

North Dakota Transmission Authority Annual Report Update

Presented to the Energy Development and Transmission Committee
October 14, 2015

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Director

2014-15 Summary

- Annual Report
 - New transmission brought into service in 2014-15
 - Southwest Power Pool integration brings virtually all of North Dakota under Regional Transmission Organizations
 - Environmental regulations changing the electric power landscape

Project Updates

- CapX 2020
 - Fargo-Monticello 345kV line, placed into service on April 2nd
 - Brookings County-Hampton line, placed into service on March 26th
 - Remaining projects expected to be complete by 2017

Project Updates

- Center to Grand Forks Line
 - Placed into service in August 2014
 - 250 miles, longest line in state history that begins and ends within the state
 - \$353 million, largest capital investment in Minnkota's history

Project Updates

- Basin Western North Dakota Project
 - Construction begun on 200 mile AVS-Neset line
 - 140 miles expected to be complete and energized in October 2015
 - Remaining segments complete by 2017

2015 Legislative Session

- HB 1382 – Provided for a right of first refusal for the construction of transmission lines for cooperatives, and other utilities. Allows incumbent ND utilities the right to construct and operate transmission facilities that are deemed necessary by an RTO
- HB 1432 – Established Federal Environmental Law Impact Review Committee to review federal regulations – i.e., Waters of the U.S. – that will impact construction of transmission
- SB 2372 – Legislative study of Clean Power Plan

NDTA continues to explore and discuss potential issues for the 2017 legislative session to facilitate transmission construction, as well as operation and maintenance of existing lines

What's on the Horizon

Clean Power Plan

- Final rule quadrupled ND's target for CO₂ emissions reduction
- If rule stands as-is, will require significant buildout of new, renewable generation, numerous issues remain to be seen with impacts on transmission grid
- NDTA will work with MISO and SPP in the process of analyzing impacts on regional transmission



NORTH DAKOTA

Transmission Authority

Annual Report

July 1, 2014 - June 30, 2015

OVERVIEW

The North Dakota Transmission Authority (Authority) was created by the North Dakota Legislative Assembly in 2005 at the request of the North Dakota Industrial Commission. The

Authority's mission is to facilitate the development of transmission infrastructure in North Dakota. The Authority was established to serve as a catalyst for new investment in transmission by facilitating, financing, developing and/or acquiring transmission to accommodate new lignite and wind energy development. The Authority is a builder of *last resort*, meaning private business has the first opportunity to invest in and/or build needed transmission.

By statute the Authority membership is comprised of the members of the North Dakota Industrial Commission. Andrea Stomberg was appointed Director of the Authority in March, 2014 and served in that capacity through December 2014. The Director works closely with the Executive Director of the NDIC, Ms. Karlene Fine. The Authority has no other staff, and receives no direct general fund appropriation

SUMMARY OF ACTIVITIES

Whether the issue is project development or legislative initiatives, the Authority is actively engaged in seeking ways to improve North Dakota's energy export capabilities along with transmission capabilities within the state. To be successful Authority staff must have an understanding of the technical and political challenges associated with moving energy from generator to satisfied customer. Outreach to existing transmission system owners and operators and potential developers in order to understand the nuances of successful transmission infrastructure development is necessary.

Another key element for success is working with elected officials at the state and federal levels to ensure that legislation and public policy are designed to support the movement of electricity generated from North Dakota's abundant energy resources to local, regional and national markets.

North Dakota Industrial Commission



Jack Dalrymple
Governor



Wayne Stenehjem
Attorney General



Doug Goehring
Agriculture Commissioner

North Dakota Transmission Authority



Andrea Stomberg
Director

STATUTORY AUTHORITY

Statutory authority for the Transmission Authority is found in chapter 17-05 of the North Dakota Century Code. Section 17-05-05 N.D.C.C. delineates the powers of the Authority, including:

- 1) make grants or loans to borrow money;
- 2) issue up to \$800 million in revenue bonds;
- 3) enter into lease-sale contracts;
- 4) own, lease, rent and dispose of transmission facilities;
- 5) enter into contracts to construct, maintain and operate transmission facilities;
- 6) investigate, plan, prioritize and propose transmission corridors; and
- 7) participate in regional transmission organizations.

