

Quadrennial Energy Review: Comment on the Public Meeting - Bakken Infrastructure Constraints

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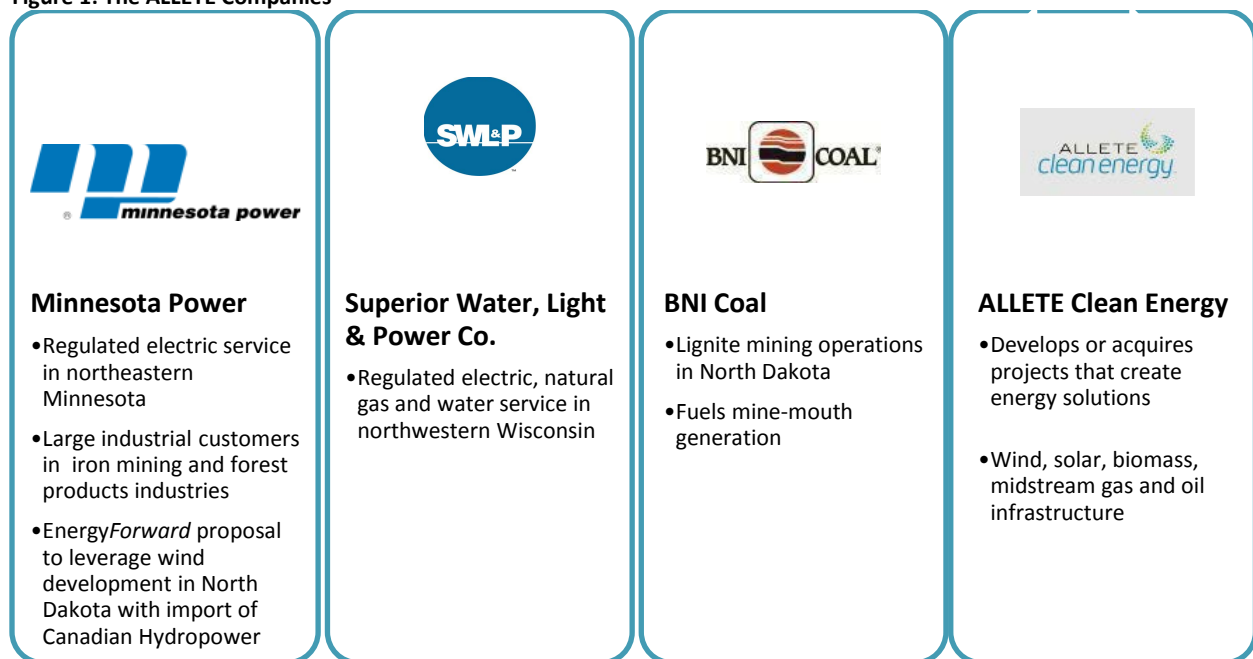
ALLETE Clean Energy welcomes the efforts the Quadrennial Energy Review Task Force is making to improve the Nation's energy infrastructure and grow its economy, while at the same time working to address climate concerns and minimize environmental and public impacts associated with such improvements and growth. We also deeply appreciate the opportunity to submit these comments in connection with the Quadrennial Energy Review's August 8, 2014 public meeting addressing infrastructure constraints affecting production from the Bakken formation.

ALLETE Clean Energy is the principal proponent of the Energy Corridor Project, a groundbreaking project that seeks to address all of the major issues of concern to the Quadrennial Energy Review. The Energy Corridor Project responds to the critical need for increased energy security through additional transport infrastructure to and from the Bakken region. It will provide robust, flexible, and scalable pathways for the transport of oil, natural gas, waste water, fresh water, and carbon dioxide, while at the same time minimizing the environmental footprint and socioeconomic impacts of the needed transport pathways, providing options for reducing greenhouse gas emissions and turning those gases to productive use, reducing the present need for truck and rail transport of some of these commodities, and spurring economic growth by providing more opportunities in North Dakota for businesses that could process or otherwise use natural gas from the Bakken.

About ALLETE Clean Energy

ALLETE Clean Energy is a part of the ALLETE group of companies, which includes Minnesota Power; Superior Water, Light & Power Company; BNI Coal; and ALLETE Clean Energy. Descriptions of each of the ALLETE companies are provided in Figure 1.

