

ENERGY DEVELOPMENT AND TRANSMISSION COMMITTEE

The Energy Development and Transmission Committee was created in 2007 and made permanent in 2011. Under North Dakota Century Code Section 54-35-18, the committee must study the impact of a comprehensive energy policy for the state. The study may include reviewing and recommending policies related to extraction, generation, processing, transmission, transportation, marketing, distribution, and use of energy.

In addition to its statutory study responsibilities, the committee was assigned the following three studies for the 2017-18 interim:

- Section 22 of Senate Bill No. 2013 (2017) provided for a study of the oil and gas tax revenue allocations to hub cities and hub city school districts. The study must include consideration of current and historical oil and gas tax revenue allocations and the appropriate level of oil and gas tax allocations.
- Section 34 of House Bill No. 1015 (2017) provided for a study of the taxation of wind energy and the distribution of tax collections related to wind energy. The study must include consideration of the various methods of taxing wind energy and the appropriate level of distributions to the taxing districts and the state.
- House Concurrent Resolution No. 3027 (2017) provided for a study of the estimated fiscal impact of refracturing existing oil wells, including the estimated costs and benefits related to tax collections and any potential tax incentives for refracturing existing oil wells.

The committee is responsible for receiving various reports, as assigned by the Legislative Management, including:

- A biennial report from the Energy Policy Commission regarding recommendations for a comprehensive energy policy pursuant to Section 17-07-01.
- A biennial report from the North Dakota Transmission Authority regarding its activities pursuant to Section 17-05-13.
- A biennial report from the North Dakota Pipeline Authority regarding its activities pursuant to Section 54-17.7-13.
- A report, beginning December 2014 and every 4 consecutive years thereafter, on the amount of money in the carbon dioxide storage facility trust fund and on the amount of fees needed to satisfy the fund's objectives pursuant to Section 38-22-15.
- A report from a coal conversion facility that achieves a 20 percent capture of carbon dioxide emissions and receives a tax credit pursuant to Section 57-60-02.1.
- A report, by September 30, 2018, from the Industrial Commission regarding brine pond and soil remediation studies conducted under Section 2 of House Bill No. 1347 (2017).
- A report, by September 30, 2018, from the Tax Department regarding its study of the valuation of oil and gas as used to determine mineral royalty payments and tax liability pursuant to Senate Bill No. 2013 (2017) and House Bill No. 1015 (2017).

Committee members were Senators Rich Wardner (Chairman), Brad Bekkedahl, Jim Dotzenrod, Merrill Piepkorn, David S. Rust, and Jessica Unruh and Representatives Tracy Boe, Mike Brandenburg, Ben Koppelman, Corey Mock, Todd Porter, and Gary R. Sukut.

The committee submitted this report to the Legislative Management at the biennial meeting of the Legislative Management in November 2018. The Legislative Management accepted the report for submission to the 66th Legislative Assembly.

HUB CITY OIL AND GAS TAX ALLOCATIONS STUDY

The Legislative Management assigned the committee the responsibility to study the oil and gas tax revenue allocations to hub cities and hub city school districts. The committee received information from the hub cities and hub city school districts regarding the use of oil and gas tax allocation funding, infrastructure projects, and challenges in operations. As a part of the study, the committee met in each of the hub cities--Dickinson, Minot, and Williston--and conducted tours of the cities to observe the impacts of oil and gas development.

City of Dickinson

The committee received information regarding Dickinson's debt levels, which increased from \$6 million in 2008 to \$92 million in 2018. The population is projected to grow by 3.5 percent per year through 2023. Dickinson's cumulative budgetary shortfall for 2018 through 2023 is estimated to be \$128.8 million. Approximately 30 percent of Dickinson's revenue is from oil and gas gross production tax allocations while 9 percent is from property tax revenues. The Dickinson Public School District expanded three elementary schools, built a new elementary school, and built a new middle school because of increasing student enrollments. A new elementary school and a new high school will be needed within a few years based on the current increases in enrollment. The Theodore Roosevelt Airport is completing a \$62 million project to reconstruct the main runway. The fire department's responses to incidents doubled from 2008 to 2017, and the full-time staff for the fire department quadrupled during the same period. Approximately \$395 million of infrastructure was constructed between 2008 and 2017, including roads, water and sewer systems, and public buildings.

