

Cole-Manor Park, Beatty-Cyprus 345 kV lines

General Information

Proposing entity name	Confidential Information
Does the entity who is submitting this proposal intend to be the Designated Entity for this proposed project?	Confidential Information
Company proposal ID	2026-W1-296
PJM Proposal ID	296
Project title	Cole-Manor Park, Beatty-Cyprus 345 kV lines
Project description	Build a new Cole - Manor Park 345 kV Line (5.1 miles) with underground cable. Recommended conductor on underground section (2.4 miles) is 5000 kcmil XLPE, 2 cables per phase, separate conduits. Build a new Beatty - Cyprus 345 kV #2 Line (8.9 miles). Recommended conductor 2 x 954 ACSS 54/7. Cole Substation - Convert the existing 345 kV ring bus into a BAAH configuration, add three new 345 kV breakers, and re-terminate Cole - Thistlewood 345 kV Line into new BAAH position. Manor Park Substation: Construct a greenfield substation with a new 345/138 kV transformer and extend 138 kV line to Milepost Substation. Cyprus Substation - Add two new 345 kV breakers to existing ring bus configuration, add one new 138 kV breaker to existing BAAH configuration, and install a new 345/138 kV transformer. Beatty Substation - Add one new 345 kV breaker to existing BAAH configuration.
Email	Confidential Information
Project in-service date	06/2031
Tie-line impact	No
Interregional project	No
Is the proposer offering a binding cap on capital costs?	Yes
Additional benefits	Confidential and proprietary information

Project Components

1. Beatty - Cyprus 345 kV Line Upgrade
2. Cole - Manor Park 345 kV Line
3. Manor Park Substation
4. Manor Park - Milepost 138 kV Line
5. Cyprus Substation Upgrade
6. Cole Substation Upgrade
7. Milepost Substation Upgrade
8. Beatty Substation Upgrade

Transmission Line Upgrade Component

Component title	Beatty - Cyprus 345 kV Line Upgrade	
Project description	Confidential and proprietary information	
Impacted transmission line	Beatty - Cyprus 345 kV Line	
Point A	Beatty Substation	
Point B	Cyprus Substation	
Point C		
Terrain description	flat, agricultural fields	
Existing Line Physical Characteristics		
Operating voltage	345	
Conductor size and type	Unknown	
Hardware plan description	Single circuit steel monopoles will be used.	
Tower line characteristics	Single circuit steel monopoles will be used.	
Proposed Line Characteristics		
	Designed	Operating

Voltage (kV)	345.000000	345.000000
	Normal ratings	Emergency ratings
Summer (MVA)	2504.000000	2883.000000
Winter (MVA)	2505.000000	3033.000000
Conductor size and type	954 ACSS 54/7	
Shield wire size and type	(1) SFSJ-J-6641 OPGW wire and (1) 7#6 Alumoweld wire	
Rebuild line length	8.9 miles	
Rebuild portion description	Construct a second Beatty - Cyprus 345 kV Line on parallel ROW to the existing Beatty - Cyprus 345 kV Line	
Right of way	Parallel ROW will be required.	
Construction responsibility	Confidential and proprietary information	
Benefits/Comments	Confidential and proprietary information	
Component Cost Details - In Current Year \$		
Engineering & design	Confidential and proprietary information	
Permitting / routing / siting	Confidential and proprietary information	
ROW / land acquisition	Confidential and proprietary information	
Materials & equipment	Confidential and proprietary information	
Construction & commissioning	Confidential and proprietary information	
Construction management	Confidential and proprietary information	
Overheads & miscellaneous costs	Confidential and proprietary information	
Contingency	Confidential and proprietary information	
Total component cost	\$75,708,141.00	

Component cost (in-service year)	\$84,226,344.00
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Greenfield Transmission Line Component

