

## **5.0 Specific Transmission Line Proposals**

### **5.1 Introduction**

The law requiring the utilities to file this Renewable Energy Standards Report requires the utilities to report on specific transmission line proposals that are necessary to meet intermediate RES milestones. A review of Part I of this document – the 2007 Biennial Transmission Projects Report – describes a number of transmission projects that have been completed or are underway or are expected to be under construction in the next few years. All of these lines, of course, improve the reliability and operation of the overall transmission grid in the area. As reported in Section 2 – the Gap Analysis – the utilities expect to be in compliance with 2010 milestones and with the 2012 milestones with modest upgrades in the 115 kV systems. After that point, to 2016 and beyond, study work is underway to establish the transmission infrastructure that will be required to meet those milestones.

There are several specific projects the utilities can report on in this Section that will provide additional outlet capacity from the Buffalo Ridge area to allow for delivery of additional windpower. The projects include the Southwest Minnesota 345 kV project, the BRIGO projects, and the Storden – Dotson project, the CapX 2020 Projects, and the Big Stone transmission project.

### **5.2 Southwest Minnesota 345 kV Project**

This project is a nearly 90 mile long 345 kV line that runs from the Split Rock Substation near Sioux Falls, South Dakota, to the Lakefield Junction Substation in Jackson County, Minnesota. The project also includes a new substation and a short 115 kV line as well as approximately 25 other upgrades to the underlying transmission system. This project is reported at Tracking Number 2003-SW-N4 in the Biennial Report and is actually listed in the completed projects table for the Southwest Zone since the Tracking Number reports on four separate transmission lines and the other three are in operation. The eastern portion of this project is already in service. The remaining western portion of this 345 kV line is under construction, and is expected to be in operation by the summer of 2008. This line, along with the three recently completed 115/161 kV lines in southwest Minnesota, will expand the outlet capacity from Buffalo Ridge to 825 MW and will assist in meeting the 2010 milestone.

### **5.3 BRIGO**

The BRIGO lines – there are three of them – are relatively modest 115 kV lines that will provide additional outlet capacity from Buffalo Ridge. The BRIGO lines have been reported on in other parts of this document, in Part I at Tracking Number 2005-SW-N2 and in Section 3.3.2 of Part II, and the reader is referred to those sections for more information about the BRIGO lines. The three lines are a 115 kV transmission line from Fenton Substation near Chandler to Nobles County Substation, and a 115 kV transmission line from Yankee Substation to Brookings County Substation, and a 115 kV transmission line from Lake Yankton Substation near Balatan to

Marshall Substation. The BRIGO lines will raise the outlet capacity of the transmission system from Buffalo Ridge by approximately 3750 MW and are expected to be in service in 2010.

## **5.4 Storden – Dotson Project**

The Storden – Dotson Project is reported in the Biennial Report at Tracking Number 2007-SW-N1. The utilities most directly involved in this project are Alliant West and Interstate Power and Light Company and Great River Energy.

The utilities will begin a study in early 2008 that will be completed by mid-2008 that will look at additional wind development in the area as well as alternative solutions for serving load.

Studies were completed that recommended that a 161 kV Heron Lake – Storden – Dotson – New Ulm line be constructed with 161/69 kV connections at Storden and Dotson. These studies included a new ethanol load would be added, but is now delayed. In May, 2005 a wind developer placed an interconnection request in the MISO queue for a 130 MW project near Storden, in Cottonwood County in southwestern Minnesota; however, now this project is not fully committed.

The 2008 study described above is needed to assure that the recommendation solution is flexible enough to meet the load serving and generation interconnection needs that are now expected to exist.

## **5.5 Fargo – Monticello 345 kV Project**

As part of the CapX 2020 Group I projects, the CapX utilities have proposed to construct a 345 kV line connecting Fargo, North Dakota with the substation in Monticello, Minnesota. In analyzing the future transmission needs in the state of Minnesota, this line was a common piece of every future transmission vision.

