

# Belmont 765/500 kV Transformer #5 Replacement

## General Information

Proposing entity name	Company specific
Does the entity who is submitting this proposal intend to be the Designated Entity for this proposed project?	Yes
Company proposal ID	2023-W1-903
PJM Proposal ID	903
Project title	Belmont 765/500 kV Transformer #5 Replacement
Project description	Replace the Belmont 765/500 kV Transformer #5 with a new transformer bank with nameplate rating of 1500/2000/2500 MVA (ONAN/ONAF/ONAF), consisting of three single-phase transformers and a spare transformer. The loadability ratings of the new transformer are 3125/4000/4750 SN/SE/SLD and 3500/4250/4750 WN/WE/WLD. Replace 500 kV disconnect switches.
Email	Company specific
Project in-service date	06/2028
Tie-line impact	Yes
Interregional project	No
Is the proposer offering a binding cap on capital costs?	No
Additional benefits	

## Project Components

1. Belmont 765/500 kV Transformer #5

### Substation Upgrade Component

Component title	Belmont 765/500 kV Transformer #5
-----------------	-----------------------------------

Project description	Replace the Belmont 765/500 kV Transformer #5 with new transformer bank with nameplate rating of 1500/2000/2500 MVA (ONAN/ONAF/ONAF), consisting three single-phase transformers and a spare transformer. The loadability ratings of the new transformer are 3125/4000/4750 SN/SE/SLD and 3500/4250/4750 WN/WE/WLD. Replace 500 kV disconnect switches.
Substation name	Belmont
Substation zone	APS
Substation upgrade scope	- Install foundation, conduit, and grounding for new equipment. - Install conduit for fiber. - Replace (4) 765/500 kV single-phase transformers (No. 5 TR). - Replace (5) 500 kV, 2000 A disconnect switches with (5) 500 kV, 3000 A disconnect switches. - Install (1) lot of cables and grounding for new equipment. - Replace existing breaker failure and reclosing relays for (2) 500 kV breakers with (2) SEL relays and associated test switches. - Replace existing transformer #5 low-side differential relay and associated test switches. - Install (1) lot of control cables, SEL cables, and fiber.

### Transformer Information

	<b>Name</b>	<b>Capacity (MVA)</b>
Transformer	Belmont 765/500 kV Transformer #5	4000
	<b>High Side</b>	<b>Low Side</b> <b>Tertiary</b>
Voltage (kV)	765	500
New equipment description	New 765/500 kV transformer bank with nameplate rating of 1500/2000/2500 MVA (ONAN/ONAF/ONAF), consisting three single-phase transformers and a spare transformer. The loadability ratings of the new transformer are 3125/4000/4750 SN/SE/SLD and 3500/4250/4750 WN/WE/WLD. Assume tertiary winding and its delta connections for the single phase transformers.	
Substation assumptions	- Existing AC/DC systems, SCADA RTU and fiber patch panels are adequate. - Existing steel structures are adequate. - There is adequate space in existing panels for the new relays. - There is adequate space in the substation for transformer replacement.	
Real-estate description	No new Right-of-Way needed for this project.	
Construction responsibility	Company specific	
Benefits/Comments	-Addresses the violation and system overload caused by the contingencies.	

### Component Cost Details - In Current Year \$

Engineering & design	Company specific
Permitting / routing / siting	Company specific
ROW / land acquisition	Company specific
Materials & equipment	Company specific
Construction & commissioning	Company specific
Construction management	Company specific
Overheads & miscellaneous costs	Company specific
Contingency	Company specific
Total component cost	\$37,494,450.00
Component cost (in-service year)	\$42,059,637.00

### 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
2023W1-GD-S89	242920	05BELMON	235102	01BELMNT	5	765/500	201/205	Summer Gen Deliv	Included
2023W1-GD-S500	242920	05BELMON	235102	01BELMNT	5	765/500	201/205	Summer Gen Deliv	Included
2023W1-GD-S499	242920	05BELMON	235102	01BELMNT	5	765/500	201/205	Summer Gen Deliv	Included
2023W1-GD-S501	242920	05BELMON	235102	01BELMNT	5	765/500	201/205	Summer Gen Deliv	Included
2023W1-GD-S80	242920	05BELMON	235102	01BELMNT	5	765/500	201/205	Summer Gen Deliv	Included
2023W1-GD-S87	242920	05BELMON	235102	01BELMNT	5	765/500	201/205	Summer Gen Deliv	Included

### New Flowgates

None

## **Financial Information**

Capital spend start date 10/2024

Construction start date 01/2028

Project Duration (In Months) 44

## **Additional Comments**

None