

Birch Ridge - Natrium 138kV Transmission Project

General Information

Proposing entity name	Confidential
Company proposal ID	
PJM Proposal ID	270
Project title	Birch Ridge - Natrium 138kV Transmission Project
Project description	The Birch Ridge - Natrium 138kV Transmission Project will include a new 3-position substation interconnecting the Kammer - Ormet #1 138kV transmission line. The proposed project will connect the new substation with a new line position at the Natrium 138kV Bus #1. The proposed project will expand the existing right-of-way from Kammer - Natrium.
Project in-service date	06/2024
Tie-line impact	No
Interregional project	No
Is the proposer offering a binding cap on capital costs?	Yes
Additional benefits	

Project Components

1. Natrium 138kV Substation Upgrade
2. Birch Ridge - Natrium 138kV Transmission Line
3. Birch Ridge 138kV Transmission Interconnection
4. Birch Ridge 138kV Substation

Substation Upgrade Component

Component title	Natrium 138kV Substation Upgrade
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Substation name	Natrium 138kV Substation
Substation zone	1251
Substation upgrade scope	The substation scope will involve adding one (1) new 3150A, 138kV breakers in a radial (straight bus) configuration to create a new line position for the new Birch Ridge 138kV transmission line. The new transmission line will connect to Bus #1 at Natrium.

Transformer Information

None	
New equipment description	138kV Circuit Breakers (1): 3150A continuous current rating 138kV Circuit Breaker Isolation Disconnect Switches & associated jumper assemblies: 3000A continuous current rating
Substation assumptions	It appears that Bus #1 can be expanded to accommodate the new 138kV transmission line.
Real-estate description	The current substation extents should be able to accommodate the new transmission line position.
Construction responsibility	AEP
Additional comments	The redaction tab did not provide an option for redacting one-lines and general arrangements for substation upgrades. Please redact those items.

Component Cost Details - In Current Year \$

Engineering & design	Confidential
Permitting / routing / siting	Confidential
ROW / land acquisition	Confidential
Materials & equipment	Confidential
Construction & commissioning	Confidential
Construction management	Confidential
Overheads & miscellaneous costs	Confidential
Contingency	Confidential
Total component cost	\$2,580,520.00

Component cost (in-service year) \$2,820,880.00

Greenfield Transmission Line Component

Component title Birch Ridge - Natrium 138kV Transmission Line

Point A Birch Ridge

Point B Natrium

Point C

	Normal ratings	Emergency ratings
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Summer (MVA)	260.000000	357.000000
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Winter (MVA)	260.000000	357.000000
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Conductor size and type Single circuit 1590 ACSR "Falcon"

Nominal voltage AC

Nominal voltage 138

Line construction type Overhead

General route description See Routing Map attachment for information on the general project route. Most high-voltage transmission projects will require a state siting approval. To begin the siting approval process, Central Transmission plans to hold pre-application meetings with the regulatory agency to introduce Central Transmission and the Project, as well as confirm its understanding of the process. Shortly thereafter, Central Transmission will simultaneously begin collecting siting data and start its outreach efforts so that public siting input is incorporated at the earliest stages of the Project. Once Central Transmission identifies a preferred site/route and at least one viable alternative site/route, Central Transmission will carry out the environmental and detailed engineering work described in the Site Selection/Routing Analysis section above in order to establish a highly- detailed Project plan to support the siting applications.

Terrain description The terrain traversed by the project features forested hills.

Right-of-way width by segment The project proposes to expand the existing Kammer to Natrium 138kV right-of-way from the new Birch Ridge 138kV substation to Natrium 138kV substation for the new 138kV transmission line.

Electrical transmission infrastructure crossings	Electrical infrastructure crossings may be required depending on final line route and substation configuration at Natrium. This will be coordinated during the detailed design process with the interconnection PTO.
Civil infrastructure/major waterway facility crossing plan	No civil infrastructure or major waterway crossings.
Environmental impacts	The proposed Project was sited to avoid and minimize impacts to wetlands or other areas of environmental concern based on GIS data. It is possible that the Project cannot avoid impacts to a limited number of wetlands and waterways. If so, Central Transmission expects the Project will be subject to regulation under certain permitting programs, namely Section 404 of the Clean Water Act, Section 10 of the Rivers and Harbors Act, and Section 401 of the Clean Water Act. Central Transmission will engage a qualified consultant to conduct a wetlands delineation of the selected site/route in order to establish the extent of proposed impacts and the need for specific permits from the state or U.S. Army Corps of Engineers. In addition to the permits described above, Central Transmission has identified other permits which may be required for the construction of the Project. Central Transmission considers these permits to be minor due to the more limited effort to prepare applications and the less intensive permitting processes which follow. These include permits related to airspace clearance, stormwater/erosion and sedimentation control, road crossings, and utility and railroad crossings.
Tower characteristics	The preliminary design for the transmission line utilizes tubular steel monopole structures with single circuit, 1590 ACSR "Falcon" conductor in a vertical configuration and a single optical groundwire.
Construction responsibility	Proposer
Additional comments	
Component Cost Details - In Current Year \$	
Engineering & design	Confidential
Permitting / routing / siting	Confidential
ROW / land acquisition	Confidential
Materials & equipment	Confidential
Construction & commissioning	Confidential
Construction management	Confidential
Overheads & miscellaneous costs	Confidential