Before the Authority may exercise its power to construct transmission facilities, it must follow a process defined by statute to ensure public participation and comment. In particular, the Authority must publish a notice describing the need for the transmission project. Entities interested in construction of the facilities or furnishing services to satisfy the identified needs have 180 days to respond by filing a notice of intent. If the Authority receives a notice of intent from an interested entity, it may not exercise its power to construct unless the Authority makes a finding that doing so would be in the public interest. In making such a finding, the Authority shall consider the economic impact to the state, economic feasibility, technical performance, reliability, past performance, and the likelihood of successful completion and ongoing operation.

The Authority may finance approved projects through the issuance of bonds. Under current law, up to 30 percent of the cost of a project may be financed by selling bonds that include the moral obligation of the State of North Dakota. In other words, up to \$240 million of the Authority's \$800 million total bonding authority may be sold with the moral obligation of the state. The moral obligation component enhances the marketability of the Authority's bonds.

KEY ELEMENT: PLANNING

Achieving a high-level understanding of regional transmission planning represents a major portion of the Authority's workload. This is accomplished through participation in the regional planning efforts of entities such as the FERC-recognized regional transmission organizations (RTOs) representing North Dakota transmission owners and developers. RTO members and stakeholders determine how to improve the country's transmission infrastructure, remove transmission "bottlenecks" and how to improve the transmission of energy, including low-carbon and zero-carbon energy, from production areas to major load centers. The RTOs screen, model and propose cost-effective transmission projects to enhance regional energy movement.

- **MIDCONTINENT INDEPENDENT TRANSMISSION SYSTEM OPERATOR (MISO) TASK FORCES**

The MISO supports a number of task forces and study groups that evaluate the feasibility of new lines and line upgrades designed to facilitate the interconnection of both traditional and renewable energy in the MISO footprint. These are approved as part of the Midwest Transmission Expansion Projects or as Multi-Value Projects (MVPs).

The transmission lines identified by the MVP studies are lines that are expected to have significant economic and reliability benefits to MISO customers. The significance of a transmission project being identified as an "MVP line" is that the cost of building the line will be allocated across the MISO footprint. Of particular importance to North Dakota are the Ellendale to Big Stone, the Big Stone to Brookings and Brookings to Twin Cities MVP lines which are in the permitting process or under construction. Numerous other projects are under active consideration in the MISO West area to upgrade or build new transmission or substation facilities (www.misoenergy.org). MISO west includes portions of Montana, North Dakota, Minnesota, Iowa and Wisconsin.

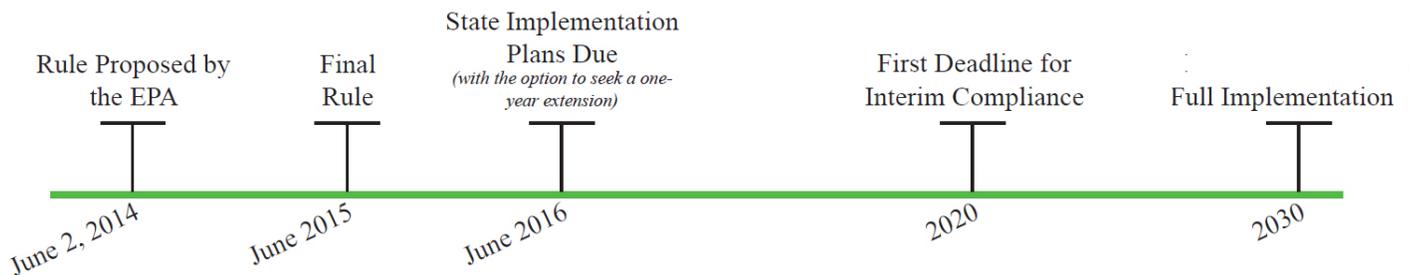
Detailed planning of electrical infrastructure in the MISO footprint, which covers the service territories of Otter Tail Power (OTP), Montana-Dakota Utilities (MDU), Great River Energy (GRE), Xcel and Missouri River Energy Services (MRES) in North Dakota, is actively managed by the technical taskforces at MISO, and cost-effective and timely solutions are approved by the MISO board. With the announcement that Western Area Power Administration

