

Install Smart Wires devices and replace terminal equipment on 220-13/220-14 lines

General Information

Proposing entity name	PE
Company proposal ID	02
PJM Proposal ID	399
Project title	Install Smart Wires devices and replace terminal equipment on 220-13/220-14 lines
Project description	Install Smart Wires device in series with 220-13 and 220-14 Whitpain-Plymouth 230 kV lines and replace station conductor and metering inside Whitpain and Plymouth substations to increase the ratings of the 220-13/220-14 Whitpain-Plymouth 230 kV line facilities
Project in-service date	06/2025
Tie-line impact	No
Interregional project	No
Is the proposer offering a binding cap on capital costs?	No
Additional benefits	

Project Components

1. Replace terminal equipment inside Whitpain substation
2. Replace terminal equipment inside Plymouth substation
3. Install a Smart Wires device in series with 220-13 line and 220-14 line

Substation Upgrade Component

Component title	Replace terminal equipment inside Whitpain substation
Substation name	Whitpain
Substation zone	PECO

Substation upgrade scope

Replace three sections of conductor and four meters inside Whitpain substation

Transformer Information

None

New equipment description

Three sections of conductor and four meters inside Whitpain substation will be replaced. Along with the substation terminal equipment being replaced at Plymouth, this will increase the 220-13 and 220-14 Whitpain-Plymouth 230 kV line facility ratings to 463 MVA normal / 578 MVA emergency (summer) and 521 MVA normal / 639 MVA emergency (winter)

Substation assumptions

New terminal equipment will replace existing terminal equipment without requiring additional space.

Real-estate description

Construction responsibility

PECO

Additional comments

Component Cost Details - In Current Year \$

Engineering & design

detailed cost

Permitting / routing / siting

detailed cost

ROW / land acquisition

\$.00

Materials & equipment

detailed cost

Construction & commissioning

detailed cost

Construction management

detailed cost

Overheads & miscellaneous costs

detailed cost

Contingency

\$.00

Total component cost

\$320,544.00

Component cost (in-service year)

\$344,583.00

Substation Upgrade Component

Component title	Replace terminal equipment inside Plymouth substation
Substation name	Plymouth
Substation zone	PECO
Substation upgrade scope	Replace four meters inside Plymouth substation

Transformer Information

None	
New equipment description	Four meters inside Plymouth substation will be replaced. Along with the substation terminal equipment being replaced at Whitpain, this will increase the 220-13 and 220-14 Whitpain-Plymouth 230 kV line facility ratings to 463 MVA normal / 578 MVA emergency (summer) and 521 MVA normal / 639 MVA emergency (winter)
Substation assumptions	New terminal equipment will replace existing terminal equipment without requiring additional space.
Real-estate description	
Construction responsibility	PECO
Additional comments	

Component Cost Details - In Current Year \$

Engineering & design	detailed cost
Permitting / routing / siting	detailed cost
ROW / land acquisition	\$.00
Materials & equipment	detailed cost
Construction & commissioning	detailed cost
Construction management	detailed cost
Overheads & miscellaneous costs	detailed cost
Contingency	\$.00
Total component cost	\$254,400.00

Component cost (in-service year) \$273,479.00

Substation Upgrade Component

Component title Install a Smart Wires device in series with 220-13 line and 220-14 line

Substation name Whitpain

Substation zone PECO

Substation upgrade scope Install a Smart Wires device in series with 220-13 line and 220-14 line at Whitpain substation. Installation includes the Smart Wires devices and associated components, towers on either side of each of the Smart Wires devices to connect with the existing line, and site preparation

Transformer Information

None

New equipment description Smart Wires device is placed in series with a transmission line to redirect power flow from overloaded facilities to less heavily loaded facilities. Installation includes the Smart Wires device and towers, foundations, frames, components such as switches, insulators and communications equipment.

Substation assumptions The substation has open space and ideally, the Smart Wires device would be installed inside the substation. However, the Smart Wires device must be placed in series with the 220-13 and 220-14 line, which restricts potential locations for the installation. Therefore, it is assumed that the substation will need to be expanded on one side to install the devices. Alternatively, the Smart Wires device can be installed within the present 220-13 and 220-14 ROWs just outside the substation.

Real-estate description Land does not need to be acquired to accommodate installation of the Smart Wires devices. If the devices cannot be installed inside the existing footprint of the substation, the footprint of the substation can be expanded on land owned by PECO. Alternatively, the devices can be installed within the present 220-13 and 220-14 ROWs which are also owned by PECO.

Construction responsibility PECO

Additional comments detailed cost, proprietary information

Component Cost Details - In Current Year \$

Engineering & design detailed cost

Permitting / routing / siting	detailed cost
ROW / land acquisition	\$.00
Materials & equipment	detailed cost
Construction & commissioning	detailed cost
Construction management	detailed cost
Overheads & miscellaneous costs	detailed cost
Contingency	\$.00
Total component cost	\$7,325,066.00
Component cost (in-service year)	\$7,797,364.00

Congestion Drivers

CD #	From Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type
ME-6	213906	PLYMTG 1	214035	WHITPAN1	1	230	230	Market Efficiency

Existing Flowgates

None

New Flowgates

None

Financial Information

Capital spend start date	01/2023
Construction start date	04/2023
Project Duration (In Months)	29

Additional comments

None