MONTANA-DAKOTA UTILITIES CO.
A Division of MDU Resources Group, Inc.

Before the Public Service Commission of North Dakota

Docket No. PU-16-666

Rebuttal Testimony
of
Darcy J. Neigum

Q. Would you please state your name and business address?

A. Yes. My name is Darcy J. Neigum and my business address is 400 North Fourth Street, Bismarck, North Dakota 58501.

Q. By whom are you employed and in what capacity?

A. I am the Director of System Operations and Planning for Montana-Dakota Utilities Co. (Montana-Dakota), a Division of MDU Resources Group, Inc.

Q. Are you the same Darcy J. Neigum who filed direct testimony earlier in this proceeding?

A. Yes, I am.

Q. What is the purpose of your rebuttal testimony in this proceeding?

A. I am responding to the testimony submitted by Richard A. Polich on behalf of the North Dakota Public Service Commission Advocacy Staff (Advocacy Staff) in regard to Mr. Polich's recommendation that $12.27 million of Montana-Dakota's cost for the Lewis & Clark RICE project be disallowed. Montana-Dakota was facing the potential interruption of 45 MW of customer load and a solution was required to avoid that situation.

Montana-Dakota's obligation to serve customers demanded the need to take actions necessary to avoid service interruptions beginning with the winter of 2015-2016. As further discussed in my testimony, Montana-Dakota does not serve the oil field load in the Bakken Region and any service interruptions would have affected residential customers and businesses that would have been harmed if interrupted in cold weather conditions. I am sponsoring Exhibit No.___ (DJN-2), February 4, 2016 slide presentation I sponsored originally at the February 4, 2016 public hearing in North Dakota Case No. PU-15-704.

I will also address Advocacy Staff witness Sara Cardwell's testimony regarding the recovery of MISO Schedule 24 through the Fuel and Purchased Power Adjustment.

Q. When did the Company start to see customer growth on its electric system as a result of the Bakken oil development?

A. Montana-Dakota started to see electric load growth in the Bakken Region with the winter of 2011-2012.

Q. What impacts did the Bakken load growth cause on the Company's electric system and the overall area?

A. Montana-Dakota primarily serves electric customers within the communities located in the Bakken Region such as Williston, Watford City, Tioga, Stanley, Kenmare, and Sidney, MT. Montana-Dakota serves very little direct oil and gas production facilities. Therefore the electric load growth that Montana-Dakota needed to serve in the Bakken Region was mainly residential, municipal, and commercial loads which accounted for

less than ten percent of the total electric load growth within the Bakken Region.

This load growth within the Bakken Region drove the need for additional load serving capabilities including local transmission and new distribution facilities. As the Commission is aware, Montana-Dakota is dependent on transmission facilities owned by Western Area Power Administration (Western) and Basin Electric Power Cooperative (Basin Electric) for bulk delivery of power into the Bakken Region.

The level of growth within the Bakken Region caused many impacts to local communities, local governments, and energy suppliers like Montana-Dakota. One of the major factors that impacted planning efforts for the Bakken Region was the development of accurate forecasts of growth potential including areas where those developments would occur.

Q. Describe the load forecast efforts that the Company undertook to accept for the rapid development of the Bakken Region.

A. Following the winter of 2011-2012, when it was evident that the growth in the Bakken would be a long-term and impacting event, Montana-Dakota developed a community-by-community load forecast for those communities within the Bakken Region. This forecast was developed in consultation with local employees and local community governments and businesses.

Q. Did you undertake any studies to assist in the development of the load forecast for this area?

A. Yes, to better understand the load growth potential of the Bakken Region, the North Dakota Industrial Commission in partnership with Basin Electric and Montana-Dakota, contracted with KLJ Engineering to conduct an independent load forecast for the Bakken Region. This electric load forecast, which was completed in October, 2012, looked at both direct and indirect load growth potential over a 20 year period.

The KLJ load forecast largely confirmed the assumptions that Montana-Dakota had made regarding load growth potential within the Bakken Region as it pertained to population growth, housing needs, and communities impacted.

Because Montana-Dakota is not the only electric load serving entity with the Bakken Region, the load forecasting capabilities of Basin Electric and its members was a critical component of the overall transmission plan for the region, especially since Montana-Dakota is transmission dependent on Western and Basin Electric in the Bakken Region.

