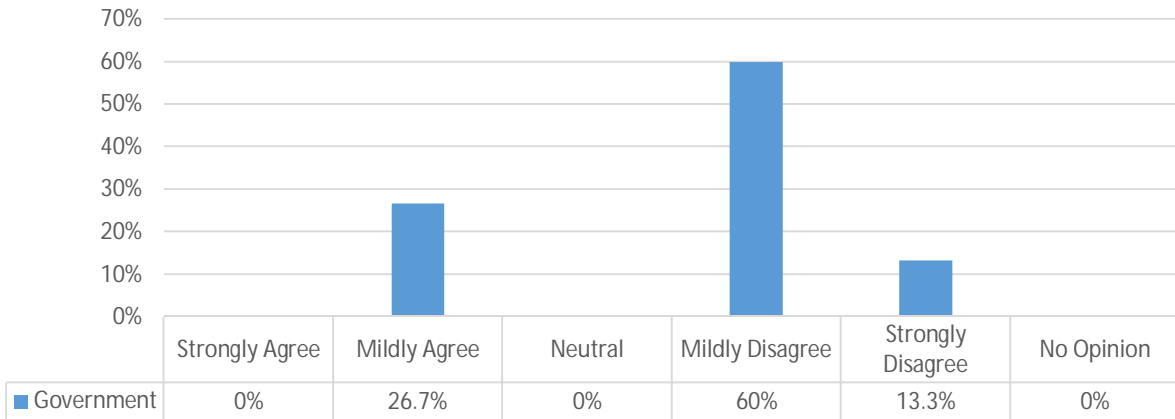


31. If there was the legal ability and the political will, are there more efficient ways to develop the oil and gas resource in North Dakota that would save your company money and meet the stated goal?

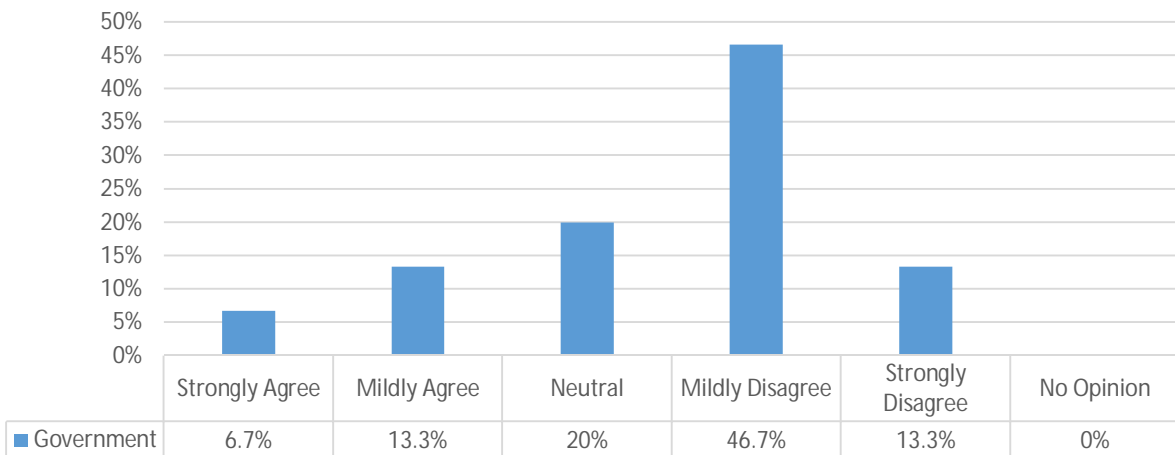


## Government

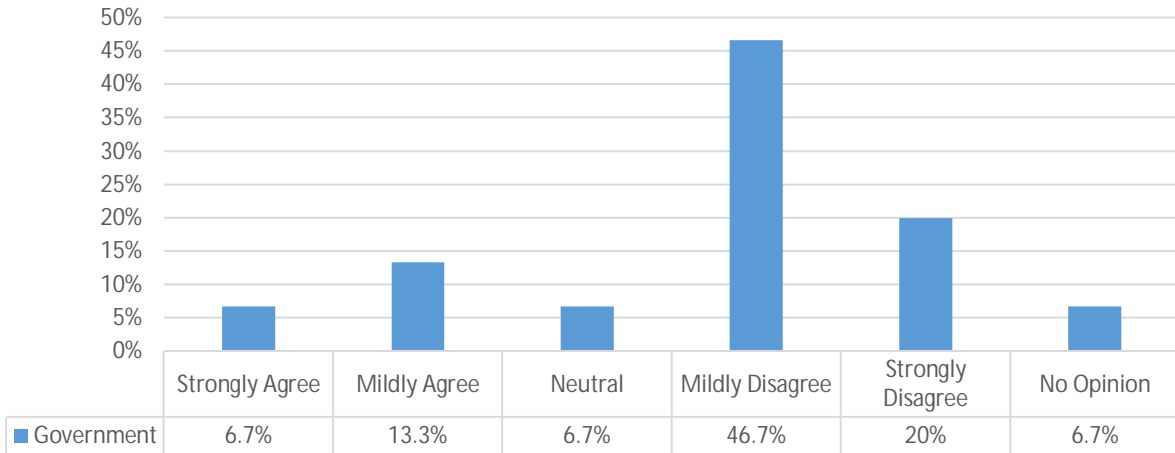
19. Long-term strategic planning and infrastructure development (roads, pipelines, disposal sites, etc.) have kept pace with energy development in western North Dakota.



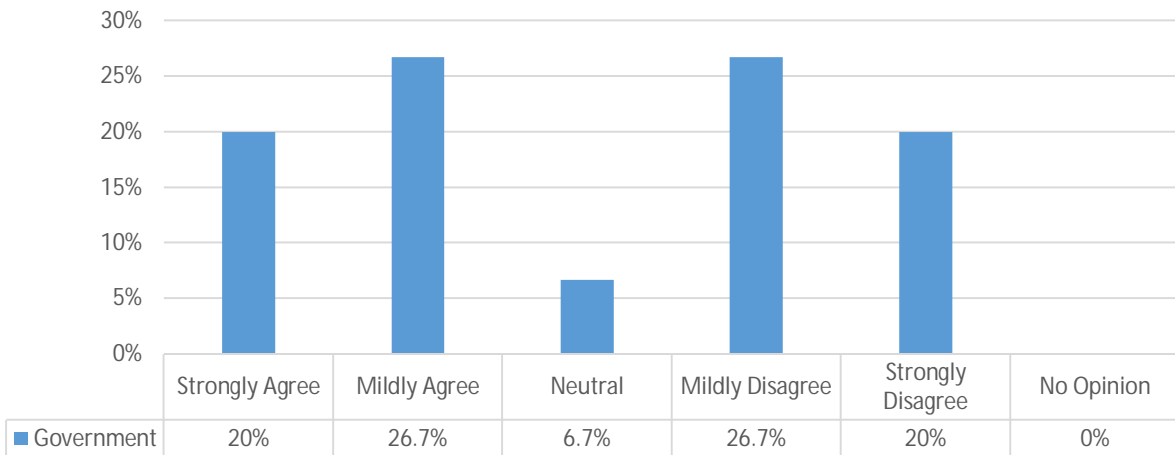
20. The social, economic and environmental consequences of energy development have been adequately considered by all levels of government.



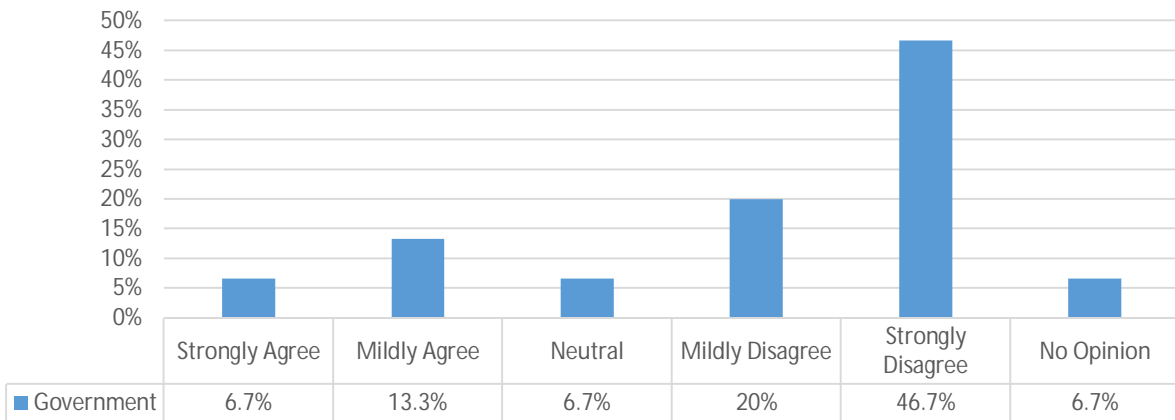
21. Local governments have adequate procedures and resources in place to manage energy development.



