FINAL ENVIRONMENTAL IMPACT STATEMENT

FINANCING ASSISTANCE FOR
PROPOSED HAMPTON – ROCHESTER – LA CROSSE 345 KV TRANSMISSION SYSTEM IMPROVEMENT PROJECT

RURAL UTILITIES SERVICE

DAIRYLAND POWER COOPERATIVE

Prepared by

URS Corporation

St. Louis, Missouri

July 2012

Final Environmental Impact Statement (EIS)

Hampton – Rochester – La Crosse

Transmission System Improvement Project

Submitted by the Department of Agriculture (USDA), Rural Utilities Service (RUS)

ABSTRACT: Dairyland Power Cooperative (Dairyland) may apply for financing assistance from RUS for its share in the construction of the Hampton – Rochester – La Crosse (HRL) Transmission System Improvement Project, an approximately 141–mile long, 345 kilovolt (kV) transmission line and related facilities between Hampton, Minnesota and La Crosse, Wisconsin (the Proposal). The Proposal also includes two connecting 161 kV lines in the Rochester area, with a total length of 48 miles, 18 of which will be co-located with the 345 kV line. Dairyland is participating in the Proposal with four other utilities (Applicants). The purpose of the Proposal is to: (1) improve community reliability of the transmission system in Rochester and Winona, Minnesota; La Crosse, Wisconsin and the surrounding areas, which include areas served by Dairyland; (2) improve the regional reliability of the transmission system; and (3) increase generation outlet capacity.

This EIS considers other alternatives to meet the identified purpose and need for action. Alternatives were evaluated in terms of cost-effectiveness, technical feasibility, and environmental issues. Alternatives evaluated in detail in the EIS include several alternative alignments for the Proposal and the no action alternative. Adverse impacts of the Proposal are primarily those on visual, biological, wetlands, and socioeconomic resources. This EIS identifies measures incorporated into the Proposal to minimize these impacts and considers additional potential mitigation measures that would further reduce adverse impacts.

The U.S. Army Corps of Engineers (USACE) and the U.S. Fish and Wildlife Service (USFWS) are participating in the EIS as cooperating agencies, with RUS as the lead federal agency.

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Written comments on this Final EIS will be accepted for a period of 30 days following the publication of the U.S. Environmental Protection Agency's notice of receipt of the Final EIS in the *Federal Register* (estimated close of comment period is August 20, 2012).

Executive Summary

Introduction

Dairyland Power Cooperative (Dairyland) anticipates applying for financing assistance from RUS for its projected 11% ownership interest in the construction of the Hampton – Rochester – La Crosse (HRL) Transmission System Improvement Project, a proposed transmission project between Hampton, Minnesota (southeast of the Twin Cities) and La Crosse, Wisconsin (the Proposal). Dairyland is participating in the Proposal with four other utilities.

Dairyland also anticipates that RUS financing will be requested for the rebuild of its North La Crosse – Alma 161 kV line (Q1 Rebuild), which is located in the Proposal area. The preferred alternative, as identified in this Final Environmental Impact Statement (EIS), includes approximately two-thirds of the Q1 Rebuild, which will be incorporated into the Proposal and included in the Proposal costs. If the facilities were not co-located at all, Dairyland would need to seek an additional approximately $34 million from RUS to finance the standalone Q1 Rebuild in the 2014-2015 time frame.

RUS is the agency that administers the U.S. Department of Agriculture's (USDA) Rural Development Utilities Programs. To fulfill its obligations under the National Environmental Policy Act (NEPA), RUS is completing this EIS. According to RUS regulations,[1] the Proposal requires an Environmental Assessment with scoping. However, due to the potential for significant impacts, RUS is preparing an EIS. This Final EIS discusses Dairyland's Proposal and alternatives and analyzes the potential effects of the Proposal (and alternatives) to the environment. In accordance with Section 106 of the National Historic Preservation Act and its implementing regulations, and as part of its broad environmental review process, RUS must take into account the effect of the Proposal on historic properties. Pursuant to those regulations, RUS is using its procedures for public involvement under NEPA[2] to meet its responsibilities to solicit and consider the views of the public during Section 106 review.

[1] Title 7 of the Code of Federal Regulations (7 CFR) §1794.24(b)(1)
[2] 7 CFR §1794.13

The U.S. Army Corps of Engineers (USACE) and the U.S. Fish and Wildlife Service (USFWS) are participating in the EIS as cooperating agencies, with RUS as the lead federal agency.

Dairyland is a not-for-profit electric generation and transmission cooperative owned by its members and headquartered in La Crosse, Wisconsin. As such, it provides wholesale electricity and related services to 25 electric distribution cooperatives and 16 municipal utilities, which collectively provide electricity to approximately 600,000 consumer members in parts of Wisconsin, Minnesota, Iowa and Illinois. Dairyland delivers electricity via more than 3,100 miles of transmission lines and nearly 300 substations. Dairyland identified participation in the Proposal as its best course of action to meet future needs for reliable electric service in the Rochester and La Crosse areas.

The Proposal is a joint effort among the CapX 2020 group of utilities (Applicants), of which Dairyland is a participant. The other participants are Northern States Power Company, a Minnesota corporation (NSPM), and Northern States Power Company, a Wisconsin Corporation (NSPW) (collectively, Xcel Energy), Southern Minnesota Municipal Power Agency (SMMPA), Rochester Public Utilities (RPU), and WPPI Energy, Inc. (WPPI). RUS has established procedures for determining if a proposed project for which a loan or loan guarantee is sought is both technically and financially feasible. Following RUS' procedures, Dairyland prepared several studies prior to this EIS, including an Alternatives Evaluation Study (AES) and a Macro-Corridor Study (MCS), which were subject to RUS' review and approval prior to release to the public and other agencies for comment. Those reports, RUS' notice of intent to prepare an EIS, and the Draft EIS are available to the public on RUS' website at: *http://www.rurdev.usda.gov/UWP-CapX2020-Hampton-Rochester-LaCrosse.html*. The information and analyses from the AES and the MCS are incorporated into this Final EIS. Changes from the results and conclusions of the AES and the MCS are detailed in this EIS.

Relationship between federal and state EIS

In addition to the federal EIS, construction of the Proposal requires a state level EIS from both Minnesota and Wisconsin. A Certificate of Need (CON) and a route permit

(MRP) are required from the State of Minnesota and a Certificate of Public Convenience and Necessity (CPCN) is required from the State of Wisconsin.[3] Xcel Energy, one of the participants in the Proposal, submitted the applications for the CON, the MRP, and the CPCN on behalf of all the CapX 2020 participants. Due to differences in the environmental review processes between the two states, a joint EIS was not agreed upon among the three entities. The Minnesota Draft EIS was published in March 2011 and the Final EIS was published in August 2011. The Wisconsin Draft EIS was published in November 2011 and the Final EIS was published in January 2012. To minimize duplication of effort, and to maintain consistency with the States' approaches, RUS has verified and used information directly from the Minnesota EIS and the Wisconsin EIS in preparing this EIS, to the extent the information is relevant to RUS' process. RUS has also incorporated comments on the Minnesota Draft EIS to the extent those comments are applicable to the process.[4] Naming conventions from the Minnesota EIS and the Wisconsin EIS are retained throughout this document.

The public and various governmental agencies have had opportunity to provide input and comment on the purpose and need, the AES, and the MCS throughout the scoping process. These activities were summarized in a scoping report, which is included as Appendix B of this EIS, and is also available at the RUS website (noted above). Appendix C of this EIS includes a summary of RUS' responses to the several hundred comments received during public scoping. In addition, throughout the Minnesota Draft EIS scoping process, the public had the opportunity to propose alternative routes. Those additional routes identified through the Minnesota scoping process and included in the Minnesota EIS are also included in this EIS (Section 1.4.2.2).

[3] CON: Minnesota Statute 216B.2425; Minnesota route permit: Minnesota Administrative Rules (Minn. Rules) 7850.1900 Subpart 2; Wisconsin CPCN: PSC 111.55.
[4] Comments on the Wisconsin Draft EIS were not available at the time the RUS Draft EIS was prepared.

Description of the Proposal

The Proposal consists of the following:

- A new 345 kV transmission line from the Hampton Substation near Hampton, Minnesota, to a proposed North Rochester Substation to be located between Zumbrota and Pine Island, Minnesota.
- A new 345 kV transmission line from the proposed North Rochester Substation across the Mississippi River near Alma, Wisconsin.
- A new 345 kV line from Alma, Wisconsin to a new substation proposed in the north La Crosse, Wisconsin area (Briggs Road Substation).
- A new 161 kV transmission line between the proposed North Rochester Substation and the existing Northern Hills Substation, located in northwest Rochester, Minnesota.
- A new 161-kV transmission line between the proposed North Rochester Substation and the existing Chester Substation, located east of Rochester.

The total length of the proposed 345 kV transmission line is approximately 124 to 148 miles, depending on the route, and the approximate length of the 161 kV lines is 44 to 49 miles, depending on the routes. Substation construction and modification are also included as part of the Proposal. The alternatives evaluated in detail in this EIS for the Proposal are shown in Figure ES-1.