Figure 1: The ALLETE Companies



ALLETE Clean Energy is uniquely positioned both geographically and strategically to respond proactively to the Nation's energy challenges and opportunities. Its bases and reach include mineral-rich Minnesota, energy-rich North Dakota, and the carbon-free and energy-rich province of Manitoba, Canada.

About the Bakken Formation and Existing Transportation Constraints

As the QER Task Force has recognized, "Over the past decade, the energy profile of the United States has undergone a dramatic transformation. A major component of this shift has been the ability to unlock fossil fuel resources from diverse shale formations around the country."¹ A significant portion of the boom in production of oil and shale gas has come from the Bakken formation, which underlies parts of North Dakota, Montana, Manitoba, and Saskatchewan. As the QER Task Force noted, "In May 2014, oil production in the state of North Dakota exceeded one million barrels per day (MMBbl/d), almost 12% of U.S. crude oil production, and associated gas production totaled 1.2 bcf/d, both all-time highs for the state (this compares to roughly 45,000 Bbl/d in 2006)."²

Because of the remote location of the Bakken, existing infrastructure constraints present challenges to moving that oil and natural gas safely and economically to markets and consumers, as well as to moving materials to the Bakken that are needed for the continued production of those resources. During 2010,

¹ Memorandum from Quadrennial Energy Review Task Force Secretariat and Energy Policy and Systems Analysis Staff, United States Department of Energy, titled "QER Public Stakeholder Meeting: Infrastructure Constraints in the Bakken" (August 8, 2014) ("QER Memo") at 1.

² *Id.* at 2.

production of oil from the Bakken began to approach and to exceed pipeline capacity, leading to transport by rail tank car for ultimate transshipment by barge to the Gulf of Mexico.³ This rail transport, however, limits the availability of rail transport for other North Dakota products, such as agricultural products, resulting in major financial losses for farmers due to rail shipment delays.⁴ Rail transport of flammables such as oil also raises safety concerns.⁵

Natural gas, unlike oil, *must* be moved by pipeline. The lack of pipeline resources for moving the natural gas that is produced as an inevitable consequence of oil production has led to the uneconomic and environmentally-unsound flaring of as much as 28 percent of North Dakota natural gas production.⁶ Moreover, the current absence of a natural gas pipeline through North Dakota has impeded critical growth in the State. As Senator Heidi Heitkamp of North Dakota has recognized, a natural gas pathway that traverses major population routes in the State would provide opportunities for future gas use by various industrial customers, would provide necessary infrastructure for potential gas processing operations in the State, and would provide critical but presently absent regional access to propane.

Significant transportation infrastructure expansion is needed to take advantage of the resources the Bakken offers. Per the QER's goals, that infrastructure should not only provide the capacity for the transport of oil and natural gas *from* the Bakken to refineries and consumers elsewhere and the transport of needed materials *to* the Bakken to support continued production, but it should do so in a manner that addresses concerns about greenhouse gas emissions and reduces environmental impacts.

ALLETE Clean Energy's Energy Corridor Project is designed to do precisely that.

About the Energy Corridor Project

ALLETE Clean Energy's Energy Corridor Project is specifically designed to provide additional energy security by responding to the identified need for additional energy transport infrastructure to and from the Bakken region. It thus provides both needed extra transport capacity and additional route diversity that enhances energy security. Critically, it does so in a way that minimizes both the environmental footprint and the socioeconomic impacts of the needed energy transport pathways. It is also specifically designed to make productive use of power plant carbon dioxide emissions that would otherwise contribute to climate change, by providing a way to transport that CO₂ to the Bakken formation, where it can be used for enhanced oil recovery operations. It will also reduce the need for rail transport of oil from the Bakken, freeing that rail capacity for agricultural products; will provide a pipeline route for bringing fresh water to Fargo, North Dakota, as part of a drought mitigation project; and will reduce the need for truck transport of fresh water to the Bakken region by providing a pipeline route for bringing water to that area.

The ALLETE Energy Corridor project envisions coordinated development of pipelines for the transport of both energy and energy-related products to and from the Bakken region. When fully developed, the Energy Corridor Project will include pathways for transporting oil and gas from the Bakken formation to refiners and markets in Minnesota and elsewhere; fresh water and waste water to and from locations where that water is produced, needed, or treated; and carbon dioxide from power plants on the eastern reaches of the pipeline system to the oil fields of the Bakken. Figure 2 is a map of the Energy Corridor Project, with the various transportation pathways shown.