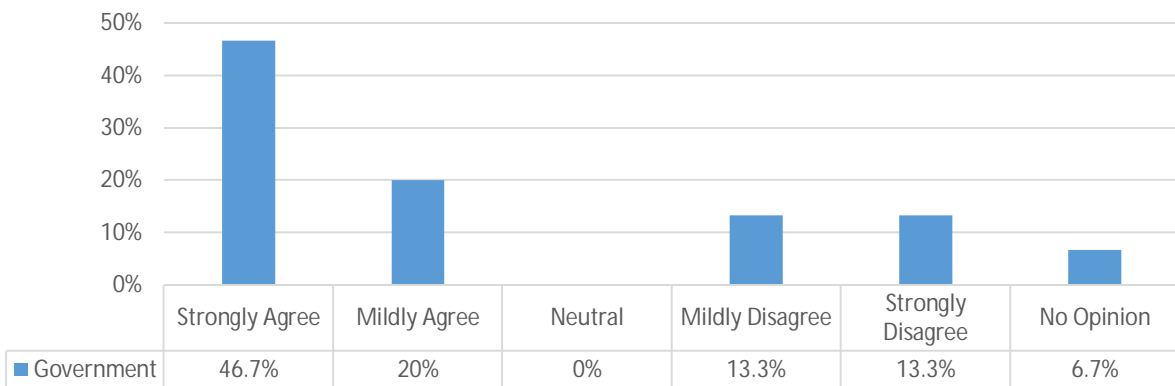
22. State government has adequate procedures and resources in place to manage energy development.



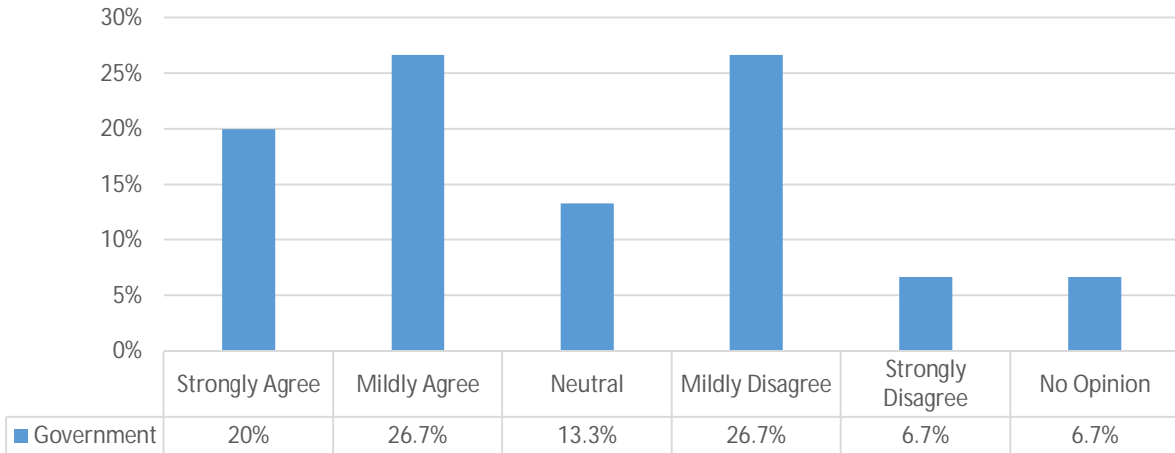
23. Federal agencies (U.S. Forest Service and the Bureau of Land Management) have adequate procedures and resources in place to manage energy development on lands under their respective jurisdictions.



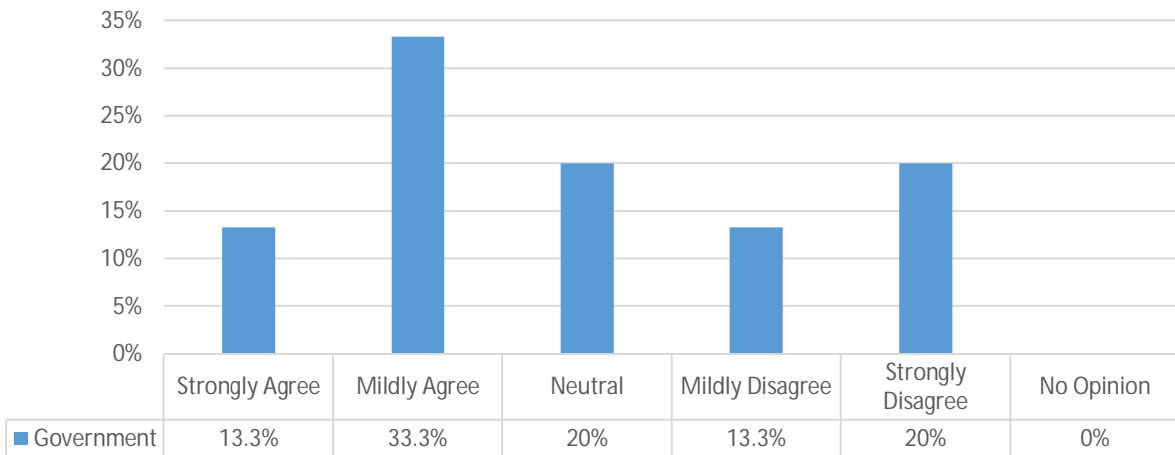
24. Attention should be given to scenic quality and noise impacts to Theodore Roosevelt National Park and the 41,520 acres of the 1-million-acre Little Missouri National Grassland identified by the U.S. Forest Service as "roadless areas" suitable for wil



25. The U.S. Forest Service should include an oil and gas lease stipulation that would minimize flaring on public lands.

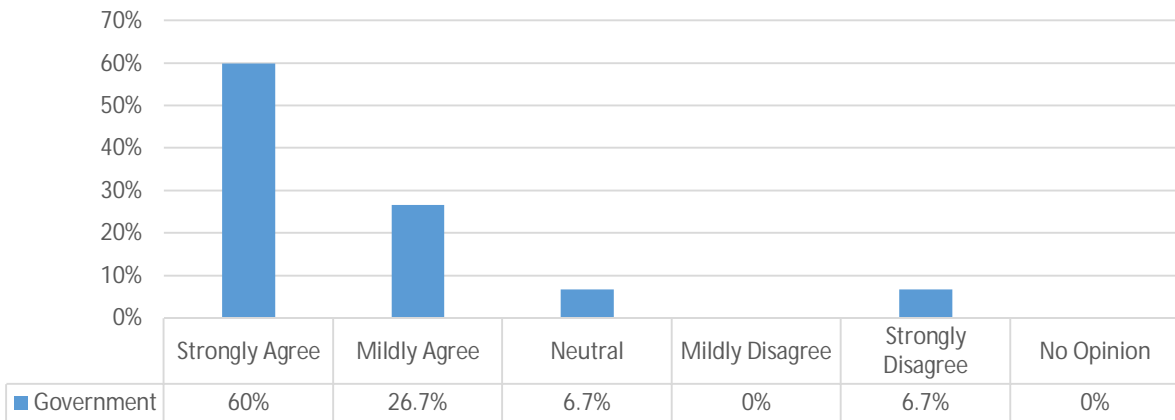


26. The State Land Department should include an oil and gas lease stipulation that would minimize flaring on state lands.

