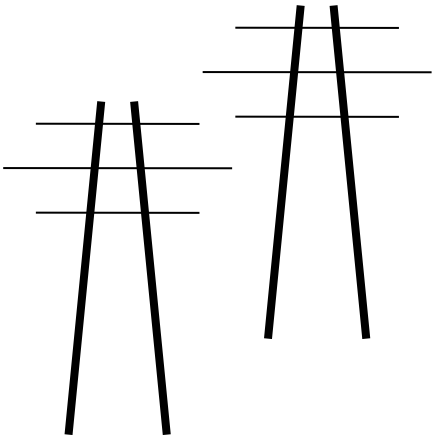
Legalectric, Inc.

Carol Overland **Attorney at Law, MN #254617**
Energy Consultant—Transmission, Power Plants, Nuclear Waste
overland@legalectric.org

1110 West Avenue
Red Wing, Minnesota 55066
612.227.8638

P.O. Box 69
Port Penn, Delaware 19731
302.834.3466



September 25, 2015

Chuck Thompson, Manager
Siting & Regulatory Affairs
Dairyland Power Cooperative
3200 East Avenue South
La Crosse, WI 54602-0617

via email at cat@dairynet.com

Dennis Rankin
Engineering and Environmental Analyst
USDA RUS
1400 Independence SW, Mailstop 1571
Washington D.C., 20250-1571

via email at dennis.rankin@wdc.usda.gov

In Re: **SECOND NO CAPX 2020 COMMENT AND REQUEST FOR EXTENSION**
Dairyland Power Cooperative Upgrade of Q-1D South, USDA RUS #1060

Dear Mr. Thompson and Mr. Rankin:

ON BEHALF OF NO CAPX 2020, I AGAIN REQUEST THAT THE COMMENT PERIOD BE EXTENDED TO AT LEAST 30 DAYS FOLLOWING RELEASE AND PUBLICATION OF PROJECT INFORMATION AND ITS POTENTIAL IMPACTS.

Once again, where is the additional information describing this project and its impacts available? I've not received any additional information from you on this project despite numerous requests. I specifically request the Application and all the Appendices, of which the Appendix A maps are obviously a part.

Regarding the Q-1D South project, on behalf of No CapX 2020, I offer the following comments:

Specifications and capacity of project

Attached please find the MISO DPC: P7664 presentations and ACSS spec chart from the Xcel Energy SW MN 345 kV line Minnesota PUC Docket 01-1958. In these presentations, they consistently note that this project will use 795 ACSS, which show in this chart to have an ampacity rating in the 1600s and MVA in the 430s range. This rating is significantly higher than

the present line, and we have no information at this point of the limiting factor of capacity of this line. Based on this chart, the line will have a higher capacity, and will likely have higher electric fields and magnetic fields. Environmental review must consider electric and magnetic fields:

- The normal and emergency ratings for the differently spec'd segments of this project must be disclosed, expressed in ampacity and MVA.

- The range of electric fields and magnetic fields from a low capacity to the emergency rating must be disclosed and considered.

- The environmental document should disclose electric fields at various distances, ranging from the centerline to the easement edge to the point at which electric fields are reduced to 8 kV/meter (Minnesota standard), 5 kV/meter (IEEE guideline) and 4.2 kV/meter (ICNIRP, ACGIH, NRPB, EU guidelines).

- The environmental document should disclose magnetic fields at various distances, ranging from the centerline to the easement edge to the point at which fields are reduced to 4 mG and 2 mG. See MF chart attached, and independently verify calculations.

- The environmental document should disclose National Electric Safety Code safety requirements applicable to this project, particularly distances from homes and structures.

- The Applicant must disclose the normal and emergency rating, expressed in ampacity and MVA of the existing transmission line.

- Prior to de-energizing of the existing line, the Applicants must take baseline electric and magnetic field levels under "normal" operating conditions, and when the current line is loaded to its rated capacity.

The project will be very close to homes, based on the existing line routing and pole placement. Environmental review must consider proximity of the project to homes and businesses:

- The locations, by address, and distances for each home within 100 feet of the easement edge must be disclosed, including identification of homes within the easement, and for those homes within the easement, include the distance from the centerline.

- For each home within the easement, the distance from the centerline of the existing line must be disclosed.

- For each home within 100 feet of the edge of the easement, the date home was built and the local government responsible for permitting must be disclosed.

Rights of way and easements

The project may require expanded easements or acquisition of additional land rights. For those homes and businesses sited with the existing line, there was actual or implied acceptance of the

existing line. The new line raises the capacity of the line and plans call for much higher towers. Environmental review for this project must consider impacts of a transmission line of a different character than the existing one. Environmental review must consider:

- Have landowners agreed to this change and been compensated for it? Provide documentation.

- For each location where centerline is within 100 feet of any residence or business, and where Applicant claims no additional easement is necessary, provide basis for such determination, and whether this distance is deemed safe by applicant and reviewers.

- For residences and businesses along the existing route, provide evidence of easements allowing rebuild. Note any and all easements that allow only for H-frame structures.

- For residences and business along the existing route, provide evidence of easements allowing for higher capacity conductors and taller structures.

- For each access road shown on "Appendix A" maps, provide documentation of easement allowing such use.

- What is the incremental impact on property valuation of this project with higher capacity and taller structures?

- What is the impact on marketability of properties affected by this transmission project?

Justifications, need for the project, and rejections and approval by Wisconsin PSC

Overloads of the 161 kV system was used as justification for construction and operation of the Badger Coulee project, and upgrade of the 161 kV system was also analyzed as an alternative to the Badger Coulee project and rejected.

To be NEPA compliant, the environmental review of this project must consider the need for this project, both in light of justification of Badger Coulee to solve problems in the 161 kV system, and in light of rejection of a 161 kV system upgrade as an alternative to Badger Coulee.

In the MISO MVP Project Portfolio, the 161 kV system was utilized as a justification for the Badger Coulee transmission project, where construction of the Badger Coulee "project will mitigate twelve bulk electric system (BES) NERC Category B thermal constraints and eight NERC Category C constraints. It will also relieve 30 non-BES NERC Category B and 36 NERC Category C constraints." It is inconsistent to both build Badger Coulee and upgrade this project. The environmental review must consider impacts in light of this finding of mitigation:

- Where these constraints are eliminated by the Badger Coulee project, what is the justification for this project?

- The environmental review for this project must define and describe the need.

5.5 North LaCrosse to North Madison to Cardinal 345 kV Line

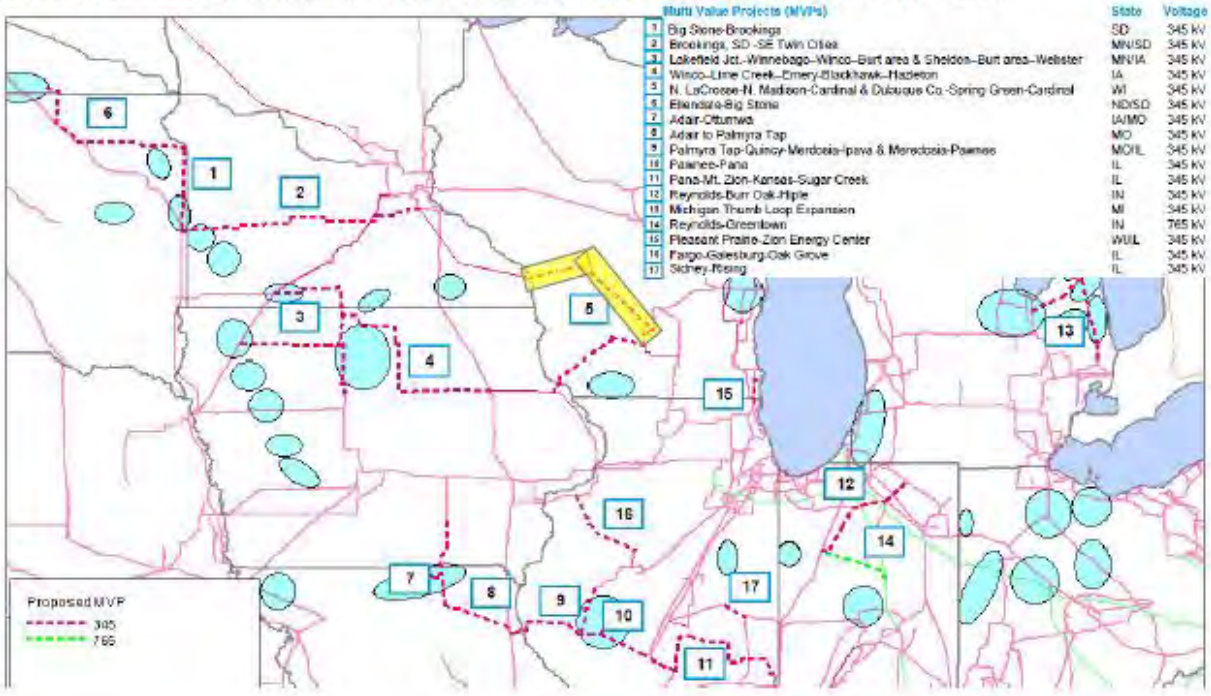


Figure 5.5: North LaCrosse to North Madison to Cardinal

Project(s): 3127

Transmission Owner(s): ATC, XEL

Description: This creates a 345 kV line from the North LaCrosse (Briggs Road) substation, to the North Madison substation, to the Cardinal substation, through southwestern Wisconsin. A 448 MVA, 345/161 kV transformer will be installed at Briggs Road, and approximately 20 miles of 138 kV line between the North Madison and Cardinal substations will be reconductored. The new 345 kV line will be approximately 157 miles long. The estimated cost is $390 million[14]. The expected in service date is December 2018.