Component title	Cole - Manor Park 345 kV Line
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Project description	Confidential and proprietary information
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Point A	Cole Substation
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Point B	Manor Park Substation
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Point C	
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	Normal ratings	Emergency ratings
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Summer (MVA)	1409.000000	1768.000000
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Winter (MVA)	1409.000000	1768.000000
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Conductor size and type	OH - 2 x 954 ACSS 54/7; UG - 2 x 5000 kcmil CU XLPE
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Nominal voltage	AC
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Nominal voltage	345
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Line construction type	Overhead, Underground
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General route description	Semi-rural, suburban, commercial/industrial
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Terrain description	flat, suburban, commercial/industrial complex
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Right-of-way width by segment	OH - 150 feet; UG - 50 feet
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Electrical transmission infrastructure crossings	None
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Civil infrastructure/major waterway facility crossing plan	None
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Environmental impacts	TBD
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Tower characteristics	Steel monopoles
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Construction responsibility	Confidential and proprietary information
Benefits/Comments	Confidential and proprietary information
Component Cost Details - In Current Year \$	
Engineering & design	Confidential and proprietary information
Permitting / routing / siting	Confidential and proprietary information
ROW / land acquisition	Confidential and proprietary information
Materials & equipment	Confidential and proprietary information
Construction & commissioning	Confidential and proprietary information
Construction management	Confidential and proprietary information
Overheads & miscellaneous costs	Confidential and proprietary information
Contingency	Confidential and proprietary information
Total component cost	\$91,574,123.00
Component cost (in-service year)	\$102,550,036.00
Greenfield Substation Component	
Component title	Manor Park Substation
Project description	Confidential and proprietary information
Substation name	Manor Park Substation
Substation description	Construct Manor Park Substation. Terminate the 345 kV line from Cole Substation into the substation, install a 350/460/575 MVA, 345/138 kV transformer, and provide a 138 kV terminal for the 138 kV line to Milepost Substation.
Nominal voltage	AC
Nominal voltage	345/138

Transformer Information

	Name	Capacity (MVA)
Transformer	Manor Park Substation #1 Transformer	350/460/575 MVA
	High Side	Low Side
Voltage (kV)	345	138
		Tertiary
		13.2
Major equipment description	350/460/575 MVA, 345/138 kV transformer; 345 kV 3000 A breaker, 138 kV 3000 A breaker	
	Normal ratings	Emergency ratings
Summer (MVA)	575.000000	748.000000
Winter (MVA)	690.000000	805.000000
Environmental assessment	TBD	
Outreach plan	Public outreach is a critical component to the Proposing Entity's siting process, so efforts will include properly informing the public; federal, state, and local agencies; local governments; and other key stakeholders on the need for, and benefits of, this Project. The Proposing Entity's approach to public outreach is to be always candid and transparent, and to offer a variety of tools and means for directly impacted parties to engage with our staff. The Proposing Entity will provide development updates to local government officials, key stakeholders, and impacted parties as the Project progresses. Public outreach also will involve collecting information about landowner properties and communicating with directly affected landowners during the final siting process. At this time FirstEnergy has evaluated the need for possible outreach and deemed its importance to the project. The proposing entity will engage in public outreach activities when appropriate.	
Land acquisition plan	The site for the proposed substation has been identified and Real Estate agents for the Proposing Entity will contact the landowners to start discussions and negotiations when appropriate for approximated acres of usable land will be needed for the substation footprint.	
Construction responsibility	Confidential and proprietary information	
Benefits/Comments	Confidential and proprietary information	
Component Cost Details - In Current Year \$		

Engineering & design	Confidential and proprietary information
Permitting / routing / siting	Confidential and proprietary information
ROW / land acquisition	Confidential and proprietary information
Materials & equipment	Confidential and proprietary information
Construction & commissioning	Confidential and proprietary information
Construction management	Confidential and proprietary information
Overheads & miscellaneous costs	Confidential and proprietary information
Contingency	Confidential and proprietary information
Total component cost	\$15,765,081.00
Component cost (in-service year)	\$17,386,077.00

Greenfield Transmission Line Component

Component title	Manor Park - Milepost 138 kV Line
Project description	Confidential and proprietary information
Point A	Manor Park Substation
Point B	Milepost Switching Station
Point C	

	Normal ratings	Emergency ratings
Summer (MVA)	771.000000	939.000000
Winter (MVA)	873.000000	1113.000000
Conductor size and type	954 ACSR 54/7	
Nominal voltage	AC	