City of Minot

Based on information provided by the City of Minot, debt levels increased from \$63 million in 2008 to \$104 million in 2018. Minot's population is anticipated to grow by 2 percent per year through 2023. The cumulative budgetary shortfall for 2018 through 2023 totals \$112.4 million. Approximately 5 percent of Minot's revenue is from oil and gas gross production tax allocations while 32 percent is from property tax revenues. The city's population increased by 35 percent from 2007 to 2016, and the land area of the city increased by 85 percent during the same period. Calls for police services increased by approximately 38 percent from 2007 to 2016. The police department increased the number of sworn officers by 25 percent to address the increased demand for services, but the department has had challenges filling the positions with turnover rates averaging 14 percent. The city invested approximately \$250 million in capital asset improvements from 2007 to 2016 due to the growth of the city.

City of Williston

The City of Williston provided information regarding the city's debt levels, which increased from \$39 million in 2008 to \$340 million in 2018. The annual population growth rate through 2023 is projected to be 2.8 percent. Williston's cumulative budgetary shortfall for 2018 through 2023 is estimated to be \$181.3 million. Approximately 40 percent of Williston's revenue is from oil and gas gross production tax allocations while 8 percent is from property tax revenues. Student enrollments in the Williston Public School District increased by 83 percent from 2010 to 2017. City staff increased by 170 percent, from 120 employees in 2006 to 323 employees in 2017. Williston invested \$283 million in infrastructure improvements related to sewer and water projects, a new law enforcement center, and two new fire stations. The city relies on local sales tax revenue for infrastructure and public safety expenses, but sales tax collections are a volatile revenue source for the city. Williston identified future infrastructure needs of \$169 million, including \$83 million for road projects, \$60 million of local financing for the new airport, \$25 million for a new public works building, and \$1 million for city hall renovations.

Four County Study Report

As a part of the study, the committee received a report from Advanced Engineering and Environmental Services, Inc., regarding the operational and financial needs of Dunn, Mountrail, McKenzie, and Williams Counties. Staffing levels increased by 31 percent in Dunn County, 225 percent in McKenzie County, 46 percent in Mountrail County, and 84 percent in Williams County from 2010 to 2017. The total property taxes levied from 2010 to 2017 increased by 107 percent in Dunn County, 424 percent in McKenzie County, 107 percent in Mountrail County, and 121 percent in Williams County. According to information from the Upper Great Plains Transportation Institute, \$987 million was invested in road projects in the four counties between 2010 and 2017 with an estimated \$1,576 million of additional funding needed by 2036. The cumulative budgetary gap for road project funding needs between 2018 and 2022 totals \$67 million for Dunn County, \$143 million for McKenzie County, \$34 million for Mountrail County, and \$115 million for Williams County.

Committee Consideration

The committee discussed the oil and gas tax allocation formulas as well as possible changes to the formulas. The discussion indicated the hub cities receive a separate set of oil and gas tax revenue allocations and are excluded from the regular allocations to cities under the oil and gas tax revenue allocation formulas, which benefits the other cities in the oil-producing counties. The discussion also indicated the oil and gas tax revenues provide a benefit to the state and other political subdivisions in non-oil-producing counties.

The committee received information regarding proposed changes to the formulas primarily relating to the hub cities' and the state's share. The allocations to hub cities are based on mining employment, but the proposed changes would base the allocations on multiple factors, including population, mining establishments, and mining employment. The proposed changes to the state's share of oil and gas tax allocations include allocations to two new state funds designated for infrastructure projects in non-oil-producing counties.

Recommendation

The committee recommends continuing the concept of hub cities in the oil and gas tax allocation formulas.

WIND ENERGY TAXATION STUDY

The Legislative Management assigned the committee the responsibility to study the taxation of wind energy and the distribution of tax collections related to wind energy. The committee received information regarding electricity markets and electrical generation taxation.

Electricity Markets

Utility companies provided an overview of electricity distribution and pricing. Electricity is generated and distributed within power pools, which are interconnected markets operated by regional transmission organizations. Power pools balance power supplies, provide reliability, and create operating efficiencies. The two regional transmission organizations operating in North Dakota are Midcontinent Independent System Operator and Southwest Power Pool. A utility submits an offer price for each generation unit to sell power into the power pool as a part of the wholesale electrical market. The regional transmission organization dispatches electricity throughout the power pool starting with the units that have the lowest offering prices and continues to dispatch power from successively more expensive units until enough electricity is supplied to the power pool. The offer price for each unit is based on the variable cost to operate the unit, which is primarily the cost of fuel. Wind-powered generation units usually are offered at \$0 because the fuel (wind) has no cost. After selling power into the power pool, a utility purchases power from the pool to provide electricity to its service area. A utility then sells power to end users at retail prices, which are higher than wholesale prices, allowing the utility to recover fixed and administrative costs. Challenges in the electricity markets include environmental regulations, tax policies, and supply fluctuations that affect baseload operations.