Q. Did Montana-Dakota's load forecast for the Bakken Region change over time?

A. No, the Company's community-by-community forecast remained fairly accurate without changes up to the point when development in the Bakken Region started to scale back with falling oil prices.

Q. How did the rural electric cooperative (REC) load forecasts change?

A. The REC load forecasts were generally more short-term in nature and did not accurately calculate the growth and longer term impacts of the oil boom within the Bakken Region. The local RECs electric load forecasts

continued to change every year with bigger and bigger impacts on the overall Bakken Region.

The level and impact of the REC forecast changes can be seen in the February 4, 2016 slide presentation, included as Exhibit No.___(DJN-2), from the Company's Generation Resource Recovery Rider filing in ND PSC Case PU-15-704.

On the top slide on page 7 of Exhibit No.___(DJN-2), the electric loads of Xcel Energy and Montana-Dakota are represented by the purple and rose colors at the bottom of the graph. The remainder of the load on the graph is the RECs.

The graphs on pages 8-10 of Exhibit No.___(DJN-2), show how these forecasts changed over time and what transmission upgrades and local generation resources were needed to meet the system intact load forecast requirements for the Williston Load Pocket area of the Bakken Region.

The top graph on page 10 shows the Williston Load Pocket area of the Bakken Region being limited on transmission capability to meet the customer load forecast for the Winter of 2015-2016, even with local generation running, with a one year delay in the AVS to Nesset 345kV transmission line. Note, a loss of the AVS to Nesset 345kV transmission line during the Winter of 2015-2016 would look like the one year delay scenario from a transmission serving capability standpoint.

Q. What percentage of new load did Montana-Dakota serve in the Bakken Region as compared the RECs?

A. On average, Montana-Dakota served less than ten percent of the total new electric load growth with the Bakken Region with the majority of the new electric load growth served by the local RECs.

Q. What were the impacts of the changes to the REC load forecasts?

A. The rapid and continued increasing annual electric forecast updates for the local RECs put continued strain on the bulk transmission system in the Bakken Area. This included the need for Basin Electric and its members to install new reactive energy support devices, local generation resources, and implement an under voltage load shedding protection scheme which included the customer load of Montana-Dakota. These impacts and mitigations can be seen in the graphs on pages 7-10 of Exhibit No.___(DJN-2).

Q. Would you please describe Montana-Dakota's transmission arrangements in the Bakken Region?

A. Montana-Dakota had a transmission service agreement with Western, which terminated on December 31, 2015. This transmission service agreement allowed Montana-Dakota and Western to utilize each other's electric transmission system up to certain historic load serving levels. Western owned most of higher voltage transmission facilities in the Bakken Region which made Montana-Dakota dependent on the electric transmission system of Western and Basin Electric.

As Montana-Dakota's electric load in the Bakken Region grew above the historic load serving levels in the Western transmission service

agreement, Montana-Dakota was required to take transmission service for all new load growth under Western's open access transmission tariff.

Q. How did Western manage impacts of the load growth on their system?

A. Starting with the winter of 2012-2013, Western implemented a 'Network Load Curtailment/Restoration Procedures' to account for network load increases that were above the transmission system capabilities in the Bakken Region. This procedure set priorities of load service and mitigation responsibilities for customer loads, including Montana-Dakota's, consider less than firm because of insufficient time to build transmission facilities to account for load growth within the Bakken Region.

Q. How did Montana-Dakota manage customer curtailment risks associated with less than firm load growth?

A. Montana-Dakota had approximately 45 MW of customer load which was considered less than firm by Western and Montana-Dakota was able to initially manage the risks of potential load curtailments under the 'Network Load Curtailment/Restoration Procedures' through (1) customer demand response programs, (2) the addition of three 2 MW generators, (3) the contract of 4 MWs of standby generation from the Williston Water Treatment Plant, (4) the ability to run Lewis & Clark Station on natural gas at times to increase the MW capacity of the facility, (6) the ability to shift some customer load around the area, and (7) purchases of capacity and redispatch energy from Basin Electric until such time as Western and

Basin Electric completed the 345kV transmission project from Antelope Valley Station to Williston and Tioga (AVS to Nesset).