(Western) and Basin Electric Power Cooperative (BEPC) intend to join the FERC - approved RTO, the Southwestern Power Pool (SPP) by October, 2015, similar infrastructure planning and cost sharing will be available to these entities. As a result, sophisticated transmission planning by RTOs will cover the entire state of North Dakota, as well as much of the surrounding states.

Proposed in June 2014, the EPA's Clean Power Plan mandates a 30 percent reduction in carbon dioxide levels from 2005 levels by 2030. The EPA has proposed an eleven percent reduction target for North Dakota, which will have significant impacts on power generation in the state. MISO's initial analysis of the proposed rule predicts 14 gigawatts of coal-fired capacity being retired, with an additional 25 percent of remaining coal generation being converted to natural gas, and renewable generation increasing from 4 to 15 percent.

The state is represented in the Organization of MISO States (OMS), as well as by MISO members who will participate in MISO modeling and review of the final rule. The OMS is a not-for-profit association comprised of retail energy regulators within the MISO region, consumer advocates, energy planning offices, and agencies involved in energy related environmental issues. The purpose of the OMS is to coordinate regulatory oversight of wholesale matters by making recommendations to MISO management and staff, the MISO Board, FERC, other government entities and state commissions as appropriate, as well as intervene in proceedings before FERC and the courts as appropriate.

While the EPA's rule does not impact transmission directly, it will impact how transmission is utilized, and could bring a need for new transmission depending on how North Dakota's existing generation plants are dispatched and new generation is developed to comply with the rule. The final rule is expected to be released late summer 2015.



KEY ELEMENT: OUTREACH

A significant element of the Authority's mission is to solicit ideas from interested parties regarding solutions to transmission expansion issues in North Dakota. Outreach can occur through one-on-one contacts or by participation in organizations and programs designed to bring a wide variety of people and groups together to share ideas and develop solutions.

A number of issues that may have legislative or regulatory remedies have been brought to the attention of the Authority, and are still being considered. These include streamlining the Public Service Commission siting regulations, modification of rights-of-way tenure for public utility infrastructure in North Dakota, and concerns about US Fish and Wildlife Service guidelines related to marking of transmission lines within whooping-crane migration areas. While some of these issues were discussed during the 2015 legislative session, it was determined that immediate action was not necessary and the Authority continues to gather additional information for potential legislative proposals for the 2017 session.

Transmission Updates

There are a number of transmission projects underway that will expand transmission available to North Dakota generators. These are summarized briefly below.

- **CapX 2020**

CapX2020 is a Minnesota-based initiative of 11 utilities to expand the transmission grid to ensure continued reliable and affordable service. Planning studies indicated that Minnesota customer demand for electricity will increase 4,000 to 6,000 megawatts (MW) by 2020. New transmission lines designed to meet this increasing demand as well as to support renewable energy expansion will be built in phases. The lines identified in the first phase of the effort include:

- Bemidji-Grand Rapids, 68 miles, 230-kV
- Fargo-St. Cloud-Monticello, 240 miles, 345-kV
- Hampton-Rochester-La Crosse, 150 miles, 345-kV
- Brookings County-Hampton, 200 miles, 345-kV
- Big Stone South-Brookings County, 70 miles, 345-kV

Of particular interest to North Dakota is the Fargo-St. Cloud-Monticello line. This project was designed to alleviate electric reliability concerns in the St. Cloud, Alexandria and Red River Valley areas, as well as meet the region's projected electric growth and provide an outlet for new generation. The Fargo – Monticello line was placed into service on April 2, 2015.