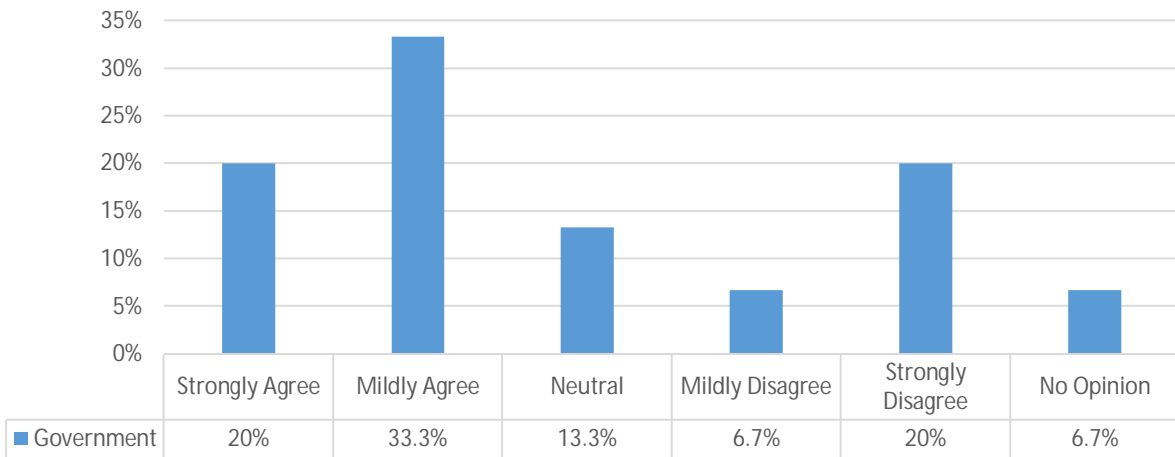




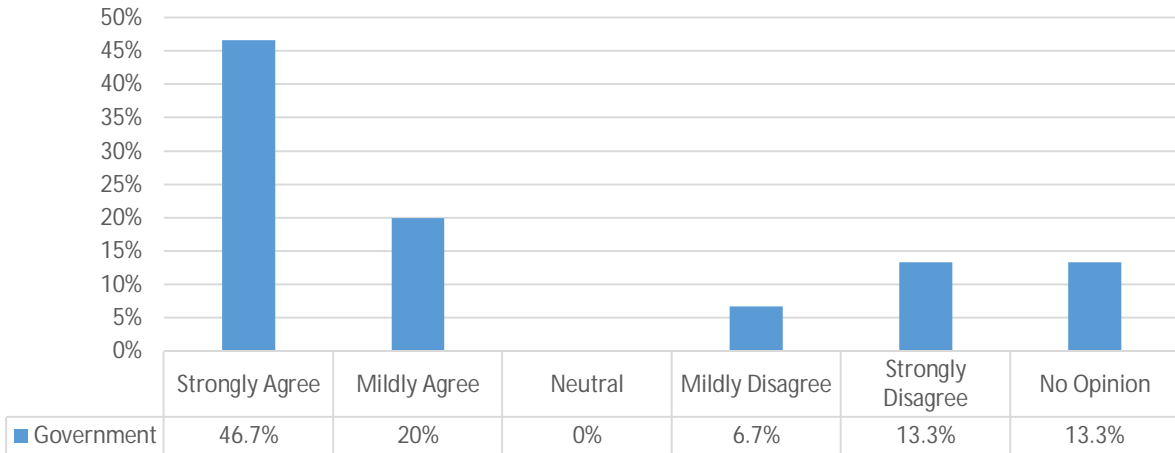
27. Drilling permit approval should take into consideration infrastructure needs (such as pipeline availability and capacity, roads, disposal sites, etc.) of energy development.



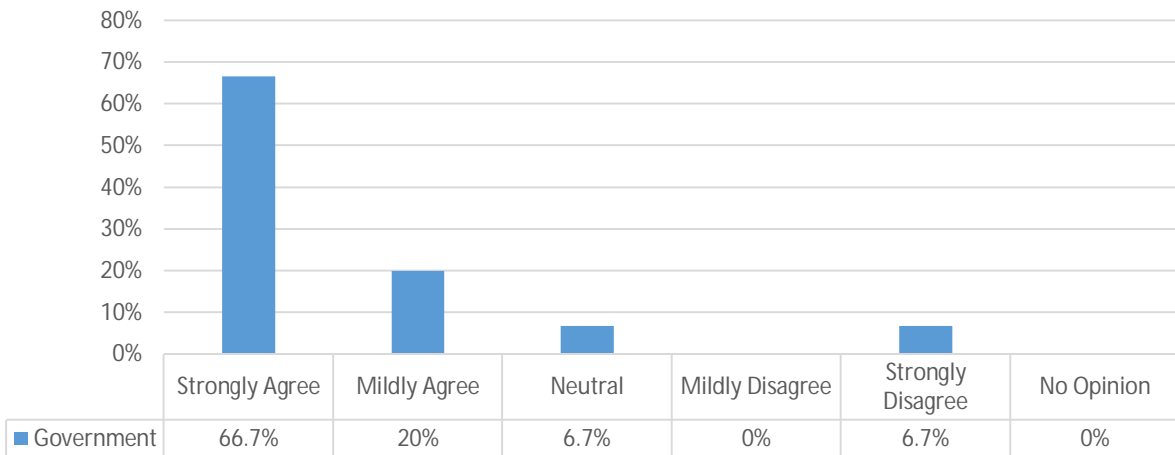
28. The current mineral extraction reclamation standards and procedures are adequate to meet the stated goal.



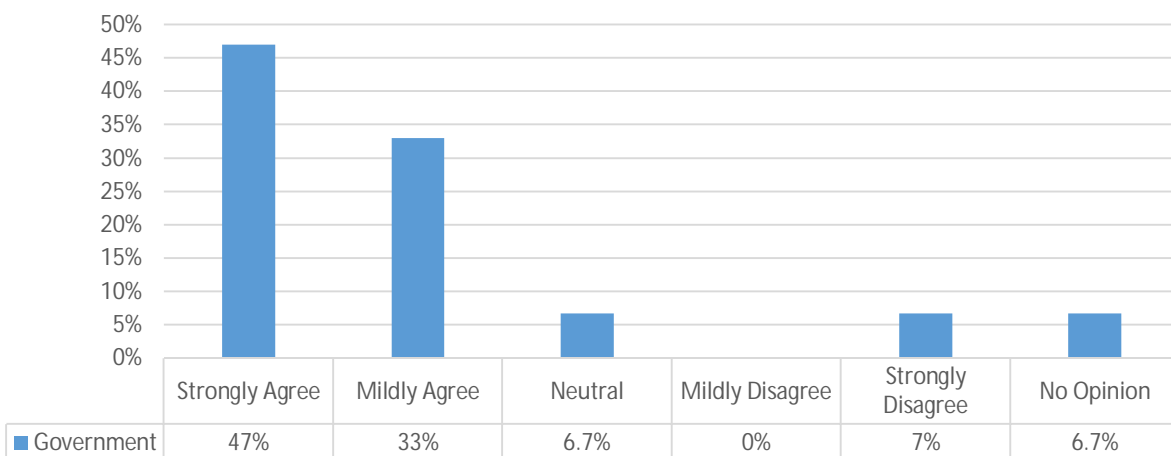
29. Standards for landscape condition should be established by the State on state lands to achieve the stated goal.



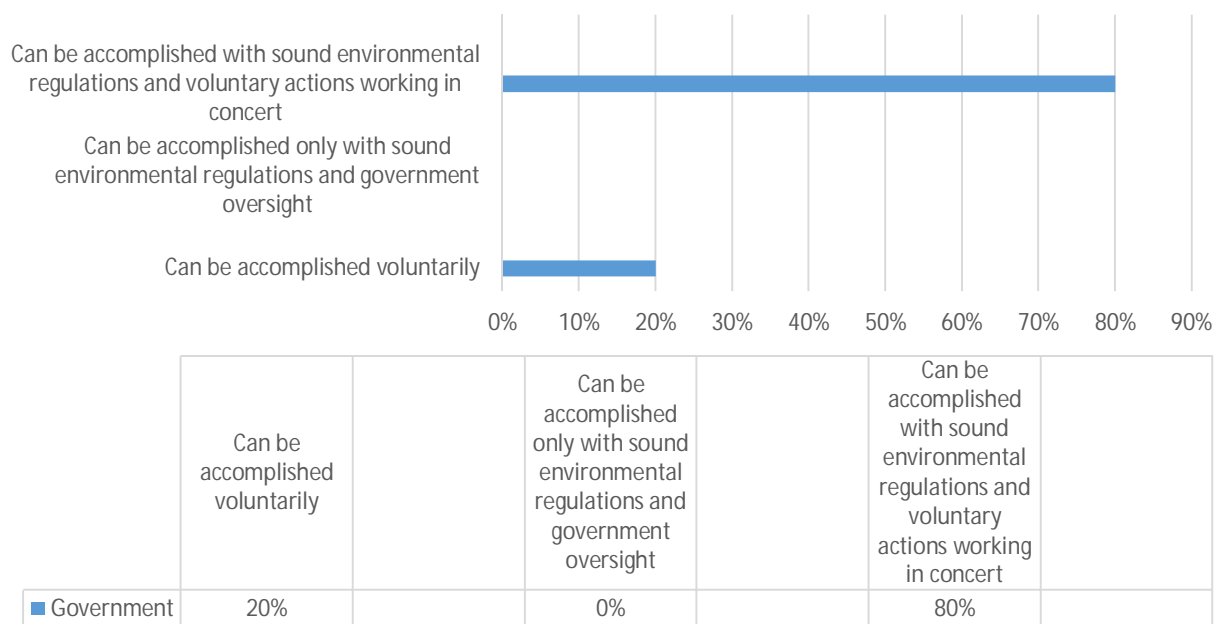
30. Private landowners should be allowed to adopt those same state standards on their private land.