Q. Why didn't the Company just continue the redispatch energy arrangement with Basin Electric?

A. In July of 2014, Montana-Dakota received notice from Western and Basin Electric that the REC load forecasts in the Bakken Region were continuing to increase and that delays with the 345kV transmission from AVS to Nesset would likely cause load curtailments for the 2015-2016 Winter load season under both system intact and contingency load serving conditions. The L&C RICE units were needed to meet the Company's growing load service requirements under the 2013 IRP and to meet the local load serving requirements of the Bakken Region beginning with the Winter Season of 2015-2016 and beyond.

The completion of the AVS to Nesset 345kV line would not solve all of the transmission capability issues as a loss of the AVS to Nesset 345kV line put the region in the same position it was in prior to the construction of the transmission line.

Q. Did the addition of the AVS to Nesset 345kV transmission line cure all of the reliability issues in the Bakken Region?

A. No, the Bakken Region is transmission dependent with the majority of energy imported into the area with only four transmission lines rated at 230kV and above. The loss of one of these 230kV and above transmission lines, especially the AVS to Nesset 345kV transmission line, puts the

region into transmission constraints on-peak which requires the need for local generation or load curtailments to maintain safe operating conditions.

Western and Basin Electric are working on an additional 345kV transmission line into the Bakken Region which will further improve the transmission capability in the area.

Q. What other options did the Company consider versus constructing the RICE units?

A. Montana-Dakota visited with Basin Electric on the potential partnering in new generation within the Bakken Region to be able to achieve cost savings with economies of scale in constructing a larger plant. Basin Electric had already constructed 200 MW of peaking generation in the Bakken Region and their next generation addition would not be until the summer of 2016 due to permitting and construction schedules. At least one of Basin Electric's primary locations for additional generation was interconnected to one of their REC member's high voltage distribution facilities which Montana-Dakota was unable to get transmission service back to MISO because the facilities did not fall under open access and the REC did not want to provide Montana-Dakota with transmission service.

Montana-Dakota also considered the construction of additional MISO transmission facilities into the Bakken Region but costs and schedules associated with construction of new transmission back to a MISO transmission facility were prohibitive.

Q. Why didn't the Company construct the larger 36 MW plant identified in the 2013 IRP?

A. Montana-Dakota had approximately 45 MW of customer load in the Bakken Region that was considered less than firm by Western. In previous years, Montana-Dakota was able to purchase redispatch generation services from Basin Electric on an available basis. Montana-Dakota primarily used this redispatch generation service to cover its less than firm requirements and planned to utilize the standby generation, L&C on natural gas, moving load within its system, and demand response programs to minimize the remaining impacts of customer load curtailments in the Bakken Region.

With the Basin Electric redispatch generation not being available for the winter of 2015-2016 because of its members load growth, Montana-Dakota determined that the amount of generation that was needed to be a first run peaking resource was approximately 20 MW. The 20 MW peaking resource size would be more expensive on a per unit cost than a larger project, but it would be a lesser overall cost than a larger project. Also, the permitting, construction activity and interconnection requirements would be less for a small project than a larger facility which would allow Montana-Dakota the ability to construct the 20 MW project before the winter of 2015-2016.

Q. While the 2013 IRP identified the need for peaking capacity in 2015, did the Company's recommended Future Resource Plan at that time

include the construction of RICE units for the 2015-2016 winter season?

A. No. The 2013 Action Plan indicated the need to further study the need to install generation in the Williston, North Dakota area. The Company apprised the Commission of the need to consider the installation of smaller RICE units earlier than expected in an informational update meeting held in early May of 2014. This need was confirmed with Basin Electric's 2014 forecast and communications as provided in Exhibit No. ___(DJN-2). Subsequent updates were provided to the Commission in February 2015 and July 2015 where the Company discussed the construction of the RICE units underway at an estimated cost of $40 million.

Q. In summary, as a resource planner with the obligation to serve customers, was construction of the L&C RICE units the best course of action given the conditions facing the Company in mid-2014?

A. Yes. Montana-Dakota's customers were facing a very real threat of being curtailed during the winter of 2015-2016 without the Company taking measures to ensure continuation of service. The options available were limited due to the time frame in which this needed to occur and the previous efforts that the Company had already undertaken to mitigate impacts in the past including: entering into energy purchase arrangements, increasing demand response programs, installing portable generators, executing customer standby generation agreements, utilizing redispatch service agreements, running L&C on natural gas if needed,

shifting customer load where possible, and considering Company owned transmission alternatives.