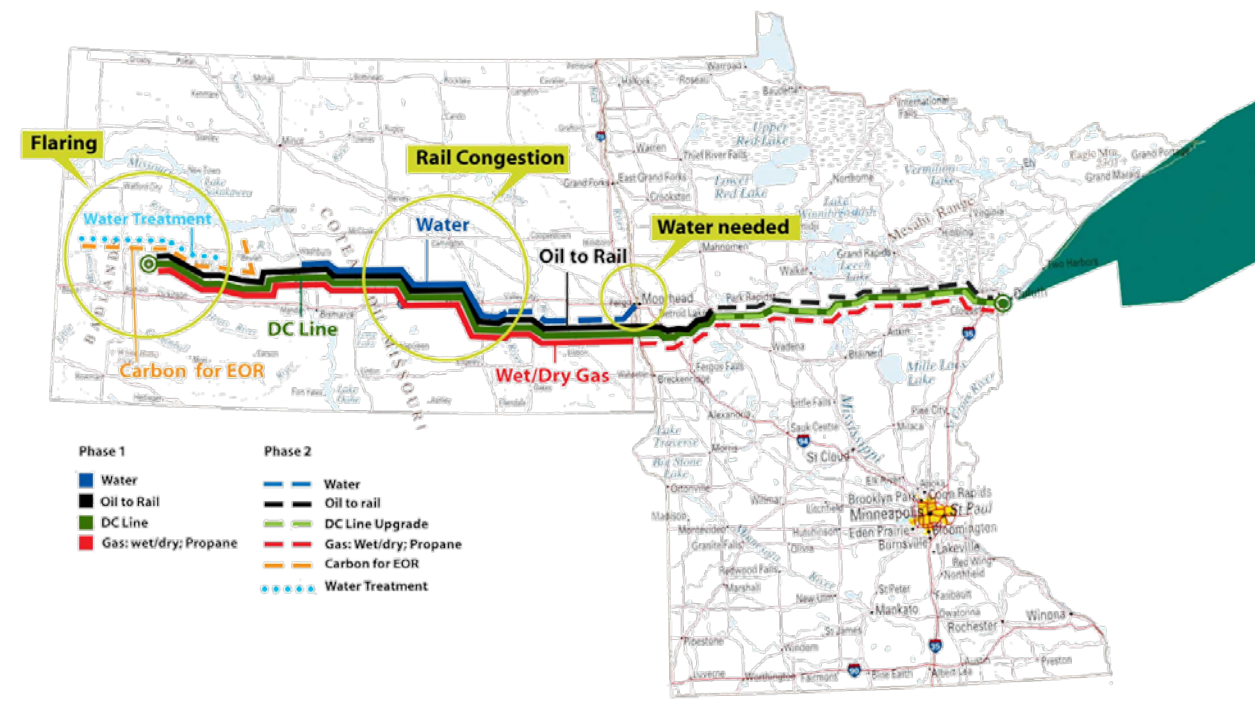
³ *Id.* at 5.

⁴ *Id.* at 9.

⁵ *Id.* at 10.