Also completed in 2015 was the Brookings County-Hampton line, which was placed into service on March 26. All remaining projects are expected to be complete by 2017.

- **Minnkota Power Cooperative Project –**

Construction has been completed on the Center to Grand Forks (CGF) 345-kilovolt Transmission Line, and has been in service since August 2014. The \$353 million, 250-mile line transports energy from the Milton R. Young Station near Center, N.D., to Minnkota Power Cooperative's service territory in eastern North Dakota and northwest Minnesota. The CGF Project is the longest line in state history that begins and ends within the state of North Dakota and is Minnkota's largest capital investment ever in transmission facilities. The project also enabled 500 MW of wind energy to be installed in central North Dakota and transmitted over an existing high-voltage direct current line to northeastern Minnesota. The line will meet Minnkota's obligations as a transmission services provider for grid reliability and long-term load growth needs.

- **Western Area Power Administration**

The Upper Great Plains Region (UGP) of the Western Area Power Administration manages transmission facilities in Montana, North Dakota, South Dakota, Nebraska, Minnesota and Iowa, and markets power from the Pick-Sloan Missouri Basin Program-Eastern Division. UGP transmission facilities are integrated with the transmission facilities of Basin Electric Power Cooperative and Heartland Consumers Power District to form the Integrated System (IS). The IS owners are continuing the process of joining the regional transmission organization (RTO) Southwestern Power Pool (SPP) with full integration by October, 2015.

- **Xcel Energy Transmission Development Company -**

Xcel Energy Transmission Development Company, LLC (XETD) received a conditional approval in November of 2014 for a transmission Formula Rate for inclusion in the MISO Open Access Transmission, Energy and Operating Reserve Markets Tariff. XETD is a transmission-only company established by Xcel Energy Inc. in April 2014 to, among other things, develop and own transmission projects in the MISO region. The development of the FERC Order 1000 competitive process in MISO is nearing completion. The first competitive project in the MISO region is expected to be put out for bid in January 2016. The project will be located in Southern Indiana and Northern Kentucky.

- **Big Stone South to Ellendale (BSSE) –.**

The Big Stone South to Ellendale MVP line is a 150-175 mile transmission line from the proposed Big Stone South substation to the proposed Ellendale substation near Ellendale, North Dakota. Montana-Dakota Utilities Co. and Otter Tail Power Company will jointly own the line. MISO has scheduled the line to be in service by 2019. Environmental surveys and other analysis continue on-schedule, with construction expected to begin early 2016.

- **Basin Electric Power Cooperative Western ND Project**

In response to growth in western North Dakota related to oil and gas development, Basin Electric has completed the necessary studies for the construction of a 200-mile 345-kv line from the Antelope Valley Station (AVS) to connect to substations near Grassy Butte and Williston, and end near Tioga, North Dakota at the Neset 345-kV Substation.