Mr. Welte will address why the alternatives identified by Mr. Polich would not have met that need or would have been available at a lesser cost than the RICE units that are installed and providing service today.

The Company should not be penalized now for taking the actions necessary to safely and reliably serve customers in a reasonably economic manner given the conditions facing Montana-Dakota and all service providers at that time.

Q. In Ms. Cardwell's testimony she describes the MISO Schedule 24 charge as a MISO administrative charge. What is the basis for the MISO Schedule 24 charge?

A. MISO Schedule 24 is a recovery of local balancing authority (LBA) costs incurred by LBA's, like Montana-Dakota, which include daily operation and maintenance costs, administrative and general costs, capital costs, costs for systems-in-place, training of personnel, and any other costs that result from the performance of obligations imposed by MISO's Tariff on LBAs. Montana-Dakota receives revenues through Schedule 24 for services as a MISO LBA that it provides and Montana-Dakota receives charges from neighboring LBA's for services that they provide to Montana-Dakota.

MISO Schedule 24 charges are allocated based upon volumes of customer load and generation within an LBA.

Q. When did Montana-Dakota begin including MISO Schedule 24 charges in its Fuel and Purchase Power costs?

A. MISO Schedule 24 charges were added to the Fuel and Purchase Power costs as part of the Company's 2010 electric rate case.

Q. Would it be appropriate to continue to recover MISO Schedule 24 charges through the Fuel and Purchase Power Tracker?

A. Yes, it would be. These costs are allocated based upon volumes of load and generation within a MISO LBA similar to other MISO charges in Fuel and Purchase Power.

Q. Does this conclude your rebuttal testimony?

A. Yes, it does.

MONTANA-DAKOTA UTILITIES CO.

ND Public Service Commission

Generation Resource Recovery Rider

February 4, 2016

In the Community to Serve®

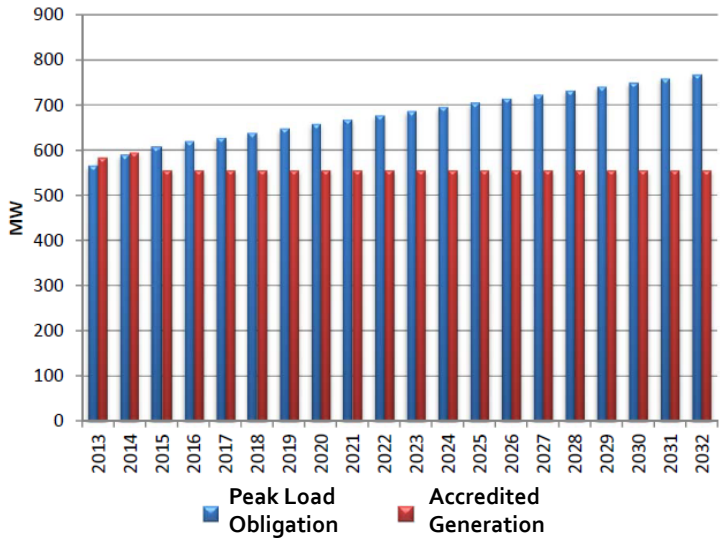
Darcy Neigum
Director System Operations and Planning

Need and Timing of Lewis & Clark RICE Units

Need for Lewis & Clark RICE Project

- Resource Adequacy Needs
  - 2013 Integrated Resource plan
- Reliability Concerns
  - Transmission dependent on Western Area Power Administration and Basin Electric in Bakken area
  - Continued increasing REC load forecasts
  - Lack of adequate transmission for Winter 2015-2016
  - Potential for load curtailments

2013 IRP Supply-Side Overview



2013 IRP Modeling Results

Year	Base Case: L&C Retired in 2015	Optimal Resource Case	Current MISO Resource Adequacy
2014			
2015	4-ICE (146 MW) Wind PPA (50 MW)	L&C Baghouse Wind PPA (50 MW) 2-ICE (73 MW)	L&C Baghouse Wind PPA (50 MW)
2016		1-ICE (37 MW)	
2017	1-SCCT (72 MW)		1-ICE (37 MW)
2018			
2019			
2020		1-CCCT (200 MW)	1-CCCT (200 MW)
2021+	1-CCCT (129 MW) 1-ICE (36 MW) 1-Wind (20 MW)	1-Wind (20 MW)	
NPV ($Mil)	3,640	3,525	3,412