Justification: The 345 kV line from North LaCrosse to North Madison creates a tie between the 345kV network in western Wisconsin to the 345 kV network in southeastern Wisconsin. This creates an additional wind outlet path across the state; pushing power into southern Wisconsin, where it can go east into Milwaukee, or south to Illinois, providing access to less expensive wind power in two major load centers. With the Brookings project, the wind coming into North LaCrosse needs an outlet, and the line to North Madison is the best option studied. From a reliability perspective, the addition of the North LaCrosse to North Madison to Cardinal 345 kV path helps relieve constraints on the 345 kV system parallel to the project to the north and south of the new line. The 138 and 161 kV system in southwest Wisconsin and nearby in Iowa are also overloaded during certain contingent events, and the new line relieves those constraints. This project will mitigate twelve bulk electric system (BES) NERC Category B thermal constraints and eight NERC Category C constraints. It will also relieve 30 non-BES NERC Category B and 36 NERC Category C constraints.

Alternatives Considered:
Rebuilding the overloaded 138 and 161 kV lines, along with adding transformers or upgrading the existing units to handle the increased loading, was the only other alternative considered. This was not a viable alternative, because the cost is greater than the proposed project. The proposed project also provides the most benefit to the transmission grid in the future.

In the Badger Coulee proceeding, MISO argued that Badger Coulee solved these overloads in testimony and in their brief. First, the testimony, that Badger Coulee relieves constraints on the 161 kV system:

A. The Badger Coulee project helps relieve constraints on the 345 kV system parallel to the project to the north and south of the new line. The 138 kV and 161 kV systems in southwest Wisconsin are also overloaded during certain contingent events and the new line relieves these constraints. More specifically, the Badger Coulee project solves overloads near the 345 kV path from King to Werner West, and it also solves a number of overloads stretching down the southwest side of Wisconsin, from North La Crosse to Nelson Dewey.

Further testimony that Badger Coulee eliminates constraints on the 161 kV system:

Q. What are some key constraints mitigated by the Badger Coulee project?

A. The Badger Coulee project reduces loadings on approximately 60 highly loaded system elements, including lines and transformers, in and around Wisconsin, when the generation required to meet the renewable energy mandates of the MISO states is included in the model. The highest loaded Bulk Electric System ("BES") elements that experienced violations under Category B conditions are listed below. A full list of these overloads may be found in Appendix E4 of MTEP 11 (attached as Exhibit 2 to this testimony).[14]

- Werner – Rocky Run 345 kV line
- North La Crosse – Mayfair 161 kV line
- North La Crosse – La Crosse Tap 161 kV line
- Seneca – Genoa 161 Kv line
- Hydro Lane 161 / 115 kV transformer
- Arpin 345 / 138 kV transformer
- Adams 345 / 161 kV transformer

MISO Rauch Direct Testimony, p. 27-28, Badger Coulee WI PSC Docket 05-CE-142.

And in MISO's Initial Brief in the Badger Coulee docket, this same chart including the "North La Crosse – La Crosse Tap 161 kV line (Q-1D South):

> Upon the completion of the extensive, multi-year planning process, MISO determined that the Project is necessary to meet transmission needs in the area.[23] As stated by MISO Witness Rauch, "the Badger Coulee project solves overloads near the 345 kV path from King to Werner West, and it also solves a number of overloads stretching down the southwest side of Wisconsin from North La Crosse to Nelson Dewey."[24] Ms. Rauch testified:[25]
>
> > The highest loaded Bulk Electric System ("BES") elements that experienced violations under Category B conditions are * * *
> > - Werner – Rocky Run 345 kV line
> > - North La Crosse – Mayfair 161 kV line
> > - North La Crosse – La Crosse Tap 161 kV line
> > - Seneca – Genoa 161 Kv line
> > - Hydro Lane 161 / 115 kV transformer
> > - Arpin 345 / 138 kV transformer
> > - Adams 345 / 161 kV transformer"

Because sworn testimony states that Badger Coulee addresses these problems, the environmental review for this project must address the need for this project in light of MISO statements that the Badger Coulee project solves overloads and contingency issues on the 161 kV system. If the problems are solved, why is it needed?

Conversely, rebuild of the 161 kV system was considered as an alternative to the Badger Coulee transmission project and rejected. Because Badger Coulee was selected as the preferred alternative to rebuild of the 161 kV system, the environmental review must consider the need for this project in light of rejection of rebuild of the 161 kV system as an alternative:

> In addition, the MISO evaluated a system alternative comprised of rebuilding overloaded 138 and 161 kV lines, along with upgrading existing transformers and adding others. The alternative was not carried forward because the costs exceeded that of the Project and provide less benefit to the transmission grid.[1]
>
> [1] MISO Multi Value Project Portfolio Results and Analyses (Jan. 10, 2012), p. 28

Badger Coulee Revised App. (redlined), p. 30. MISO MVP Portfolio had a similar analysis (§5.5 , supra p. 4 above):

> **Alternatives considered:**
>
> Rebuilding the overloaded 138 and 161 kV lines, along with adding transformers or upgrading the existing units to handle the increased loading, was the only other alternative considered. This was not a viable alternative, because the cost is greater than the proposed project. The proposed project also provides the most benefit to the transmission grid in the future.

If it's rejected by the WI PSC, MISO and Applicants as an alternative, the need must be demonstrated as viable and cost effective, particularly given MISO's cost concerns.

Because the Wisconsin PSC rejected rebuild and upgrade of the 161 kV system in the Badger Coulee docket, the environmental review for this project must address the need for this project in light of that rejection and explain why it should now be done anyway.

The Wisconsin PSC refused to address need information before it that would have an impact on the Q-1 line and its inclusion as part of CapX 2020 Hampton-La Crosse transmission line. This was part of Dairyland's Chuck Thompson's testimony in that docket in Wisconsin. See PUC Docket 05-CE-135.

> Dairyland has announced that it is shutting down three coal-burning units at the Alma plant. However, these retirements have not been addressed regarding the impacts on Dairyland's Q-1 transmission line as part of the project. Thompson, Vol. 2, p. 168-170. The Q-1 is not the only transmission line to LaCrosse and Western Wisconsin – there are at lest four transmission lines from Minnesota crossing the Mississippi to Wisconsin, including lines near Alma, Winona, Trempealeau and LaCrosse. USFWS 5/4/09 Letter to Hillstrom, NoCapX/CETF Item 21, ERF 161182. There is no information in the record supporting need for a rebuild of the Q-1, only that it is something that Dairyland wants. Based on the record in this proceeding, there is no basis for Commission approval of the Q-1line.

No CapX 2020 Initial Brief, March 30, 2012, WI PSC Docket 05-CE-136; see also attached Direct Testimony of Chuck Thompson, Tr. Vol. 2, p. 167-178. The Q-1 rebuild was not included as part of the PSC's approval of the CapX 2020 Hampton – La Crosse line in Wisconsin.

USDA Rural Utilities Service financing

USDA's RUS may finance this project. The environmental review should address:

- Cost – specific line item costs.
- Cumulative cost of all the Q-1 projects, from Alma to Genoa, including those funded by USDA RUS and otherwise.
- Percentage interest to be paid to Rural Utilities Service or other loan servicing entity on behalf of RUS.

- Return on investment – the percentage ROI should be disclosed. ROI for all USDA Dairyland projects should be included in the environmental review, and the cumulative ROI should be compared to Dairyland's rate base and other revenue streams, and evaluated as a driver of these projects and as a percentage of Dairyland's revenue.

- Project must be evaluated for need beyond that of a revenue source based on FERC approval of MISO tariffs for return on investment for transmission at over 12%. Utilities in the project area have requested, and received, substantial rate increases recently that are driven by capital projects including the CapX 2020 build-out and the MISO MVP 17 Project Portfolio. Economic considerations alone are not a sufficient basis for approval of any transmission project paid for by ratepayers and with impacts to residents, businesses, and landowners.