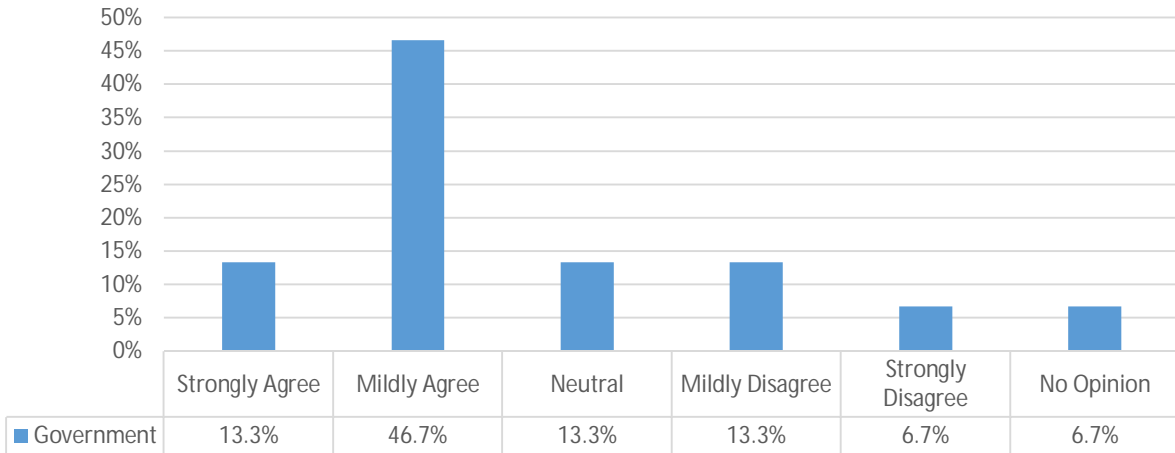
31. Consideration should be given for federal and state land and mineral exchanges in sensitive or strategic areas to accomplish the stated goal.



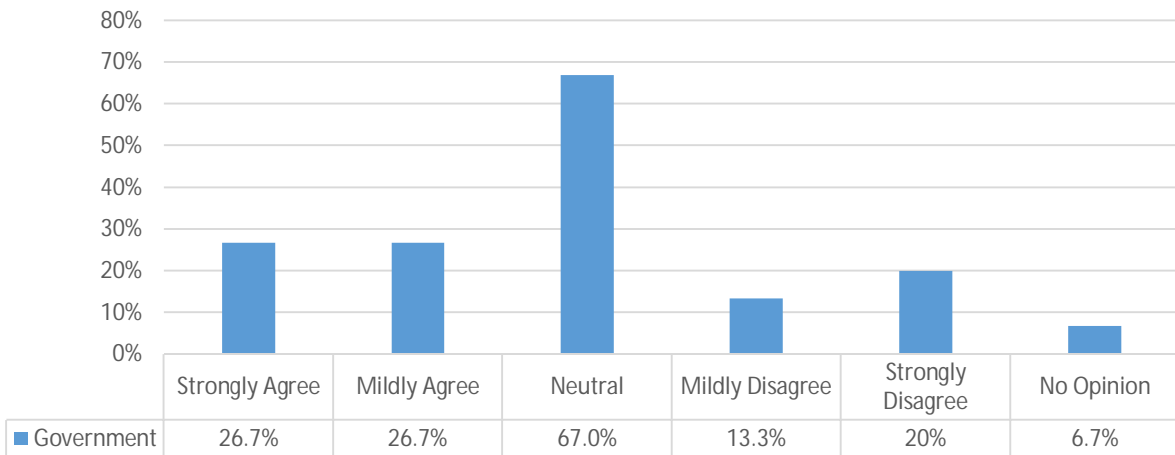
32. With respect to the many uses associated with the Little Missouri River Valley and Badlands, responsible energy development:



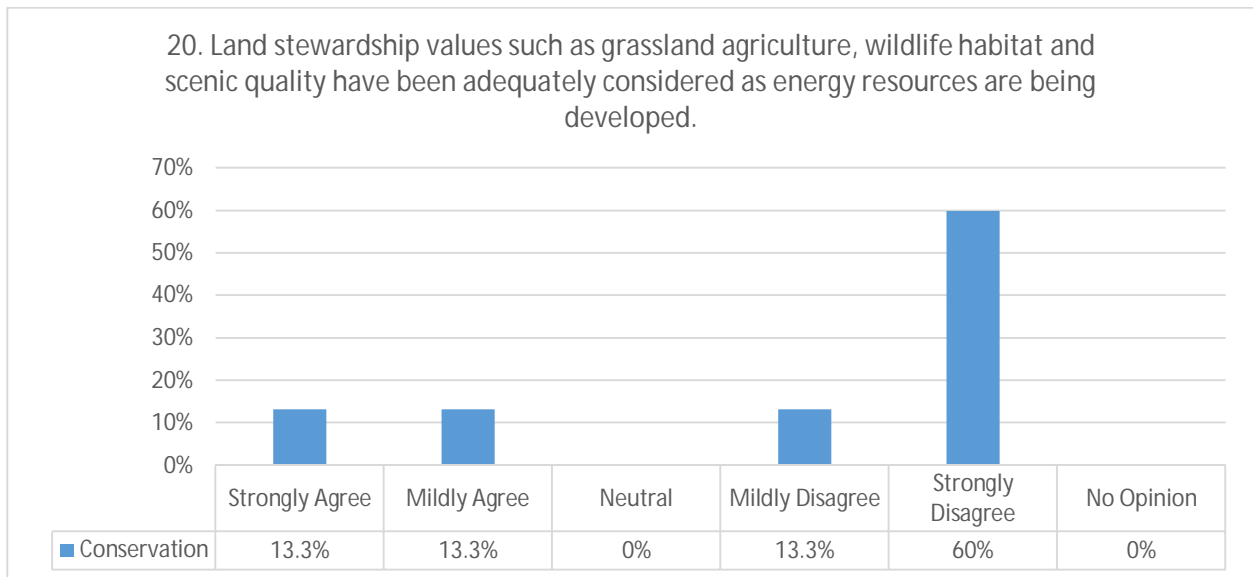
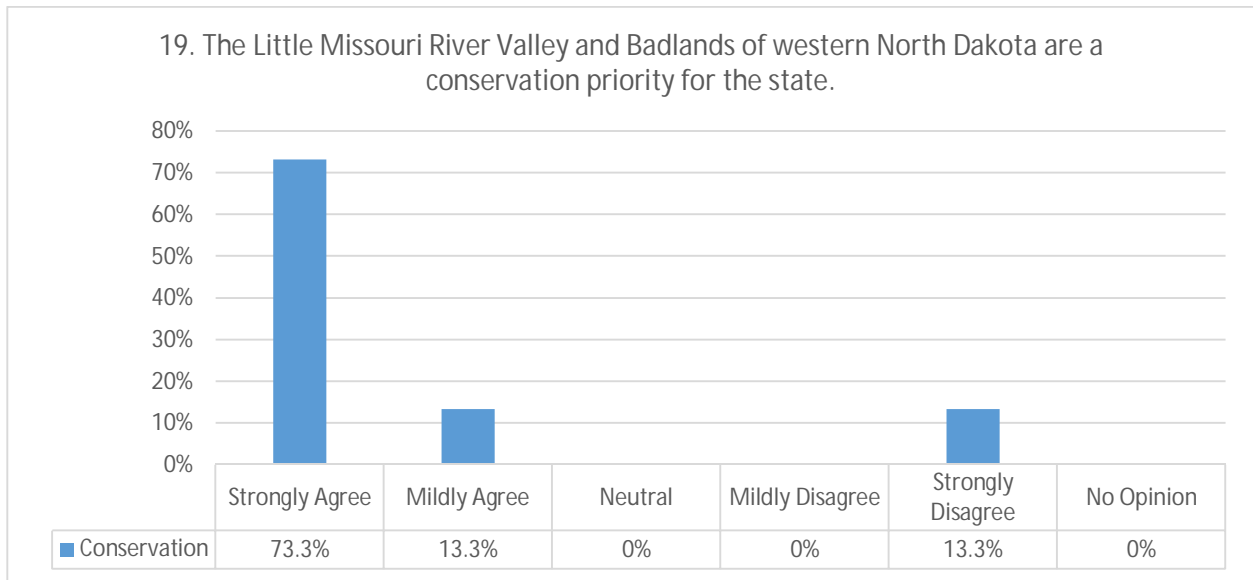
33. You are provided adequate review time of proposed energy projects and the opportunity to provide meaningful input.