Purpose and Need for the Proposed Action

In summary, the purpose of the Proposal is to: (1) improve community reliability of the transmission system in Rochester, Winona, La Crosse, and the surrounding areas, which include areas served by Dairyland; (2) improve the regional reliability of the transmission system; and (3) increase generation outlet capacity. Increasing generation outlet increases grid efficiency by allowing the electricity to move from where it is generated to where it is needed, resulting in lower cost energy to consumers.

The Proposal is focused on meeting identified needs for transmission system reliability and efficiency. A reliable transmission system delivers electricity where it is needed even when some lines or generators are out of service. An efficient system helps reduce the need for new generating facilities. In an inefficient system, electricity can become trapped within the transmission network grid because of congestion or outages and consequently cannot be delivered to all the places where the energy is needed. In these cases, energy needs must be met by increased generating facility operation.

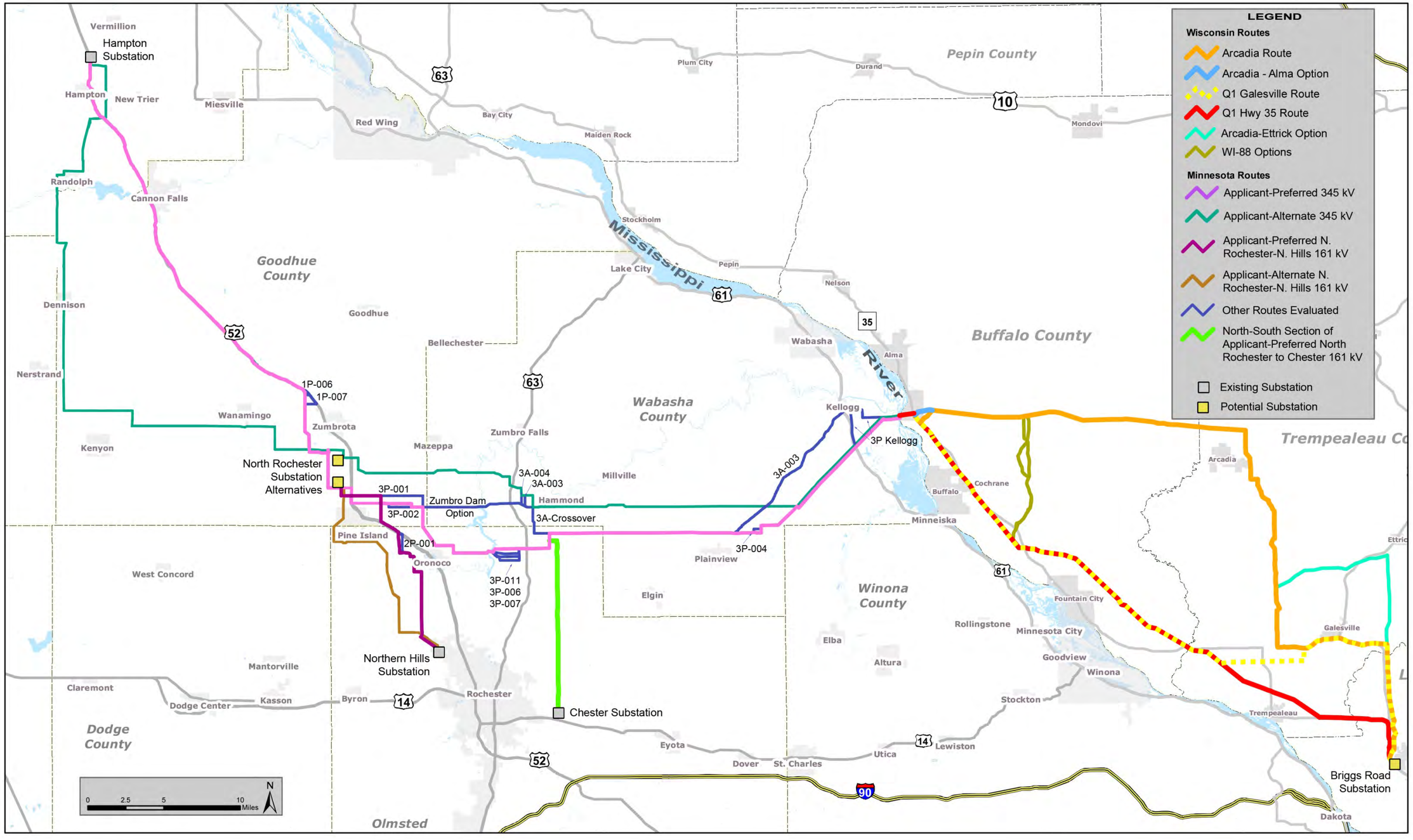

Figure ES-1: Alternatives Evaluated in Detail for the Proposal.

The Applicants identified their need through planning studies conducted over the last several years. These planning studies are detailed in the AES.

Reliability and Planning Entities

In addition to the Applicants, a number of other entities have responsibility for planning to ensure reliability of the electric transmission system and to help maximize system efficiency. The Minnesota Public Utilities Commission (PUC) and the Wisconsin Public Service Commission (PSC) are responsible for ensuring that utilities plan for adequate transmission system improvements in their respective states. Both commissions require the periodic preparation of planning documents from utilities.

Utilities, state governments, and other planning entities work with regional electric power planning organizations, whose authority is derived through national energy policy and legislation. In the U.S., regional and national corporations responsible for ensuring the reliability of the electricity system operate under the Department of Energy's Federal Energy Regulatory Commission (FERC) and have the authority to develop and enforce reliability standards. The North American Electric Reliability Corporation (NERC) maintains a set of detailed reliability standards, including standards for transmission, which are enforced through regional entities. The Midwest Independent System Operator (MISO) Regional Transmission Organization (RTO) has primary responsibility and authority for maintaining the reliability and efficiency of the transmission system over a large part of the Midwest, including the Proposal area. MISO's authority includes planning for transmission expansions and approving or rejecting projects proposed by utilities. MISO presents the results of its planning in annual transmission expansion plans (MTEPs).

MISO classifies transmission projects under consideration as follows:

- Projects in review and conceptual projects (Appendix C in the MTEP).
- Projects with documented need and effectiveness (MTEP Appendix B).
- Projects approved by the MISO Board of Directors, or recommended for approval (MTEP Appendix A).

MISO discussed the Proposal (as "the HRL project") in its 2006 MTEP and noted that it worked closely with the CapX 2020 group during the development of the CapX 2020 plans "to meet the longer term load serving needs of the area and to coordinate these plans with other expansion concepts in Wisconsin and Iowa" (MISO 2006, p. 13). In its 2007 MTEP, MISO identified the Proposal as an "Appendix B" project (one with documented need and effectiveness) based on community reliability and stated that it is needed to resolve NERC Standard issues in Rochester and La Crosse (MISO 2007, p. 10).

The Proposal was included in Appendix A in the 2008 MTEP (MISO 2008, p. 25). In that report, MISO discussed the need for the Proposal for regional reliability. It identified the Proposal as one of nine needed to reduce MISO's "top 10 binding constraints," (paths of transmission congestion that limit the overall usefulness of the system). MISO reported that without relieving these constraints, "limited benefits can be achieved by the Midwest ISO" (MISO 2008, p. 254).

In its 2010 MTEP, MISO discussed the Proposal in terms of generation outlet and included modeling results that showed how the Proposal and another project are expected to relieve trapped generation that is projected to be present throughout most of Minnesota by 2014 (MISO 2010, p. 180).

This Final EIS incorporates recent MISO updates (Webb 2012, MISO 2012).

Alternatives Eliminated From Detailed Consideration

Mississippi River Crossings

The MCS identified corridors within which route alignments could be developed to meet the purpose and need, and also identified specific route options within those corridors. The biggest change from the final MCS macro-corridors to this EIS is the elimination of

two of the original three Mississippi River crossing alternatives: the crossing at Winona (the middle option) and the crossing at La Crescent (the southern option).

The three crossing alternatives included in the MCS are compared in Table ES-1. All three alternatives cross the Mississippi River at an existing transmission line crossing (the primary criteria used to identify the river-crossing alternatives). However, on the Minnesota side, the existing transmission corridors at Winona and La Crescent are not available west of the river for many miles. Furthermore, there are no major roadways within the MCS final corridors at either Winona or La Crescent on the Minnesota side. At the La Crescent alternative, on the Wisconsin side alignment options are limited to either heavily developed land or wetlands.

The existing right-of-way (ROW) at all three crossings is at least partially on USFWS Wildlife Refuges; however, the Winona crossing requires a much greater length through Refuge property, and crosses large areas of marshland (Table ES-1). Winona and La Crescent have much smaller available existing ROWs than Alma. Only the Alma crossing is feasible with minimal additional ROW. The Alma crossing is also located at Dairyland's existing Alma generating station. While the Alma crossing has nearby eagle nests, the crossing is not located near known bird concentration points. The Winona crossing is located near bird concentration points, and the La Crescent crossing is located near a very large active rookery.