ND PSC PIE Meeting - February 21, 2013 Transmission System Impacts

- Growth in Bakken has consumed flexibility and margin on electric transmission system
- Less flexibility to schedule outages and maintenance
- “System Intact” load serving capability
- Majority of Montana-Dakota served communities in Western North Dakota will double their electric consumption in next 2-3 years
- Montana-Dakota is getting 10 percent or less of all growth in Western North Dakota

KLJ Bakken Load Growth Study August 2012 – Final Report

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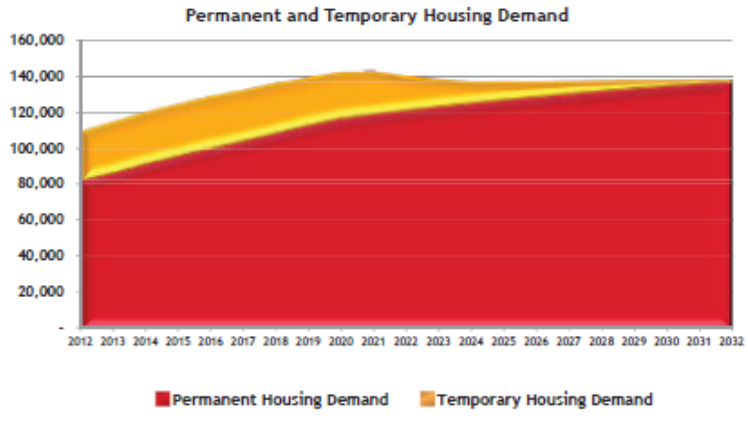