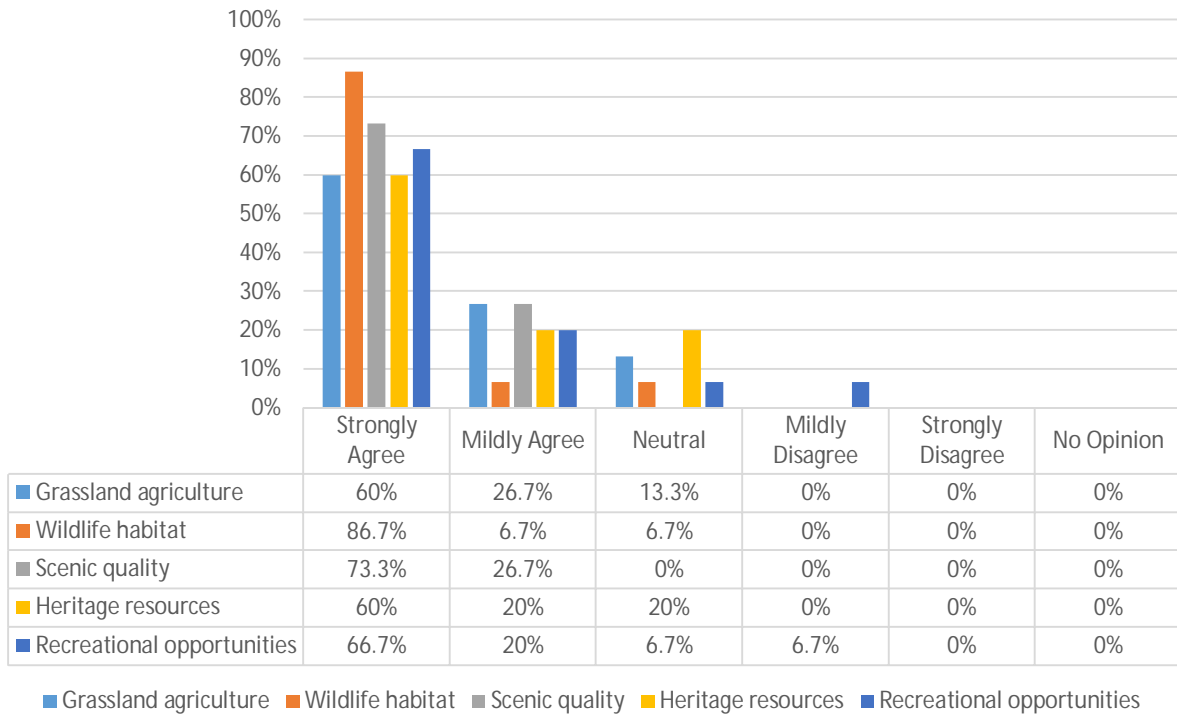
34. The No Surface Occupancy (NSO) concept could be used more effectively to accomplish the stated goal.



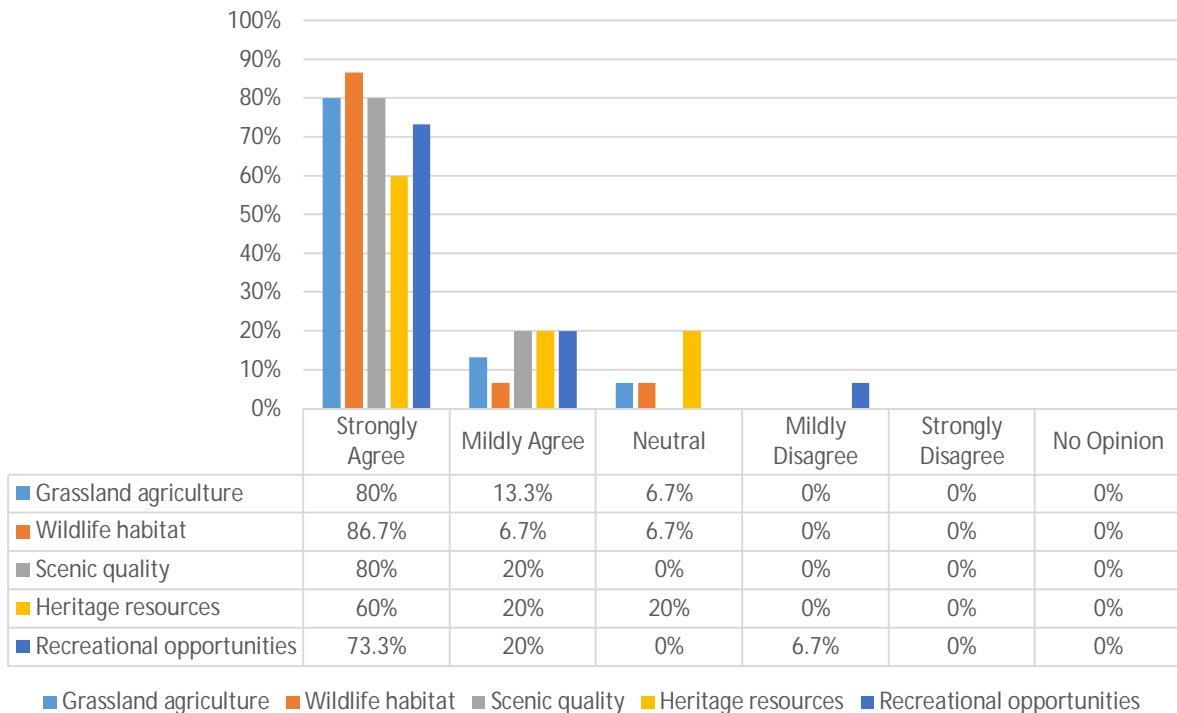
## Conservation



21. The activity and disturbance associated with energy development has an impact on:



22. The energy development "footprint" such as well pads, roads, storage facilities, waste facilities, etc. has an impact on:



## Appendix D: Areas of Interest

1. **Black Butte** - two miles from the maximum elevation of the butte
2. **Bullion Butte** - two miles from the maximum elevation of the butte
3. **Camel's Hump Butte** - two miles from the maximum elevation of the butte
4. **Columnar Junipers (Limber Pines) and Burning Coal Vein** – one mile from the exterior boundary of the former Dakota National Forest
5. **Confluence of the Yellowstone and Missouri Rivers** - two miles from the intersection of the centerline of the riverbeds
6. **Elkhorn Ranch** - two miles from the exterior boundary of the National Park and State Park sites
7. **Killdeer Mountain Battlefield State Historic Site** - one mile from the exterior boundary of each site
8. **Lake Sakakawea** - one half mile from the shoreline at 1850' elevation (i.e., the spillway elevation)
9. **Little Missouri River** - one mile from the centerline of the river bed as it is determined at the time of the application
10. **Little Missouri River National Grasslands** that are designated by the United States Forest Service as backcountry recreation areas
11. **Little Missouri State Park (as of 1/1/2014)** - one mile from the park's exterior boundary
12. **Pretty Butte** - two miles from the maximum elevation of the butte
13. **Sentinel Butte** - two miles from the maximum elevation of the butte
14. **Theodore Roosevelt National Park** - two miles from the park's exterior boundaries
15. **Tracy Mountain** - two miles from the maximum elevation of the mountain
16. **West Twin Butte** - two miles from the maximum elevation of the butte
17. **White Butte in Slope County** - two miles from the maximum elevation of the butte
18. **Wildlife Management Area not located within any other area of interest** - one mile from the exterior boundary

## Appendix E: Collaborative and Environmental Conflict Resolution Efforts

### Blackfoot Challenge

The Blackfoot Watershed of western Montana encompasses 1.5 million acres. The landscape lies within the only ecosystem in the lower 48 states with a full complement of wildlife that inhabited the area when the Lewis and Clark Expedition traveled the area. The Blackfoot Challenge approach is to provide regular communication about natural resource stewardship. The volunteer board of private landowners, federal and state land managers, and local government officials follow a consensus-based model to coordinate partnerships and resources that benefit the Blackfoot Watershed.