- The environmental review should disclose the authority authorizing that rate of return should be disclosed, and if FERC, the docket number should be disclosed, and if a MISO or other tariff, a link to the tariff.

Topics raised in "Public Notice" for project

The "notice" suggested some topics at issue for comment, naming them, but going no further to describe the relationship between the project and these topics. The environmental review should address:

Prime Farmland

- Whether project takes productive farmland out of production.

- Impacts on ag operations, including irrigation or airplane flight paths for spraying.

- Construction impacts such as compaction, damage to drain tile and drainage systems.

- Access road impacts and whether applicant has right to build access roads under existing easements.

- Impacts on marketability and value of prime farmland.

- Potential for conflict of interest between USDA's mission and Rural Utilities Service funding of transmission over prime farmland.

100 year Floodplain

- Impacts on floodplain, and also the opposite, floodplain impacts on the project.

- Anticipated impacts are release of leachate from the structure foundations, and stability of foundations in the floodplain.

- Soil and water conditions need to be addressed to assure it is possible and safe to build as planned (and not yet disclosed).

- Access to the structure site and the stringing activities could damage the area.

Wetlands (as with floodplain)

- Impacts on wetlands, and also the opposite, wetland impacts on the project.

- Anticipated impacts are release of leachate from the structure foundations, and stability of foundations in the wetlands.

- Soil and water conditions need to be addressed to assure it is possible and safe to build as planned (and not yet disclosed).

- Access to the structure site and the stringing activities could damage the area.

- Impacts on habitat for animals, and particularly consideration protected species in the wetlands. Address both project and construction impacts, and whether presence of protected species require restrictions on construction.

- Impacts that will be considered in review for any state permits. The line exists now, but is it permittable and constructable as proposed (and as yet undisclosed)?

- Impacts of construction activity, including both access road construction and use.

- Impacts of construction that necessitate a season or condition based activity restriction, i.e., can only build when ground is frozen.

State law prohibits construction underneath transmission lines – what about new rebuilds over existing homes?

This project goes over a route that is subject to a state law enacted after homes were built under and near a transmission line, and the law now prohibits that construction. The environmental review should consider impacts of this project on those homes under and near the line and whether in 2015 this construction and its impacts should be allowed.

Further, because of this law, the environmental review should consider whether this transmission line should be moved from its present location to an area where there would not be homes under the project.

Permits required for this project

The environmental review should list and consider the permits and approvals necessary for this project, and should address the factors that will be considered by federal, state, and local governments and agencies.

Eagle take permit

The environmental review for this project should consider potential impacts on eagles due to its location in a major North American flyway and increased height. USFWS recommended that CapX 2020 transmission applicants get an eagle take permit. I believe this is also true of the Badger Coulee line. USFWS review should be solicited and its recommendations made public for comment.

No Build Alternative and Analysis

The environmental review must consider the "No-Build Alternative" for compliance with NEPA.

Alternatives – System Alternatives and Route Alternatives

The environmental review must consider alternatives. As to routing alternatives, I am not sufficiently familiar with the area to propose routing alternatives. Local residents should be offered opportunity to suggest alternatives for analysis by RUS.

The environmental review must consider alternatives. As to system alternatives:

- Evaluate removal of the link between Briggs Road as duplicative and unnecessary. For example, because CapX 2020 comes down to Briggs Road, and Badger Coulee runs north from Briggs Road, it may be possible to eliminate the Q-1 161 kV connection completely.

- Evaluate connection of the Genoa northward section of Q-1 to the large new substation south of I-90 and east of La Crosse.

- Evaluate impacts of shut down of Alma coal, Genoa coal, and Cassville coal on need for the connection between these plants and La Crosse.

- Evaluate impact continued operation of the La Crosse 3 generator on need for Q-1. This was a deciding factor in approval of CapX 2020, which claimed the La Crosse generator was not operational, and it was correctly noted that an operational Unit 3 would bring available generation to an acceptable level:

> The applicants did not consider French Island Units 3 and 4 as available resources in the critical load limit analysis. Although NSPW has allocated $1.9 million for the repair of the mothballed French Island Unit 3 in order to make it operational, this repair is neither scheduled nor planned with certainty. French Island Unit 4 has numerous operational problems which result in its reduced availability. If French Island Unit 3 is included, the critical load limit could increase to 500 MW calculated consistent with NERC standards.

PSC Final Order p. 22, Wisconsin PSC Docket 05-CE-136 (5/30/2012).

Shortly thereafter, Xcel Energy Resource Plans disclosed that in fact this plant would be returned to service. Xcel Energy Integrated Resource Plan, MPUC Docket 12-1240. The Q-1line, and specifically Q-1D South, may not be needed.

Environmental Review should evaluate whether this line is needed in light of purpose of Q-1 as transmission for generation to La Crosse, and of available generation in La Crosse and shuttered generation on both the north and southern ends of the line.

Increased tower height

Environmental review must consider:

- Impact of increased tower height on electric and magnetic fields.
- Impact of increased tower height on airport operation, and take off and landing clearances and zones.
- Impact of increased tower height on compliance with local airport overlay regulation.
- Impact of increased tower height on viewshed and aesthetics.

Segmentation

The environmental review must address:

- Cumulative environmental impacts of all of the Q-1 upgrades, not just this one small segment.
- The cumulative environmental impacts for all Q-1 upgrades, whether financed by USDA RUS or otherwise, should be considered.
- Under NEPA, segmentation of projects is not appropriate, for example, in this case, Dairyland has separated out the project with the most extreme environmental impacts to close residents and directly affected landowners into a nine mile segment that may not receive the same environmental review that it would had it been included as part of the USDA RUS financed Marshland-Briggs Road segment.

Environmental Review should incorporate issues raised for Q-1 Marshland – Briggs Rd.

Because these are parts of one longer project, traversing similar areas, and presuming project similarities, the environmental review should address:

- Issues reviewed in the USDA RUS EIS for Dairyland's Q-1 line from Marshland to Briggs Road substation.

- For environmental concerns not relevant to this project, that should be specifically noted.

RUS authority, mission, and criteria for grant of loans

Environmental review, as published, should begin with disclosure, an explanation of, and citations for the RUS authority to loan funds for rebuild of facilities such as the Dairyland Q-1 line, a demonstration that this project loan falls within the mission of the RUS, and specific itemization of criteria for the RUS determination of whether to provide funds for this project. Each of these areas should be accompanied by citations to authority.

Request for Information

Again, please forward information about this project at your earliest convenience, and post it online for the public to access. I will also post this information, if and when received, on my No CapX 2020 website.

On behalf of No CapX 2020, I have filed a FOIA request, but that is not likely to result in any information anytime soon.

Request for Extension

ON BEHALF OF NO CAPX 2020, I AGAIN REQUEST THAT THE COMMENT PERIOD BE EXTENDED TO AT LEAST 30 DAYS FOLLOWING RELEASE AND PUBLICATION OF PROJECT INFORMATION AND ITS POTENTIAL IMPACTS.

Thank you for the opportunity to Comment on this project and for your attention to these matters.

Very truly yours,

Carol A. Overland
Attorney at Law

Enclosures: Notice
MISO meeting presentations (selected pages)
Exhibit 35, Appendix 7 of NSP/Xcel Application MPUC Docket 01-1958
Calculated Magnetic Fields – chart prepared by P.E. for CapX Brookings
MISO Rauch Direct Testimony & Initial Brief (selected pages)
Testimony of Thompson, CapX Hampton – La Crosse 05-CE-136 (selected)

Defendants,

By virtue of and pursuant to a Judgment of Foreclosure entered in the above-entitled action on the twenty-fourth day of March, 2015, I will sell at public auction in the lobby of the La Crosse County Court-