The committee received information regarding a study by the United States Department of Energy, which highlighted key issues regarding electrical grid reliability. The increase in electricity production from natural gas is the primary factor in the displacement of baseload production from coal and nuclear sources, according to the study. Market pricing challenges may exist for electricity production from certain energy sources because the pricing may not provide compensation for reliability.

As a part of the study, utility companies provided information to the committee regarding an example of energy supply challenges and price variations during a cold weather event in December 2017. Some companies relied on market purchases to meet customer demand during the cold weather event because wind turbines and other generation units were unable to operate in the cold weather. The cold weather caused natural gas pipelines to freeze resulting in natural gas supply issues, which triggered a rapid increase in natural gas prices. One utility company observed prices increasing from \$12 per megawatt-hour to \$93 per megawatt-hour.

The committee received information from state agencies regarding mitigation payments, which may impact the future development of energy projects such as wind turbines. State law requires the Public Service Commission to evaluate and consider the direct and indirect environmental impacts when siting energy development projects. The Game and Fish Department developed a state wildlife action plan to identify potential environmental impacts related to energy development projects and coordinates with the Public Service Commission during the siting process to ensure projects minimize the impact on wildlife and native habitats. According to information from the Agriculture Commissioner, farmers are concerned about how mitigation payments are valued and how the payments are used, which may have negative effects on the agriculture industry.

Electrical Generation Taxation

The committee received information regarding energy-related taxes and tax exemptions. The state imposes a coal severance tax and a coal conversion tax and provides exemptions under certain conditions for these two taxes. Natural gas is subject to the oil and gas gross production tax as well as a generation tax if the natural gas is used to produce 100 kilowatts or more of electricity. Wind power is subject to property tax or payments in lieu of property tax, both of which are distributed only to local political subdivisions. The state provided a sales tax exemption for materials used to construct wind turbines and an income tax credit based on the cost of installing wind turbines, but these tax incentives expired on December 31, 2016.

The committee received information regarding federal tax incentives for coal, oil and gas, and wind. The primary federal tax incentives related to coal include income tax deductions for the depletion of minerals and for mining exploration costs. The primary federal tax incentives related to oil and natural gas include income tax deductions for intangible drilling costs and for the depletion of oil and natural gas wells. The federal government provides a production tax credit for wind energy, but the credits are being phased out.

The Tax Department provided information regarding electrical generation tax collections. The state collected approximately \$52.6 million of coal conversion tax revenues and \$22 million of coal severance tax revenues during the 2015-17 biennium. Natural gas electrical generation units generally are used to provide power only during periods of peak demand resulting in tax collections of approximately \$2 million during the 2015-17 biennium. Property taxes on wind turbines provided approximately \$7.9 million to local taxing districts while the payments in lieu of property taxes associated with wind turbines provided approximately \$4.4 million to local taxing districts during the 2015-17 biennium. Subsequent to the expiration of the sales tax exemption for wind turbine materials in December 2016, the state has not reported any sales tax collections related to wind turbine projects based on publicly available data for permitted projects. However, approximately \$7 million of sales taxes would be collected if a 150 megawatt project is completed.

According to information provided by representatives of the utility industry, North Dakota's electrical generation tax is competitive with the wind energy taxes in South Dakota and Minnesota and is approximately three times lower than the tax in Montana. Based on sample data from facilities in North Dakota, a wind turbine operating at 40 percent capacity pays approximately \$1.21 of tax per megawatt of electricity produced, the same as a coal power plant operating at 70 percent capacity. Wind turbine developers sell power to utilities based on power purchase agreements, which determine the price of electricity and the schedule for delivering electricity. The benefits from federal production tax credits and other tax incentives are passed on to end users through lower electricity prices in the power purchase agreements.

Committee Consideration

The committee discussed the tax structure for wind generation and the allocation of the tax collections. The committee received information regarding proposed changes to the allocation of the wind generation tax collections. Under current law the wind generation tax collections are distributed only to local political subdivisions. The proposed changes would allocate 33 percent of the tax revenue collections to the state resulting in a corresponding decrease in the allocations to political subdivisions. The proposed allocation change relates to the tax revenue collected from new wind turbines. Older wind turbines are subject to property taxes, which would remain with local political subdivisions.