Additionally, due to extensive wetlands, development, and topography (steep bluffs), substation locations may not be feasible for the La Crescent crossing.

Table ES-1: Comparison of Preliminary River Crossing Alternatives

Alma Crossing	Winona Crossing	La Crescent Crossing
Use of Existing Corridors, MN		
No new corridor required.	10 miles new corridor required.	15 miles new corridor required.
Use of Existing Corridors, WI		
Two feasible route options that follow existing transmission lines.	Two feasible route options: 1) an existing transmission line and 2) property boundaries/roads.	Route options may not be feasible due to potentially unpermittable wetland impacts and/or displacement of business.
Length in Floodplain		
1.4 miles	3.25 miles	2.5 miles
Information on ROW within Refuge Land (USFWS 2009a)		
Existing 125 feet, permitted 180 feet, established 12/23/1948; indefinite, general stipulations.	Existing < 100 feet, permitted 100 feet. New metal poles installed 2003.	Existing < 100 feet, permitted width 100 feet, issued 6/6/1967 and expires 6/5/2017; general stipulations.
Length through Refuge Property		
2,900 feet	13,540 feet	2,790 feet
Area of Refuge Open Water/Marsh within 150 ft. of Centerline (USFWS 2009a)		
10 acres open water/1.9 acres marsh. Marshes: silver maple and green ash with Eastern cottonwood and swamp white oak.	45.7 acres. No description.	15.5 acres. No description.
Forested Refuge Area within 150 ft. of Centerline (USFWS 2009a).		
9.6 acres. Mature floodplain forest dominated by silver maple and green ash with Eastern cottonwood and swamp white oak.	7.8 acres. No description.	19.9 acres. No description.
Estimated Number of Poles in Wetlands[5]		
7	28	15
Estimated Permanent Wetland Impacts, Acres (80 sq. ft per pole)		
0.01	0.05	0.03

[5] 600-foot spacing on USFWS property, 1,000-foot elsewhere, plus accommodations for crossing open water.

Alma Crossing	Winona Crossing	La Crescent Crossing
Nearby Biological Features (USFWS 2008a, 2009b)		
Two active eagle nests on the Minnesota side: one adjacent to the existing line and one 1,800 ft. from the corridor.	Large numbers of migratory birds that use the open water/marsh area.	Active eagle nest 0.5 mile from line; active rookery with hundreds of great blue heron, great egret, and double-crested cormorant nests is located 0.3 mile upriver on the WI side.
USFWS Position (USFWS 2008a, 2009a)		
Alma crossing may pose least environmental impact because of existing ROWs, greater existing ROW width, and because it is least likely to impact migratory birds since it is some distance from known bird concentration points.	Due to the predominantly wetland habitat crossing and the importance of the refuge to migratory birds, this alternate is opposed by the USFWS.	Route is of concern due to proximity of the rookery (in addition to the eagle nest).
Engineering Considerations		
Narrowest river crossing.	Widest river crossing, requiring multiple poles to be located in Mississippi River backwaters.	Second widest river crossing.
Route follows existing transmission corridor through blufflands. Wider ROW through refuge property allows flexibility to design lower structures to mitigate potential impacts to birds and aesthetics.	New corridor required in blufflands, limited access. Narrow ROW through refuge property results in tall structures causing greater potential impacts to birds and aesthetics.	New corridor required in blufflands, limited access. Narrow ROW through refuge property results in tall structures causing greater potential impacts to birds and aesthetics.
Feasible Substation Locations		
Three potential substation sites.		Wetlands make La Crosse Substation not feasible; other alternatives require business displacement or an upgraded line in the La Crosse Marsh.

The Applicants also considered placing the 345-kV line underground at the Mississippi River crossing. Underground construction: (1) requires a wider ROW; (2) adds approximately $90 million to the Proposal cost for underground construction of 1.3 miles of the proposed 345 kV line; (3) has specific environmental impacts of its own; and (4) does not eliminate the existing overhead transmission line facilities (Section 2.2.6.2). RUS concurs with the Applicants' conclusion that undergrounding is not a feasible alternative for the Proposal.

Other Alternatives Eliminated

Minnesota. In the Minnesota region of the Proposal area, a utility-preferred (Route P) and an alternate route (Route A) were identified in the AES. During the scoping process for the Minnesota Draft EIS, a large number of alternatives were added, including two that were identified in the AES but were, at that time, eliminated from detailed consideration. These Minnesota alternatives are discussed in detail in Section 2.2. In general, RUS' comparative screening analysis (included in Section 2.2.6.3) shows that most of these alternatives have more impacts than the sections of Route P or A they would replace. However, a few of these alternatives appeared to have the potential to result in reductions in impacts compared to the corresponding sections of Route P or A; therefore, these alternatives were retained. Minnesota alternatives not studied in detail are discussed in Section 2.2.6.3.

Wisconsin. In the Wisconsin portion of the Proposal area, the changes from the MCS final corridors and route alternatives center on avoidance options for potential impacts from using the Q1 route, which is Dairyland's existing 161 kV line that extends along a corridor that is generally parallel to the Mississippi River. The Bluff Route was studied to avoid the Great River Road National Scenic Byway (GRRNSB)/WI-35 south of Alma, and was included in the MCS. However, the Bluff Route does not follow any existing linear corridors. In general, transmission line impacts can be minimized by following existing linear corridors because the impacts created are incremental rather than new. This is particularly relevant when the Proposal follows an existing transmission line, because in those cases, the Proposal includes removal of the existing transmission line and its subsequent placement on the same poles as the Proposal lines. Not following

an existing corridor when available is also inconsistent with Wisconsin law.[6] Therefore, this route was eliminated from detailed consideration in the EIS. It was also not included in the CPCN. The Blair Route, like the Arcadia Route, was another alternative to the Q1 Route, and, like the Arcadia Route, would follow an existing 161-kV transmission line. Because it is the greatest distance from the Upper Mississippi River National Wildlife and Fish Refuge (UMRNW&FR), the USFWS has concluded that it has the lowest risk for birds utilizing the UMRNW&FR. (Bird collision potential is discussed below.) However, compared to the Arcadia Route, which is also not close to the UMRNW&FS, the Blair Route would add approximately 5 miles of length (9% more) and cost an additional $13 million. While the impacts for Blair were not evaluated in detail, since both routes would follow an existing 161-kV transmission line, the additional length represents 9% more land impacts, which would be primarily to agricultural land and some forest. An advantage of the Blair Route is that, unlike the Arcadia Route, it does not pass by Galesville, where there are housing developments on both sides of the roadway that the Proposal follows (this was later addressed by adding the Arcadia-Ettrick Option, as discussed below under *Alternatives Evaluated in Detail*). The routes that pass by Galesville have more residences in the range of 151 to 300 feet from the route centerline (but not necessarily at the closer distances). Generally, when two route alternatives are very similar in attributes, one is eliminated from detailed study. Since the Arcadia Route accomplished the same purpose of avoidance of the Q1 Route and its attendant concerns at less cost and length, the Blair Route was eliminated from detailed evaluation and the Arcadia Route was retained. A portion of the Q1 Route through the Black River Bottoms of the Upper Mississippi River National Wildlife and Fish Refuge (UMRNW&FR) was eliminated from detailed consideration for the 345 kV line because of the potential impacts to high quality resources. In addition, the USFWS will not consider permitting this route. Wisconsin alternatives not studied in detail are discussed in Section 2.2.6.4.

[6] Wis. Stat. 1.12(6). See Section 2.2.6 for a discussion of State law regarding siting of transmission lines.

Alternatives Evaluated in Detail

Alternatives evaluated in detail are discussed in Section 2.4.2.5, and the comparative analysis of alternatives is included in Section 2.5.

Minnesota

The Applicants' proposed and alternate routes are evaluated in detail in this EIS. In keeping with the nomenclature used in the Minnesota EIS, the Applicants' proposed 345-kV segment from Hampton to North Rochester is designated Route 1P, the 161-kV segment from North Rochester to Northern Hills is designated Route 2P and the 345-kV segment from North Rochester to the Wisconsin state line at the Mississippi River is designated Route 3P. The corresponding segments for the Applicants' alternate route are designated as Routes 1A, 2A, and 3A respectively. Segments proposed during the Minnesota Draft EIS scoping process were generally assigned numbers based on the Route P or A segments they would replace.

Because they appeared to have potential for reduced impact and/or greater consistency with State legal requirements for transmission line siting,[7] the following alternative segments proposed during the Minnesota Draft EIS scoping process were also retained for detailed analysis (Figure ES-1):

- Routes 1P-006 and 1P-007, which were proposed to prevent impact to potential future quarry development.
- Routes 3P-001 and 3P-002, which follow roadways at locations where Route 3P follows no existing corridor, and therefore result in less overall incremental impact and are more consistent with Minnesota law.
- Route 2P-001, which impacts fewer residences and avoids wetland impacts.
- Zumbro Dam Option – provides another alternative for crossing the Zumbro River.
- Route 3A – Crossover – allows for combinations of Route 3A and 3P.
- Routes 3P-006, 3P-007 and 3P-011: avoid forest clearing.