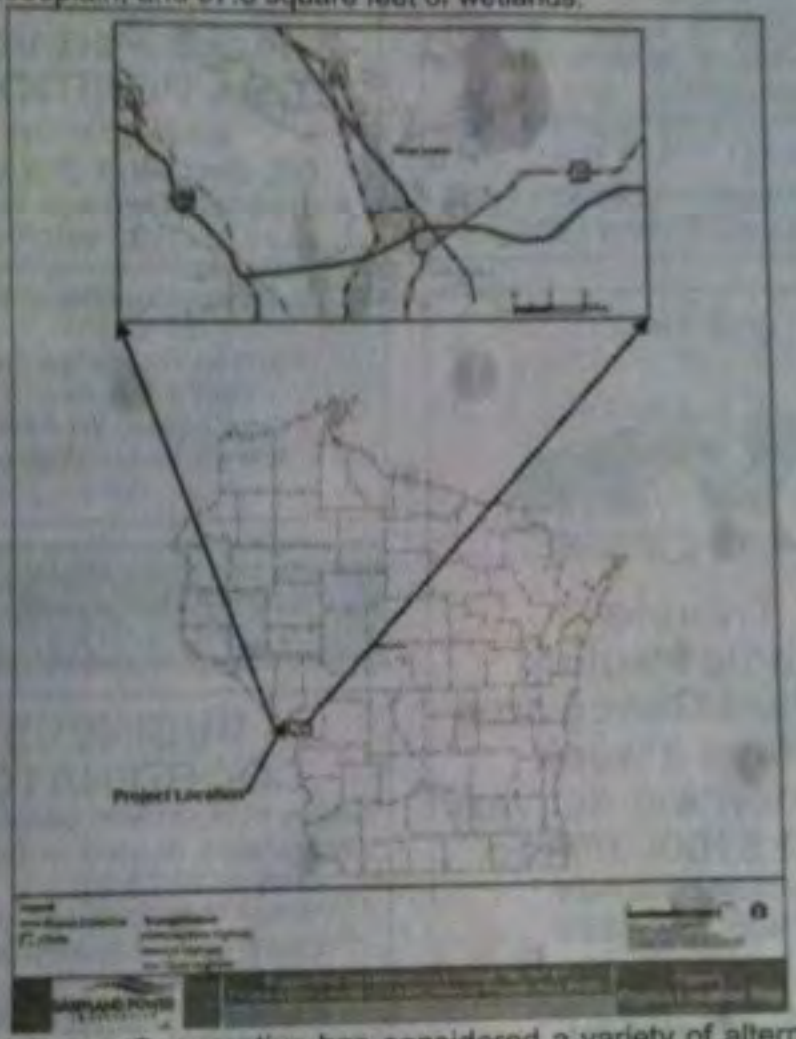
Sale.

Dated at La Crosse, Wisconsin, this thirtieth day of March, 2015

8/28,9/4,11 30394309 **WNAXLP**

PUBLIC NOTICE

Dairyland Power Cooperative, 3200 East Avenue South, La Crosse, WI 54602-0817, is planning to rebuild approximately nine miles of 161 kilovolt transmission line in La Crosse County, the Q-1D South Project, near the Village of Holmen. It has been determined that the Project, as proposed, will be located in a prime farmlands, 100-year floodplain, and wetlands. The Project will occupy 100.8 square feet of prime farmland, 0.09 acres of 100-year floodplain, and 37.8 square feet of wetlands.



Dairyland Power Cooperative has considered a variety of alternatives, including no action, and believes that there is no practicable alternative that will avoid locating the Project in prime farmlands, 100-year floodplains, and wetlands. Additional information on the project can be obtained from Chuck Thompson at the address provided in this notice or by telephoning (608) 787-1432.

Comments on the environmental aspects of the project should be submitted in writing to Dairyland Power Cooperative within 30 days of the publication of this notice. Copies of all comments received will be forwarded to the Rural Utilities Service for consideration prior to approval of financing assistance or taking other Federal action related to the Project.

8/28 30394422 **WNAXLP**

From: Autumn Rose Bar
To: Autumn Rose Holt-B
Birth Certificate:
Autumn Rose Bartelson
IT IS ORDERED:
This petition will be h
Circuit Court of La Cro
State of Wisconsin:
Judge: Todd W. Bjerke
Place: La Crosse Count
Courthouse 333 Vine S
La Crosse, WI 54601
Date: 09/21/2015
Time 10:45 a.m.
BY THE COURT:
/s/ Todd W. Bjerke
Circuit Court Judge
Dated: 08/11/2015
8/14,21,28 30390164 W

STATE OF WISC
CIRCUIT COU
LA CROSSE CO
Notice to Cred
(Informal Admini
Case NO.: 15-P

In the matter of the es
Glen M. Newkirk
PLEASE TAKE NOTIC
1. An application for
ministration was filed.
2. The decedent, with
05/22/1948 and da
01/04/2015, was dom
Crosse County, State
with a mailing addres
Street, Onalaska, WI 54
3. All interested pe
notice.
4. The deadline for
against the decede
11/06/2015.
5. A claim may be
Crosse County Co
Vine Street, La Cros
Room 1201.
/s/ Jillian M. Just
Probate Registrar
Dated: 08/03/2015
Form completed by:
Lee J. Fehr
Fehr Law Office
205 Green Street
Onalaska, WI 5465
PH: 608-783-3647
Bar No.: 1015079
8/14,21,28 3038997

American Transmission Company
MTEP15 Project Information

1st West Sub-regional Planning Meeting

December 3, 2014

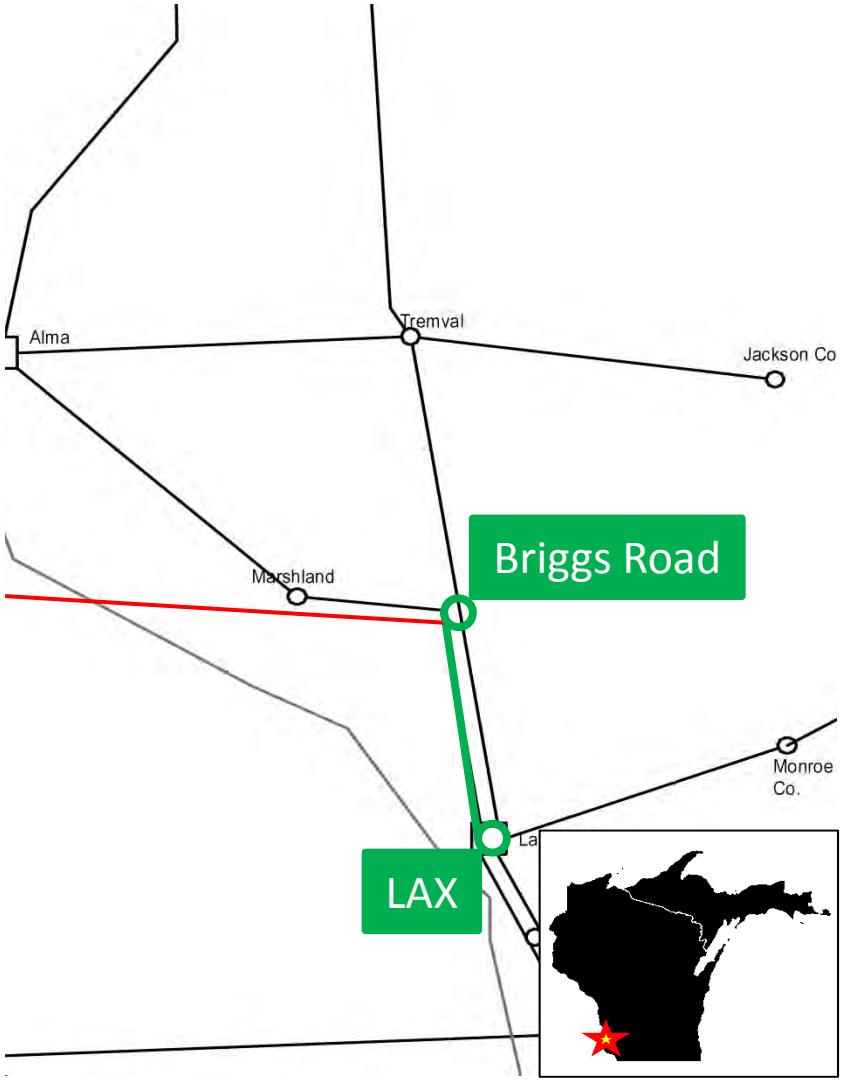
Dairyland Electric Cooperative
MTEP15 Project Information
Projects Targeting A in MTEP15

1st West Sub-regional Planning Meeting

December 3, 2014

DPC: P7664

- **Rebuild Briggs Road-La Crosse Tap 161 kV**
  - Rebuild the Briggs Road-La Crosse Tap 161 kV line on the existing ROW
  - Replace poles
  - Install 795 ACSS conductor
- **Estimated Cost** $12.1M
- **Expected ISD** 2016 June
- **Preliminary Project Type**
  - Other Reliability
- **System Needs**
  - The line is 62 years old, experiencing increased maintenance costs due to it's age, and needs replacement.



