PECO Competitive Window Upgrades

General Information

Proposing entity name	PE
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	12
Project title	PECO Competitive Window Upgrades
Project description	Overloads have been identified on the 230kV North Philadelphia to Master line, the 230kV North Philadelphia to Waneeta line, and the 230kV Richmond - Waneeta line. To address the overloads, PECO is proposing to upgrade the 3 facilities by upgrading the conductor as well as upgrading substation equipment at the respective ends as needed.
Email	Proprietary Information
Project in-service date	06/2029
Tie-line impact	No
Interregional project	No
Is the proposer offering a binding cap on capital costs?	No
Additional benefits	

Project Components

1. North Philadelphia to Master Line Upgrade
2. North Philadelphia Substation Upgrade (N. Philly - Master Terminal)
3. Master Substation Upgrade (N. Philly - Master Terminal)
4. North Philadelphia to Waneeta Line Upgrade

5. North Philadelphia Substation Upgrade (N. Philly - Waneeta Terminal)
6. Waneeta Substation Upgrade (N. Philly - Waneeta Terminal)
7. Richmond to Waneeta Line Upgrade
8. Richmond Substation Upgrade (Richmond - Waneeta Terminal)
9. Waneeta Substation Upgrade (Richmond - Waneeta Terminal)

Transmission Line Upgrade Component

Component title	North Philadelphia to Master Line Upgrade
Project description	Upgrade the North Philadelphia to Master 230kV line and reinforce structures.
Impacted transmission line	North Philadelphia to Master
Point A	North Philadelphia
Point B	Master
Point C	
Terrain description	This circuit runs along the Amtrak Right of Way.
Existing Line Physical Characteristics	
Operating voltage	230
Conductor size and type	795 kcmil 26/7 ACSR (Drake)
Hardware plan description	Install new insulators and standard connection hardware.
Tower line characteristics	Steel structures, 47 years old. 5 structures owned by Exelon, and 48 structures owned by Amtrak.
Proposed Line Characteristics	

	Designed	Operating
Voltage (kV)	230.000000	230.000000
	Normal ratings	Emergency ratings

Summer (MVA)	647.000000	756.000000
Winter (MVA)	781.000000	873.000000
Conductor size and type	959.6 kcmil ACSS/TW "Suwannee"	
Shield wire size and type	Existing shield wire will remain. No shield wire scope.	
Rebuild line length	2.5 miles	
Rebuild portion description	Reconductor entire 2.5 miles of N. Phila - Master line. Reinforce approx. 17 structures.	
Right of way	Existing ROW will be utilized.	
Construction responsibility	PECO	
Benefits/Comments	Components 1-3, North Philadelphia - Master Idvs folder has the Idv for this project.	
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	$5,916,145.29	
Component cost (in-service year)	$6,717,679.06	

Substation Upgrade Component

Component title	North Philadelphia Substation Upgrade (N. Philly - Master Terminal)

Project description	Upgrade substation equipment at North Philadelphia 230kV substation on the North Philadelphia - Master line terminal.
Substation name	North Philadelphia
Substation zone	PECO
Substation upgrade scope	Upgrade one (1) disconnect switch at North Philadelphia 230kV substation on the North Philadelphia - Master line terminal.

Transformer Information

None

New equipment description	Upgrade one (1) disconnect switch.
Substation assumptions	Assume that there is no additional land acquisition or clearance issues associated with replacing the existing equipment with the new equipment within the facility.
Real-estate description	This upgrade does not include any expansion of the substation fence. No additional land required.
Construction responsibility	PECO
Benefits/Comments	Components 1-3, North Philadelphia - Master Idvs folder has the Idv for this project.

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	$262,743.21

Component cost (in-service year)	$294,635.05

Substation Upgrade Component

Component title	Master Substation Upgrade (N. Philly - Master Terminal)
Project description	Upgrade substation equipment at Master 230kV substation on the North Philadelphia - Master line terminal.
Substation name	Master
Substation zone	PECO
Substation upgrade scope	Upgrade station cable at Master 230kV substation on the North Philadelphia - Master line terminal.