Wisconsin

After elimination of the Bluff and Blair Routes and the portion of the Q1 Route that passes through the UMRNW&FR, the remaining MCS alternatives included the Q1-

[7] See Section 2.2.6 for a discussion of State law regarding siting of transmission lines.

Galesville Route, the Q1-Highway 35 Route, and the Arcadia Route (Figure ES-1). Three additional route alternatives were included in the CPCN application and are addressed in this EIS. One alternative uses a portion of the Arcadia Route and the existing Wisconsin Highway 88 (WI-88) as an alternative to avoid impact to the GRRNSB at the northern end of the Q1 corridor. This alternative, Route WI-88 (Options A and B), serves the same purpose as the eliminated Bluff Route; however, it follows an existing highway corridor. The Blair Route (which was eliminated from detailed consideration) has one noted advantage: its avoidance of the more populated area at Galesville. However, another alternative, the Arcadia-Ettrick Option, was included in the CPCN application at the request of the Wisconsin Department of National Resources (WDNR) and it also avoids the more populated area at Galesville. Use of the Arcadia-Ettrick Option results in an additional 2.2 miles and $10 million compared to the Arcadia Route. The Arcadia-Ettrick Option is evaluated in detail in this EIS.

The alternatives in Wisconsin retained for detailed comparison include 1) the Arcadia Route, which passes near the City of Arcadia, and, at the southern end, follows the Galesville-US-53 corridor; 2) the Arcadia-Alma alternative, which is the same as Arcadia except for a very short section near the Mississippi River; 3) the alternative Arcadia-Ettrick Option, which is longest but avoids the City of Galesville; and 4) the Q1 Route, which is shortest, but follows closest to the Mississippi River amd the UMRNW&FR.

Preferred Alternative

RUS' preferred alternative, which was identified based on cost-effectiveness, technical feasibility, and minimization of environmental impact, is shown in Figure ES-2, described in Section 2.6, and summarized below.

Minnesota

The PUC has issued a route permit for the Proposal (Appendix AA), with the exception of the North Rochester to Chester 161 kV line, which is included under a separate permit application. The PUC criteria for identification of a route requires consideration of avoidance of specific potential impacts in accordance with Minnesota Rule 7850.4100 and is consistent with the criteria RUS has used in this EIS to evaluate the alternatives. The PUC permit is for Routes 1P, 2A, and 3P as addressed in this EIS, with minor

modifications (as indicated below). Dairyland anticipates requesting financing assistance for its share in the permitted project plus the North Rochester to Chester 161 kV line, which has not yet been permitted.

RUS' preferred alternative for the Minnesota portion of the Proposal is consistent with the PUC's permitted route and consists of the following:

- In Segment 1, Route 1P, with the modification to avoid the developed area at the US 52/MN-19 interchange (discussed in Section 2.5.1.1 and included in Appendix J).
- In Segment 2, Route 2A.
- In Segment 3, Route 3P, as modified by the use of Route 3P-001 and 3P-004.

In addition, RUS' preferred alternative includes the Applicants' preferred alternative for the North Rochester to Chester 161 kV line. The rationale is summarized briefly below and detailed in Section 2.6.1.

Segment 1 – Route 1P Hampton Substation to North Rochester Substation - 345 kV Line. Based on the analysis contained in this EIS (summarized in Section 2.5 and Table 2-6), Alternative 1P, with 82% of its length following existing roadway and/or transmission ROW, is preferred over the other alternatives. Compared to Route 1A, Route 1P is 36% shorter, has fewer stream crossings; less potential for threatened or endangered species within the ROW, less potential impact on grassland bird conservation areas and State-designated biodiversity sites, no conversion of wetland forest (compared to 4.7 acres for Route 1A), less temporary and permanent impacts on agricultural land, and a comparable number of residences within 300 feet of the centerline; and is less costly to build. In addition, Route 1P would not affect Lake Byllesby, a state-level Important Bird Area (IBA) and an important regional park. Route 1P has a greater area of forest removal: 223 acres compared to 74 for Route 1A. The impacted forest is primarily forest edge, resulting from increased ROW width, and is unavoidable. Details of the forest impacts for Route 1P are included in Section 3.5.2.1 and conceptual mitigation measures are discussed in Section 3.5.3.1. Neither alternative would have temporary or permanent wetland impacts (4.7 acres of converted forested wetland for Route 1A).

None of the routes proposed during the MN scoping process were considered preferable to Route 1P. Routes 1P-006 and -007 appeared to potentially avoid impacts to additional development of a quarry. However, RUS received no comments on the Draft EIS regarding these alternatives, and RUS found no information in the PUC docket regarding any development plans for these quarries that might be impacted by Route 1P, or any other potential impacts to the quarries from Route 1P. Therefore, while Route 1P would cross a roadway between two existing quarries, based on the information available, it does not appear to impact the quarries. Both Routes 1P-006 and 1P-007 are longer, have long floodplain crossings, and Route 1P-007 has more residences close by; therefore, RUS did not include these route options in its preferred alternative.

Segment 2 – Route 2A – North Rochester Substation to Northern Hills Substation - 161-kV Line. Routes 2P and 2A are generally comparable in terms of impacts, except that Route 2P has more than twice the number of homes within 300 feet of the route centerline (51 compared to 28) (see Table 2-6 for a summary comparison of Minnesota alternatives). Route 2A has more length following transmission lines and Route 2P has more length following roadways. As discussed above, for the Proposal, RUS generally prefers routes that follow existing transmission lines to routes that follow roadways because the existing transmission lines would be removed and placed on the same poles as the Proposal, resulting in no net increase in the number and length of transmission lines. While neither route has any permanent wetland impacts, Route 2A has two acres of temporary wetland impact and 1.4 more acres of forested wetland conversion than Route 2P. While Route 2A would not directly impact the Douglas State Trail, it parallels it for several thousand feet. Impacts to the Douglas Trail area would be minimized by locating the transmission line ROW outside of the trail ROW thus avoiding tree clearing along the trail. The Applicants would work with the Minnesota Department of Natural Resources (MDNR) during the detailed design and permitting stages to develop a mitigation plan that would minimize the loss of trees. In addition, Route 2A is approximately 6% more expensive than Route 2P. RUS finds Alternative 2A to have sufficiently less environmental impact to justify the additional cost; this is primarily because Route 2A would replace an existing transmission line

rather than create a new one, has half as many residences close to the line, has minimal additional wetland impact, impacts to the Douglas State Trail can be minimized, and most other impacts are similar.

Route 2P-002 would have reduced the number of residences within 300 feet of the route centerline for Alternative 2P; however, it does not follow any existing corridors (Section 2.5.1.1) and is therefore eliminated.

Segment 3 – Route 3P (3P-001 and 3P-004) North Rochester Substation to Mississippi River 345 kV Line. The main differences between Routes 3P and 3A are at the crossing of the Zumbro River. Route 3P crosses the Zumbro River at the existing crossing of White Bridge Road, while Route 3A crosses at a location with no existing infrastructure. Most impacts, such as potential impacts to threatened and endangered species, crossings of IBAs and Minnesota-designated biodiversity sites, permanent and temporary wetland impacts, crossings of formally classified land, and impacts to residences are similar for both (Section 2.5 and Table 2-6). However, Route 3P has fewer acres converted from forested to emergent wetlands, and less impact on forests. The estimated cost of Route 3P is 4% greater than Route 3A. Route 3P Zumbro (Zumbro Dam Option) crosses at an existing dam; however, there is no other infrastructure along the alignment near the river, and construction would require 2,800 feet of clearing through forest designated by the State as a Biodiversity Site of High Significance. RUS finds Route 3P to be preferable to Routes 3A and Route 3P Zumbro, primarily because it is the only route that crosses the Zumbro River at a location of existing infrastructure, and thereby avoids new impacts to the Zumbro River and the adjacent forested land, including floodplain forests. RUS has concluded that this crossing represents sufficiently less environmental impact to justify the additional 4% cost over Route 3A.

Routes 3P-006, -007 and -011, which are just east of the Zumbro River, all avoid the tree clearing that would be needed with the comparable section of Route 3P. However, Routes 3P-006 and 3P-011 would have more nearby residences. The administrative law judge, in the recommendation to the PUC for the route alternatives, reported a

landowner objection to Route 3P-007: it “would run through farming operation and disrupt terraces installed for water and soil erosion” (MOAH 2012 p. 74).

Routes 3P-001 and 3P-002 follow roadways at locations where Route 3P follows neither a roadway nor a transmission line. Neither alternative has any noted disadvantages compared to Route 3P. As shown in Figure ES-1, Routes 3P-001 and 3P-002 are mutually exclusive. Because Route 3P-001 is longer than Route 3P-002 and therefore results in more use of existing roadway, it was identified as part of the preferred alternative and Route 3P-002 was not.