MISO Identified Potential Issues under Evaluation

2nd West Sub-regional Planning Meeting

May 19, 2015

Dairyland Power Cooperative

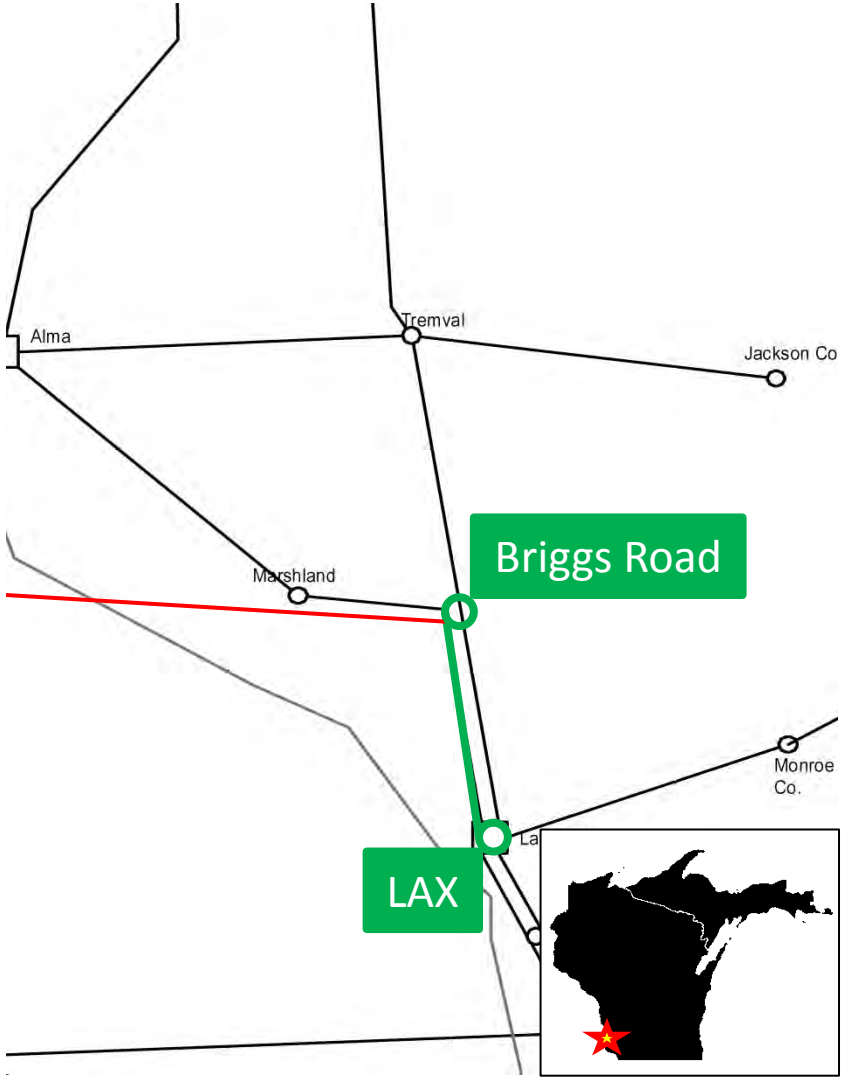
Review of reliability projects under consideration

2nd West Sub-regional Planning Meeting

May 19, 2015

DPC: P7664

- **Rebuild Briggs Road-La Crosse Tap 161 kV**
  - Rebuild the Briggs Road-La Crosse Tap 161 kV line on the existing ROW
  - Replace poles
  - Install 795 ACSS conductor
- **Estimated Cost** $12.1M
- **Expected ISD** 2016 June
- **Preliminary Project Type**
  - Other Reliability
- **System Needs**
  - The line is 62 years old, experiencing increased maintenance costs due to its age, and needs replacement.



American Transmission Company
MTEP15 Project Review

3rd West Sub-regional Planning Meeting

July 27, 2015

ATC Recommended Appendix A in MTEP15 Projects

Updated since SPM2

ATC Recommended Appendix A in MTEP15 Projects

No Update since SPM2

Dairyland Power Cooperative

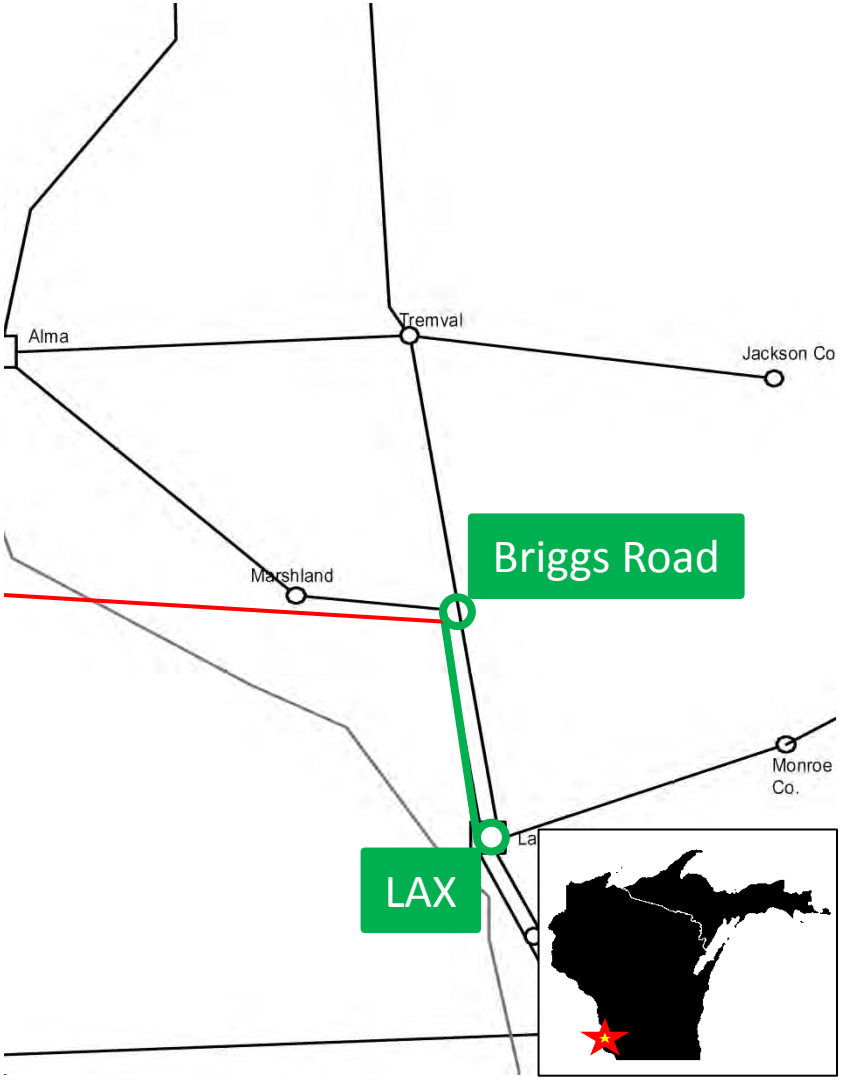
Review of reliability projects under consideration

3rd West Sub-regional Planning Meeting

June 27, 2015

DPC: P7664

- **Rebuild Briggs Road-La Crosse Tap 161 kV**
  - Rebuild the Briggs Road-La Crosse Tap 161 kV line on the existing ROW
  - Replace poles
  - Install 795 ACSS conductor
- **Estimated Cost** $12.1M
- **Expected ISD** 2016 June
- **Preliminary Project Type**
  - Other Reliability
- **System Needs**
  - The line is 62 years old, experiencing increased maintenance costs due to its age, and needs replacement.



Sheet1

Table 2

Computation of SAC Overhead Conductor Ampacities (Steady State)

Per ANSI/IEEE Standard 738-1986

	mi/hr	ft/s
Wind speed	1.36	2.00
Coefficient of emissivity		0.5
Coefficient of solar absorption		0.5

	Temperature C	Temperature F
Ambient air temp	40	104
Conductor surface temp	200	392

Latitude	45 degrees N
Azimuth of line	90 degrees
Elev above msl	1000 ft

Air viscosity @ T ave	0.05463	lb/h ft
Air density	0.05403	lb/ft^3
Air thermal conductivity	0.0101	W/ft C
Altitude of sun	68.1	degrees
Azimuth of sun	180	degrees
Heat rec'd by a surface	94.64	W/ft^2
Elevation correction factor	1.0340	