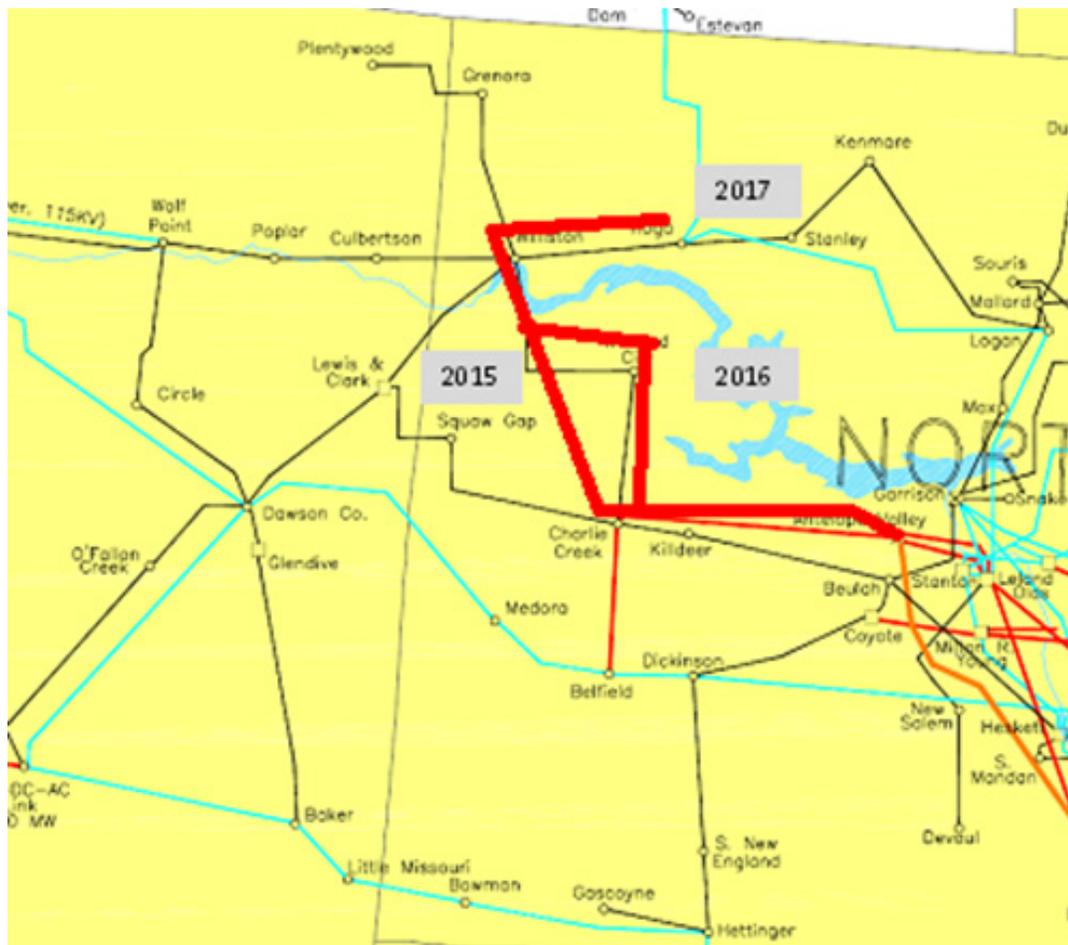
Construction on the AVS to Neset 345-kV line began in 2014. 140 miles is expected to be completed to the Judson (Williston area) substation and energized by fall 2015. Remaining segments to Neset are expected to be completed by 2017. Basin Electric is also in the process of securing easements to complete phase 2 of the North Killdeer Loop, which would connect substations at Round Up (Killdeer area) and Patent Gate (Watford City area). Completion of the North Killdeer Loop Phase 1 is expected by fall 2016, and North Killdeer Loop Phase 2 of the end of 2017.

- **ALLETE Energy Corridor**

ALLETE Clean Energy continues to develop the concept of a comprehensive energy corridor that would utilize existing pathways to efficiently move natural gas, petroleum products, water and wastewater, wind energy and potentially carbon dioxide captured from coal-fired power plants.

The backbone of the energy corridor would be an existing 465-mile path that contains a direct current transmission line running between Center, North Dakota, and Duluth, Minnesota. The energy corridor may parallel adjacent right of way along this existing path, as well as a potential addition that would extend some 60 miles west to the Bakken shale oil fields.

AVS to Neset Line, including North Killdeer Loop



KEY ELEMENT: GOVERNMENT ACTION

Providing elected officials with the information necessary to make informed decisions is another function of Authority staff. Whether the issue is setting state energy policy regarding transmission development or commenting on federal transmission legislation, the Authority serves as a resource for decision-makers. In the last year the Authority was busy on several fronts working with the following entities: the EmPower NDND Commission, Governor's Office, Department of Commerce, and the ND Public Service Commission.

- **EMPOWER ND COMMISSION**

The Authority was an active participant in the EmPower ND Commission work. Authority activities included briefing the Commission on transmission issues in North Dakota and participating in the design of Commission goals. In the 2014 EmPower ND report the EmPower Commission highlighted infrastructure needs in North Dakota.