Transformer Information

None

New equipment description	Upgrade two (2) instances of station cable, one (1) transmission cable drop and one (1) disconnect switch drop.
Substation assumptions	Assume that there is no additional land acquisition or clearance issues associated with replacing the existing equipment with the new equipment within the facility.
Real-estate description	This upgrade does not include any expansion of the substation fence. No additional land required.
Construction responsibility	PECO
Benefits/Comments	Components 1-3, North Philadelphia - Master Idvs folder has the Idv for this project.

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	$314,691.84
Component cost (in-service year)	$353,562.06

Transmission Line Upgrade Component

Component title	North Philadelphia to Waneeta Line Upgrade
Project description	Upgrade 220-49 Waneeta - North Philadelphia 230kV line and reinforce structures.
Impacted transmission line	North Philadelphia to Waneeta
Point A	North Philadelphia
Point B	Waneeta
Point C	
Terrain description	This circuit runs along the Amtrak Right of Way.
Existing Line Physical Characteristics	
Operating voltage	230
Conductor size and type	795 kcmil 26/7 ACSR (Drake)
Hardware plan description	Install new insulators and standard connection hardware.
Tower line characteristics	Steel structures. 12 structures owned by Exelon, and 30 structures owned by Amtrak.
Proposed Line Characteristics	

	Designed	Operating
Voltage (kV)	230.000000	230.000000

	Normal ratings	Emergency ratings
Summer (MVA)	731.000000	885.000000
Winter (MVA)	822.000000	978.000000
Conductor size and type	1192.5 kcmil ACSS/TW Bunting	
Shield wire size and type	Existing static wire will remain. No static wire scope.	
Rebuild line length	2.12 miles	
Rebuild portion description	Reconductor 2.12 miles of N. Phila - Waneeta line. Reinforce 42 structures.	
Right of way	Existing ROW will be utilized.	
Construction responsibility	PECO	
Benefits/Comments	Components 4-6, North Philadelphia - Waneeta Idvs folder has the Idv for this project.	
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	$6,337,282.10	
Component cost (in-service year)	$7,205,935.41	

Substation Upgrade Component

Component title	North Philadelphia Substation Upgrade (N. Philly - Waneeta Terminal)
Project description	Upgrade substation equipment at North Philadelphia 230kV substation on the North Philadelphia - Waneeta terminal.
Substation name	North Philadelphia
Substation zone	PECO
Substation upgrade scope	Upgrade station cable, one (1) motor operated disconnect switch, and two (2) disconnect switches at North Philadelphia 230kV substation on the North Philadelphia - Waneeta 230kV line terminal.

Transformer Information

None

New equipment description	Upgrade station cable, 1 motor operated disconnect switch, and 2 disconnect switches
Substation assumptions	Assume that there is no additional land acquisition or clearance issues associated with replacing the existing equipment with the new equipment within the facility.
Real-estate description	This upgrade does not include any expansion of the substation fence. No additional land required.
Construction responsibility	PECO
Benefits/Comments	Components 4-6, North Philadelphia - Waneeta Idvs folder has the Idv for this project.

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	$732,633.76
Component cost (in-service year)	$833,056.12

Substation Upgrade Component

Component title	Waneeta Substation Upgrade (N. Philly - Waneeta Terminal)
Project description	Upgrade substation equipment on the Waneeta - North Philadelphia 230kV terminal at Waneeta substation.
Substation name	Waneeta
Substation zone	PECO
Substation upgrade scope	Upgrade station cable at Waneeta 230kV substation on the Waneeta - North Philadelphia line terminal.