### Quivira Coalition

This organization is based primarily in New Mexico, Colorado, and California. Its mission is “to build resilience by fostering ecological, economic, and social health on western landscapes through education, innovation, collaboration and progressive public and private land stewardship.” The basic premise is that people of different and apparently opposing interests can work together for their mutual good. Their membership consists of ranchers/farmers, academics, the public, conservation organizations, businesses, agencies, and tribes.

### Desert Renewable Energy Conservation Plan

This collaborative effort is focused on the deserts of California and according to its website, “the purpose of the Desert Renewable Energy Conservation Plan is to conserve and manage plant and wildlife communities in the desert regions of California while facilitating the timely permitting of compatible renewable energy projects.” This project was developed under the umbrella of several federal and state land and resource management acts or planning efforts. Collaboration is a main foundation of this effort.

### Quincy Library Group

In late 1992 a timber industry forester, a county supervisor and an environmental attorney in California began private discussions, recognizing that “timber wars” damaged everybody and served nobody’s true interest. Discussion led to the development of the Quincy Library Group, which stabilized at about 30 members on the steering committee.

The group developed a Community Stability Proposal, deferral of certain sensitive areas from scheduled timber harvest, protection of riparian area habitat and watershed restoration. The group also developed a “Forest Health Pilot.” The group still operates today and believes that sustainable resource management must have a sound technical foundation, a broad political base and strong local participation.

### Coordinated Resource Management

Coordinated Resource Management (CRM) is a voluntary natural resource planning process that brings together people who are concerned about the land. Landowners, users, resource managers,



and other interested parties are teamed together to achieve common goals and meet resource needs. Stakeholders make decisions by consensus, rather than by traditional voting and majority rule. Although participants may not agree 100 percent with all aspects of a decision, all participants support the whole decision 100 percent. CRM is sponsored by the Society for Range Management (SRM) and the process is used in many western states.

### [U.S. Institute for Environmental Conflict Resolution](#)

The U.S. Institute, under federal law, helps federal agencies and other affected stakeholders address environmental disputes, conflicts, and challenges, such as helping parties work together, building shared understanding of issues, and finding ways to address those issues. The Institute works on energy, land use and management, and landscape-scale issues.

### [La Jolla Center for Dispute Resolution](#)

Remaining supplies of oil and gas are routinely located in practically inaccessible but environmentally sensitive areas. Exploration and production companies face an increasingly hostile environmental background in attempting to secure those resources.

Environmental collaboration presupposes that all of us share common interests – environmental protection, economic development of energy and technological advances to secure future energy needs. It also saves time, money, and resources and allows for the reasonable development of energy resources in a collaborative setting.

## Appendix F: Barriers for State Participation in Cumulative Impact Assessments (CIA)

North Dakota is one of 13 states with no formal environmental review requirements.<sup>40</sup> Thirty-seven states have been identified as having state-level environmental review processes, which can be categorized into two tiers.<sup>41</sup> Tier One includes 16 states that have adopted statewide comprehensive protocol for proposed projects across all sectors. These policies mimic the National Environmental Policy Act (NEPA) and require the preparation of environmental review documents following its model. North Dakota's neighboring states, Minnesota, Montana, and South Dakota, all are considered Tier One states. Tier Two includes 21 states where environmental review is required only for certain activities (e.g. power plant construction), in certain natural resource sectors (e.g. forestry, mining), or in the proximity of certain ecologically sensitive geographic areas (e.g. lakeshores).

There are numerous barriers for states to participate in CIA. They include, but are not limited to:

- Ambiguous legal requirement and definitions;
- Poor understanding of appropriate geographic scales;
- Lack of technical expertise;
- Unavailable data;
- Insufficient coordination among Federal, State and local agencies;
- Lack of recognition and support from business and industries; and
- Lack of recognition and support from the effected public.

Another perception is that CIA would add another burdensome process to an already overwhelmingly complex situation. The perception is that more regulation would result and more time would be lost. Additionally, because cumulative impacts are incremental, making them difficult to discern, public awareness of such impacts is often minimal until a critical point or threshold is exceeded.<sup>42</sup>

The U.S. Fish and Wildlife Service recently made a decision to list the Dakota skipper and Poweshiek skipperling to receive protection under the Endangered Species Act (ESA). Additional potential listings that could affect the region include the, greater sage grouse and monarch butterfly. Although many species of concern are being studied, it is not known at what point they may become candidates for listing, warranting special protection. CIA is a tool that could be used to avoid cumulative environmental change in a given geographical area. In this

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<sup>40</sup> Ma, Zhao et al. 2012. Barriers to and opportunities for effective cumulative impact assessment within state-level environmental review frameworks in the United States, *Journal of Environmental Planning and Management*, 55:7, 961-978.

<sup>41</sup> Ma, Zhao et al. 2009. Assessing cumulative impacts within state environmental review frameworks in the United States. *Environmental Impact Assessment Review*. 29, 390-398.

<sup>42</sup> Tollefson, C. and Wipond, K., 1998. Cumulative environmental impacts and aboriginal rights. *Environmental impact assessment review*, 18 (4), 371–390.

context, potential listings could be averted through preemptive actions to avoid listings and loss of important habitat.

The primary purpose of environmental review is to make informed decisions. Review discloses to the public the impacts of proposed actions, adverse environmental effects, and reasonable alternatives. One important question as North Dakota moves forward with mineral development is, “will either CIA or ESA be less costly and burdensome over time?” CIA could be considered a proactive approach, ESA reactive. Secondly, is it reasonable for North Dakota citizens to expect they should be provided a reasonable forecast of the environmental effects of 20,000 to 50,000 wells on the western landscape?

## Appendix G: Long-term Strategic Planning

### Long-term Strategic Plan (LTSP) Sample Outline

A brief example of how a LTSP could or would look like is as follows.

1. Develop a Mission or Vision Statement; along with the Core Values Statement:
2. Develop the Key Assumptions
  - This will involve the environment or situations under which we live.
  - It will also involve the projected size and scope of oil development.
  - It will also involve projections on cities and infrastructure.
3. Develop the Key Objectives
  - There are usually 4-5 key objectives to answer or accomplish the Mission/Vision statements.
4. Develop the Strategies
  - These are different strategies, tactics, or action plans to accomplish each of the Key Objectives.
    - It is not unusual for people to be confused with Key Objectives versus Strategies (and Tactics or Action Plans).
    - Strategy plans are to accomplish the objectives, and not be the objective.
5. Tactics or Action Plans
  - These are the plans to accomplish the Strategies.
  - These plans are usually actions that require specific action(s).
  - Tactics or Action Plans are more fluid and will probably change as the assumptions or environment changes but are always working on accomplishing the Strategies.

### Sample LTSP

#### *Mission or Vision Statement:*

To enhance oil production in North Dakota while proactively protecting and/or enhancing North Dakota's existing landscape, culture, values and economic well-being.

#### *Core Values Statement:* TBD

#### *Key Assumptions:*

1. Oil Production
  - How many wells during the stated time period? \_\_\_\_\_.
  - What will the oil price be? \_\_\_\_\_.
  - What price does it take to spur new production? \_\_\_\_\_.
  - Where will the new oil production be located:
    - Existing fields?
    - New fields?

- Will there be new technology during this time period? If so, how will it affect the above?

## 2. ND Cities

- ND cities will grow to what population with permanent residents:
  - Williston
  - Tioga
  - Stanley
  - Killdeer
  - Watford City
  - Dickinson
  - Minot
  - Bismarck/Mandan
  - Fargo
  - Grand Forks
- With this growth, what will be the demands on their:
  - Schools?
  - Streets?
  - Water and sewer systems?
  - Law enforcement and other services?
  - Other
- Affordable Housing
- Other?

## 3. Infrastructure

- Transportation
  - Traffic
  - Roads
  - Railroads
  - Pipelines
  - Other
- Services
- Schools/Education
- Housing
- Cities

## 4. Supporting services

- What new services will develop to serve:
  - Increased oil development?
  - Increased population?

5. Natural Resources

6. Other

*Key Objectives to answer or achieve the Mission/Vision Statement:*

1. North Dakota to remain a business friendly state.
2. Develop adequate long-term infrastructure for the people and projected oil production.
3. Develop a plan to protect and enhance both the business landscape and the physical landscape of North Dakota.
4. Develop plans that include North Dakota's basic culture and values.