KLJ Bakken Load Growth Study August 2012 – Final Report

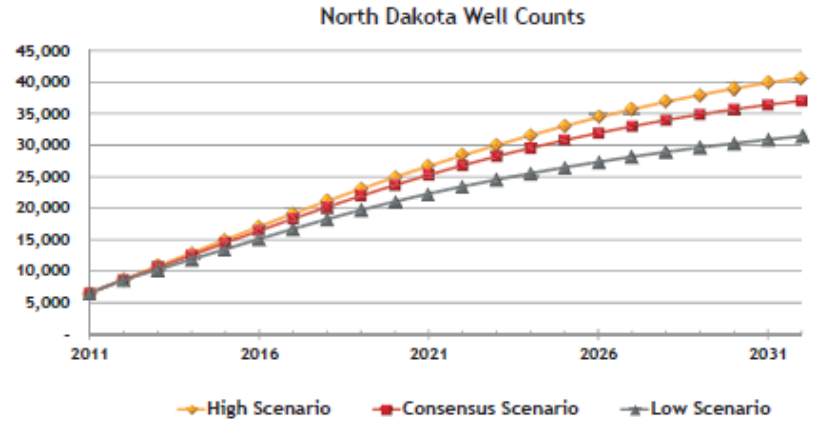
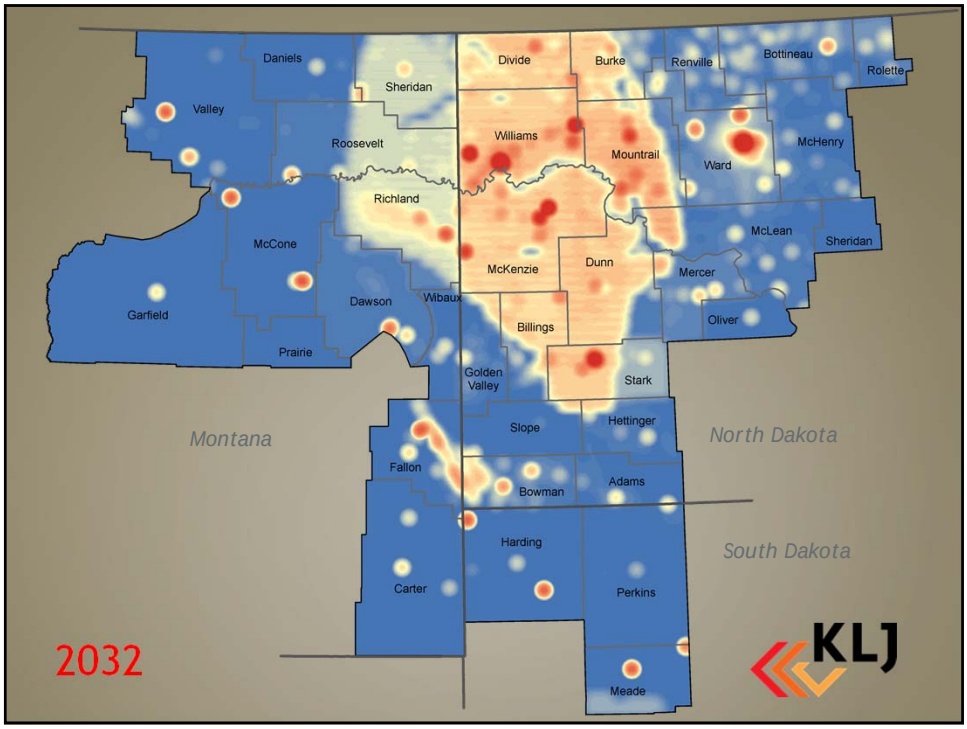
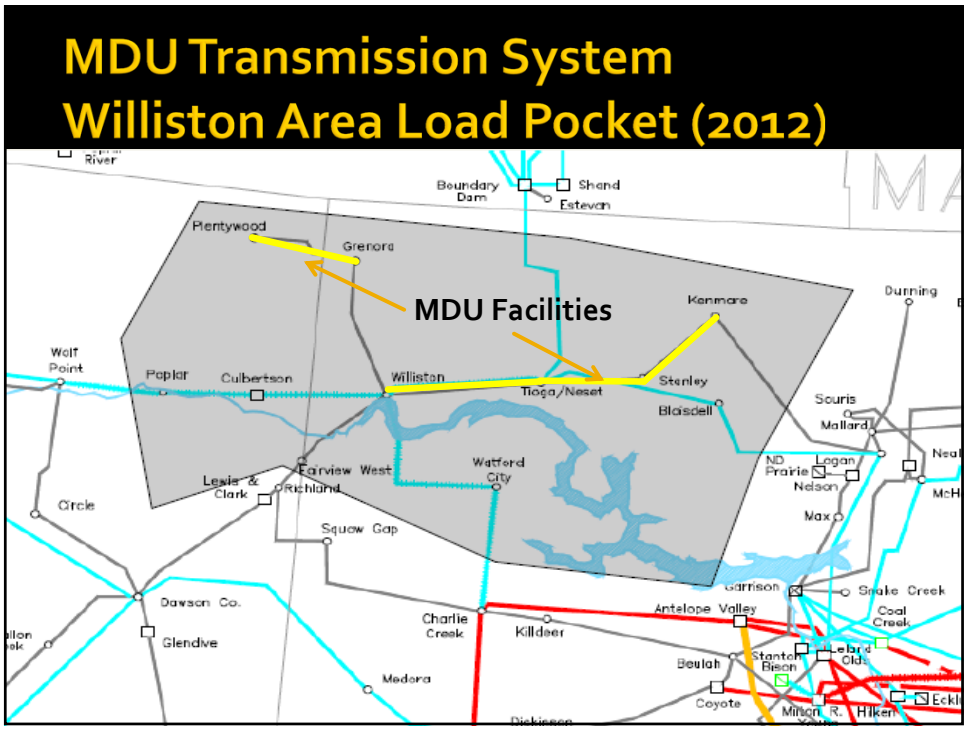


Figure 5: North Dakota Well Counts
Source: University of North Dakota

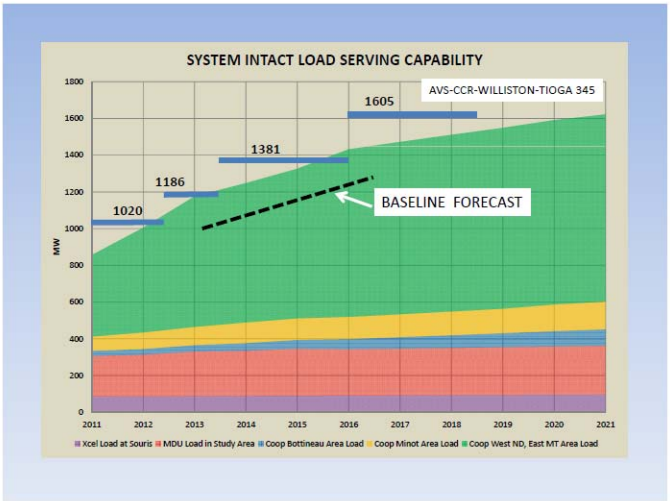
KLJ Bakken Load Growth Study August 2012 – Final Report