Nominal voltage	138
Line construction type	Overhead
General route description	Crossing industrial parcels
Terrain description	Flat
Right-of-way width by segment	100 ft
Electrical transmission infrastructure crossings	None
Civil infrastructure/major waterway facility crossing plan	None
Environmental impacts	None
Tower characteristics	Steel monopoles
Construction responsibility	Confidential and proprietary information
Benefits/Comments	Confidential and proprietary information
Component Cost Details - In Current Year \$	
Engineering & design	Confidential and proprietary information
Permitting / routing / siting	Confidential and proprietary information
ROW / land acquisition	Confidential and proprietary information
Materials & equipment	Confidential and proprietary information
Construction & commissioning	Confidential and proprietary information
Construction management	Confidential and proprietary information
Overheads & miscellaneous costs	Confidential and proprietary information
Contingency	Confidential and proprietary information
Total component cost	\$2,644,971.00
Component cost (in-service year)	\$2,817,196.00

Substation Upgrade Component

Component title	Cyprus Substation Upgrade
Project description	Confidential and proprietary information
Substation name	Cyprus Substation
Substation zone	AEP
Substation upgrade scope	Install two 345 kV breakers, provide line terminal for new 345 kV line from Beatty Substation, install a new 345/138 kV transformer, and necessary 138 kV facilities to connect new transformer into the 138 kV yard.

Transformer Information

	Name	Capacity (MVA)	
Transformer	Cyprus Substation Transformer #3	575	
	High Side	Low Side	Tertiary
Voltage (kV)	345	138	13.2
New equipment description	Two new 345 kV breakers, one 345/138 kV transformer, additional 138 kV facilities		
Substation assumptions	All work can be completed within the existing substation perimeter		
Real-estate description	No additional property will be required.		
Construction responsibility	Confidential and proprietary information		
Benefits/Comments	Confidential and proprietary information		
Component Cost Details - In Current Year \$			
Engineering & design	Confidential and proprietary information		
Permitting / routing / siting	Confidential and proprietary information		
ROW / land acquisition	Confidential and proprietary information		

Materials & equipment	Confidential and proprietary information
Construction & commissioning	Confidential and proprietary information
Construction management	Confidential and proprietary information
Overheads & miscellaneous costs	Confidential and proprietary information
Contingency	Confidential and proprietary information
Total component cost	\$20,941,900.00
Component cost (in-service year)	\$23,412,522.00
Substation Upgrade Component	
Component title	Cole Substation Upgrade
Project description	Confidential and proprietary information
Substation name	Cole Substation
Substation zone	AEP
Substation upgrade scope	Install three 345 kV breakers, reterminate the 345 kV line from Thistlewood Substation, and provide new line terminal for 345 kV line to Manor Park Substation.
Transformer Information	
None	
New equipment description	Three 345 kV breakers
Substation assumptions	All work can be completed within the existing substation perimeter.
Real-estate description	No additional property will be required.
Construction responsibility	Confidential and proprietary information
Benefits/Comments	Confidential and proprietary information
Component Cost Details - In Current Year \$	

Engineering & design	Confidential and proprietary information
Permitting / routing / siting	Confidential and proprietary information
ROW / land acquisition	Confidential and proprietary information
Materials & equipment	Confidential and proprietary information
Construction & commissioning	Confidential and proprietary information
Construction management	Confidential and proprietary information
Overheads & miscellaneous costs	Confidential and proprietary information
Contingency	Confidential and proprietary information
Total component cost	\$10,161,686.00
Component cost (in-service year)	\$11,360,510.00
Substation Upgrade Component	
Component title	Milepost Substation Upgrade
Project description	Confidential and proprietary information
Substation name	Milepost Substation
Substation zone	AEP
Substation upgrade scope	Install two 138 kV breakers and provide line terminal for new line from Manor Park Substation.
Transformer Information	
None	
New equipment description	Two new 138 kV breakers
Substation assumptions	All work will be completed within the existing substation perimeter
Real-estate description	No additional property will be required.
Construction responsibility	Confidential and proprietary information