- **INTERAGENCY COORDINATION**

As important as everything else discussed in this report, is the coordination of efforts among the various government entities with an interest in transmission development. In particular, meetings are held with the representatives from the Public Service Commission to discuss the status of transmission projects. On occasion other offices request technical support and policy guidance from Authority staff.

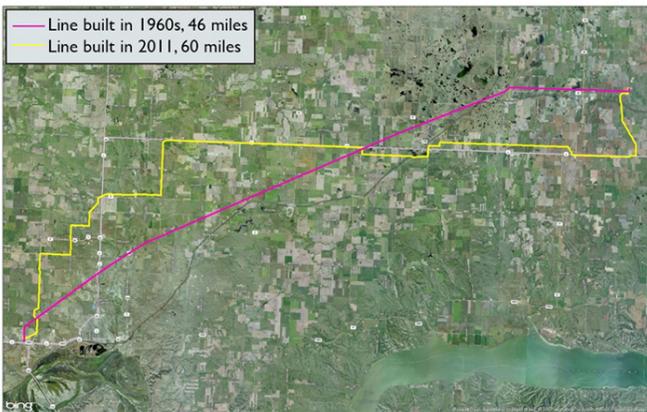
- **WESTERN NORTH DAKOTA ENERGY DEVELOPMENT INFORMATION EXCHANGE COUNCIL**

At the request of the Governor, Basin Electric, MDU and the Transmission Authority serve on the Western North Dakota Energy Development Information Exchange Council. The purpose of this Council is to serve as a conduit for the exchange of future energy development plans in the Williston Basin. Other members of the Council include several oil and gas companies and representatives from the NDDOH, DOC, Division of Mineral Resources and State Water Commission.

CONCLUSION

The expansion of transmission capacity in the State of North Dakota was one of the key reasons for the creation of the Authority in 2005. As many in North Dakota have discovered there are no easy answers to the perplexing questions of how to quickly expand transmission infrastructure in order to export more energy from our state. Changes to the transmission system must be made with great care to ensure the reliability of the existing system and to maintain the ability of the system to provide electricity to its customers 24 hours a day, 7 days a week.

The below figure depicts how construction of transmission lines has become increasingly complex. Regulatory challenges, as well as right-of-way acquisition and landowner fatigue, have significantly increased costs and siting of new transmission. Today, the cost to construct a new high-voltage line is approximately \$1-1.5 million per mile.



The Authority has identified regulatory changes that should be considered to ease transmission development in the state, and to reduce incentives to locate transmission outside the state's boundaries. Long term, transmission builders and wildlife interests need to develop reasonable and workable guidelines or rules to protect migratory birds while allowing transmission development within migration corridors. Protection of incumbent transmission owners and developers

as MISO identifies future transmission lines to be built within the state will be important.

Federal regulations, such as the EPA's Waters of the U.S. rule, and the Clean Power Plan will significantly impact generation in the state and the region, and likely change transmission requirements, use, and construction of lines. In response to these challenges, the North Dakota legislative assembly established the Federal Environmental Law Impact Review Committee, comprised of the North Dakota Agriculture Commissioner and representatives from the Governor's office, legislature, and the state's energy and agriculture industries. This committee will meet regularly to review federal regulations that could bring detrimental impacts to the state and its affected industries, and confer with the Attorney General on potential administrative or judicial remedies.

The North Dakota legislative assembly also considered the proposed Clean Power Plan during the 2015 session and passed legislation requiring a study of the rule's impacts and cost on the state. The Authority will continue to participate with industry and other state entities as this study progresses.

The good news is that new transmission is being built and will continue to be built as the demand for new generation grows not only in the region, but also in the nation. Nearly 400 miles of new transmission has been developed in North Dakota by private investors since the establishment of the Authority, and the North Dakota Transmission Authority will continue to work to help facilitate development.