New 500kV Circuit Keeney (DPL) - Bramah

General Information

Proposing entity name	DPL
Does the entity who is submitting this proposal intend to be the Designated Entity for this proposed project?	Yes
Company proposal ID	
PJM Proposal ID	465
Project title	New 500kV Circuit Keeney (DPL) - Bramah
Project description	Construct new 500kV line from Keeney EHV to Bramah. Rebuild part of the existing 5025 line as double circuited and utilize existing ROW with 5025 and 5014 from Keeney - Bramah. Upgrade remote substations to create necessary terminal positions for new line. Bramah substation (future) was planned with an open position that this project is looking to utilize to tie in the new 500kV line.
Email	Proprietary Information
Project in-service date	04/2034
Tie-line impact	Yes
Interregional project	No
Is the proposer offering a binding cap on capital costs?	No
Additional benefits	This project helps alleviate overloads identified in 2032 Scenario 4 generation deliverability studies with the addition of the PPL load idvs to the cases. The additional 500kV line should help with future 500kV outage flexibility.

Project Components

1. Keeney - Bramah New 500kV Circuit (DPL Portion)
2. Keeney - Bramah New 500kV Circuit (PECO Portion)
3. Keeney Substation Upgrades

Greenfield Transmission Line Component

Component title	Keeney - Bramah New 500kV Circuit (DPL Portion)
Project description	Rebuild the Keeney EHV to MD state line portion of the 5025 Keeney EHV to Rock Springs 500kV line to single pole double circuit 500 kV with davit arms to allow for a new 500kV circuit Keeney to Bramah.
Point A	Keeney
Point B	Bramah
Point C	

	Normal ratings	Emergency ratings
Summer (MVA)	2683.000000	3302.000000
Winter (MVA)	3090.000000	3684.000000

Conductor size and type	2493.0 ACAR 54/37 bundled
Nominal voltage	AC
Nominal voltage	500
Line construction type	Overhead
General route description	Route will follow existing 5025 & 5014 ROWs.
Terrain description	Varies from flat to mildly sloping.
Right-of-way width by segment	A formal alternative route analysis will be performed in subsequent phases of this project; however, it is assumed the existing right-of-way will remain and no additional ROW will be required.
Electrical transmission infrastructure crossings	N/A
Civil infrastructure/major waterway facility crossing plan	4 Major Road Crossings, 1 State and 3 County roads will require lane closures.

Environmental impacts	As part of this project, the following studies will be completed to ensure there are no adverse environmental impacts: Soil Boring Report, Wetland Delineation, and RTE Plant/Animal surveys.
Tower characteristics	Single pole double circuit 500 kV with davit arms
Construction responsibility	DPL
Benefits/Comments	See attached whitepaper.
Component Cost Details - In Current Year $	
Engineering & design	detailed cost
Permitting / routing / siting	detailed cost
ROW / land acquisition	detailed cost
Materials & equipment	detailed cost
Construction & commissioning	detailed cost
Construction management	detailed cost
Overheads & miscellaneous costs	detailed cost
Contingency	detailed cost
Total component cost	$53,237,947.13
Component cost (in-service year)	$63,823,657.42

Greenfield Transmission Line Component

Component title	Keeney - Bramah New 500kV Circuit (PECO Portion)
Project description	Construct a new 500kV Line from Bramah substation to the Delaware/Maryland state line. DPL will then complete the construction from the DE/MD state line to Keeney substation. The new line will be routed in existing ROW currently occupied on one side by the 5014L (Peach Bottom South to Rock Springs Generating Station) and the 5025L (Rock Springs Generating Station to the DE/MD state line).
Point A	Keeney

Point B	Bramah	
Point C		
	Normal ratings	Emergency ratings
Summer (MVA)	2683.000000	3302.000000
Winter (MVA)	3090.000000	3684.000000
Conductor size and type	2493.0 ACAR 54/37 bundled	
Nominal voltage	AC	
Nominal voltage	500	
Line construction type	Overhead	
General route description	Route will follow existing 5025 & 5014 ROWs. Additional ROW may be required between Peach Bottom and Bramah substations.	
Terrain description	Varies from flat to mildly sloping.	
Right-of-way width by segment	A formal alternative route analysis will be performed in subsequent phases of this project; however, it is assumed the existing right-of-way will remain and approximately 2 miles of additional ROW will be required in the Peach Bottom - Bramah region.	
Electrical transmission infrastructure crossings	N/A	
Civil infrastructure/major waterway facility crossing plan	Major Road Crossings will require lane closures.	
Environmental impacts	As part of this project, the following studies will be completed to ensure there are no adverse environmental impacts: Soil Boring Report, Wetland Delineation, and RTE Plant/Animal surveys.	
Tower characteristics	Single pole double circuit 500 kV with davit arms.	
Construction responsibility	PECO	
Benefits/Comments	See attached whitepaper.	
Component Cost Details - In Current Year $		
Engineering & design	detailed cost	