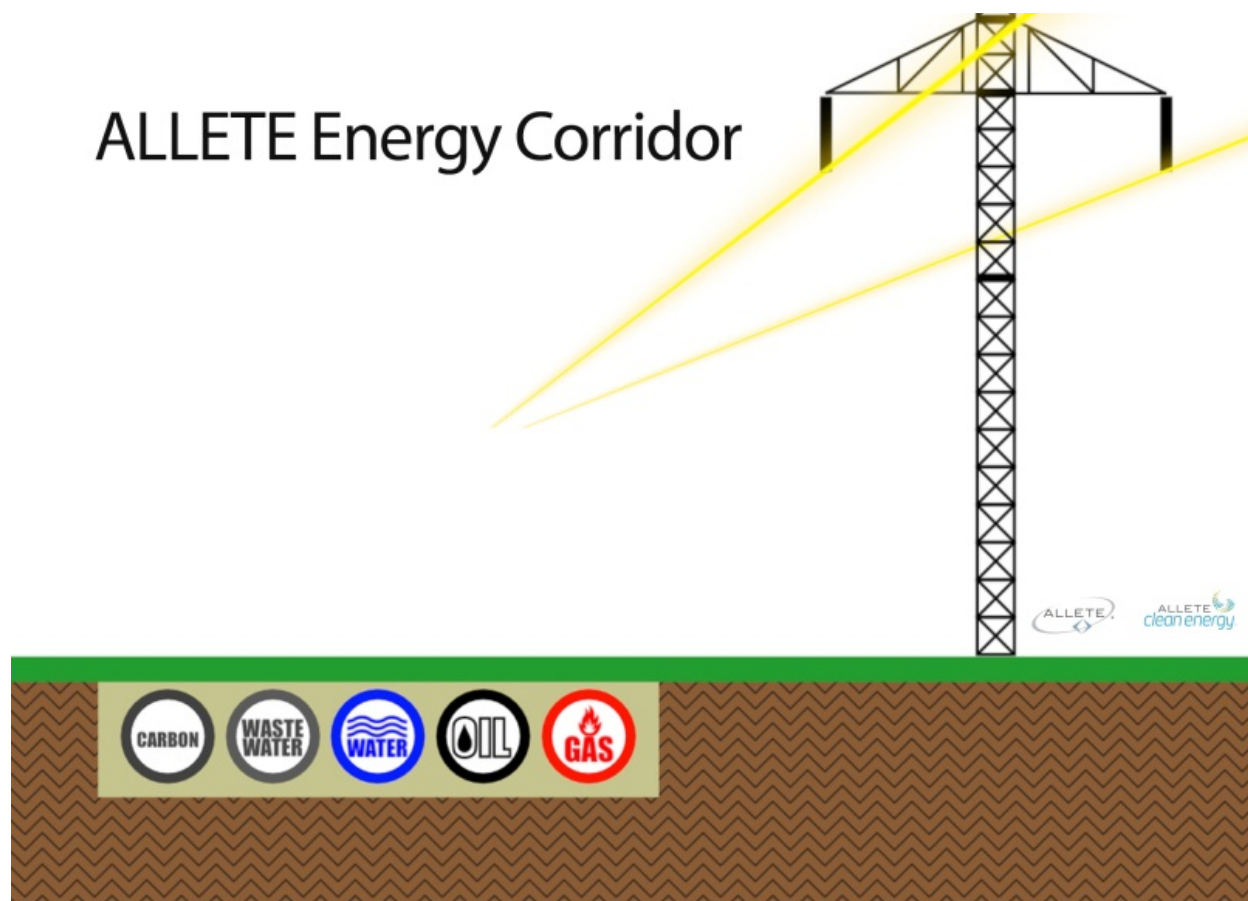
⁶ *Id.* at 11.

Figure 2: The Energy Corridor Project



Unlike existing and traditional energy and energy-related transportation pathways, all of the pipelines that are part of the Energy Corridor Project will be sited on a single right-of-way, adjacent to an existing electricity transmission line. This approach yields not only great efficiency and ease of maintenance and thus a lower overall cost of operation, but also has the significant advantage of substantially reducing the environmental footprint that separate routing of these energy pathways normally entails. All can be sited along a single route, with a single buffer zone that requires less overall land use than alternatives. Figure 3 depicts a typical cross-section of the Energy Corridor Project.

Figure 3: Cross-Section of a Segment of the Energy Corridor Project



In addition, because the Energy Corridor Project will be sited along a single right-of-way, fewer property owners will be affected by the project. Thus, the socioeconomic impacts of these critical infrastructure improvements can also be minimized.

Finally, the Energy Corridor Project provides options for the production and use of cleaner energy, by providing a major new natural gas pathway to population centers in North Dakota. This could allow for the future displacement of diesel fuel by cleaner-burning liquefied natural gas for use in the mining industry and cleaner generation of electricity. It will also provide new opportunities for economic growth in the State, by providing more access to lower-cost natural gas and opening up the possibility of development of gas processing operations in the State and the development of businesses that use natural gas liquids.

Through the remainder of 2014 and into 2015 ALLETE Clean Energy will work with North Dakota, Minnesota, local and federal agencies to further explore the regulatory requirements necessary to obtain permits to develop the various pipelines that will be part of the Energy Corridor Project. In 2015 and 2016, ALLETE Clean Energy plans to work with producers in the Bakken region, with North Dakota officials, and with investors and partner companies to develop specific projects that are part of the Energy Corridor.

