Artificial Island Project
Cost Allocation Status Update

Transmission Expansion Advisory Committee

October 17, 2019

Artificial Island Cost Allocation: Background

- Original cost allocation filed with FERC in August 2015
- In April 2017 PJM submitted tariff revisions to incorporate the cost allocation for the reconfigured AI Project

Upgrade ID	Description	In-Service Date	Latest Cost Estimate ($M)	Transmission Owner	Schedule 12 Allocation Type	Allocation (Non-Load-Ratio-Share)
b2633.1	Build a new 230 kV transmission line between Hope Creek and Silver Run	6/1/2020	$129.600	LS POWER	100% Solution-Based DFAX	AEC: 0.01%, DPL: 99.98%, JCPL: 0.01%
b2633.10	Interconnect the new Silver Run 230 kV substation with existing Red Lion - Cartanza and Red Lion - Cedar Creek 230 kV lines	4/1/2020	$2.000	DPL	100% Solution-Based DFAX	AEC: 0.01%, DPL: 99.98%, JCPL: 0.01%
b2633.2	Construct a new Silver Run 230 kV substation	6/1/2020	$16.400	LS POWER	100% Solution-Based DFAX	AEC: 0.01%, DPL: 99.98%, JCPL: 0.01%
b2633.4	Add a new 500 kV bay at Hope Creek (Expansion of Hope Creek substation)	6/1/2021	$51.500	PSEG	50% LRS & 50% SBDFAX	AEC: 0.01%, DPL: 99.98%, JCPL: 0.01%
b2633.5	Add a new 500/230 kV autotransformer at Hope Creek and a new Hope Creek 230 kV substation	12/31/2020	$67.000	PSEG	100% Solution-Based DFAX	AEC: 0.01%, DPL: 99.98%, JCPL: 0.01%

Artificial Island Cost Allocation: Background

- In the April 2017 filing PJM stated that it was analyzing project beneficiaries from alternative perspectives to the solution-based DFAX methodology
- In June 2017 PJM released a whitepaper showing alternative approaches to identify the Artificial Island Project beneficiaries
- In July 2018 FERC found that the solution-based DFAX method to allocate stability-related upgrades was inappropriate and established paper hearing procedures to develop a better approach

Artificial Island Cost Allocation: Background

- In October 2018 PJM filed clarifications to the questions identified in the July 2018 Order and included revised tariff language for the alternative approaches contained in the 2017 whitepaper
- On February 28, 2019 FERC established one of the alternative cost allocation approaches called the Stability Deviation Method
  - FERC made two modifications to the tariff language that PJM submitted in October 2018
  - FERC required PJM to make a compliance filing to include the new method in the tariff with an effective date of April 22, 2016
- On April 1, 2019 the PJM TOs made the compliance filing

Artificial Island Cost Allocation: Stability Deviation Method

- Identifies beneficiaries by incorporating the transient voltage angle changes at each load bus under the most critical fault condition with the stability upgrade included in the simulation
  - Load buses with angle deviations less than 25% of the largest deviation will be excluded
  - Angle deviations at remaining load buses are multiplied by the MW load at the bus and the results are summed for each zone and form the basis for the zonal cost allocation

Artificial Island Cost Allocation: Current Status

- On April 1, 2019 PJM and the PJM TOs petitioned for a rehearing of the February 2019 Order because of two modifications that FERC made to the tariff language
  - Modification 1: Perform the stability simulations without the stability upgrade when technically meaningful angle deviations can't be observed
  - Modification 2: PJM is given discretion to modify the 25% threshold
- ***FERC is still evaluating the April 2019 requests for rehearing***

Artificial Island Cost Allocation: Current Status

- On July 18, 2019 the PJM TOs submitted a notice to PJM stakeholders containing tariff changes they plan to ask FERC to approve to address the concerns related to the two modifications
  - Replace the first modification with a more appropriate, consistent and robust technical approach
    - Perform simulations with the stability upgrade and extend the fault duration to the critical clearing time in order to achieve technically meaningful angle deviations
  - Remove the second modification
- The PJM Transmission Owners will be filing proposed tariff amendments to address the two modifications this month
- ***The Stability Deviation Method cost allocation for the Artificial Island Project has not been approved by the PJM Board or filed with FERC***

Artificial Island Cost Allocation: Next Steps

- PJM will bring the revised allocations based on the Stability Deviation Method established in the February 2019 FERC Order to the PJM Board for approval in December 2019
- After the PJM Board approves the revised allocations, PJM will file them with FERC and give designated customers 30 days from the date of the filing to review their allocations
- Beginning in January 2020, PJM will assign cost responsibility for AI Project Transmission Enhancement Charges using the revised allocations approved by the PJM Board in December 2019
  - No AI Project TECs are expected prior to January 2020
- Allocations based on the proposed tariff amendments filed in October 2019 will be placed on hold until FERC rules on the April 2019 requests for rehearing

AI Project Cost Allocation Using Stability Deviation Method

- Cost allocation table at the end of this section provides three variations of the AI Project cost allocation using the Stability Deviation Method
  - 2017 Whitepaper
  - FERC Approved tariff language filed April 2019
  - Amended tariff language to be filed by PJM TOs in October 2019
- The table below summarizes the key technical reasons why the three approaches result in different allocations

	2017 White Paper	2019 FERC Approved	2019 TO Proposed
# Fault Conditions	2	1	1
Fault Duration Extended?	Yes	No	Yes

AI Project Cost Allocation Using Stability Deviation Method

- Other reasons for the different allocations relate to Merchant Transmission Facility Firm Withdrawal Rights
  - Poseidon
  - ECP (aka Linden VFT)
  - HTP

AI Project Cost Allocation (Non-Load Ratio Share) Using Stability Deviation Method

- The cost allocations provided on this slide have not been approved by the PJM Board or filed with FERC and are therefore being provided for informational purposes only

Zone	2017 White Paper Method	2019 FERC Approved Method	2019 TO Proposed Method
PENELEC	1.09%	0.00%	0.00%
ME	4.78%	5.88%	5.52%
JCPL	12.38%	13.85%	14.50%
PPL	11.97%	14.19%	14.02%
PECO	15.17%	17.62%	17.78%
PSEG	18.86%	20.79%	22.03%
BGE	3.93%	1.94%	0.00%
PEPCO	3.91%	0.00%	0.00%
AEC	7.24%	8.01%	8.15%
DPL	10.36%	12.99%	13.03%
UGI	0.56%	0.66%	0.65%
RE	0.58%	0.62%	0.68%
APS	1.11%	0.00%	0.00%
HTP	1.22%	0.00%	0.00%
NEPTUNE	3.11%	3.45%	3.64%
ECP	1.32%	0.00%	0.00%
POSEIDON	2.41%	0.00%	0.00%

Revision History

- V1 – 10/09/2019 – Original slides posted