MW Demand			
	2012	2032	Additional
North Dakota	974	3,030	2,057
Montana	204	608	404
South Dakota	31	83	52
Total	1,209	3,721	2,512


Daniels
Sheridan
Valley
Roosevelt
Richland
McCone
Garfield
Dawson
Wibaux
Prairie
Divide
Burke
Renville
Bottineau
Rolette
Williams
Mountrail
Ward
McHenry
McLean
Sheridan
McKenzie
Dunn
Mercer
Oliver
Billings
Golden Valley
Stark
Slope
Hettinger
Bowman
Adams
Harding
Carter
Perkins
Meade
Montana
North Dakota
South Dakota
2032
KLJ


MDU Transmission System
Williston Area Load Pocket (2012)
MDU Facilities
Boundary Dam
Shand
Estevan
Plentywood
Grenora
Kenmare
Dunning
Wolf Point
Poplar
Culbertson
Williston
Tioga/Neset
Stanley
Blaisdell
Souris
Mallard
Fairview West
Watford City
Lewis & Clark
Richland
Circle
Squaw Gap
ND Prairie
Logan
Nelson
Max
Garrison
Snake Creek
Coal Creek
Dawson Co.
Glendive
Charlie Creek
Killdeer
Antelope Valley
Beulah
Stanton
Bison
Coyote
Medora
Hilken

Bakken Load Forecasts and Impacts December 2011

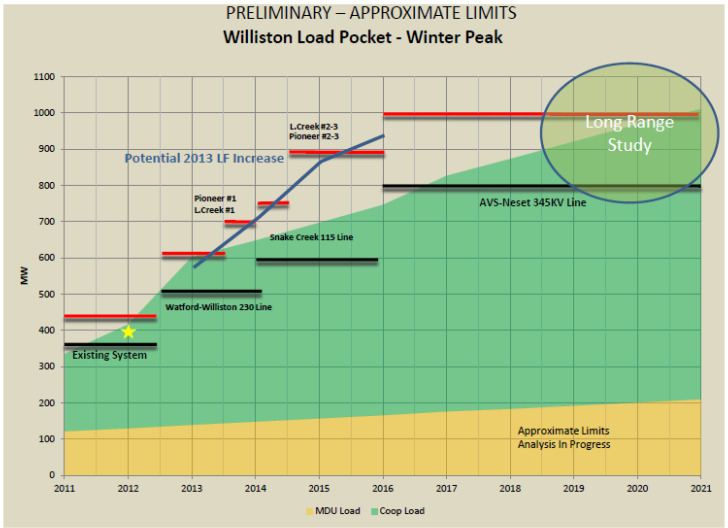


Bakken Load Forecasts and Impacts November 2012

Less than Firm Transmission Service Mitigation Efforts

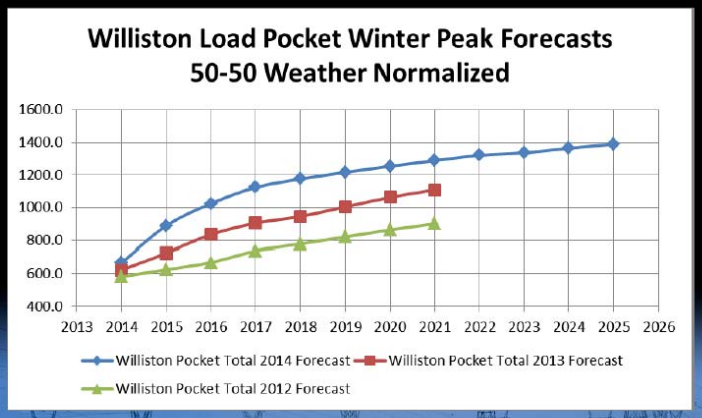
- Manitoba Hydro Import Services
- Demand Response Programs
- Mobile Generation (3 x 2 MW diesel units)
- Redispatch Services (Basin Electric)
  - Transmission congestion service
  - Dependent on available generation
    - Last to be served and first to be curtailed
- Build own transmission or generation
- Need for Basin 345kV transmission line
  - AVS to Williston