Transformer Information

None

New equipment description	Upgrade station cable
Substation assumptions	Assume that there is no additional land acquisition or clearance issues associated with replacing the existing equipment with the new equipment within the facility.
Real-estate description	This upgrade does not include any expansion of the substation fence. No additional land required.
Construction responsibility	PECO
Benefits/Comments	Components 4-6, North Philadelphia - Waneeta Idvs folder has the Idv for this project.
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	$256,421.82
Component cost (in-service year)	$291,569.64

Transmission Line Upgrade Component

Component title	Richmond to Waneeta Line Upgrade
Project description	Rebuild 220-49 Waneeta - North Philadelphia 230kV line.
Impacted transmission line	Richmond - Waneeta
Point A	Richmond
Point B	Waneeta
Point C	
Terrain description	This circuit runs along the Amtrak Right of Way.
Existing Line Physical Characteristics	
Operating voltage	230
Conductor size and type	1622 ACSS/TW PECOS; 3000MVM HPFFC
Hardware plan description	Install new insulators and standard connection hardware.
Tower line characteristics	Steel structures, 57 years old. 34 structures owned by Exelon, and 9 structures owned by Amtrak.

Proposed Line Characteristics

	Designed	Operating
Voltage (kV)	230.000000	230.000000
	Normal ratings	Emergency ratings
Summer (MVA)	1245.000000	1543.000000
Winter (MVA)	1535.000000	1754.000000
Conductor size and type	2 x 900 kcmil ACSS/TW Canary; 2 x 2000mm XLP	
Shield wire size and type	7 #5 Alumoweld	
Rebuild line length	3.18 miles	
Rebuild portion description	Rebuild entire 0.95 miles of existing UGT, and rebuild entire 2.23 miles of existing OHT. All structures will be replaced.	
Right of way	Existing ROW will be utilized.	
Construction responsibility	PECO	
Benefits/Comments	Components 7-9, Richmond - Waneeta Idvs folder has the idvs for this project. UGT cable type selected excluding heat source crossings which will be reviewed in detailed design.	

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	$25,426,998.34
Component cost (in-service year)	$28,723,959.52

Substation Upgrade Component

Component title	Richmond Substation Upgrade (Richmond - Waneeta Terminal)
Project description	Upgrade substation equipment at Richmond 230kV substation on the Richmond - Waneeta line terminal.
Substation name	Richmond
Substation zone	230
Substation upgrade scope	Upgrade two (2) breakers and five (5) disconnect switches at Richmond

Transformer Information

None

New equipment description	Upgrade two (2) breakers and five (5) disconnect switches.
Substation assumptions	This upgrade does not include any expansion of the substation fence. No additional land required.
Real-estate description	Assume that there is no additional land acquisition or clearance issues associated with replacing the existing equipment with the new equipment within the facility.
Construction responsibility	PECO
Benefits/Comments	Components 7-9, Richmond - Waneeta Idvs folder has the idvs for this project.
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	$2,645,895.78
Component cost (in-service year)	$2,988,620.07

Substation Upgrade Component

Component title	Waneeta Substation Upgrade (Richmond - Waneeta Terminal)
Project description	Upgrade substation equipment at Waneeta 230kV substation on the Richmond - Waneeta line terminal.
Substation name	Waneeta
Substation zone	PECO
Substation upgrade scope	Upgrade one (1) breaker and two (2) disconnect switches at Waneeta

Transformer Information

None

New equipment description	Upgrade one (1) breaker and two (2) disconnect switches.
Substation assumptions	This upgrade does not include any expansion of the substation fence. No additional land required.
Real-estate description	Assume that there is no additional land acquisition or clearance issues associated with replacing the existing equipment with the new equipment within the facility.
Construction responsibility	PECO
Benefits/Comments	Components 7-9, Richmond - Waneeta Idvs folder has the idvs for this project.

