

# Shawville 230/115-17.2 kV Transformer - Purchase a new higher rated 2A transformer

## 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	Company specific
PJM Proposal ID	306
Project title	Shawville 230/115-17.2 kV Transformer - Purchase a new higher rated 2A transformer
Project description	Replace the Shawville 2A 230/115-17.2 kV Transformer with a larger unit.
Email	Company specific
Project in-service date	06/2026
Tie-line impact	Yes
Interregional project	No
Is the proposer offering a binding cap on capital costs?	No
Additional benefits	The 17.2 kV winding of the 2A transformer is used as one of the two outlets for Unit 2 of the Shawville Plant (the other being the Plant owned 2B 230-17.2 kV transformer). The existing 17.2 kV disconnect switch is only operated de-energized. Since the 2A Transformer is part of a single zone of projection with the Plant owned equipment (2B transformer and unit 2 17.2 kV bus), when the unit is placed online, taken offline, or trips, the MAIT 230 kV and 115 kV breakers must be opened, thereby interrupting the transmission through path. Replacing the switch with a breaker will allow for separation of the zones of protection for the MAIT 2A transformer and Plant equipment.

## Project Components

1. Shawville Substation: Replace the 2A 230/115-17.2 kV Transformer
2. Shawville Plant: Re-terminate 17.2 kV isophase bus

3. Dubois Substation: Review and revise relay settings
4. Philipsburg Substation: Review and revise relay settings
5. Garman Substation: Review and revise relay settings
6. Moshannon Substation: Review and revise relay settings
7. Shingletown Substation: Review and revise relay settings
8. Elko Substation: Review and revise relay settings

### Substation Upgrade Component

Component title	Shawville Substation: Replace the 2A 230/115-17.2 kV Transformer
Project description	Replace the Shawville 2A 230/115-17.2 kV Transformer with a larger unit and upgrade high and low side terminal equipment.
Substation name	Shawville
Substation zone	Penelec
Substation upgrade scope	Replace the Shawville 2A 230/115-18 kV transformer with a 180/240/300 MVA unit. Install a breaker on the 17.2 kV side of the transformer replacing the existing disconnect switch at the POI between MAIT and the Plant. Replace high and low side terminal equipment such that the transformer will be the most limiting element in the circuit. Upgrade relaying, as necessary, to accommodate the new transformer and breaker.

### Transformer Information

	<b>Name</b>	<b>Capacity (MVA)</b>	
Transformer	Shawville 2A	180/240/300 MVA	
	<b>High Side</b>	<b>Low Side</b>	<b>Tertiary</b>
Voltage (kV)	230	115	17.2

New equipment description	Replace the Shawville 2A 230/115-18 kV transformer with a 180/240/300 MVA unit. Install a breaker on the 17.2 kV side of the transformer replacing the existing disconnect switch at the POI between MAIT and the Plant. Replace high and low side terminal equipment such that the transformer will be the most limiting element in the circuit. Upgrade, replace, and/or install new relaying and controls, as necessary, to accommodate the new transformer and breaker. All new equipment will have a rating such that the transformer will be the most limiting element in the circuit.
Substation assumptions	- Dimensioned details of existing 2A transformer installation. - AC station service, relay house floor plan and SCADA RTU are adequate. - Shawville Plant will be responsible for installing new relays to protect the Plant-owned 2B transformer and Unit 2 17.2 kV bus.
Real-estate description	Not Applicable - Substation expansion not required for this project.
Construction responsibility	Company specific
Benefits/Comments	The 17.2 kV winding of the 2A transformer is used as one of the two outlets for unit 2 of the Shawville Plant (the other being the Plant owned 230-17.2 kV). The existing 17.2 kV disconnect switch is only operated de-energized. Since the 2A Transformer is part of a single zone of projection with the Plant owned equipment (2B transformer and unit 2 17.2 kV bus), when the unit is placed online, taken offline, or trips, the MAIT 230 and 115 kV breakers must be opened, thereby interrupting the transmission through path. Replacing the switch with a breaker will allow for separation of the zones of protection for the MAIT 2A transformer and Plant equipment.