Benefits/Comments	Confidential and proprietary information
Component Cost Details - In Current Year \$	
Engineering & design	Confidential and proprietary information
Permitting / routing / siting	Confidential and proprietary information
ROW / land acquisition	Confidential and proprietary information
Materials & equipment	Confidential and proprietary information
Construction & commissioning	Confidential and proprietary information
Construction management	Confidential and proprietary information
Overheads & miscellaneous costs	Confidential and proprietary information
Contingency	Confidential and proprietary information
Total component cost	\$4,128,526.00
Component cost (in-service year)	\$4,615,891.00
Substation Upgrade Component	
Component title	Beatty Substation Upgrade
Project description	Confidential and proprietary information
Substation name	Beatty Substation
Substation zone	AEP
Substation upgrade scope	Install one 345 kV breaker and a line terminal for the new 345 kV line to Cyprus Substation
Transformer Information	
None	
New equipment description	One 345 kV breaker
Substation assumptions	All work can be completed within the existing substation perimeter

Real-estate description	No additional property will be required.
Construction responsibility	Confidential and proprietary information
Benefits/Comments	Confidential and proprietary information
Component Cost Details - In Current Year \$	
Engineering & design	Confidential and proprietary information
Permitting / routing / siting	Confidential and proprietary information
ROW / land acquisition	Confidential and proprietary information
Materials & equipment	Confidential and proprietary information
Construction & commissioning	Confidential and proprietary information
Construction management	Confidential and proprietary information
Overheads & miscellaneous costs	Confidential and proprietary information
Contingency	Confidential and proprietary information
Total component cost	\$3,531,018.00
Component cost (in-service year)	\$3,947,590.00