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	$1,325,947.90
Component cost (in-service year)	$1,494,310.03

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
2024W1-GD-W21N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter Gen Deliv	Deleted
2024W1-GD-W20N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter Gen Deliv	Deleted
2024W1-32GD-W6	214277	RICHMOND35	214012	WANEETA3	1	230	230	2032 Winter Gen Deliv	Included
2024W1-32GD-W5	214277	RICHMOND35	214012	WANEETA3	1	230	230	2032 Winter Gen Deliv	Included
2024W1-32GD-W4	214277	RICHMOND35	214012	WANEETA3	1	230	230	2032 Winter Gen Deliv	Included
2024W1-GD-W238	214010	WANEETA2	213817	N PHILA	1	230	230	Winter Gen Deliv	Included
2024W1-32GD-S140	214277	RICHMOND35	214012	WANEETA3	1	230	230	2032 Summer Gen Deliv	Included
2024W1-32GD-S139	214277	RICHMOND35	214012	WANEETA3	1	230	230	2032 Summer Gen Deliv	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2024W1-GD-W22N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter Gen Deliv	Deleted
2024W1-32GD-W3	214277	RICHMOND35	214012	WANEETA3	1	230	230	2032 Winter Gen Deliv	Included
2024W1-32GD-W2	214277	RICHMOND35	214012	WANEETA3	1	230	230	2032 Winter Gen Deliv	Included
2024W1-32GD-W24	214277	RICHMOND35	214012	WANEETA3	1	230	230	2032 Winter Gen Deliv	Included
2024W1-32GD-LL16	214277	RICHMOND35	214012	WANEETA3	1	230	230	2032 Light Load Gen Deliv	Included
2024W1-32GD-S142	214277	RICHMOND35	214012	WANEETA3	1	230	230	2032 Summer Gen Deliv	Included
2024W1-32GD-LL15	214277	RICHMOND35	214012	WANEETA3	1	230	230	2032 Light Load Gen Deliv	Included
2024W1-32GD-S141	214277	RICHMOND35	214012	WANEETA3	1	230	230	2032 Summer Gen Deliv	Included
2024W1-GD-S770	213819	N PHILA8	213783	MASTER	1	230	230	Summer Gen Deliv	Included
2024W1-32GD-LL21	214277	RICHMOND35	214012	WANEETA3	1	230	230	2032 Light Load Gen Deliv	Included
2024W1-32GD-LL20	214277	RICHMOND35	214012	WANEETA3	1	230	230	2032 Light Load Gen Deliv	Included
2024W1-32GD-LL19	214277	RICHMOND35	214012	WANEETA3	1	230	230	2032 Light Load Gen Deliv	Included
2024W1-32GD-W15	214277	RICHMOND35	214012	WANEETA3	1	230	230	2032 Winter Gen Deliv	Included
2024W1-32GD-LL18	214277	RICHMOND35	214012	WANEETA3	1	230	230	2032 Light Load Gen Deliv	Included
2024W1-GD-S89N	213819	N PHILA8	213783	MASTER	1	230	230	Summer Gen Deliv	Included
2024W1-32GD-W14	214277	RICHMOND35	214012	WANEETA3	1	230	230	2032 Winter Gen Deliv	Included
2024W1-32GD-LL17	214277	RICHMOND35	214012	WANEETA3	1	230	230	2032 Light Load Gen Deliv	Included
2024W1-GD-S791	214010	WANEETA2	213817	N PHILA	1	230	230	Summer Gen Deliv	Included
2024W1-GD-S202N	214010	WANEETA2	213817	N PHILA	1	230	230	Summer Gen Deliv	Included
2024W1-GD-S201N	214010	WANEETA2	213817	N PHILA	1	230	230	Summer Gen Deliv	Included
2024W1-GD-S91N	213819	N PHILA8	213783	MASTER	1	230	230	Summer Gen Deliv	Included
2024W1-GD-S90N	213819	N PHILA8	213783	MASTER	1	230	230	Summer Gen Deliv	Included
2024W1-GD-S203N	214010	WANEETA2	213817	N PHILA	1	230	230	Summer Gen Deliv	Included

New Flowgates

None

Financial Information

Capital spend start date	01/2025
Construction start date	02/2028
Project Duration (In Months)	53

Additional Comments

None