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

Engineering & design	This information is considered confidential and proprietary
Permitting / routing / siting	This information is considered confidential and proprietary
ROW / land acquisition	This information is considered confidential and proprietary
Materials & equipment	This information is considered confidential and proprietary
Construction & commissioning	This information is considered confidential and proprietary
Construction management	This information is considered confidential and proprietary
Overheads & miscellaneous costs	This information is considered confidential and proprietary
Contingency	This information is considered confidential and proprietary
Total component cost	\$4,556,926.51

Component cost (in-service year) \$5,233,187.23

### **Substation Upgrade Component**

Component title Shawville Plant: Re-terminate 17.2 kV isophase bus

Project description Remove the existing 17.2 kV isophase bus from the 2A transformer to the Plant wall and re-terminate with air bushings for connection to the new 17.2 kV breaker.

Substation name Shawville

Substation zone Penelec

Substation upgrade scope Remove the existing 17.2 kV isophase bus from the 2A transformer to the Plant wall and re-terminate with air bushings for connection to the new 17.2 kV breaker.

### **Transformer Information**

None

New equipment description Remove the existing 17.2 kV isophase bus from the 2A transformer to the Plant wall and re-terminate with air bushings for connection to the new 17.2 kV breaker.

Substation assumptions Plant to be responsible for relaying and protection of the 2B transformer.

Real-estate description Not Applicable

Construction responsibility Company specific

Benefits/Comments

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

Engineering & design This information is considered confidential and proprietary

Permitting / routing / siting This information is considered confidential and proprietary

ROW / land acquisition This information is considered confidential and proprietary

Materials & equipment This information is considered confidential and proprietary

Construction & commissioning This information is considered confidential and proprietary

Construction management	This information is considered confidential and proprietary
Overheads & miscellaneous costs	This information is considered confidential and proprietary
Contingency	This information is considered confidential and proprietary
Total component cost	\$650,791.05
Component cost (in-service year)	\$745,974.96

### **Substation Upgrade Component**

Component title	Dubois Substation: Review and revise relay settings
Project description	Review and update relay settings at Dubois Substation
Substation name	Dubois
Substation zone	Penelec
Substation upgrade scope	Review and update relay settings, as necessary, at Dubois Substation to account for the transformer replacement at Shawville Substation.

### **Transformer Information**

None	
New equipment description	No new equipment is required.
Substation assumptions	Existing relays will be re-used and settings updated as necessary.
Real-estate description	Not Applicable
Construction responsibility	Company specific
Benefits/Comments	

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

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ROW / land acquisition	This information is considered confidential and proprietary
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Construction & commissioning	This information is considered confidential and proprietary
Construction management	This information is considered confidential and proprietary
Overheads & miscellaneous costs	This information is considered confidential and proprietary
Contingency	This information is considered confidential and proprietary
Total component cost	\$26,479.25
Component cost (in-service year)	\$30,582.52

**Substation Upgrade Component**

Component title	Philipsburg Substation: Review and revise relay settings
Project description	Review and update relay settings at Philipsburg Substation
Substation name	Philipsburg
Substation zone	Penelec
Substation upgrade scope	Review and update relay settings, as necessary, at Philipsburg Substation to account for the transformer replacement at Shawville Substation.

**Transformer Information**

None	
New equipment description	No new equipment is required.
Substation assumptions	Existing relays will be re-used and settings updated as necessary.
Real-estate description	Not Applicable
Construction responsibility	Company specific
Benefits/Comments	

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Construction & commissioning	This information is considered confidential and proprietary
Construction management	This information is considered confidential and proprietary
Overheads & miscellaneous costs	This information is considered confidential and proprietary
Contingency	This information is considered confidential and proprietary
Total component cost	\$26,479.25
Component cost (in-service year)	\$30,582.52

### **Substation Upgrade Component**

Component title	Garman Substation: Review and revise relay settings
Project description	Review and update relay settings at Garman Substation
Substation name	Garman
Substation zone	Penelec
Substation upgrade scope	Review and update relay settings, as necessary, at Garman Substation to account for the transformer replacement at Shawville Substation.

### **Transformer Information**

None	
New equipment description	No new equipment is required.
Substation assumptions	Existing relays will be re-used and settings updated as necessary.