Congestion Drivers

None

Existing Flowgates

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2026W1-N11-WT41	243469	05BEATTY	247896	05BOLTON	1	138	205	Winter N-1-1	Included
2026W1-GD-S263	243469	05BEATTY	246716	05PHILLIPI	1	138	205	Summer Gen Deliv	Included
2026W1-GD-S287	243469	05BEATTY	247896	05BOLTON	1	138	205	Summer Gen Deliv	Included
2026W1-IPD-S11	243469	05BEATTY	247896	05BOLTON	1	138	205	Summer IPD	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2026W1-IPD-S13	243469	05BEATTY	247896	05BOLTON	1	138	205	Summer IPD	Included
2026W1-IPD-S23	243469	05BEATTY	246716	05PHILLIPI	1	138	205	Summer IPD	Included
2026W1-IPD-S34	243469	05BEATTY	246716	05PHILLIPI	1	138	205	Summer IPD	Included
2026W1-IPD-S36	243469	05BEATTY	247896	05BOLTON	1	138	205	Summer IPD	Included
2026W1-IPD-S37	243469	05BEATTY	247896	05BOLTON	1	138	205	Summer IPD	Included
2026W1-IPD-S41	243469	05BEATTY	247896	05BOLTON	1	138	205	Summer IPD	Included
2026W1-IPD-S42	243469	05BEATTY	246716	05PHILLIPI	1	138	205	Summer IPD	Included
2026W1-IPD-S43	243469	05BEATTY	247896	05BOLTON	1	138	205	Summer IPD	Included
2026W1-IPD-S45	243469	05BEATTY	246716	05PHILLIPI	1	138	205	Summer IPD	Included
2026W1-IPD-S47	243469	05BEATTY	247896	05BOLTON	1	138	205	Summer IPD	Included
2026W1-IPD-S48	243469	05BEATTY	247896	05BOLTON	1	138	205	Summer IPD	Included
2026W1-IPD-S54	243469	05BEATTY	247896	05BOLTON	1	138	205	Summer IPD	Included
2026W1-IPD-S59	243469	05BEATTY	247896	05BOLTON	1	138	205	Summer IPD	Included
2026W1-IPD-S61	243469	05BEATTY	246716	05PHILLIPI	1	138	205	Summer IPD	Included
2026W1-IPD-S62	243469	05BEATTY	246716	05PHILLIPI	1	138	205	Summer IPD	Included
2026W1-IPD-S67	243469	05BEATTY	246716	05PHILLIPI	1	138	205	Summer IPD	Included
2026W1-IPD-S73	243469	05BEATTY	246716	05PHILLIPI	1	138	205	Summer IPD	Included
2026W1-N11-ST24	243469	05BEATTY	247896	05BOLTON	1	138	205	Summer N-1-1	Included
2026W1-N11-ST27	243469	05BEATTY	247896	05BOLTON	1	138	205	Summer N-1-1	Included
2026W1-N11-ST59	243469	05BEATTY	247896	05BOLTON	1	138	205	Summer N-1-1	Included
2026W1-N11-ST74	243469	05BEATTY	243586	05WHITER	1	138	205	Summer N-1-1	Included
2026W1-N11-ST75	243469	05BEATTY	243586	05WHITER	1	138	205	Summer N-1-1	Included
2026W1-N11-ST79	243469	05BEATTY	246716	05PHILLIPI	1	138	205	Summer N-1-1	Included
2026W1-N11-ST82	243469	05BEATTY	247896	05BOLTON	1	138	205	Summer N-1-1	Included
2026W1-N11-ST84	243469	05BEATTY	246716	05PHILLIPI	1	138	205	Summer N-1-1	Included
2026W1-N11-ST86	243469	05BEATTY	247896	05BOLTON	1	138	205	Summer N-1-1	Included
2026W1-N11-ST94	243469	05BEATTY	247896	05BOLTON	1	138	205	Summer N-1-1	Included
2026W1-GD-S634	243469	05BEATTY	247896	05BOLTON	1	138	205	Summer Gen Deliv	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2026W1-GD-S637	243469	05BEATTY	247896	05BOLTON	1	138	205	Summer Gen Deliv	Included
2026W1-GD-S638	243469	05BEATTY	246716	05PHILLIPI	1	138	205	Summer Gen Deliv	Included
2026W1-GD-S639	243469	05BEATTY	246716	05PHILLIPI	1	138	205	Summer Gen Deliv	Included
2026W1-GD-S231	243469	05BEATTY	247896	05BOLTON	1	138	205	Summer Gen Deliv	Included
2026W1-GD-S642	243469	05BEATTY	243586	05WHITER	1	138	205	Summer Gen Deliv	Included
2026W1-GD-S645	247896	05BOLTON	243519	05HALLRD	1	138	205	Summer Gen Deliv	Included
2026W1-GD-S262	243469	05BEATTY	247896	05BOLTON	1	138	205	Summer Gen Deliv	Included
2026W1-GD-S648	243469	05BEATTY	247896	05BOLTON	1	138	205	Summer Gen Deliv	Included
2026W1-GD-S654	247896	05BOLTON	243519	05HALLRD	1	138	205	Summer Gen Deliv	Included
2026W1-GD-S661	243469	05BEATTY	246716	05PHILLIPI	1	138	205	Summer Gen Deliv	Included
2026W1-GD-S296	243469	05BEATTY	246716	05PHILLIPI	1	138	205	Summer Gen Deliv	Included

New Flowgates

None

Financial Information

Capital spend start date 04/2027

Construction start date 03/2029

Project Duration (In Months) 50

Cost Containment Commitment

Cost cap (in current year) Confidential and proprietary information

Cost cap (in-service year) Confidential and proprietary information

Components covered by cost containment

1. Beatty - Cyprus 345 kV Line Upgrade - PROPOSER

2. Cole - Manor Park 345 kV Line - PROPOSER

3. Manor Park Substation - PROPOSER

Cost elements covered by cost containment

Engineering & design	Yes
Permitting / routing / siting	No
ROW / land acquisition	No
Materials & equipment	No
Construction & commissioning	No
Construction management	No
Overheads & miscellaneous costs	No
Taxes	No
AFUDC	No
Escalation	No
Additional Information	Confidential and proprietary information
Is the proposer offering a binding cap on ROE?	No
Is the proposer offering a Debt to Equity Ratio cap?	Confidential and proprietary information
Additional cost containment measures not covered above	Confidential and proprietary information

Additional Comments

Please contact Larre Hozempa (lhozemp@firstenergycorp.com) or Joe Cassata (jcassata@firstenergycorp.com) with any questions.