*Strategies to achieve the Key Objectives:*

(It is not unusual for people to get key objectives and strategies confused; and think of a strategy as a key objective.)

1. North Dakota to remain a business friendly state.
  - Have adequate infrastructure.
  - Business and personal opportunities.
  - Don't over-regulate.
  - Streamlining processes for permitting.
  - Keep taxes reasonable.
  - Other.
2. Develop adequate long-term infrastructure for the people and projected oil production.
  - Adequate and quality safe roads.
  - Encourage pipeline development to reduce pressure on roads and railroads.
  - Adequate and affordable housing for oil field workers and new service sector employees.
  - Adequate and quality education for children.
  - Adequate city water and sewer to accommodate increased population.
  - Adequate law enforcement to accommodate increased population.
  - Other
3. Develop a plan to protect and enhance both the business and physical landscapes of ND.
  - Increased planning to accommodate oil production while minimizing disturbance of the physical landscape.
  - Adequate reclamation standards and follow through (coal example?).
  - Other

4. Develop these plans while recognizing North Dakota's basic culture and values.
  - Strong work ethic with individual effort rewarded.
  - Religious values.
  - Trust.
  - Help your neighbor.
  - Encourage education.

*Tactics or Action Plans:*

(A few examples to carry out the strategy.)

1. North Dakota to remain a business friendly state.
2. Develop adequate long-term infrastructure for the people and projected oil production.
  - Adequate and quality safe roads.
    - North Dakota Department of Transportation (NDDOT) to develop a long-term plan based on projected oil production and population growth.
    - ND Legislature to sign off on NDDOT plan and begin to fund such a plan on a systematic basis.
    - Other
3. Develop a plan to protect and enhance both the business landscape and the physical landscape of ND.
  - Increased planning to accommodate oil production while minimizing the impacts to the physical landscape.
    - Planning to avoid duplication of roads, well siting, and other infrastructure.
    - Planning to avoid sensitive wildlife habitat areas.
    - Development and follow through of adequate reclamation standards.
    - Other.

## Appendix H: Recommended Management Practices for Reducing Oil/Gas Impacts to Wildlife

The following is a compilation of recommendations developed by the North Dakota Petroleum Council and the North Dakota Game and Fish Department for use in reducing oil/gas exploration and production impacts to fish and wildlife resources in North Dakota. These recommendations were compiled in a document entitled, “Recommended Management Practices for Reducing Oil/Gas Impacts to Wildlife”.<sup>43</sup>

It should be recognized these recommendations are largely voluntary and are not necessarily comprehensive in nature. These recommendations are considered to be contemporary “best management practices” based on the latest advances in technology and methodology for oil and gas exploration, extraction, production, and delivery; and are subject to change and revision. Additionally, numerous state and federal statutes and requirements have been established to guide and govern various aspects of oil/gas related activities and to protect migratory birds, bald and golden eagles, and threatened and endangered species and their habitats. The attached recommendations do not supplant those requirements.

### Direct Habitat Loss (e.g. as a result of well pad and O/G road development)

1. Locate well pads, facilities and roads in clustered configurations within the least sensitive habitats. Drill multiple wells from the same pad where feasible. Place site wells, tank batteries, compressor stations and other facilities near existing roads whenever possible. Minimize road construction by coordinating location and use among companies operating in the same oil and gas field, as practical and feasible given State permitting requirements. Following drilling, complete interim reclamation of well pads to the minimum size necessary to safely and efficiently conduct operations.
2. Establish utility corridors to utilize the common routes for multiple pipelines, powerlines, etc. to the extent feasible and as allowed by private surface owners and land management agencies. Route utility corridors away from sensitive or critical habitat areas. Locate pipelines and powerlines adjacent to existing roads or in other previously disturbed sites to reduce habitat fragmentation and wildlife disturbance.
3. Prompt reclamation of pipelines, expired pads, and roads. Assess degraded roads and well pads on public lands that preceded reclamation requirements when the leases were sold to determine potential reclamation action
4. Encourage directional boring of utilities and pipelines in rugged areas or in crossing drainages and wetlands, as feasible and practical.

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<sup>43</sup> Recommended Management Practices for Reducing Oil/Gas Impacts to Wildlife. North Dakota Department of Game and Fish. March 1, 2013.



5. Encourage seeding with native grasses, forbs, and shrubs on new areas of disturbance, especially in native prairie areas, as allowed by private surface owners and land management agencies.

**Indirect Habitat Loss** (e.g. disturbance, loud noise, increased truck traffic, dust and tailpipe emissions, habitat fragmentation)

1. As operationally and economically feasible, design centralized production facilities for oil and gas outside of primary range whenever possible, and locate them closer to major highways and pipelines. Drill multiple wells from the same well pads, as feasible, to lessen disturbance in more sensitive areas. Work collaboratively with operators and wildlife agencies to place new pads and roads in areas with less wildlife disturbance; encourage operators to share existing roads and utility corridors when feasible.

*Comment: Centralized production facilities, as with all other oil and gas facilities, must adhere to state and federal Clean Air Act requirements, which have air emission thresholds. Larger facilities (such as centralized tank batteries), may have more stringent air permitting requirements and are not operationally feasible in many situations.*

2. Helicopter traffic should not occur within 825-2460 feet above ground level and should not occur over bighorn areas, especially during the lambing season (i.e., April – June). Roads that route through sensitive bighorn areas should be gated and tank batteries placed away from areas with high bighorn use. Helicopters can be used to fly in cables, recording equipment, portable shothole drilling equipment, etc. during seismic operations resulting in less vehicle use and fewer habitat impacts.

*Comment: Helicopter use is generally only used for airlifting injured workers in an emergency situation. Helicopters are generally not used for most oil and gas development activity. Their primary use is during seismic exploration.*

3. Utilize remote sensing/telemetry equipment to increase safety and minimize accidental spills on well pads. Install telemetry to remotely monitor instrumentation and reduce travel required to manually inspect and read instruments. Install equipment that will automatically shut down operations if a leak/spill is detected.

*Comment: Oil and gas facilities are subject to the federal Spill Prevention Controls & Countermeasures Rule, administered by the U.S. Environmental Protection Agency, as part of the Oil Pollution Prevention Act, as well as the Clean Water Act, and Oil Pollution Act 40CFR part 112. These regulations dictate frequent visits and maintenance of facilities to ensure proper response and reporting of accidental spills.*

4. Pipe (rather than trucking) liquids to sales to minimize truck trips to substantially reduce disturbances to wildlife.
5. Work with federal and state land managers on public lands to consider potential timing restrictions as appropriate. Mitigating some impacts of physiological stress on mule deer due

to disturbance, timing restrictions (particularly during the winter and in late May and June fawning season) on drilling could be implemented. Coordinate with federal and state wildlife agencies to minimize O/G activity during the lambing season (April - June). Place pads no closer than 550 yards from known lambing areas and roads no closer than 220 yards. Consideration should also be given to avoiding primary nesting season for migratory birds and conducting seismic operations during times of least disturbance.

*Comment: The extent of private surface ownership in North Dakota precludes the imposition of timing restrictions on oil and gas activity. However, Industry is willing to work together to evaluate the feasibility of such a constraint, as appropriate in certain areas, on public lands. Prior to implementation, these measures would need to be incorporated into the relevant land use plan.*

6. Avoid wetland margins (the edge of wetland vegetation) by 110 yards will likely alleviate many of the impacts associated with disturbance and habitat destruction and degradation. Other options to limit disturbance to breeding waterfowl would be to curtail drilling operations May – August near wetlands. During construction of roads, culverts should be used to prevent damming or funneling of water that normally would reach a wetland basin. Avoid placing fill in wetlands and constructing well sites in floodplains or in drainages that are subject to flooding.

*Comment: The extent of private surface ownership in North Dakota precludes the implementation of a required setback or timing restriction on oil and gas activity. However, Industry is willing to work together to evaluate the feasibility of such a constraint, as appropriate in certain areas, on public lands. Prior to implementation, these measures would need to be incorporated into the relevant land use plan.*

7. Prohibit above-ground oil and gas facilities within 0.5 miles of a golden eagle nest and restricts other activities (i.e. prescribed burning, reclamation activities) within 0.5 miles of the nest from February 1 to July 31. O/G development may be allowed to occur within the 0.5-mile buffer dependent upon the type of activity, the timing, and location. Spatial buffers should be placed around certain raptor nests.