One purpose of this line is to provide community service reliability benefits to communities all along the line's route. The proposed line route includes stops to bolster load-serving capability in the communities of Alexandria and St. Cloud. Because the line crosses the traditional boundary for determining North Dakota generation export (NDEX), installation of the line will mean a likely increase in the amount of generation that can be transferred from North Dakota and northwestern Minnesota to the Twin Cities.

Xcel Energy and Great River Energy, acting on behalf of the CapX 2020 utilities, filed a Certificate of Need for three 345 kV lines with the Minnesota Public Utilities Commission on August 16, 2007. Included in this proposal was the Fargo – Monticello 345 kV line. It is anticipated that obtaining a Certificate of Need and a Route Permit will take until the end of 2009. After the necessary permits are obtained, construction will begin and the utilities plan to have the line in service in 2015.

## **5.6 Brookings, SD to SE Twin Cities 345 kV Project**

Another crucial part of meeting the RES milestones is an increase in generation outlet from the Buffalo Ridge area. Buffalo Ridge generation outlet was recognized as being of critical importance as early as 2001, with the completion of the first Southwest Minnesota transmission studies. As time has gone on and interest in wind generation has grown, additional projects have been pursued (some of which have been described earlier).

After the CapX 2020 Vision Study documented a need for increased generation outlet, a project-specific study was begun that would focus solely on the necessary projects to increase outlet from southwest Minnesota. A series of lower-voltage line rebuilds, as well as capacitor bank installations, and a new 115 kV line was proposed, but the backbone of the plan was a new 345 kV line that stretched from Brookings County Substation in South Dakota to a newly-created Hampton Corner Substation southeast of the Twin Cities. A large portion of this line is proposed to be constructed as a double-circuit 345 kV line in order to increase generation outlet as much as possible. Upon completion of the project, it will be possible to transfer between 1800 and 1900 MW of wind generation from southwest Minnesota and southeastern South Dakota to the Twin Cities.

Xcel Energy and Great River Energy, acting on behalf of the CapX 2020 utilities, filed a Certificate of Need for three 345 kV lines with the Minnesota Public Utilities Commission on August 16, 2007. Included in this proposal was the Brookings County to Southeast Twin Cities 345 kV line. It is anticipated that obtaining a Certificate of Need and a route permit will take until the end of 2009. After the necessary permits are obtained, construction will begin and the utilities plan to have the line in service in 2015 in order to be able to help meet the 2016 RES milestone. As a possible aid to meeting the 2012 RES milestone, Xcel Energy and Great River Energy plan to investigate the possibility of advancing construction of the Lyon County to Franklin portion of the 345 kV line.

## **5.7 Bemidji – Grand Rapids 230 kV Project**

Another part of the CapX 2020 Group I Projects is a 230 kV line from the Wilton Substation just west of Bemidji to the Boswell Substation near Grand Rapids, Minnesota, a distance of approximately 68 miles. This new line will address local load serving issues in the Bemidji area and facilitate development of wind energy in the Red River Valley and eastern North Dakota. The project has the potential to increase North Dakota Export (NDEX) capability. The MISO interconnection and Delivery Service process will allocate this additional capability, and as a result, there is potential to directly benefit renewable generation.

More information is reported in the Biennial Report under Tracking Number 2005-NW-N2 and in Section 5 on the CapX projects.

## **5.8 Big Stone Transmission**

The Big Stone Transmission Project is intended to interconnect the proposed new Big Stone Unit II power plant in South Dakota to the transmission grid through two transmission lines from the generating facility to two substations in Minnesota. One line is a 230 kV line from Big Stone to a substation in Morris, Minnesota, and the other is a line designed for 345 kV capability but initially intended to be operated at 230 kV from Big Stone to a substation in Granite Falls, Minnesota. The new lines are also intended to increase transmission capacity and improve reliability in the area and to expand the ability of the system to provide outlet capacity for wind generation.

More information about the Big Stone lines can be found in the Biennial Report under Tracking Number 2005-WC-N1.