How the Energy Corridor Project Helps the Quadrennial Energy Review Meet its Goals

The Energy Corridor Project fits ideally with the goals of the Quadrennial Energy Review and would be an excellent pilot project for the QER.

First, the Energy Corridor Project addresses the identified need for additional infrastructure and transportation capacity to move oil and natural gas produced in the Bakken region to refiners and markets located elsewhere. It thus enhances energy security by providing route diversity and, at the same time, reduces both pipeline and rail congestion, freeing existing rail lines for the transportation of agricultural goods. It also reduces the likelihood of catastrophic accidents that unfortunately accompanies the rail transport of oil.

Second, the Energy Corridor Project provides potential new outlets for natural gas that is produced as a byproduct of oil extraction activities in the Bakken. Rather than being flared, the addition of the additional transport capacity provided by the Energy Corridor Project will allow that gas to be transported to markets where it may be used. This will result in energy security benefits, economic benefits, and environmental benefits.

Third, the Energy Corridor Project provides pathways for the transport of wastewater from production sites in the Bakken region to existing wastewater treatment plants located further to the east in North Dakota. Eventually, the Energy Corridor Project will also include a pathway for the transport of fresh water from the Missouri River in the west to Fargo in the east, and for piping water to the Bakken region, thus reducing or eliminating the need to truck fresh water to that region.

Fourth, the Energy Corridor Project provides a significant part of the solution for the carbon capture, storage and utilization technologies that the Administration has identified as part of its Climate Action Plan. Specifically, the Energy Corridor Project will provide a way for carbon dioxide produced by power plants on the eastern reaches of the Project to be transported to the oil fields of the Bakken formation. There, it can be productively used for enhanced oil recovery operations.

In these ways, the Energy Corridor Project addresses many of the concerns of motivating the Quadrennial Energy Review. It adds critical energy transport infrastructure and enhances energy security. It provides energy transport pathways that are robust, flexible, and scalable according to demand over time. It helps to address the issue of greenhouse gases and climate change. It minimizes environmental and socioeconomic impacts associated with energy production. Finally, and critically, it provides a model that can be scaled and used to fit almost any area in the Nation, providing the same types of benefits the Energy Corridor Project will provide to North Dakota and Minnesota.

How the Quadrennial Energy Review Can Help the Energy Corridor Project

ALLETE Clean Energy appreciates the opportunities it has already had to discuss the Energy Corridor Project with members of the QER Task Force. We were delighted to be able to brief Dr. Jonathan Pershing of the U.S. Department of Energy and his staff on April 17, 2014, and we were pleased to be able to address the QER Task Force again at the August 8 stakeholder meeting in Bismarck, North Dakota. We appreciate these opportunities not only because we believe that the Energy Corridor Project is an important part of the solution to the challenges the QER has identified, but because the Energy Corridor Project and similarly-situated projects can benefit from the assistance that the QER can provide.

One of the identified goals for the QER is to make recommendations regarding changes in federal rules and policies that will aid in the development of the necessary energy infrastructure. For multi-pathway projects such as the Energy Corridor Project, one daunting obstacle is the myriad and potentially competing environmental reviews that must be carried out, usually by several distinct federal agencies, each with jurisdiction over a separate pathway, before construction may begin and operations commence. For instance, under the National Environmental Policy Act, federal actions such as permit issuance require procedural review to determine whether they may significantly affect the quality of the environment and, if so, whether alternatives have been considered. Many States have similar environmental assessment requirements. Given the multiplicity of federal and state permitting authorities involved, the benefits and advantages of coordinated, programmatic review under the direction of a single, lead agency cannot be overstated. The QER could provide important leadership and guidance in ensuring that innovative projects like the Energy Corridor Project receive such programmatic review.

The QER can also help by raising the profile of the Energy Corridor Project and similar projects, thus encouraging investment and development of this and other forward-thinking projects. One way to do so is by identifying the Energy Corridor Project as a pilot or demonstration project for the QER. Another is by including it as an example of the types of projects that the federal government believes should be developed and encouraged.

ALLETE Clean Energy is excited about the benefits its Energy Corridor Project will bring to the Nation, in terms of enhanced energy security, opportunities for economic growth, and environmental improvements. We thank the QER for the opportunity to present this important project to you, and we look forward to working with you to fulfilling the mission of the QER to improve the Nation's energy infrastructure.