*Comment: USFWS recommends these buffers when consulting with the BIA or BLM on federally permitted activities, and the BIA and BLM usually impose such a restriction as a condition of approval on permits, where recommended by USFWS. On private land, Industry would work with NDGF to identify any operationally feasible conservation measures for protection of golden eagles and other raptors.*

8. Avoid critical habitat for federally threatened or endangered species. The U.S. Fish and Wildlife Service should be consulted for the appropriate buffer for placement of oil and gas facilities adjacent to these areas.

## Loss of Important Limited Habitat Types (e.g. woody draws, native prairie)

1. Travel plans should direct haul and feeder roads to well pads away from these areas prior to construction where feasible, as private landowners or surface management agency allows.
2. Impacts to waterfowl can be limited with avoidance of wetland habitats and taking preventative steps when constructing roads and well pads, as feasible. Industry will continue working with USFWS when siting well pads, roadways, and utilizing RMP's to minimize impacts to wetlands.

## Direct Mortality

1. Above ground powerlines that are constructed across wetlands should be marked with bird flight diverters to decrease mortalities caused by powerline strikes.
2. Use closed or semi-closed loop containment systems during drilling operations to lessen potential impacts to wildlife and waterfowl. Promptly removing or reclaiming containment systems and disposing of wastes at licensed disposal facilities.
3. Use underground electrical lines when possible in limited circumstances. Burying electrical lines is generally only feasible for small powerlines; for example, to individual well locations.
4. To reduce eagle and raptor mortality from electrocution, utility line construction should follow *Suggested Practices for Avian Protection On Power Lines: The State of the Art in 2006* (APLIC).

## Aquatic Resources

1. Identify high-risk spill sites adjacent to important threatened and endangered species habitats or other important natural resource areas.
2. Spill Prevention Control and Counter Measures Plans (SPPC Plans) are maintained for all facilities, per state and federal regulations.
3. Operators comply with all SPCC regulations for spill containment, control, and response.
4. Industry has established the Lake Sakakawea Spill Response Cooperative as a hub for mutual aid information in the event of a spill. Spill response equipment is available and ready for deployment by trained employees and contractors of member companies in the event of a spill.
5. Fuel storage tanks above ground are diked, curbed or other suitable means provided to prevent the spread of liquids in case of leaking in the tanks or piping. Such dike, curbed area or device shall adhere to all applicable state and federal SPCC regulations and NDAC 43-02.
6. All dry cuttings reserve pits are lined with a suitable, impermeable barrier to prevent possible contamination of soil and groundwater, in compliance with state and federal regulations, which require liners., including NDAC 43-02-03-19.4 (effective April 1, 2012).

7. All oil and gas activity complies with approved storm water management plans and permits for use of proper erosion and sediment control techniques. Oil and gas facilities must adhere to the SWPPP, EPA NPDES permits, and State of North Dakota General Permit NDR10-0000 for storm water discharges from construction activities.
8. All pipeline crossings of a watercourse should be protected against surface disturbances and damage to the pipeline, to prevent a possible spill event.
9. Pipelines that convey fluids should be fitted with shutoff valves at all high quality stream crossings based on a case-by-case consultation with the NDGF biologists.
10. Trenching may be used for stream crossing based on a case-by-case consultation with the NDGF biologists. If the pipeline crossing will be trenched, consult with NDGF biologist to determine avoidance periods during critical fish spawning seasons, time limits for instream excavation work, and other management practices that apply.
11. Pipeline crossings can be installed through ephemeral streams by trenching. Use appropriate size riprap to stabilize stream banks. Place riprap from the channel bottom to the top of the normal high water line on the bank at all stream crossings. We recommend double-ditching techniques to separate the top one foot of stream bottom substrate from deeper soil layers. Reconstruct the original layers by replacing deeper substrate first.
12. Design road crossings of streams to allow fish passage at all flows. Types of crossing structures that minimize aquatic impacts, in descending order of effectiveness, are:
  - a. bridge spans with abutments on banks;
  - b. bridge spans with center support;
  - c. open bottomed box culverts; and
  - d. round culverts with the bottom placed no less than one foot below the existing stream grade.

Perched culverts block fish passage and are unacceptable in any stream that supports a fishery.

13. Locate and construct all structures crossing intermittent and perennial streams such that they do not destabilize the channel or increase water velocity.
14. Avoid stripping riparian canopy or stream bank vegetation if possible. It is preferable to crush or shear streamside woody vegetation rather than completely remove it. Any locations where vegetation is stripped during installation of stream crossings should be re-vegetated immediately after the crossing is completed.
15. Staging, refueling, and storage areas should not be located in riparian zones or on flood plains. Keep all chemicals, solvents, and fuels at least 500 feet away from streams and riparian areas.

16. Hydrostatic test waters released during pipeline construction could alter stream channels, increase sediment loads and introduce potentially toxic chemicals or invasive species into drainages. Avoid discharging hydrostatic test waters directly to streams.
17. Hydrostatic test waters should be dispersed onto an upland site using proper erosion and sediment control techniques.
18. Pipelines that parallel drainages should always be located outside the 100-year floodplain. Construct pipeline crossings at right angles to all riparian corridors and streams to minimize the area of disturbance.
19. Where pipelines cross riparian areas and streams, use the minimum practical width for rights-of-way.
20. Require testing and compliance with Health Dept. standards for use of production water prior to its use for de-icing roads.
21. Instream activity restrictions may be necessary to protect fish spawning habitat in certain streams. These restrictions will be identified in Section 404 permits issued by the U.S. Army Corps of Engineers (COE) or through the notification process under nationwide permits, as applicable. In such cases, the COE will consult regional fisheries or statewide fisheries personnel at the Department's local or Bismarck offices, respectively. We encourage companies to consult the Department's fisheries personnel for advice regarding appropriate practices and design considerations when planning instream activities.

## Appendix I: Feathers from the Prairie

Feathers from the Prairie, Morris D. Johnson and Joseph Knue, State Game and Fish Department, 1989.

Page 136 “When the Soil Bank contracts began to run out in the mid-sixties, pheasant harvest dropped markedly. Land which had been idled in the Soil Bank was being brought back into agricultural production. In addition, the winter of 1964-65 was very hard, with a bad blizzard in December and deep snow cover for a long period of time. The breeding stock of pheasants was significantly reduced by the double effect of weather and poor habitat conditions. The pheasant season was closed in 1966, and again in 1969.”

Page 160 “The Departments stance on winter feeding has not changed. Winter weather, however, still takes a toll on pheasant populations. A severe winter in 1964-65, loss of pheasant habitat when Soil Bank contracts ran out, and a blizzard in March of 1966 took such a heavy toll that the season was closed in 1966.

Drought is perhaps just as much a factor on pheasant populations as winter weather. Drought affects the hatching success of upland game and reduces nesting cover, making nests and hens more vulnerable to limiting factors such as predation. Some people attributed the big pheasant populations of the 1940’s to the drought of the 1930’s, but in reality, the boom did not take place until there was more moisture.”

Table 13 (Page 137)			PHEASANT HARVESTS		
Year	Pheasants Per Hunter During the Season	Estimated Pheasant Harvest	Year	Pheasants Per Hunter During the Season	Estimated Pheasant Harvest
1934	9.0	213,500	1961	4.7	260,000
1935	9.2	215,100	1962	3.8	185,000
1936	-----	-----	1963	7.3	490,000
1937	----	----	1964	4.6	282,000
1938	5.7	140,000	1965	1.6	59,000
1939	7.8	290,000	1966	Closed	
1940	13.1	510,700	1967	0.9	33,000
1941	16.7	840,000	1968	1.1	40,000
1942	34.1	1,770,000	1969	Closed	

1943	37.2	1,510,000	1970	0.8	45,000
1944	48.9	2,450,000	1971	2.2	64,000
1945	35.7	2,400,000	1972	2.1	58,000
1946	8.4	590,000	1973	2.3	75,000
1947	4.5	283,800	1974	2.1	70,000
1948	6.2	460,000	1975	2.1	66,000
1949	5.6	410,000	1976	2.3	83,000
1950	1.0	60,000	1977	2.4	100,000
1951	2.9	193,000	1978	2	76,000
1952	2.6	175,000	1979	1.8	60,000
1953	Closed		1980	2.1	73,000
1954	3.2	200,000	1981	3	122,000
1955	3.4	235,000	1982	2.9	110,000
1956	4.7	325,000	1983	3.3	142,000
1957	4.0	286,000	1984	3.04	127,000
1958	6.9	525,000	1985	3.28	138,662
1959	2.4	134,000	1986	2.93	121,876