Permitting / routing / siting	detailed cost
ROW / land acquisition	detailed cost
Materials & equipment	detailed cost
Construction & commissioning	detailed cost
Construction management	detailed cost
Overheads & miscellaneous costs	detailed cost
Contingency	detailed cost
Total component cost	$429,365,273.00
Component cost (in-service year)	$515,392,432.41

Substation Upgrade Component

Component title	Keeney Substation Upgrades
Project description	Add new terminal position at Keeney Substation to support new 500kV Keeney - Bramah circuit.
Substation name	Keeney
Substation zone	DPL
Substation upgrade scope	DPL’s Keeney EHV substation will be rearranged to allow for an additional 500kV line out of the existing station. This will require installation of three (3) new 500kV IPO circuit breakers, six (6) new 500kV IPO disconnect switches, and the relocation of existing 5025 line. The 500kV disconnect switches and lightning arrestors at the Ckt 5025 existing terminal will remain in place for use by the proposed new circuit. New equipment and takeoff will be installed for the relocation of Ckt 5025.

Transformer Information

None

New equipment description	Three (3) new 500kV IPO circuit breakers, nine (9) new 500kV IPO disconnect switches, three (3) lightning arrestors, one (1) circuit breaker, and three (3) CCVTs.

Substation assumptions	It is assumed that the support structures called out in this SOW to be reused are adequate and do not need to be replaced. It is assumed that the limit of disturbance will be less than 5,000sqft so as not to trigger environmental permitting. It is assumed that the AC & DC studies performed under this project will show the existing systems to be adequate. It is assumed that there is enough space in the existing control building to install all new required equipment and cabling. Should this not be the case, a control house extension (or replacement) shall be required.?
Real-estate description	No additional real estate required.
Construction responsibility	DPL
Benefits/Comments	See attached whitepaper.
Component Cost Details - In Current Year $	
Engineering & design	detailed cost
Permitting / routing / siting	detailed cost
ROW / land acquisition	detailed cost
Materials & equipment	detailed cost
Construction & commissioning	detailed cost
Construction management	detailed cost
Overheads & miscellaneous costs	detailed cost
Contingency	detailed cost
Total component cost	$4,555,576.00
Component cost (in-service year)	$5,467,382.00

Substation Upgrade Component

Component title	Bramah Substation Upgrade
Project description	Tie in new 500kV Keeney - Bramah line to existing (future) terminal position at the Bramah substation (future).
Substation name	Bramah

Substation zone	230
Substation upgrade scope	Tie in new 500kV Keeney - Bramah line to existing (future) terminal position at the Bramah substation (future). Terminal position at Bramah Substation (future) to meet minimum ratings of 2683/3302/3797 MVA SN/SE/SLD & 3090/3684/423 MVA WN/WE/WLD.

Transformer Information

None

New equipment description	Transource to provide.
Substation assumptions	Transource to provide.
Real-estate description	Transource to provide.
Construction responsibility	Transource
Benefits/Comments	Transource needs to provide updated breaker contingencies and anticipated cost of required work to connect new line. Cost breakdown provided is under the assumption of utilizing the existing future open position at Bramah substation with the addition of a new breaker. Transource to confirm this is the position to be used and confirm cost for connection of the new line to Bramah.

Component Cost Details - In Current Year $

Engineering & design	detailed cost
Permitting / routing / siting	detailed cost
ROW / land acquisition	detailed cost
Materials & equipment	detailed cost
Construction & commissioning	detailed cost
Construction management	detailed cost
Overheads & miscellaneous costs	detailed cost
Contingency	detailed cost
Total component cost	$4,000,725.00
Component cost (in-service year)	$4,789,326.14

Congestion Drivers

None

Existing Flowgates

None

New Flowgates

FG #	From Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type
FG-465-1	200013	PCHBTM2N	200024	LIMERICK	1	500	PECO	2032 Generation Deliverability
FG-465-2	200064	PCHBTM1S	214347	PBN EXP	2	500	PECO	2032 Generation Deliverability
FG-465-3	213846	NOTTREAC	213844	NOTTNGHM	1	230	PECO	2032 Generation Deliverability
FG-465-4	213869	PCHBTMTP	213846	NOTTREAC	1	230	PECO	2032 Generation Deliverability
FG-465-5	214087	COOPER2	213869	PCHBTMTP	1	230	PECO	2032 Generation Deliverability
FG-465-6	214349	05BRAMAH	214084	COOPER	1	230	PECO	2032 Generation Deliverability
FG-465-7	200051	ROCKSPGS	200010	KEENEY	1	500	DPL	2032 Generation Deliverability

Financial Information

Capital spend start date	01/2026
Construction start date	10/2028
Project Duration (In Months)	99

Additional Comments

None