Recommendation

The committee recommends changing the allocation of wind generation tax collections to distribute a portion of the revenue collections to the state.

OIL WELL REFRACTURING STUDY

The Legislative Management assigned the committee the responsibility to study the refracturing of oil wells. The committee received information from the oil industry and state agencies regarding the refracturing process and the impact of oil well refracturing.

Refracturing Process

The committee received information regarding projects to refracture oil wells originally completed between 2006 and 2009 as open-hole single stage fractures. To refracture an oil well, a workover rig cleans the well bore and installs a new cement liner, after which a fracturing crew stimulates the well with an estimated 5.5 million pounds of proppant and 110,000 barrels of water. Oil companies are researching potential methods to refracture oil wells originally completed between 2009 and 2011, which had less than 20 stage fractures. The process to refracture oil wells originally completed between 2009 and 2011 will be more complicated because the original well bore contains a cement liner leaving only 4.5 inches for new equipment and materials. Refracturing the wells originally completed between 2009 and 2011 may involve one of the following options:

- A flush joint lateral liner to accommodate plug and perforation stimulation techniques, which provides more versatility but a high cost for specialty pipe;
- A flush joint lateral liner with a slim-hole ball and seat system, which uses known technology but may be limited to wells with shorter laterals; or
- A particulate diverter using the existing lateral liner, which is the least expensive option but provides the least accuracy for directing the fractures.

Based on information provided by an oil company, the economics of refracturing an oil well are uncertain because the return on investment depends on the amount of additional oil that can be extracted from the oil well. The oil wells originally completed between 2006 and 2009 have a high return on investment because these wells have more remaining hydrocarbons than the oil wells completed after 2009. Challenges for refracturing include the cost of the technology, future operational risk associated with decreasing the diameter of the well bore, loss of production from the well while the refracturing process is being completed, geological uncertainty, and the economic competitiveness compared to other oil wells.

Refracturing Impact

The committee received information from the North Dakota Pipeline Authority regarding the potential changes in oil production related to oil well refracturing. Oil production increased by an average of 25 percent and gas production increased by an average of 100 percent based on available data for oil well refractures in North Dakota. Refracturing can produce an estimated 200,000 barrels of incremental oil per well, and approximately 2,000 wells may be candidates for refracturing. The breakeven price for refracturing depends on the estimated incremental oil production and the cost of the refracturing process. Oil well refracturing may be feasible if oil prices average at least \$40 per barrel; refracturing costs remain at approximately \$2 million; and incremental oil production exceeds 200,000 barrels.

According to information provided by the North Dakota Petroleum Council, refracturing oil wells originally completed between 2006 and 2009 is economically successful and may not need tax incentives. However, refracturing oil wells that were originally completed between 2009 and 2011 may need tax incentives to offset the risks and to encourage economic development. The state could receive approximately \$1 million in tax revenue over the life of each oil well refractured, assuming 200,000 barrels of incremental oil production and an oil price of \$40 per barrel. Of the \$1 million, \$800,000 is related to revenue collections from the oil extraction tax and the oil and gas gross production tax, and \$200,000 is related to sales and use tax revenue collections.

The Energy and Environmental Research Center provided information to the committee regarding the results of a study related to oil well refracturing. Researchers from the Energy and Environmental Research Center analyzed the performance of 165 oil wells in the Bakken Formation that have been refractured. The researchers created a simulation to analyze hypothetical cost and revenue scenarios to determine the profitability from refracturing. The results from the simulation indicated approximately 80 percent of refractures may be profitable.

Recommendation

The committee makes no recommendation regarding its study of oil well refracturing.

COMPREHENSIVE ENERGY STUDY

The committee is responsible for studying comprehensive energy policy for the state. As part of this study, the committee received a report from the Energy Policy Commission, also known as the EmPower ND Commission.

Energy Policy Commission

In 2009 the Energy Policy Commission was created by Section 17-07-01 to develop a comprehensive energy policy and to monitor progress toward reaching the goals of the policy. The commission consists of the Commissioner of Commerce as Chairman and members appointed by the Governor to represent the agricultural community, Lignite Energy Council, North Dakota Petroleum Council, biodiesel industry, biomass industry, wind industry, ethanol industry, North Dakota Petroleum Marketers Association, North Dakota investor-owned electric utility industry, generation and transmission electric cooperative industry, lignite coal-producing industry, refining or gas-processing industry, and additional nonvoting members.