Bakken Load Forecasts and Impacts April 2013

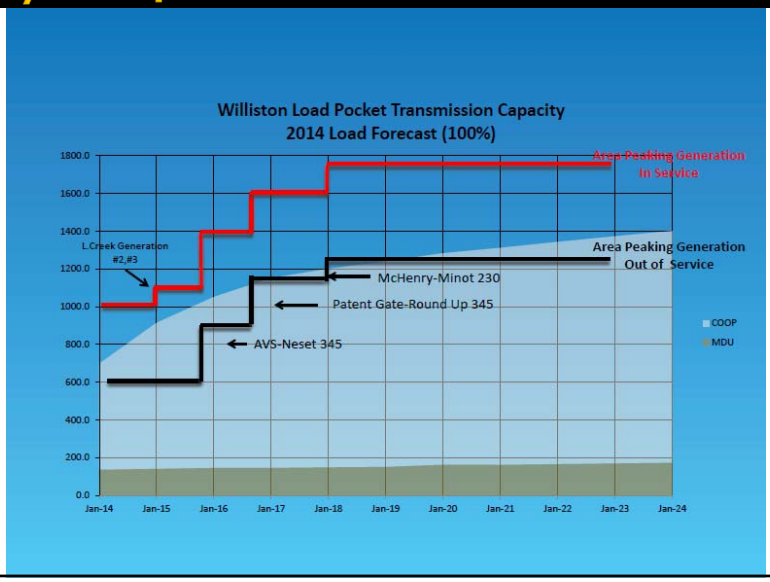


Bakken Load Forecasts and Impacts July 2014

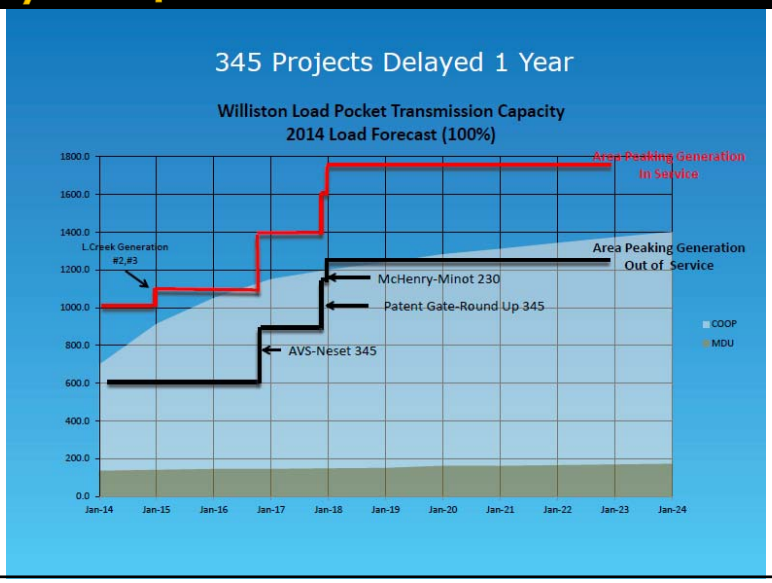
Comparison of Recent Load Forecasts



Bakken Load Forecasts and Impacts July 2014



Bakken Load Forecasts and Impacts July 2014



Potential Transmission Shortfalls for Winter 2015-2016 Season

- Build transmission into Bakken area
  - Line from Beulah or Dickinson
  - Too expensive (>$100 million) and not enough time to construct
- Partnership opportunities in new generation
  - Project timing issues
  - Lack of access to some sites
- Build own generation
- Unknowns with SPP seams issues including redispatch in Bakken area

Lewis & Clark RICE Units – 18.6 MW

- Reviewed other potential sites
- Brownfield site at Lewis & Clark was optimal
  - Land, natural gas, water, transmission, labor
- 18.6 MW project size plus demand response with mobile generators met MDU's 'Less Than Firm Requirements'
- Capable of being in-service to meet 2015-2016 Winter Season

Summary – Lewis & Clark RICE

- Needed to meet customer peak demands
- Transmission dependent on Western & Basin in Bakken area
- Needed to provide reliability support in Bakken area and mitigate customer load curtailments due to inadequate transmission
- Continued increases in REC load forecasts and concerns with in-service date for Basin's 345kV transmission line
- Able to be constructed and online for the Winter of 2015-2016