Contingency	Confidential
Total component cost	\$7,115,058.00
Component cost (in-service year)	\$7,777,351.00

Transmission Line Upgrade Component

Component title	Birch Ridge 138kV Transmission Interconnection
Impacted transmission line	Kammer - Ormet #1
Point A	Kammer
Point B	Ormet
Point C	
Terrain description	The terrain description is hilly with a moderate amount of forested area.

Existing Line Physical Characteristics

Operating voltage	138
Conductor size and type	N/A
Hardware plan description	N/A
Tower line characteristics	N/A

Proposed Line Characteristics

	Designed	Operating
Voltage (kV)	138.000000	138.000000
	Normal ratings	Emergency ratings
Summer (MVA)	296.000000	398.000000
Winter (MVA)	296.000000	398.000000

Conductor size and type	N/A
Shield wire size and type	N/A
Rebuild line length	<.25mi
Rebuild portion description	The existing line will be broken and new deadend towers installed to facilitate looping into the new Cedar Run 345kV Substation.
Right of way	The existing right-of-way will be reused to facilitate the transmission interconnection facilities necessary to loop the lines into the new substation.
Construction responsibility	AEP
Additional comments	

Component Cost Details - In Current Year \$

Engineering & design	Confidential
Permitting / routing / siting	Confidential
ROW / land acquisition	Confidential
Materials & equipment	Confidential
Construction & commissioning	Confidential
Construction management	Confidential
Overheads & miscellaneous costs	Confidential
Contingency	Confidential
Total component cost	\$766,644.00
Component cost (in-service year)	\$838,030.00

Greenfield Substation Component

Component title	Birch Ridge 138kV Substation
Substation name	Birch Ridge

Substation description The proposed new Birch Ridge 138kV substation will be a three-position ring bus that will interconnect the existing Kammer to Ormet #1 138kV transmission line. The third position will connect to the new Birch Ridge - Natrium 138kV transmission line.

Nominal voltage AC

Nominal voltage 138

Transformer Information

None

Major equipment description 138kV Circuit Breakers (3): 3150A continuous current rating 138kV Circuit Breaker Isolation Disconnect Switches & associated jumper assemblies: 4000A continuous current rating

	Normal ratings	Emergency ratings
Summer (MVA)	752.000000	752.000000
Winter (MVA)	752.000000	752.000000

Environmental assessment The proposed Project was sited to avoid and minimize impacts to wetlands or other areas of environmental concern based on GIS data. It is possible that the Project cannot avoid impacts to a limited number of wetlands and waterways. If so, Central Transmission expects the Project will be subject to regulation under certain permitting programs, namely Section 404 of the Clean Water Act, Section 10 of the Rivers and Harbors Act, and Section 401 of the Clean Water Act. Central Transmission will engage a qualified consultant to conduct a wetlands delineation of the selected site/route in order to establish the extent of proposed impacts and the need for specific permits from the state or U.S. Army Corps of Engineers. In addition to the permits described above, Central Transmission has identified other permits which may be required for the construction of the Project. Central Transmission considers these permits to be minor due to the more limited effort to prepare applications and the less intensive permitting processes which follow. These include permits related to airspace clearance, stormwater/erosion and sedimentation control, road crossings, and utility and railroad crossings.

Outreach plan Central Transmission will identify and engage stakeholders, such as community officials and landowners within the Project area, early in the process and maintain an active dialogue throughout. Public meetings may be held to offer a venue for landowners and other interested community members to learn about the Project and for Central Transmission to learn more about specific landowner and community preferences. Central Transmission plans to make information available on its website and provide notification of public meetings to landowners within the Project area as required in the siting approval process.