The committee received a report from the Energy Policy Commission regarding updates from the commission's three subcommittees--public policy, research and development, and infrastructure. The commission did not have any specific energy policy recommendations for the 2017-18 interim, but continues to promote North Dakota's energy resources. The public policy subcommittee reviewed state and federal energy policies and is supportive of state policies that will continue to provide funding for energy-related research and development. The research and development subcommittee reviewed research projects and state funding for research, including changes to the funding for the lignite research fund approved by the 2017 Legislative Assembly. The infrastructure subcommittee acknowledged significant investments have been made in pipelines, processing facilities, roads, and airports in the past 5 years, but additional infrastructure will be needed to support the growth in the energy industry.

Recommendation

The committee makes no recommendation regarding the comprehensive energy study.

NORTH DAKOTA TRANSMISSION AUTHORITY REPORT

The committee received a report from the North Dakota Transmission Authority pursuant to Section 17-05-13. According to the report, the CapX 2020 transmission line project, which includes 800 miles of lines, was completed in August 2017 and will increase electrical reliability and access to renewable energy across the Midwest. The United States Department of Energy conducted an electrical grid reliability study and recommended continued support for research and development for technology to increase reliability and resiliency in the electrical grid. The utility industry and the federal government are working on measures to increase cybersecurity protection for the electrical grid.

NORTH DAKOTA PIPELINE AUTHORITY REPORT

The committee received multiple updates from the North Dakota Pipeline Authority on oil and gas pipelines in the state. According to the information provided by the authority, 72 percent of the oil produced in North Dakota is exported out of the state by pipeline as of May 2018. The Dakota Access Pipeline began operating in June 2017 decreasing the transportation costs associated with delivering the oil to refineries. Exports by rail have increased in recent months because the pricing premiums at coastal refineries offset the higher transportation costs of rail transportation. Natural gas production exceeded the processing capacity in early 2018, but new processing plants are anticipated to begin operations in the fourth quarter of 2018. Approximately 1,000 miles of new pipelines, including gathering lines and transmission lines, are constructed each year resulting in approximately 1 mile of new pipeline for each new oil well. Infrastructure constraints might require oil companies to limit future oil and gas production, particularly when the Industrial Commission's natural gas capture requirements increase from 85 to 88 percent in November 2018.

CARBON DIOXIDE STORAGE FACILITY TRUST FUND REPORT

The committee received a report from the Industrial Commission regarding the status of the carbon dioxide facility trust fund pursuant to Section 38-22-15. The purpose of the fund is pay the expenses associated with the long-term monitoring and management of underground carbon dioxide storage projects. On April 24, 2018, North Dakota received Class VI Primacy from the federal Environmental Protection Agency giving the state the authority to regulate and manage the underground storage of carbon dioxide. As of September 30, 2018, the balance of the carbon dioxide facility trust fund is \$0, and the fee established by the Industrial Commission is \$.07 per ton of carbon dioxide injected underground for storage. Projects to store carbon dioxide underground are in the planning stages with estimated completion dates in the early 2020s, but no projects have been completed at the time of this report.

CARBON DIOXIDE CAPTURE TAX CREDIT REPORT

The committee was assigned the responsibility to receive a report, pursuant to Section 57-60-02.1, from a coal conversion facility that achieves a 20 percent capture of carbon dioxide emissions and receives a tax credit.

The only project in this state that received a credit is located at the Antelope Valley Station near Beulah. Basin Electric Power Cooperative owns the Antelope Valley Station that is part of an energy complex that includes the Great Plains Synfuels Plant and the Freedom Mine. Great Plains Synfuels is a commercial coal gasification facility that produces synthetic natural gas resulting in the production of carbon dioxide, which is transported to Canada for sequestration.

A facility that achieves a 20 percent capture of carbon dioxide emissions is entitled to a 20 percent reduction in the general fund share of the coal conversion tax. The facility may receive an additional reduction of 1 percent for each 2 percentage points of captured carbon dioxide emissions up to a maximum tax reduction of 50 percent reflecting an 80 percent capture of carbon dioxide emissions. The tax credit is limited to 10 years from the date the carbon dioxide emissions were first captured or from the date the coal conversion facility became eligible for the credit. At the request of the Great Plains Synfuels Plant, the 2017 Legislative Assembly approved Senate Bill No. 2133 to end the tax credit in June 2017 and change the tax rates for the gasification plant. The schedule below provides information on the tax credits received and the carbon dioxide captured since 2010, the year in which the tax reduction first became available.