Route 3P-004 follows more roadway than the comparable section of Route 3P and avoids tree clearing. It also follows a section line where Route 3P goes cross-country. It has no apparent disadvantages in comparison to the section of Route 3P it would replace and was therefore included as part of the preferred alternative.

Route 3B-003 is an option for both Route 3P and 3A just west of the Mississippi River that avoids the McCarthy Lake Wildlife Management Area (WMA), the associated Biodiversity Sites of High Significance (as designated by the State of Minnesota), and several thousand feet of wetland crossing. It follows MN-42 instead of the existing transmission corridor. However, it has several more residences within 300 feet of the centerline of the alignment than the comparable section of Routes 3P/3A (which coincide at this location). Also, the existing 161 kV line crossing the McCarthy Lake WMA would remain in place, regardless of the route alternative chosen. Use of Route 3B-003 would result in a new transmission corridor about 11 miles long created 1.5 to two miles northwest of the existing 161 kV line. In addition, the Minnesota Department of Transportation (MnDOT) has expressed concerns regarding steep banks, erosion, slope failure, water drainage, and rock fall along MN-42 (MDC 2011c, p. 182). Route 3P would result in approximately 13 acres of forested wetland converted to emergent wetland, and 7 acres of temporary wetland impacts, compared to 7 acres of forested wetland converted to emergent wetland and negligible temporary wetland impacts for Route 3B-003. However, although it would cross several thousand feet of wetlands, because impacts occur only at the pole locations, Route 3P would result in only 0.02 acre of wetland impact that is specifically covered under Section 404 of the Clean Water

Act (permanent filling or impact). This is negligible considering the other impacts described above in the comparison of Route 3P and Route 3B-003. Therefore, Route 3P is preferred and 3P-003 was eliminated.

Route 3P-Kellogg would avoid McCarthy Lake WMA; however, it crosses several thousand feet of wetlands, would require the conversion of 10 acres of forested wetland, is nearly twice as long as the corresponding section of Route 3P, and (like Route 3B-003) would result in a new transmission line placed very close to an existing one. Furthermore, it follows 1.5 miles of the GRRNSB at a location with no existing transmission line.

Based on this comparison, Route 3P, modified by the inclusion of Routes 3P-001 and 3P-004, is RUS' preferred alternative for Segment 3.

The McCarthy Lake WMA was purchased with the support of funding through the Federal Aid in Wildlife Restoration (Pittman-Robertson) Act. The Applicants are currently reviewing the existing Dairyland Power easements to confirm that the proposed 345 kV transmission line can be constructed and maintained in compliance with these existing easements and would not require the taking or conversion of Pittman-Robertson grant-funded lands. If the taking or conversion of Pittman-Robertson grant-funded lands would be required, the USFWS, a cooperating agency on this EIS, may not consider Route 3P to be the environmentally preferred alternative in terms of impacts to USFWS trust resources.

Wisconsin

Wisconsin route alternatives are shown in Figure ES-1 and compared in Section 2.5.2, including Table 2-7. RUS' preferred alternative in Wisconsin is the Q1-Galesvile Route (Figure ES-2). RUS' rationale for the preferred alternative in Wisconsin is presented in Section 2.6.2 and summarized below.

The most direct route for the Proposal in Wisconsin is the existing Dairyland Q1 161-kV corridor that runs from Alma to Holmen. This Q1 Route would fully utilize an existing transmission line ROW (Dairyland's Q1 Line) in a direct route from Alma to Holmen by co-locating the two lines on one set of structures. In addition, the Q1 line is near the end of its useful life, is planned for rebuilding, and use of the line for the Proposal would

result in substantial cost savings for Dairyland's customers; if the route could be used for the Proposal, the cost of replacing Dairyland's Q1 Line would be incorporated into the Proposal.

Thus, the trade-offs in the Wisconsin part of the route are between the longer and costlier routes with greater impacts to agriculture and homes versus the potential impacts to the GRRNSB/WI-35 (along the northern part of the route) and impacts to resources in the Black River Bottoms, including forested wetland impacts and potential impacts to important species. In addition, the USFWS is concerned about potential impacts to Refuge resources from any use of the Q1 Route for the Proposal. In letters to both the PSC and RUS, and in comments on the Draft EIS, the USFWS expressed its concerns about potential impacts to eagles and other migratory birds from alternatives that use all or part of the Q1 route because of the relative proximity of the Q1 corridor to eagle nests, eagle use areas, and high use areas for other migratory birds (letters included in Appendices S and X).

In a final decision issued May 30, 2012, the PSC determined that the Proposal is needed and that a CPCN will be issued for the Q1-Galesville Route. The route selected by the PCS is included in Appendix BB. Wisconsin's statutory requirements include siting along an existing utility corridor (most preferable) or an existing highway or railroad corridor. Under Wisconsin law, this preference needs to be consistent with economic and engineering considerations, reliability of the electric system, and protection of the environment. Wisconsin regulations require the EIS to be prepared in accordance with CEQ regulations, in addition to other specific requirements.

RUS' preferred alternative is consistent with the route the PCS has selected. Because of the potential increased risk of collision to some birds that use the UMRNW&FR and Trempealeau Refuge, the Q1-Galesville Route is not the environmentally-preferred alternative in terms of the avian resources USFWS manages. However, the overall considerations of cost-effectiveness, technical feasibility, and environmental impacts to all resources – in combination with the use of the existing Q1 Route and proposed mitigation – has led RUS to identify the Q1-Galesville as its preferred route. The basis for RUS' preference is summarized below. Since the Q1 Route requires rebuilding (with

funds anticipated to be requested from RUS) and is the most direct and lowest-cost alternative for Dairyland customers, the analysis is based on a comparison of environmental impacts of alternatives to the Q1 Route. Alternatives to the southern part of the Q1 Route are discussed first, followed by a discussion of alternatives to the northern part of the route.

Potential impacts from the Q1 Route are greatest in the southern part of the route, in the area of the Black River Bottoms, which is composed of forested wetlands and provides important habitat for a number of species including the Wisconsin-endangered massasauga rattlesnake. The original Q1 Route through the Black River Bottoms was eliminated from detailed consideration primarily because of direct impacts to the UMRNW&FR at the Black River Bottoms; USFWS has denied the proposed use (Section 2.2.6.4 and Appendix X). Among the route alternatives evaluated in detail in the EIS, only one, the Q1-Highway 35 Route, crosses the Black River Bottoms. The Q1-Highway 35 Route is also the most direct and most closely follows the Q1 Line. However, the Q1-Highway 35 Route crosses the Black River Bottoms at the Van Loon State Wildlife Area. At that location, the proposed transmission line centerline would cross a wetland forest parallel to and approximately 400 feet from Highway 35. The purpose of this offset is to avoid the scenic easements associated with the GRRNSB at Highway 35, and to provide a buffer strip of wooded land. However, this offset also results in greater fragmentation of the forested wetland in the Van Loon Wildlife Area. The WDNR has stated that is believes there are other feasible alternatives and therefore it “would not be able to issue wetland permits” for this route. The Q1-Galesville Route, in comparison with the Q1-Highway 35 Route, is longer, costlier, affects more residences and has less of its length following existing transmission line; however, it avoids the Black River Bottoms completely, and still allows for use of the majority of the Q1 Line ROW. Therefore, the Q1 Galesville Route is preferred over the Q1-Highway 35 Route.

Alternatives to the northern part of the Q1 Route include the various Arcadia alternatives and the WI-88 Options (Figure ES-1). The Arcadia alternatives would use none of the Q1 Route and the WI-88 alternatives would allow avoidance of the northernmost part of the Q1 Route. In most areas of quantifiable impact, the Q1-

Galesville Route is comparable to the Arcadia Route options (Table 2-7). None of the routes cross designated IBAs or public lands. The Q1-Galesville Route has slightly more impacts to residences than the Arcadia or the Arcadia-Alma Routes, and slightly less permanent wetland impact than any of the Arcadia Routes. However, the Arcadia Route and the Arcadia-Alma Option both have 12% more conversion of forested wetland than the Q1-Galesville Route, as well as 16 and 22% more upland forest impact, respectively. The Q1-Galesville Route has the fewest stream crossings by far, the least length in areas of steep slopes, and the lowest erosion potential. The Q1-Galesville Route has no crossings of designated trout streams, while all the Arcadia alternatives have at least one crossing. The Arcadia-Ettrick Option adds three additional crossings of Class I and II trout streams, and has more than twice the overall stream crossings of the Q1-Galesville Route. The Arcadia-Alma Option or the Arcadia Route are also 12-13% longer and 11% costlier than the Q1-Galesville Route. The Arcadia-Ettrick Option is comparable to the Q1-Galesville Route in terms of forested wetland conversion; however, it has 40% more impact on upland forest. The Arcadia-Ettrick Option is also 18% longer and 16% costlier than the Q1-Galesville Route. The major advantage of the Arcadia-Ettrick Option in comparison with the others is that, because it does not pass by the more populated area at Galesville, it has the least impact on residences.