Real-estate description	Not Applicable
Construction responsibility	Company specific
Benefits/Comments	
<b>Component Cost Details - In Current Year \$</b>	
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Permitting / routing / siting	This information is considered confidential and proprietary
ROW / land acquisition	This information is considered confidential and proprietary
Materials & equipment	This information is considered confidential and proprietary
Construction & commissioning	This information is considered confidential and proprietary
Construction management	This information is considered confidential and proprietary
Overheads & miscellaneous costs	This information is considered confidential and proprietary
Contingency	This information is considered confidential and proprietary
Total component cost	\$26,479.25
Component cost (in-service year)	\$30,582.52
<b>Substation Upgrade Component</b>	
Component title	Moshannon Substation: Review and revise relay settings
Project description	Review and update relay settings at Moshannon Substation
Substation name	Moshannon
Substation zone	APS
Substation upgrade scope	Review and update relay settings, as necessary, at Moshannon Substation to account for the transformer replacement at Shawville Substation.

**Transformer Information**

None	
New equipment description	No new equipment is required.
Substation assumptions	Existing relays will be re-used and settings updated as necessary.
Real-estate description	Not Applicable
Construction responsibility	Company specific
Benefits/Comments	

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Materials & equipment	This information is considered confidential and proprietary
Construction & commissioning	This information is considered confidential and proprietary
Construction management	This information is considered confidential and proprietary
Overheads & miscellaneous costs	This information is considered confidential and proprietary
Contingency	This information is considered confidential and proprietary
Total component cost	\$29,857.33
Component cost (in-service year)	\$34,497.19

**Substation Upgrade Component**

Component title	Shingletown Substation: Review and revise relay settings
Project description	Review and update relay settings at Shingletown Substation
Substation name	Shingletown
Substation zone	APS

Substation upgrade scope

Review and update relay settings, as necessary, at Shingletown Substation to account for the transformer replacement at Shawville Substation.

### **Transformer Information**

None

New equipment description

No new equipment is required.

Substation assumptions

Existing relays will be re-used and settings updated as necessary.

Real-estate description

Not Applicable

Construction responsibility

Company specific

Benefits/Comments

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

Engineering & design

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Permitting / routing / siting

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ROW / land acquisition

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Materials & equipment

This information is considered confidential and proprietary

Construction & commissioning

This information is considered confidential and proprietary

Construction management

This information is considered confidential and proprietary

Overheads & miscellaneous costs

This information is considered confidential and proprietary

Contingency

This information is considered confidential and proprietary

Total component cost

\$29,857.33

Component cost (in-service year)

\$34,497.19

### **Substation Upgrade Component**

Component title

Elko Substation: Review and revise relay settings

Project description	Review and update relay settings at Elko Substation
Substation name	Elko
Substation zone	APS
Substation upgrade scope	Review and update relay settings, as necessary, at Elko Substation to account for the transformer replacement at Shawville Substation.

**Transformer Information**

None	
New equipment description	No new equipment is required.
Substation assumptions	Existing relays will be re-used and settings updated as necessary.
Real-estate description	Not Applicable
Construction responsibility	Company specific
Benefits/Comments	

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

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Construction & commissioning	This information is considered confidential and proprietary
Construction management	This information is considered confidential and proprietary
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Contingency	This information is considered confidential and proprietary
Total component cost	\$29,857.33
Component cost (in-service year)	\$34,497.19

## 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
GD-LL45	999337	26SHAWVL 2	200726	26SHAWVL 2	2A	115/230	226	Light Load Gen Deliv	Included
GD-LL46	999337	26SHAWVL 2	200726	26SHAWVL 2	2A	115/230	226	Light Load Gen Deliv	Included
N1-LLT20	999337	26SHAWVL 2	200726	26SHAWVL 2	2A	115/230	226	Thermal Light Load	Included
N1-LLT21	999337	26SHAWVL 2	200726	26SHAWVL 2	2A	115/230	226	Thermal Light Load	Included

## New Flowgates

None

## Financial Information

Capital spend start date 09/2024

Construction start date 03/2026

Project Duration (In Months) 21

## Additional Comments

None