Land acquisition plan

The Project will be located primarily on new right-of-way to be purchased by Central Transmission. In addition, Central Transmission will procure any necessary easements required to access the site. Central Transmission will assign a Right-of-Way Manager to oversee all real estate related activities for the Project including appraisals, title work, surveying, land acquisition and restoration. A right-of-way agent will contact the property owner(s) in person to explain the Project and, as necessary, secure permission to conduct surveys, archaeological studies, etc. The right-of-way agent will be the primary point of contact to negotiate with the property owner to acquire the substation site and any required easements on a mutually agreeable basis. To the extent that negotiations reach an impasse, Central Transmission will be able to pursue eminent domain. The right-of-way agents will continue to act as a liaison with the property owners during construction and through the restoration process.

Construction responsibility

Proposer

Additional comments

Component Cost Details - In Current Year \$

Engineering & design	Confidential
Permitting / routing / siting	Confidential
ROW / land acquisition	Confidential
Materials & equipment	Confidential
Construction & commissioning	Confidential
Construction management	Confidential
Overheads & miscellaneous costs	Confidential
Contingency	Confidential
Total component cost	\$6,175,193.00
Component cost (in-service year)	\$6,750,000.00

Congestion Drivers

None

Existing Flowgates

FG #	From Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type
AEP-T237	245928	05COLOMBI	245951	05CONNERRN	1	69	205	FERC 715 Thermal
AEP-T219	245928	05COLOMBI	245951	05CONNERRN	1	69	205	FERC 715 Thermal
AEP-T238	245928	05COLOMBI	245951	05CONNERRN	1	69	205	FERC 715 Thermal
AEP-T221	245928	05COLOMBI	245943	05NATRIUM	1	69	205	FERC 715 Thermal
AEP-T222	245928	05COLOMBI	245951	05CONNERRN	1	69	205	FERC 715 Thermal
AEP-T223	245928	05COLOMBI	245943	05NATRIUM	1	69	205	FERC 715 Thermal
AEP-T225	245928	05COLOMBI	245943	05NATRIUM	1	69	205	FERC 715 Thermal
AEP-T226	245928	05COLOMBI	245943	05NATRIUM	1	69	205	FERC 715 Thermal
AEP-T227	245928	05COLOMBI	245951	05CONNERRN	1	69	205	FERC 715 Thermal
AEP-T228	245928	05COLOMBI	245943	05NATRIUM	1	69	205	FERC 715 Thermal
AEP-T229	245928	05COLOMBI	245951	05CONNERRN	1	69	205	FERC 715 Thermal
AEP-T230	245928	05COLOMBI	245951	05CONNERRN	1	69	205	FERC 715 Thermal
AEP-T231	245928	05COLOMBI	245951	05CONNERRN	1	69	205	FERC 715 Thermal
AEP-T232	245928	05COLOMBI	245951	05CONNERRN	1	69	205	FERC 715 Thermal
AEP-T233	245928	05COLOMBI	245951	05CONNERRN	1	69	205	FERC 715 Thermal
AEP-T234	245928	05COLOMBI	245951	05CONNERRN	1	69	205	FERC 715 Thermal
AEP-T239	245930	05CRESAPS	245950	05MCELROY	1	69	205	FERC 715 Thermal
AEP-T240	245930	05CRESAPS	245938	05KAMMER	1	69	205	FERC 715 Thermal
AEP-T250	245930	05CRESAPS	245950	05MCELROY	1	69	205	FERC 715 Thermal
AEP-T243	245930	05CRESAPS	245950	05MCELROY	1	69	205	FERC 715 Thermal
AEP-T244	245930	05CRESAPS	245950	05MCELROY	1	69	205	FERC 715 Thermal

New Flowgates

None

Financial Information

Capital spend start date	01/2021
Construction start date	06/2024
Project Duration (In Months)	41

Cost Containment Commitment

Cost cap (in current year)	Confidential
Cost cap (in-service year)	Confidential

Components covered by cost containment

1. Birch Ridge - Natrium 138kV Transmission Line - Proposer
2. Birch Ridge 138kV Substation - Proposer

Cost elements covered by cost containment

Engineering & design	Yes
Permitting / routing / siting	Yes
ROW / land acquisition	Yes
Materials & equipment	Yes
Construction & commissioning	Yes
Construction management	Yes
Overheads & miscellaneous costs	Yes
Taxes	Yes
AFUDC	Yes
Escalation	Yes
Additional Information	Confidential

Is the proposer offering a binding cap on ROE?

No

Is the proposer offering a Debt to Equity Ratio cap?

Confidential

Additional comments

None