Thus, in terms of overall quantifiable impacts, as summarized in Table 2-7, the Arcadia routes do not appear to have advantages over the Q1-Galesville Route, and the added length and cost of these routes do not appear to be justified. However, the USFWS has concerns about potential impacts from collisions with the transmission lines for eagles and other migratory birds with the use of any part of the Q1 Route, and the Wisconsin Department of Transportation (WisDOT) and the Wisconsin Mississippi River Parkway Commission (WI-MRPC) have concerns about impacts to the scenic quality of the Q1 Route with the use of the Q1 Line between Alma and WI-88.

Of the routes under consideration in Wisconsin, the Q1-Highway 35 and Q1-Galesville Routes are closest to the UMRNW&FR and Trempealeau Refuges and other high-bird-use areas along the Mississippi River, and therefore more likely to pose a collision risk for birds using these refuges. With the Q1-Galesville Route or the Q1-Highway 35

Route, the existing 60 to 80-foot tall poles of the Q1 Line would be replaced by poles approximately 130 to 175 feet tall. With the Arcadia Route alternatives, the existing Q1 Line would remain in place. Therefore, in terms of potential for bird collision, the increased risk is due to the increase in pole height (and resulting increase in height of the conductors). The USFWS has concluded that the Q1–Galesville Route poses substantially higher potential for local impacts to migratory birds flying to and from UMRNW&FR and Trempealeau National Wildlife Refuge than does the Arcadia Route. There is no baseline data for the existing 161-kV line, and thus no basis for an estimation of increased risk. The detailed analysis presented in Sections 3.5.1.4 and 3.5.2.4 identifies specific locations and species that may be at higher risk with the taller poles and conductors. These include Canada geese in the vicinity of Lizzy Paul's Pond and the Trempealeau Refuge, mallards near Buffalo City and Cochrane, and great blue herons that fly between Mertes Slough and Trempealeau Refuge. While these birds are protected under the Migratory Bird Treaty Act (MBTA), populations of both Canada geese and mallards are well above goals set by the USFWS in spite of large annual hunting harvests in the Mississippi Flyway (approximately 1 million for Canada geese and 2.2 million for mallards). While hunting harvests are regulated takes, for birds that are protected under the MBTA, a fatal collision with a man-made structure or object would be an unregulated take, and it is the responsibility of the USFWS to protect/minimize these resources from unregulated take.

In addition, the USFWS is concerned about potential impacts to bald and golden eagles that may roost and nest near the transmission line. There may be occasional impact to individual birds, depending on species, location, activity and susceptibility; however, based on the detailed analysis presented in Sections 3.5.1.4 and 3.5.2.4 (which includes quantitative descriptions of the areas in terms of bird use and habitat, species-specific information regarding use of the area, and a bird collision susceptibility assessment), RUS has concluded that no or negligible (i.e., non-detectable) impacts are likely to result to populations of any Refuge bird species as a result of construction and operation of the Proposal on the Q1-Galesville Route or any other alternatives evaluated in detail. Although no population impacts are expected for the great blue heron, it is a species that is susceptible to power line collisions, and it, along with bald

and golden eagles, will be addressed in a collision risk assessment that will be prepared by the Applicants (discussed under *Mitigation*, below). If necessary, the Applicants will apply for a take permit for bald eagles.

The northern 12 miles of the Q1-Galesville Route (same as the Q1-Highway 35 Route in this area), where there is an existing transmission line, are in the vicinity of the GRRNSB. The WisDOT has purchased scenic easements in this area to help preserve the value of the GRRNSB (Section 3.7.1.1). The WI-88 Options are alternatives to the Q1 Route in this area. As described in Section 3.7.2, the GRRNSB extends the full length of the Mississippi River, and while many segments of it have views of the river, bluffs, and surrounding countryside, not all parts of it are scenic. The northern 12-mile section of the Q1-Galesville Route, which does not have views of the river or bluffs, follows a busy railroad, and passes along Dairyland's Alma coal-fired generating station, has been rated by a WisDOT consultant as having poor scenic quality (Section 3.7.2). The WI-88 Options are in an agricultural valley with no transmission lines and fewer visual intrusions, compared to the section of Highway 35 either would replace. Use of the WI-88 option is costlier, and other impacts are similar to the Q1-Galesville Route. Because the WI-88 options were included to provide an alternative to avoid the scenic impact to the GRRNSB, and the visual analysis suggests that incremental visual impacts would likely be greater with the use of either of the WI-88 Options, RUS concluded that the WI-88 Options are not preferable alternatives to the Q1 section of the Q1-Galesville Route.

In summary, RUS has concluded that the use of the Q1-Galesville Route would not result in quantifiable environmental impacts greater than any alternatives to that route, except for the Q1-Highway 35 Route, which was eliminated due to impacts to the Van Loon State Wildlife Area in the Black River Bottoms (wetland impacts, fragmentation of forested wetland and potential threatened and endangered species impacts). Because the Q1-Galesville Route represents the most direct and lowest-cost route among the alternatives other than the Q1-Highway 35 Route – with no greater environmental impacts than other alternatives – RUS has identified it as its preferred alternative route in Wisconsin.

Furthermore, RUS has identified the West Site as its preferred alternative for the Briggs Road Substation. This is primarily because the East Site has high potential for archaeological resources and the West Site has low potential, and the East Site would require more tree clearing; with these exceptions, the two Briggs Road Substation Sites are generally comparable in terms of impacts. Compared to a substation, archaeological resources are more easily avoided with the transmission line because of the small footprint and flexibility of location. As discussed in Section 3.9.2.4, prior to RUS' issuance of the Record of Decision, additional survey work will be conducted at the Briggs Road Substation West Site.

Summary

Impacts of RUS' preferred alternative are summarized in Table ES-2.

Measures to Reduce Impacts and Other Potential Mitigation

Some measures that have been incorporated into the Proposal reduce impacts on multiple resources (detailed mitigation information is included in Section 3, by resource area). Installation of conductors by helicopter would likely be used to avoid crossing wetlands and waterways and to increase efficiency (Section 3.5.3.3). Various methods, including winter construction, would be used to minimize temporary impacts on wetlands and other sensitive areas (Section 3.5.3.3). To avoid the need for lighting, which increases the bird collision hazard, pole heights would not exceed 200 feet. Impacts on some resources may be reduced by maximizing span lengths. In other cases, shorter span lengths and corresponding pole height may reduce impacts. Some of the additional resource-specific measures incorporated into the Proposal to reduce impacts and other potential mitigation measures are summarized below by resource area. Details and more information are included in Section 3.

Soil and Water Resources

Runoff and erosion control best management practices (BMPs) would be required as part of the National Pollution Discharge Elimination System (NPDES) storm water permit approval process administered by the Minnesota Pollution Control Agency (MPCA) and by the WDNR in Wisconsin. A Storm Water Pollution Prevention Plan (SWPPP) would be required for construction activities under the NPDES program.

Typical BMPs that would be part of a SWPPP include, but are not limited to, silt fencing, check dams, erosion control blankets, limitations on areas of exposed soil, and seeding of exposed soil surfaces. BMPs would be inspected and maintained throughout Proposal construction. Final stabilization of the disturbed areas with perennial vegetative covers would be required. Work would likely be done under the general construction permits issued by the states; these are detailed documents requiring plan development, implementation, monitoring and recordkeeping. These permits also require spill prevention and response procedures.

In general, construction equipment is not permitted to be driven across waterways except under special circumstances, and even then, only after discussion with the appropriate resource agency. All streams would be spanned. Thus, no structures would be placed within these features and, except for the temporary use of a barge to access the shoreline on the Mississippi River, no direct impacts to lakes and watercourses are anticipated. Placement of structures within 100-year floodplain zones would be avoided unless there are no feasible alternatives.

Air Resources

Measures required by the stormwater permit and associated BMPs to reduce soil erosion would also reduce dust generation.

The substation equipment that would be installed as part of the Proposal includes state-of-the-art circuit breakers designed to minimize emissions of sulfur hexafluoride, a potent greenhouse gas that is used as an insulator for electrical equipment.

Biological Resources

Measures to reduce the spread of invasive species would be addressed in the Vegetative Management Plan required for work in Minnesota and in the construction BMPs required for Wisconsin.

Access through wetlands would be required during transmission line construction. Methods that may be used to minimize the impact associated with access include, but are not limited to: construction under frozen conditions (i.e., ice roads); use of low ground pressure equipment and construction mats; and restrictions on the length and width of the access path. Wetlands would not be used for staging areas. Wetlands

would be spanned whenever feasible. In cases where the wetland area is too wide to be spanned, the use of single-pole design and self-supporting structures (without guy wires) will reduce impacts to wetlands by creating the smallest feasible footprint.

Mitigation, as determined by the USACE, would be required for permanent wetland impacts and for conversions of forested wetland.