Year	Tax Credits	Average Percentage of Carbon Dioxide Captured
2010	\$2.2 million	40%
2011	2.5 million	36%
2012	2.9 million	42%
2013	2.6 million	40%
2014	3.0 million	41%
2015	1.9 million	32%
2016	1.2 million	31%
2017 (Through June 2017)	.7 million	31%
Total	\$17 million	

BRINE POND AND SOIL REMEDIATION STUDY REPORT

The committee received a report from the Industrial Commission regarding the studies conducted under Section 2 of House Bill No. 1347 related to brine ponds and soil remediation. The study included an analysis of the number of brine ponds that need remediation, the number of brine pond sites for which landowners received compensation due to contamination, and an evaluation of the best techniques for remediating salt and contaminants from soils. Based on the results of the study, 114 brine pond sites need remediation, including 9 sites for which landowners received compensation due to contamination. The estimated cost to remediate the sites is \$11 million. Tests with additives, including gypsum and hay, revealed some contaminated soil can be restored to agricultural productivity, but additional testing is needed to determine if this remediation technique provides a lasting benefit. Techniques involving a capillary break and a saltwater wetland significantly reduced the salt and contaminant concentrations allowing the soil to be

restored to agricultural productivity. The capillary break, which is buried three feet underground, captures the salt as it leaches into the soil with rain and as it percolates up from deeper soil. The saltwater drains from the capillary break into a wetland area where salt tolerant plants extract the salt and contaminants from the water. The Industrial Commission anticipates funding will be requested during the 2019 legislative session to conduct a full-scale test of the remediation technique involving a capillary break and a saltwater wetland.

OIL AND GAS VALUATION STUDY REPORT

The committee received a report from the Tax Department regarding the results of an oil and gas valuation study pursuant to Senate Bill No. 2013 and House Bill No. 1015. The Tax Department held three meetings to gather information regarding natural gas processing, royalty agreements, and royalty owners' concerns about deductions from royalty payments. The state's royalty agreements do not allow for any deductions while individual's royalty agreements can be based on different calculation methods. The Tax Department did not have any recommended statutory changes because the royalty payments are subject to the terms negotiated between the oil producers and the mineral owners. The Industrial Commission recently changed its administrative rules requiring any deductions from the royalty payments to be disclosed on the royalty statement, which may alleviate mineral owners' concerns.

OTHER

Fracturing Sand Sources in North Dakota

The Industrial Commission informed the committee about potential sources of sand in North Dakota for use in fracturing. Each oil well in the Bakken uses approximately 10 million pounds of sand in the fracturing process. Ottawa "Northern White" sand from western Wisconsin is most commonly used in the fracturing process because of its consistent roundness and strength. High transportation costs and supply limitations have caused oil companies to seek alternative sources of sand. As a result, the oil industry recently lowered its standards to find lower cost alternatives from local sources. The Industrial Commission collected samples of sand from various locations in North Dakota in the summer of 2018. The initial test results indicate some sources of sand in North Dakota may meet the industry's new standards, but additional testing is required to determine the feasibility of using North Dakota sand in the fracturing process.

Rare Earth Elements

The committee received information regarding the Industrial Commission's study of rare earth elements in North Dakota. Rare earth elements commonly are found in advanced technology products, such as electric cars, computers, appliances, medical devices, and military equipment. Generally, rare earth elements are not found in high concentrations which limits the places where the elements can be mined economically. The United States was the largest supplier of rare earth elements until 1985 when China surpassed the United States in production. The Industrial Commission sampled various locations in western North Dakota near coal-bearing rocks to determine the concentrations of rare earth elements. The department analyzed samples and found some samples had concentrations exceeding 300 parts per million, which is the minimum threshold needed to qualify for United States Department of Energy research funding. Additional research is needed to better understand where rare earth elements can be found in high concentrations.

Biological Remediation Methods for Oil Spills

Targa Resources provided information to the committee regarding a project that used biological remediation to restore soil contaminated by an oil spill near New Town. The remediation process involves spreading the contaminated soil in a containment area and applying enzymes to support the growth of bacteria that digest hydrocarbons. The soil conditions are monitored to maintain an optimal environment for the bacteria. The biological remediation process can be used in cold climates but the cold temperatures in winter slow the rate at which the bacteria digest the hydrocarbons. Biological remediation removes the hydrocarbons from the soil allowing the soil to be reused, and biological remediation can restore the soil more quickly than other remediation methods. Federal and state regulations allow biological remediation methods to be used for certain oil spills, but a streamlined regulatory process could reduce remediation costs increasing the feasibility of biological remediation.