Conductor			Resistance, Ohm/mi			Ohm/kft	Conductor heat transfer, W/ft					Ampacity	MVA rating @ nominal voltage							
			50	100	200	200	Forced convection heat loss			Radiated	Solar		kV:	69	115	138	161	230	345	500	kcm
kcm	strand	diam,in	deg C	deg C	deg C	deg C	qc1	qc2	max	heat loss	heat gain	cond/ph:		1	1	1	1	1	2	3	
4/0	6/1	0.563	0.5920	0.6979	0.9097	0.17229	46.46	39.77	46.46	15.72	2.30	590		70	117	141	164				4/0
266	6/7	0.633	0.5520	0.6507	0.8481	0.16063	49.28	42.67	49.28	17.67	2.56	633		76	126	151	177				266
336	18/1	0.684	0.3059	0.3606	0.4700	0.08902	51.24	44.70	51.24	19.09	2.79	871		104	174	208	243				336
336	26/7	0.721	0.3072	0.3623	0.4725	0.08949	52.62	46.14	52.62	20.13	2.94	883		106	176	211	246				336
477	26/7	0.858	0.2169	0.2557	0.3333	0.06313	57.44	51.21	57.44	23.95	3.50	1111		133	221	266	310				477
477	24/7	0.846	0.2168	0.2556	0.3332	0.06311	57.04	50.78	57.04	23.62	3.45	1106		132	220	264	308				477
556	26/7	0.927	0.1860	0.2192	0.2856	0.05409	59.73	53.65	59.73	25.88	3.78	1230		147	245	294	343				556
636	24/7	0.977	0.1631	0.1922	0.2504	0.04742	61.34	55.37	61.34	27.27	3.98	1336		160	266	319	373	532			636
795	26/7	1.108	0.1306	0.1538	0.2002	0.03792	65.38	59.71	65.38	30.93	4.52	1556		186	310	372	434	620	1860	4042	795
795	45/7	1.115	0.1313	0.1544	0.2006	0.03799	65.59	59.93	65.59	31.13	4.55	1558		186	310	372	434	620	1861	4047	795
795	30/19	1.140	0.1307	0.1540	0.2006	0.03799	66.33	60.74	66.33	31.82	4.65	1569		187	312	375	437	625	1875	4076	795
954	45/7	1.165	0.1099	0.1291	0.1675	0.03172	67.06	61.53	67.06	32.52	4.75	1729		207	344	413	482	689	2068	4492	954
954	54/7	1.196	0.1094	0.1287	0.1673	0.03169	67.96	62.51	67.96	33.39	4.88	1745		209	348	417	487	695	2085	4533	954
1192	54/19	1.338	0.0863	0.1013	0.1313	0.02487	71.95	66.86	71.95	37.35	5.46	2044		244	407	488	570	814	2442	5309	1192
1272	54/19	1.382	0.0851	0.0998	0.1288	0.02436	73.14	68.17	73.14	38.58	5.63	2087		249	416	499	582	831	2494	5422	1272
1590	54/19	1.545	0.0657	0.0767	0.0987	0.01869	77.41	72.69	77.41	43.13	6.30	1472		295	492	591	689	985	2954	6423	1590
2312	76/19	1.802	0.0505	0.0584	0.0742	0.01405	83.72	79.94	83.72	50.30	7.35	3002		359	598	718	837	1196	3588	7800	2312

Notes:
Sun computations based on noon local sun time
Solar absorption based on "Clear atmosphere"
Azimuth of line: N-S = 0, E-W = 90

Xcel Energy
Delivery System Planning & Engineering

Ex 35, Application, Appendix 7

ADJUSTABLE TABLE

TABLE 5.2-6. Calculated Magnetic Fields (milligauss) for proposed double circuit 345 kV Transmission Line Designs
(3.28 feet above ground)

STRUCTURE TYPE	SYSTEM CONDITION	CURRENT (AMPS)	DISTANCE TO PROPOSED CENTERLINES												
			-300'	-200'	-100'	-75'	-50'	-25'	0'	25'	50'	75'	100'	200'	300'
1 CIRCUIT	PEAK	1568.95	4.69	9.92	33.40	51.70	85.34	139.36	189.52	176.86	106.50	60.56	37.20	9.81	4.28
DELTA CFG	AVERAGE	301.58	0.90	1.91	6.41	9.94	16.42	26.78	36.42	33.99	20.48	11.64	7.16	1.89	0.82
1 CIRCUIT	PEAK	1568.95	5.11	11.71	42.31	65.97	107.98	163.14	151.84	95.33	58.60	38.09	26.27	8.80	4.22
VERT CFG	AVERAGE	301.58	0.99	2.25	8.13	12.69	20.75	31.36	29.18	18.32	11.26	7.33	5.04	1.68	0.80
2 CIRCUIT W/	PEAK	1568.95	4.22	8.80	26.33	38.21	58.78	95.62	152.26	163.43	108.04	65.97	42.25	11.71	5.11
1 CKT ACTIVE	AVERAGE	301.58	0.82	1.70	5.06	7.35	11.30	18.38	29.26	31.42	20.77	12.67	8.11	2.25	0.99
2 CIRCUIT W/	PEAK	1568.95	1.13	3.45	19.73	36.13	71.08	136.09	178.47	137.05	71.91	36.67	20.15	3.51	1.13
2 CKTS ACTIVE	AVERAGE	301.58	0.21	0.67	3.80	6.95	13.67	26.17	34.30	26.34	13.82	7.06	3.87	0.67	0.23

ENTER MVA BELOW TO ADJUST CURRENT IN THE TABLE.

437.00 MVA PEAK
161.00 kV
1.73 3 Phase
1568.95 Amps PEAK CALC'D

84.00 MVA AVERAGE
161.00 kV
1.73 3 Phase
301.58 Amps AVERAGE CALC'D

The new 345 kV path through Iowa mitigates constraints seen on the Lime Creek – Emery – Floyd – Bremer – Black Hawk 161 kV line. The 345/161 kV transformers at Lime Creek and Emery are effectively acting as step-up transformers for wind and lowering congestion on the lower voltages. The additional 345 kV path into Hazleton significantly increases the transfer capability of the Mitchell County – Hazleton 345 kV line. Working in tandem with project 3205, this project reliably moves mandated renewable energy from western and northern Iowa along with existing wind at the Winnebago, Wisdom and Lime Creek/Emery areas to major 345 kV transmission hubs.

Alternatives Considered:
An Iowa alternative of Lakefield Junction to Mitchell County and Sheldon to Burt to Webster to Black Hawk to Hazleton 345 kV was analyzed but was not effective in collecting Lime Creek/Emery area wind or lowering congestion on the Mitchell County to Hazleton 345 kV line. It had similar cost to the combined Iowa projects 3205 and 3213.

5.5 North LaCrosse to North Madison to Cardinal 345 kV Line

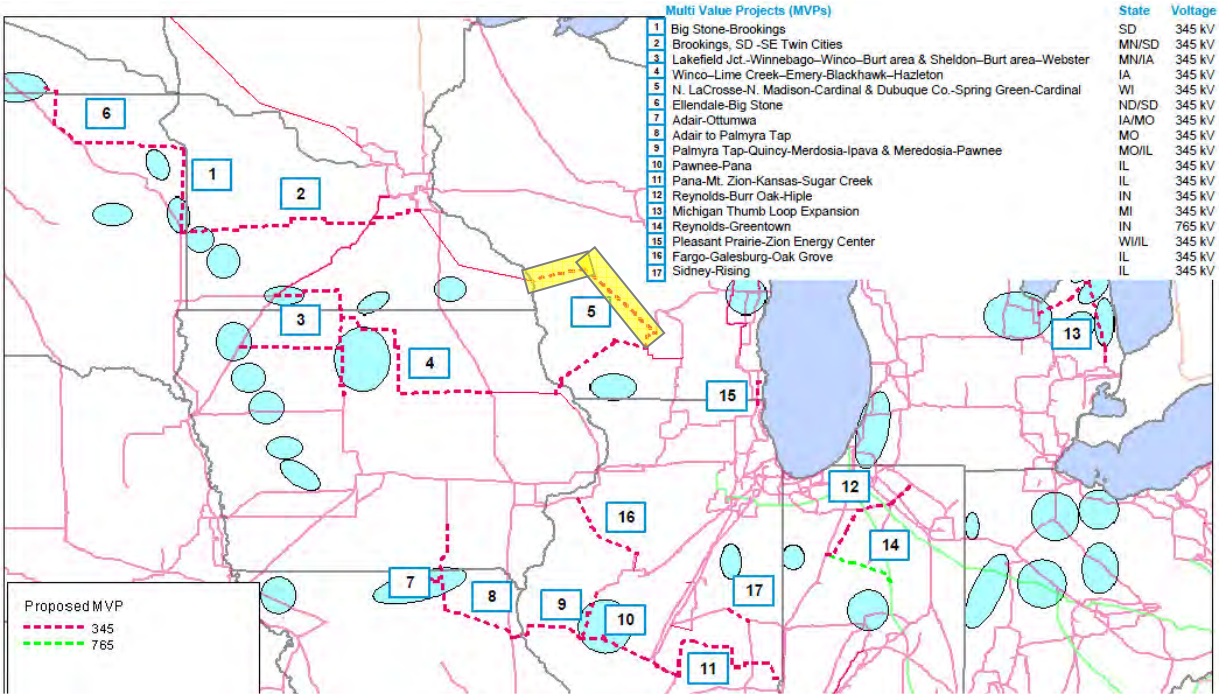


Figure 5.5: North LaCrosse to North Madison to Cardinal

Project(s): 3127

Transmission Owner(s): ATC, XEL

Description: This creates a 345 kV line from the North LaCrosse (Briggs Road) substation, to the North Madison substation, to the Cardinal substation, through southwestern Wisconsin. A 448 MVA, 345/161 kV transformer will be installed at Briggs Road, and approximately 20 miles of 138 kV line between the North Madison and Cardinal substations will be reconductored. The new 345 kV line will be approximately 157 miles long. The estimated cost is $390 million[14]. The expected in service date is December 2018.