The Applicants plan to complete a collision risk assessment and to install avian protection markers in high collision risk areas. After the collision risk assessment and marking plan are completed, two meetings will be scheduled. These meetings will take place during the summer of 2012. Minnesota portions of the Proposal will be reviewed with USFWS and MDNR. Wisconsin portions of the Proposal will be reviewed by USFWS and Wisconsin DNR. Copies of the documents will be provided to each agency prior to the meetings. Agency follow-up will be completed as needed.

The use of existing transmission line corridors, and the co-location of these lines with the Proposal, will reduce the risk of bird collision impact by reducing the number of transmission lines (compared to construction of new lines on new ROW). The use of self-supporting structures without guy wires will reduce the potential for bird collision.

The National Bald Eagle Management Guidelines (USFWS 2007) will be followed to the greatest extent practicable. Bald eagle nest surveys will be conducted in the Proposal area prior to construction to identify any bald eagle nests in close proximity to the proposed transmission line. If nests are identified, the Applicants will work with the USFWS eagle coordinator to assess what, if any, measures are needed to avoid impact. Applicants would work with USFWS to obtain a permit under the Bald and Golden Eagle Protection Act, if deemed necessary.

The Applicants will conduct additional pre-construction surveys if habitat suitable for federal or state-listed threatened or endangered species would be impacted, or if more information is needed to address areas with limited data.

Visual Resources

The use of existing transmission line and roadway ROW helps minimize impacts to visual resources, compared to constructing transmission lines on new ROW. Where

existing transmission line ROW is used, the removal of existing transmission lines and co-location of these lines with the Proposal further reduces visual impacts.

The Applicants prepared photo simulations of the Proposal along the GRRNSB in Wisconsin and Minnesota, which is included in Appendix K. Along the GRRNSB in Wisconsin, the Applicants will implement a number of measures including removing existing 161 and 69-kV lines and moving them further from the roadway, modifying structures to retain a tree screen, reducing the number of poles in scenic easements, using alternative pole finishes to blend in better with the surroundings, moving pole locations as requested by WisDOT to make them less visible, and removing existing transmission facilities from scenic easements where possible.

Cultural Resources

The use of self-supporting single-pole structures minimizes the potential for impacts to archaeological resources by using the smallest feasible footprint. This design also offers the flexibility of making small field changes in the pole location to avoid impacts.

It is anticipated that all impacts to archaeological resources can be avoided by adjusting the locations of poles. As discussed in Section 3.9.2.1, an archaeological reconnaissance survey has been conducted on the North Rochester Substation Site and no eligible properties were discovered. While, based on initial reconnaissance, archaeological resources are not expected to be present at Briggs Road Substation Site, further investigations will be conducted to assess the presence of resources (Section 3.9.2.4). Cultural resources will continue to be assessed as consultation under Section 106 of the National Historic Preservation Act proceeds, and will continue through implementation of the Programmatic Agreement (PA) that is being developed to conclude review under Section 106. The draft PA is included in Appendix W.

Public Health and Safety

Routes were identified to minimize proximity to residences, and no residences are allowed within 75 feet of the 345 kV line.

Socioeconomics

The use of existing transmission line and roadway ROW helps minimize socioeconomic impacts, compared to construction transmission lines on new ROW. Where existing

transmission line ROW is used, the removal of existing transmission lines and co-location of these lines with the Proposal further reduces socioeconomic impacts. Impacts to agriculture are minimized by use of the single-pole, self-supporting structures, and the use of long span lengths.

The easement payment is considered compensation for property value impacts. Many owners also have the option to sell their entire property to the utility, under state law.

Both Minnesota and Wisconsin regulations require agriculture-specific mitigation plans.

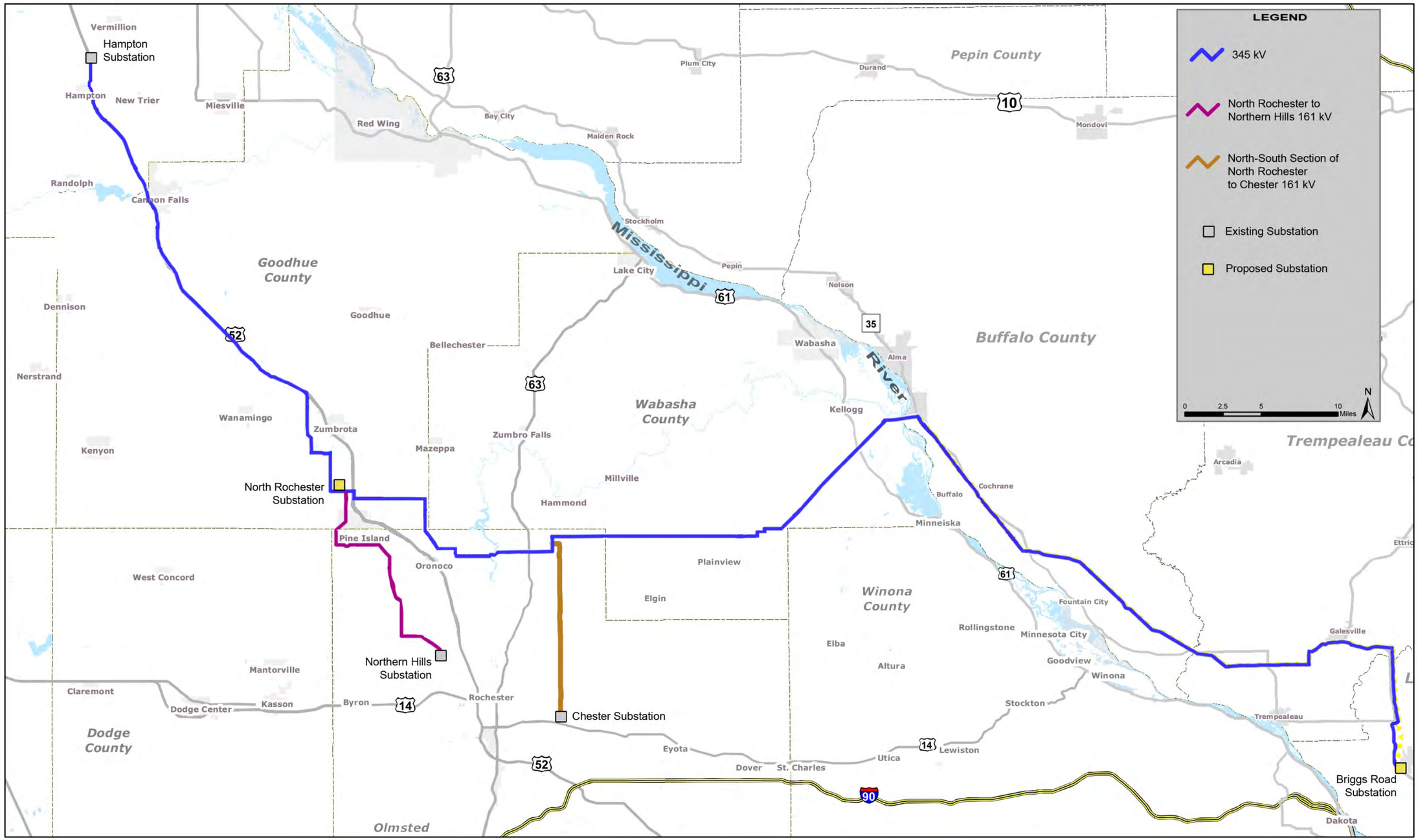

Figure ES-2. RUS Preferred Alternative.

Table ES-2: Summary of Impacts of Preferred Alternative.

Resource Category	Impacts
Soils and Geology	
Implementation of construction stormwater permits, SWPPPs and construction BMPs will minimize impacts.	
Water Resources	
Implementation of SWPPPs and BMPs will minimize impacts. All water bodies will be spanned, and construction equipment will not enter water bodies, except for short-term use of a barge at the Mississippi River, to access the shoreline. Some very minor, localized and short-term impacts to groundwater could occur in areas with very shallow groundwater if tower foundations require dewatering. Post-construction impact on groundwater would not be expected, as no discharges or pumping would be expected.	
Stream crossings	188
Permanent impacts to floodplains (acres)	< 1
Air Resources	
Short term, local emissions from construction equipment and fugitive dust during construction. Post-construction air quality impact would be minimal, as transmission lines release negligible air emissions.	
Acoustic Environment	
Short-term noise from construction equipment. Minimal post-construction noise as transmission lines produce only very low levels of noise.	
Biological Resources	
Bird collisions with power lines are a potential impact. Additional surveys will be required. No impacts to threatened or endangered species are expected, except that if sheepnose (*Plethobasus cyphyus*) and/or Higgins eye pearlymussel (*Lampsilis higginsii*) are found in that part of Pool 5 of the Mississippi River that must be entered during construction, they will be relocated.	
Notable habitat areas	
Important Bird Areas, miles crossed	1.9
Grassland Bird Conservation Areas, miles crossed	3.7
Outstanding Biodiversity Sites (MN only), miles crossed	0.5
High Biodiversity Sites (MN only), miles crossed	2.1
Wetland and forest	
Permanent wetlands impacts (acres)	0.12
Temporary wetlands impacts (acres)	16
Wetland Acres permanently changed from forested to emergent (acres)	49
Total area of forest removed (acres)	1,177
Land Resources	
Agriculture	
Permanent impact (acres)	180
Temporary impact (acres)	1,136