[14] In 2011 dollars

Justification: The 345 kV line from North LaCrosse to North Madison creates a tie between the 345kV network in western Wisconsin to the 345 kV network in southeastern Wisconsin. This creates an additional wind outlet path across the state; pushing power into southern Wisconsin, where it can go east into Milwaukee, or south to Illinois, providing access to less expensive wind power in two major load centers. With the Brookings project, the wind coming into North LaCrosse needs an outlet, and the line to North Madison is the best option studied. From a reliability perspective, the addition of the North LaCrosse to North Madison to Cardinal 345 kV path helps relieve constraints on the 345 kV system parallel to the project to the north and south of the new line. The 138 and 161 kV system in southwest Wisconsin and nearby in Iowa are also overloaded during certain contingent events, and the new line relieves those constraints. This project will mitigate twelve bulk electric system (BES) NERC Category B thermal constraints and eight NERC Category C constraints. It will also relieve 30 non-BES NERC Category B and 36 NERC Category C constraints.

Alternatives Considered:
Rebuilding the overloaded 138 and 161 kV lines, along with adding transformers or upgrading the existing units to handle the increased loading, was the only other alternative considered. This was not a viable alternative, because the cost is greater than the proposed project. The proposed project also provides the most benefit to the transmission grid in the future.

5.6 Dubuque to Spring Green to Cardinal 345 kV Line

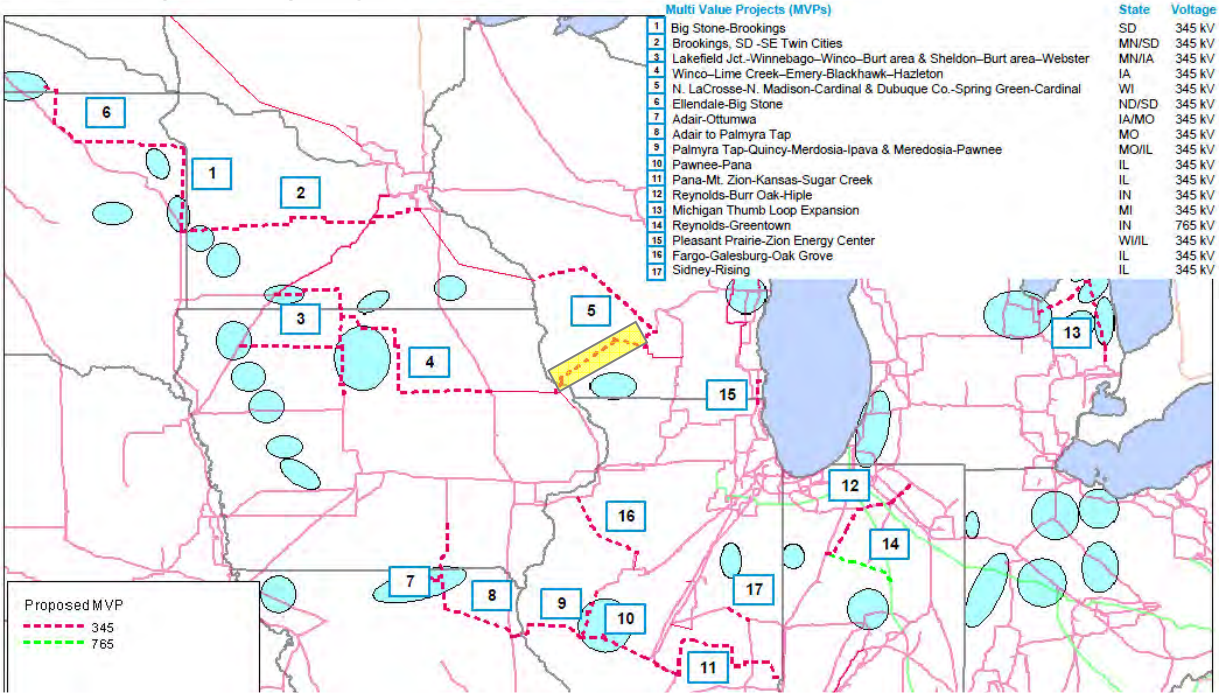


Figure 5.6: Dubuque to Spring Green to Cardinal

Project(s): 3127

Transmission Owner(s): ATC, ITCM

Description: A 345 kV line is created from the Dubuque substation in Iowa, to the Spring Green substation to the Cardinal substation through southwestern Wisconsin. A new Dubuque County 345 kV switching station will be created, and the Spring Green substation will be upgraded to

A. The Badger Coulee project helps relieve constraints on the 345 kV system parallel to the project to the north and south of the new line. The 138 kV and 161 kV systems in southwest Wisconsin are also overloaded during certain contingent events and the new line relieves these constraints. More specifically, the Badger Coulee project solves overloads near the 345 kV path from King to Werner West, and it also solves a number of overloads stretching down the southwest side of Wisconsin, from North La Crosse to Nelson Dewey.

Q. Does MISO have additional steady state concerns related to electric reliability in areas outside Wisconsin that the Badger Coulee project will also address?

A. Yes. Without the Badger Coulee project, the west to east flows overload components of the 161 kV network stretching down from Minnesota into Iowa. More specifically, the project alleviated thermal constraints near the Adams substation in Minnesota, and it also helped to resolve constraints on the 161 kV network between Emery and Blackhawk in Iowa.

Q. What are some key constraints mitigated by the Badger Coulee project?

A. The Badger Coulee project reduces loadings on approximately 60 highly loaded system elements, including lines and transformers, in and around Wisconsin, when the generation required to meet the renewable energy mandates of the MISO states is included in the model. The highest loaded Bulk Electric System ("BES") elements that experienced violations under Category B conditions are

listed below. A full list of these overloads may be found in Appendix E4 of MTEP 11 (attached as Exhibit 2 to this testimony).[14]

- Werner – Rocky Run 345 kV line
- North La Crosse – Mayfair 161 kV line
- North La Crosse – La Crosse Tap 161 kV line
- Seneca – Genoa 161 Kv line
- Hydro Lane 161 / 115 kV transformer
- Arpin 345 / 138 kV transformer
- Adams 345 / 161 kV transformer

Q. What contingencies resulted in the steady state issues relieved by the Badger Coulee project?

A. Approximately 55 Category B and 60 Category C contingencies resulted in issues that are relieved by the incorporation of the Badger Coulee project into the transmission system. Key Category B contingencies included the loss of the line from Eau Claire to Arpin or Arpin to Rocky Run. Violations were also observed for single element contingencies on the path from La Crosse to Nelson Dewey, along the western side of Wisconsin.

Q. Were there other reliability benefits that resulted from the MVP portfolio in the aggregate?

A. Yes. Each project in the portfolio mitigated specific overloads across the MISO footprint. In addition, the portfolio as a whole mitigated more than 30 conditions that could cause system instability, as documented in Appendix E4 of the MTEP 11 report. The MVP portfolio also increased transfer capability before voltage

[14]A copy of Appendix E4 of the MTEP 11 report is attached to this testimony and also publically available on the MISO website, at the link below:
https://www.misoenergy.org/Library/Pages/ManagedFileSet.aspx?SetId=694

EXAMINER NEWMARK: Okay. Redirect?
MS. AGRIMONTI: No, Your Honor.
EXAMINER NEWMARK: You're excused. Thanks.
(Witness excused.)
MS. AGRIMONTI: Mr. Thompson.
EXAMINER NEWMARK: Just keep them coming.
MS. AGRIMONTI: At some point I will beg for a five-minute break.
EXAMINER NEWMARK: You can try.

CHARLES THOMPSON, APPLICANTS WITNESS, DULY SWORN

DIRECT EXAMINATION

BY MS. AGRIMONTI:

Q Mr. Thompson, would you please state your name, position and responsibilities.

A My name is Chuck Thompson. I work for Dairyland Power Cooperative. I am responsible for getting regulatory permits in four states where we operate for transmission lines, substations, communication towers.

Q And did you prepare direct testimony and an exhibit for this proceeding?

A Yes, I did.

Q And do you have copies of those in front of you?

A I do.

Q And are they true and correct copies of what you filed here?
A They are.
MS. AGRIMONTI: Mr. Stevenson is -- Mr. -- one of the Mr. Thompsons is available for cross.
EXAMINER NEWMARK: Cross-exam. Go ahead.

CROSS-EXAMINATION

BY MS. OVERLAND:
Q And is it correct that -- I want to make sure I have all the exhibits. Do you only have the Exhibit 1 which is the Dairyland Power Q1 rebuild technical memorandum exhibit?
A That's correct.
Q That's it. And there's no 2, 3, 4, 5, 10 --
A No.
Q -- 20? One second. I want to clarify. Is it correct that if the Q1 rebuild is not completed, that Dairyland would not be a part of this project?
A No, that's not correct. We initially got involved in the beginning of the project back in 2005 and 2006. Dairyland originally had started the planning study back then. And so we have been a member of the project since it started.
Q Is it correct that three of the units at the Alma plant will be shutting down?