Resource Category	Impacts
Forestry	No impacts to economically important forestry expected.
Mining	No impacts to mines are anticipated.
Formally Classified Lands (miles)	
Upper Mississippi River National Wildlife and Fish Refuge crossed, miles	0.5
Douglas Trail paralleled, miles	2.9
McCarthy Lake WMA crossed, miles	0.9
RJD State Forest crossed, miles	2.1
Visual Resources	
The transmission line as a visual intrusion will have the greatest impact on those living near the ROW.	
GRRNSB	Crossing in MN and paralleling for 2.7 miles in WI.
Cultural Resources	
No impacts to cultural resources are expected. Surveys will be done. It is anticipated that archaeological sites of cultural significance can be avoided.	
Socioeconomics	
Number of residences within 300 feet of route centerline	
Minnesota 345 kV and Chester 161 kV:	
0-75 feet from route centerline	1
76-150 feet from route centerline	19
151-300 feet from route centerline	41
North Rochester – Northern Hills 161 kV:	
0-40 feet from route centerline	0
41-100 feet from route centerline	1
101-300 feet from route centerline	27
Wisconsin 345 kV:	
0-100 feet from route centerline	14
101-150 feet from route centerline	11
151-300 feet from route centerline	84

Resource Category	Impacts
Corridor Sharing	
345-kV lines:	
Total length of route (miles)	141
Length following transmission lines (miles)	61
Length following roads but not transmission lines (miles)	29
Length following railroad but not transmission line or road (mile)	3
Length following property lines but not transmission lines or roads (MN) (miles)	33
Length not following transmission lines, property lines or roads (MN) (miles)	4
Length not following transmission line, roads or railroads (WI) (miles)	10
161-kV lines (not including portion of Chester Line co-located with 345 kV):	
Total length of route (miles)	30
Length following transmission lines (miles)	14
Length following road but not transmission lines (miles)	11
Length following property lines but not transmission lines or roads (miles)	3.1
Length not following transmission lines, property lines or roads (miles)	1.7
Estimated Cost (million)	
Cost	$452

APPENDICES

LIST OF FIGURES

LIST OF TABLES

AES	Alternative Evaluation Study
AIMP	Agricultural Impact Mitigation Plan
ALJ	Administrative Law Judge
APE	Area of Potential Effect
APLIC	Edison Electric Institute's Avian Power Line Interaction Committee
APHIS	USDA Animal and Plant Health Inspection Service
APP	Avian Protection Plan
ASNRI	Area of Special Natural Resource Interest (WDNR)
ATF	Advisory Task Force
BMP	Best Management Practice
BSHS	Biodiversity Site of High Significance (MDNR)
BSMS	Biodiversity Site of Medium Significance (MDNR)
BSOS	Biodiversity Site of Outstanding Significance (MDNR)
BWSR	Minnesota Board of Water and Soil Resources
CapX2020	CapX2020 Transmission Expansion Initiative (Capital Expenditures by the Year 2020)
CCP	Comprehensive Conservation Plan
CDC	U.S. Department of Health and Human Services Centers for Disease Control and Prevention
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CON	Certificate of Need (Minnesota)
CPCN	Certificate of Public Convenience and N7ecessity (Wisconsin)
CREP	Conservation Reserve Enhancement Program
CRP	Conservation Reserve Program
CWA	Federal Clean Water Act
CWCS	Comprehensive Wildlife Conservation Strategy
CWD	Chronic wasting disease
Dairyland	Dairyland Power Cooperative
dB	Decibels
dBA	"A-weighted" sound scale (human hearing) recorded in dB
DOE	U.S. Department of Energy
DRG	Dispersed Renewable Generation
ECS	Ecological Classification System
EIA	Energy Information Administration
EIS	Environmental Impact Statement
EMF	electric and magnetic fields
EMI	Electromagnetic interference

EMFRAPID	Electric and Magnetic Fields Research and Public Information Dissemination
EPAct 2005	Energy Policy Act of 2005
EPRI	Electric Power Research Institute
ERS	Economic Research Service (USDA)
ESA	Endangered Species Act
FNAP	Farmland and Natural Areas Project
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FHA	Federal Housing Administration
GIS	Geographic Information System
GP	General Permit
GPS	Global Positioning System
GRE	Great River Energy
GRRNSB	Great River Road National Scenic Byway
HUD	U.S. Department of Housing and Urban Development
HRL	Hampton – Rochester – La Crosse
HUC	Hydrologic Unit Code
HVTL	High Voltage Transmission Line
HUD	U.S. Department of Housing and Urban Development
Hz	Hertz
IARC	International Agency for Research on Cancer
IBA	Important Bird Area
ICD	Implantable cardioverter defibrillator
ICNIRP	International Commission on Non-Ionizing Radiation Protection
IEEE	Institute of Electrical and Electronics Engineers
IRP	Integrated Resource Plan
kV	Kilovolt
LOP	Letter of permission
MAPP	Mid-Continent Area Power Pool
MBTA	Migratory Bird Treaty Act
MCBS	Minnesota County Biological Survey
MCS	Macro-Corridor Study
MDA	Minnesota Department of Agriculture
MDNR	Minnesota Department of Natural Resources
MFL	Managed Forestry Law (Wisconsin)
MISO	Midwest Independent Transmission System Operator

MnDOT	Minnesota Department of Transportation
MnGeo	Minnesota Geospatial Information Office
MN PUC	Minnesota Public Utilities Commission
MOAH	Minnesota Office of Administrative Hearings
MPCA	Minnesota Pollution Control Agency
MRO	Midwest Reliability Organization
MRP	Minnesota Route Permit
MRPC	Mississippi River Parkway Commission of Minnesota
MSIWG	Minnesota State Interagency Working Group
MTEP	MISO Transmission Expansion Plan
MTO	Minnesota Transmission Owners
MVA	Megavolt-ampere
MVAC	Mississippi Valley Archaeological Center
MW	Megawatt
MWh	Megawatt-hour
NAAQS	Natural Ambient Air Quality Standards
NAGPRA	Native American Graves Protection Repatriation Act
NAS	National Academy of Sciences
NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Corporation
NHIS	National Heritage Information System
NHS	Natural Heritage Site
NIEHS	National Institute of Environmental Health Sciences (NIEHS)
NOA	Notice of Availability
NOI	Notice of Intent
NOP	USDA National Organic Program
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRCS	National Resource Conservation Service
NRHP	National Register of Historic Places
NRI	National Rivers Inventory
NSB	National Scenic Byway
NSPM	Northern States Power Company, a Minnesota Company
NSPW	Northern States Power Company, a Wisconsin Company
NWI	National Wetlands Inventory
OLA	Minnesota Office of the Legislative Auditor
PA	Programmatic Agreement
PIF	Partners in Flight

PSC	Wisconsin Public Service Commission
PUC	Minnesota Public Utilities Commission
PWI	Public Water Inventory
RC	Reliability Coordinator
RD	Rural Development
RE Act	Rural Electrification Act
RES	Renewable Energy Standard
RFI	Request For Information
RIM	Reinvest in Minnesota
ROD	Record of Decision
ROW	Right-of-Way
RPA	Route Permit Application
RPS	Renewable Portfolio Standard
RPU	Rochester Public Utilities
RTO	Regional Transmission Organization
RUS	Rural Utilities Service
SBS	Sites of Biodiversity Significance
SEA	Strategic Energy Assessment (PSC)
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SMMPA	Southern Minnesota Municipal Power Agency
SWG	State Wildlife Grants
SPCC	Spill Prevention, Control and Countermeasure (Plan)
SWPPP	Stormwater Pollution Prevention Plan
TCP	Traditional Cultural Property
TCSB	Temporary Clear Span Bridge
THPO	Tribal Historic Preservation Officer
UNT	Unnamed Tributary
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USDA	U.S. Department of Agriculture
USDA ERS	USDA Economic Research Service
USDA NASS	USDA National Agriculture Statistical Service
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WCA	Wetland Conservation Act
WDNR	Wisconsin DNR
WGCC	Wisconsin Groundwater Coordinating Council

WHS	Wisconsin Historic Society
WHPD	Wisconsin Historic Preservation Database
WGNHS	Wisconsin Geological and Natural History Survey
WHO	World Health Organization
WHS	Wisconsin Historical Society
WisDOT	Wisconsin Department of Transportation
WMA	Wildlife Management Area
WPDES	Wisconsin Pollution Discharge Elimination System
WPPI	Wisconsin Public Power, Inc.
WRP	Wetland Reserve Program

Note to reviewers: Text that has been added to the main body of the EIS in response to comments on the Draft EIS is shown in **boldface,** with some exceptions. Minor edits and added tables, subsections and references are not in boldface. Added tables and new subsections are shown in boldface in the table of contents.