A That's correct. The three smallest units.
Q Okay. And as it stands now, the project as proposed, there is no substation -- it does not connect at the Alma area, correct? It just goes through?
A That's correct.
Q So if the three -- if three of the units may be shutting down, what is the need for the Alma rebuild?
A The Alma rebuild, the Q1 line goes from Alma to Genoa, it was built back in 1950. We divided it up in three segments based on trying to rebuild that project. The line from North La Crosse with the Briggs Road substation to Alma, that line serves the City of Winona. There is a substation called Marshland, it is a primary source for that. It also serves Riverland Electric. They have customers off of that substation also.
Q But the Q1 line extends from Alma through Marshland down to La Crosse, correct?
A Correct.
Q And if there isn't the power coming out of Alma, the plant, where is the power coming from that will be on that line?
A The Alma plant actually has five -- well, take that back, there is six power plants at Alma. Three of them that are being proposed to be retired are 20

megawatt units each, they were built back in the late '40s, so there's three other power plants at the Alma site.

Q So 60 megawatts will be taken offline?

A That's correct.

Q And how many megawatts are left?

A Let me do some math here. I believe approximately 580 megawatts.

Q And so the line as it exists now is currently handling the 580 plus the 60, correct?

A There are five 161 lines out of the Alma site. So it's a combination of all five lines.

Q So the Q1 is only one of five?

A The Q1 is only one of five.

Q So it's handling a lot less than that. Does it matter how those are configured as far as what power is assigned to what lines?

A I don't know.

Q Well, okay. But if the Q1 line is handling the power generate -- its share of the power generated at Alma, if the -- if we lose 60 megawatts, won't there be less power coming out of Alma?

MS. AGRIMONTI: Your Honor, I'm going to object at this point. Mr. Thompson's testimony does not relate to engineering considerations.

EXAMINER NEWMARK: Sustained.

BY MS. OVERLAND:

Q In your technical memorandum attached as Exhibit 1, and you had earlier talked about the line being divided into three sections, and the 3.1, 3.2, 3.3 sections of the technical memorandum, would that be the same as the three sections you were describing? You had used the term Marshland, but I don't see that.

A Which page are you on?

Q Okay. If you look -- I'm just looking at the table of contents now of your technical memorandum where Section 3, Q1 rebuild options, we have 3.1, 3.2, 3.3. And you had mentioned that it's divided into three segments, but here they're, like, slightly different. And you had mentioned Marshland. So here we have Alma to Milton, Milton to Trempealeau, Trempealeau to Holmen.

A If you go to page 5 in our introduction, second paragraph down, it talks about the three segments that make up the total of 70 miles.

Q Page 5. Oh, page -- you mean page 5 of 102?

A Right, correct.

Q Okay. So it --

A The three segments that you're referring to, 3.1,

3.2, 3.3, those are the segments for the north 40 miles from Alma to La Crosse.

Q The north 40 only?

A Yeah.

MS. OVERLAND: Okay. I have no further questions.

EXAMINER NEWMARK: Okay. Other cross?

CROSS-EXAMINATION

BY MR. THIEL:

Q The Department of Transportation, Jim Thiel. Good afternoon. The Q1 line that's referred to that Dairyland Power Company has an easement for, where exactly does the Q1 line run?

A Could you repeat that again, please.

Q Yeah, what is the -- the three geographical endpoints of the Q1 line?

A The Q1 starts at the Alma substation; it proceeds south to a substation called Marshland where it interconnects; from there it goes to La Crosse; and it interconnects with a couple of NSP lines in La Crosse; and then continues on down to Genoa, Wisconsin.

Q Okay. But for purposes of this proceeding, we're just talking about Alma to La Crosse; is that correct?

A Correct.
Q And are you aware of the size of the easement for your existing line?
A Sure. Yes. The existing lines, they were purchased back in 1950, I believe the majority of those easements are blanket easements. And -- but we have been maintaining approximately an 80-foot right-of-way.
Q When you say a blanket easement, what do you mean by that?
A Those were easements that were generally purchased which took over a larger area than just the right-of-way, but those were typically types of easements that were gotten back in the early days.
Q So your testimony is that your right-of-way is not 80 feet, it's more than that; is that correct?
A That's going a little bit beyond what I can get into. I'm not a right-of-way expert.
Q When you talk about rebuilding the Q1 line from Alma down to La Crosse, when you say it needs rebuilding, do you have a precise cost estimate for rebuilding it exactly as it is now as a 161 kV line?
A We have done some generic numbers for that.
Q In the absence of this project, would you rebuild the 161 kV line in the same place it is now?

A Yes, we would.
Q And would you put the towers in the same place as they are now?
A That would probably be something we'd negotiate with the landowners. We would stay on the existing rights-of-way. Where the actual location of the poles would be, it may -- it may change.
Q Would you -- generally do you know whether you would replace them with the H-type poles?
A We can do either. We can do the existing H frame, they could be wood or steel, or you could go to a single structure, a single pole. So you could build it either way.
Q Are you aware that some of the easements are restricted to H-frame poles?
A I am not.
Q Have you looked at all of the easements along the line?
A Some of the folks in our right-of-way department have, yes.
Q You have no direct personal knowledge of what they state?
A No, I don't.
Q Approximately when would you proceed to reconstruct the 161 kV line in the absence of this initiative by

CapX?

A Well, we would need to wait until the Commission order comes out to know which route they've selected. Anticipating that they have chosen possibly the Arcadia route, we would begin work on doing the engineering, rights-of-way contacts and that type of thing. We would probably have to wait until the CapX line is constructed before we could take that line of service to rebuild it. So we're probably looking at starting construction in late 2015.

Q And I take it that would require a separate application to the Commission?

A Under Wisconsin law, if Dairyland stays on the existing rights-of-way, we do not need to get a CPCN.

Q And when you say on the existing right-of-way, does that mean the 80-feet right-of-way?

A Correct.

Q And is your application for funding to the RUS for the -- just the Wisconsin portion of the 345 kV project or is it broader than that?

A The Dairyland at this point has not applied to RUS for funding. The 345 project itself would be a separate what they call a work plan. We'd have to file a separate work plan for that project, and that would take in the whole projects in -- for the cost,

both the Minnesota and Wisconsin part.

Q So you do not have an application pending before RUS for funding?

A No. Under RUS rules, you have to put a project in a work plan, they have to approve that work plan. We've included in -- generally we submit two- to three-year work plans with RUS. This project has been included in that. The only funding we have put into that document is for the permitting phase of it. The next part of it is that they actually have to approve the Federal EIS. Unless the environmental documents are approved, it's at that point they decide whether they will or will not give you funding. So the application comes in after the project is probably built.

Q So it's a reimbursement of your share of the cost of the -- I guess I don't understand. What exactly is under consideration by RUS?

A The -- Dairyland has indicated that we're -- we planned on 11 percent ownership of the 345 kV project. The funding for that 11 percent we would put in an application to RUS to cover those costs.

Q Okay. So there is nothing for strictly improving the 161 kV line on the 80-foot right-of-way?

A That would be a separate document. Separate loan

request.

MR. THIEL: Thank you. I have no further questions.

EXAMINER NEWMARK: Okay. Other cross? No? Redirect?

MS. AGRIMONTI: Yes, Your Honor.

REDIRECT EXAMINATION

BY MS. AGRIMONTI:

Q I just wanted to clarify something with Mr. Thompson. You testified about the existing right-of-way for the Q1 and that's the existing 80 feet that TPC maintains for the Q1; is that right?

A That's correct.

Q And then you also testified that you are not in a position to be able to opine about whether the easements might allow TPC to maintain a right-of-way greater than that 80 feet; is that also correct?

A That's correct.

MS. AGRIMONTI: Thank you. That's all I have.

EXAMINER NEWMARK: Okay. You're excused.

(Witness excused.)

MS. AGRIMONTI: This is when I start begging.

EXAMINER NEWMARK: Okay. We'll take ten

minutes. We'll start at quarter to.

(Recess taken from 2:35 to 2:45 p.m.)

EXAMINER NEWMARK: Let's get on the record. Okay. Well, the applicants have offered written surrebuttal and exhibits for the next two witnesses, Stevenson and Hillstrom. And I guess the question is really how are we going to handle these? I've already decided for sake of time we can -- you know, if they go in, they go in as read. We have the paper version. We don't have to read it into the record.

However, I guess I'd like to hear from the parties about this. Because there is substantial information in here. So I mean, one thing I can offer is to give people more time, we could take these witnesses tomorrow. But I don't know if that's really going to solve our timing problems because of the order of witnesses we need to have. If it would help to have more time right now to review these, I could take -- we can go off the record for this.

(Discussion off the record.)

JEFFREY R. WEBB, MISO WITNESS, DULY SWORN

DIRECT EXAMINATION

BY MR. DAY: