ODEC

Old Dominion
Electric Cooperative^{SM}

July 28, 2015

Mr. Howard Schneider
Chair
Board of Managers
PJM Interconnection, L.L.C.
P.O. Box 1525
Southeastern, PA 19399-1525

RE: Supplemental Comments of Old Dominion Electric Cooperative on
        PJM Staff Artificial Island Recommendation

Dear Mr. Schneider:

In its May 29, 2015 comments to the PJM Board of Managers, Old Dominion
Electric Cooperative ("ODEC"), on behalf of itself and its member
cooperatives serving customers on the Delmarva Peninsula, expressed
concern that PJM Staff's Artificial Island recommendation ("Recommended
Proposal") could have a disproportionate cost impact on customers located
in the Delmarva Power & Light Company ("Delmarva") Transmission Zone,
particularly given that the primary purpose of the Artificial Island solution
is to resolve generator stability and operational issues associated with
nuclear plants in southern New Jersey. In order to evaluate this issue
further, ODEC suggested that PJM Staff should provide the projected cost
allocations for the proposed Artificial Island solutions, as well as a detailed
economic benefit analysis of the proposals. In response to the requests of
ODEC and other parties, PJM Staff provided certain cost allocation
information on July 7, 2015 and a market efficiency analysis on July 24,
2015. ODEC appreciates the time and effort that PJM Staff put into this
analysis. Unfortunately, the timing of the issuance of the analysis has left
very little time for Board consideration of this important information or
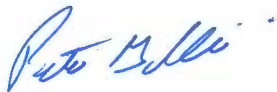supplemental comments on the same.

The information recently provided by PJM Staff has only heightened ODEC's
concerns about the disproportionate cost impact on the Delmarva Zone.

PJM Staff's cost allocation analysis indicates that the Delmarva Zone would be allocated $246.43 million of the projected $275.45 million cost (89.5 percent) of the Recommended Proposal. Even assuming a conservative 15 percent carrying charge for these costs, the annual charges to the Delmarva Zone would be nearly $37 million. PJM Staff's market efficiency analysis, however, shows that only about 10 percent ($17.04 million) of the total projected annual load payment savings of $169.2 million would accrue to the Delmarva Zone. (See attached PJM Staff analysis at page 5.) Moreover, the Staff analysis shows that the market efficiency benefits of the Recommended Proposal would be spread widely among the PJM transmission zones, which presumably would also be true of PSEG's Artificial Island proposal incorporating a 500 kV line from Hope Creek to Red Lion ("PSEG Proposal").

Based on the totality of the information provided to the Board, ODEC submits that the PSEG Proposal would reflect a more appropriate matching of costs and benefits than the Recommended Proposal, as 50 percent of the costs of the 500 kV facilities in the PSEG Proposal would be allocated to all PJM zones on a load ratio share basis and 50 percent of the costs would be allocated using solution-based DFAX. In these circumstances, where the Board has been presented with two sound technical solutions that are both designed to address the same operational performance issues and that both cost roughly the same, the Board should give significant weight to the proposal that would better match costs with project beneficiaries, which in this case appears to be the PSEG Proposal.

Sincerely,

Peter Gallini
Vice President of Power Supply
Old Dominion Electric Cooperative

Attachment

PJM Market Efficiency Study
Artificial Island Benefits

Requested by Delaware Public Service Commission

Market Efficiency Project Study approach:

- Utilized PJM Market Efficiency Base Case for study year 2019

- Compared LMP and Load Payments between the following scenarios for both a single hour* and annual value:
  – System without Artificial Island solution and one Salem Unit Offline**
  – System with Artificial Island solution and all Salem Units Online

  *Single hour derived from RTO Coincident Peak using 2019 Base Simulation
  **Annual assumes one Salem unit offline for entire simulated year.*

- RTO Coincident Peak hour from simulation: July 31, 2019
- RTO Peak Load from simulation: 155,382 MWs

- Simulation results show that the Artificial Island project decreases LMP in Delmarva Zone (DPL) for the Peak hour by $3.5/MWh and Load Payments by $13,772/h.
  - Base case assumes no Artificial Island solution and one Salem Unit offline.

Annual LMP Benefits Due To Artificial Island Solution*

- During the peak months of July and August, the market simulation shows an average LMP decrease in DPL Zone of 2.20 $/MWh and 1.90 $/MWh, respectively.

- The annual LMP average across DPL decreases by 0.86 $/MWh.

- The PJM average LMP decreases by 0.52 $/MWh in July, and 0.30 $/MWh in August.

Area	Month												Annual Average
	1	2	3	4	5	6	7	8	9	10	11	12	
AECO	$(0.15)	$(0.26)	$(0.82)	$(0.80)	$(0.18)	$(0.72)	$(1.79)	$(1.27)	$(1.01)	$(0.35)	$(0.48)	$(0.71)	$ (0.77)
AEP	$(0.23)	$(0.32)	$(0.01)	$(0.10)	$ 0.11	$(0.02)	$(0.11)	$(0.01)	$(0.10)	$ 0.25	$(0.19)	$ 0.01	$ (0.06)
APS	$(0.01)	$(0.19)	$(0.35)	$(0.11)	$ 0.38	$(0.07)	$(0.22)	$(0.11)	$(0.24)	$ 0.18	$(0.23)	$(0.06)	$ (0.09)
BGE	$ 0.04	$ 0.14	$(0.47)	$(0.20)	$ 0.20	$(0.12)	$(0.41)	$(0.17)	$(0.47)	$(0.06)	$(0.35)	$(0.28)	$ (0.18)
COMED	$(0.22)	$(0.29)	$ 0.44	$(0.36)	$(0.08)	$ 0.02	$(0.05)	$ 0.08	$ 0.01	$ 0.01	$ 0.48	$ 0.15	$ 0.02
DAY	$(0.31)	$(0.49)	$ 0.16	$(0.05)	$(0.00)	$(0.01)	$(0.09)	$ 0.00	$(0.06)	$ 0.44	$(0.15)	$(0.00)	$ (0.05)
DEOK	$(0.28)	$(0.47)	$ 0.20	$(0.14)	$(0.04)	$(0.02)	$(0.08)	$ 0.00	$(0.05)	$ 0.53	$(0.11)	$(0.01)	$ (0.04)
DOM	$ 0.02	$ 0.28	$(0.33)	$(0.04)	$ 0.31	$ 0.02	$(0.16)	$(0.03)	$(0.09)	$ 0.07	$(0.47)	$(0.16)	$ (0.05)
DPL	$(0.19)	$(0.22)	$(0.85)	$(0.70)	$(0.27)	$(0.77)	$(2.20)	$(1.90)	$(1.05)	$(0.36)	$(0.57)	$(0.77)	$ (0.86)
DUQ	$(0.16)	$(0.10)	$(0.69)	$(0.37)	$ 0.42	$(0.15)	$(0.23)	$(0.12)	$ 0.12	$ 0.70	$(1.04)	$(0.10)	$ (0.14)
EKPC	$(0.22)	$(0.38)	$ 0.11	$ 0.01	$ 0.03	$(0.01)	$(0.06)	$ 0.05	$(0.09)	$ 0.27	$(0.14)	$(0.01)	$ (0.05)
FE-ATSI	$(0.07)	$(0.20)	$(0.30)	$(0.38)	$ 0.22	$(0.15)	$(0.21)	$(0.08)	$(0.04)	$ 0.40	$(0.54)	$(0.07)	$ (0.12)
JCPL	$(0.12)	$(0.28)	$(0.71)	$(0.44)	$ 0.07	$(0.61)	$(1.52)	$(1.02)	$(0.85)	$(0.23)	$(0.41)	$(0.58)	$ (0.59)
METED	$ 0.00	$(0.12)	$(0.78)	$(0.62)	$(0.15)	$(0.62)	$(1.18)	$(0.69)	$(1.15)	$(0.24)	$(0.38)	$(0.46)	$ (0.54)
PECO	$(0.10)	$(0.24)	$(0.68)	$(0.61)	$(0.12)	$(0.63)	$(1.79)	$(1.23)	$(0.91)	$(0.22)	$(0.40)	$(0.63)	$ (0.66)
PENELEC	$ 0.12	$ 0.03	$(0.14)	$(0.51)	$ 0.05	$(0.41)	$(0.64)	$(0.44)	$(0.55)	$(0.16)	$(0.11)	$(0.19)	$ (0.24)
PEPCO	$ 0.03	$ 0.23	$(0.37)	$(0.03)	$ 0.36	$ 0.03	$(0.22)	$(0.05)	$(0.17)	$ 0.01	$(0.37)	$(0.20)	$ (0.06)
PLGRP	$(0.04)	$(0.15)	$(0.69)	$(0.45)	$(0.04)	$(0.56)	$(1.22)	$(0.80)	$(0.79)	$(0.15)	$(0.31)	$(0.50)	$ (0.48)
PSEG	$(0.16)	$(0.28)	$(0.70)	$(0.45)	$ 0.05	$(0.58)	$(1.49)	$(1.00)	$(0.81)	$(0.08)	$(0.59)	$(0.62)	$ (0.59)
RECO	$(0.35)	$(0.88)	$(1.95)	$(0.14)	$ 0.44	$(0.69)	$(0.93)	$(0.71)	$(0.65)	$ 0.09	$(0.81)	$(0.41)	$ (0.59)
PJM	$(0.11)	$(0.15)	$(0.25)	$(0.27)	$ 0.10	$(0.19)	$(0.52)	$(0.30)	$(0.31)	$ 0.09	$(0.25)	$(0.18)	$ (0.20)

LMP Avg. Benefits Due to Artificial Island Solution (negative value is a benefit, a decrease in LMP)

Simulation assumes one Salem unit offline for entire year.

Annual Load Payment Savings Due To Artificial Island Solution*

- During the peak months of July and August, the market simulation shows a decrease of the monthly load payments across DPL zone of $4.32 million and $3.64 million, respectively.

- The annual total load payments across DPL zone decreases by $17.04 million.

- The PJM annual total load payments decrease by $169.2 million.

Area	Month												Annual Total
	1	2	3	4	5	6	7	8	9	10	11	12	
AECO	$ (0.14)	$ (0.22)	$ (0.67)	$ (0.60)	$ (0.15)	$ (0.70)	$ (2.13)	$ (1.46)	$ (0.91)	$ (0.28)	$ (0.38)	$ (0.64)	$ (8.28)
AEP	$ (2.82)	$ (3.54)	$ (0.13)	$ (0.99)	$ 1.16	$ (0.21)	$ (1.34)	$ (0.17)	$ (1.05)	$ 2.57	$ (1.98)	$ 0.06	$ (8.43)
APS	$ (0.04)	$ (0.84)	$ (1.49)	$ (0.43)	$ 1.48	$ (0.29)	$ (0.97)	$ (0.51)	$ (0.93)	$ 0.73	$ (0.91)	$ (0.28)	$ (4.46)
BGE	$ 0.14	$ 0.39	$ (1.31)	$ (0.50)	$ 0.52	$ (0.35)	$ (1.37)	$ (0.55)	$ (1.29)	$ (0.14)	$ (0.91)	$ (0.83)	$ (6.22)
COMED	$ (2.09)	$ (2.47)	$ 3.78	$ (2.89)	$ (0.71)	$ 0.14	$ (0.49)	$ 0.82	$ 0.08	$ 0.08	$ 4.04	$ 1.41	$ 1.70
DAY	$ (0.52)	$ (0.73)	$ 0.24	$ (0.07)	$ (0.00)	$ (0.02)	$ (0.15)	$ 0.00	$ (0.09)	$ 0.64	$ (0.21)	$ (0.00)	$ (0.92)
DEOK	$ (0.70)	$ (1.04)	$ 0.45	$ (0.28)	$ (0.09)	$ (0.04)	$ (0.22)	$ 0.00	$ (0.10)	$ 1.14	$ (0.24)	$ (0.02)	$ (1.16)
DOM	$ 0.17	$ 2.46	$ (2.86)	$ (0.32)	$ 2.53	$ 0.19	$ (1.58)	$ (0.26)	$ (0.80)	$ 0.57	$ (3.95)	$ (1.49)	$ (5.33)
DPL	$ (0.34)	$ (0.35)	$ (1.35)	$ (0.99)	$ (0.40)	$ (1.30)	$ (4.32)	$ (3.64)	$ (1.66)	$ (0.53)	$ (0.85)	$ (1.32)	$ (17.04)
DUQ	$ (0.22)	$ (0.13)	$ (0.88)	$ (0.43)	$ 0.51	$ (0.21)	$ (0.35)	$ (0.17)	$ 0.15	$ 0.86	$ (1.27)	$ (0.14)	$ (2.26)
EKPC	$ (0.26)	$ (0.39)	$ 0.10	$ 0.01	$ 0.03	$ (0.01)	$ (0.06)	$ 0.05	$ (0.08)	$ 0.23	$ (0.13)	$ (0.01)	$ (0.53)
FE-ATSI	$ (0.44)	$ (1.13)	$ (1.76)	$ (2.03)	$ 1.22	$ (0.89)	$ (1.36)	$ (0.50)	$ (0.23)	$ 2.19	$ (2.96)	$ (0.40)	$ (8.28)
JCPL	$ (0.25)	$ (0.53)	$ (1.37)	$ (0.77)	$ 0.13	$ (1.34)	$ (3.90)	$ (2.52)	$ (1.71)	$ (0.42)	$ (0.75)	$ (1.19)	$ (14.62)
METED	$ 0.00	$ (0.16)	$ (1.08)	$ (0.78)	$ (0.19)	$ (0.88)	$ (1.80)	$ (1.04)	$ (1.53)	$ (0.31)	$ (0.50)	$ (0.68)	$ (8.96)
PECO	$ (0.39)	$ (0.81)	$ (2.38)	$ (1.93)	$ (0.39)	$ (2.36)	$ (7.56)	$ (5.05)	$ (3.20)	$ (0.72)	$ (1.33)	$ (2.32)	$ (28.46)
PENELEC	$ 0.22	$ 0.04	$ (0.24)	$ (0.79)	$ 0.08	$ (0.66)	$ (1.09)	$ (0.76)	$ (0.88)	$ (0.26)	$ (0.18)	$ (0.34)	$ (4.87)
PEPCO	$ 0.08	$ 0.59	$ (0.95)	$ (0.07)	$ 0.91	$ 0.07	$ (0.73)	$ (0.15)	$ (0.45)	$ 0.04	$ (0.89)	$ (0.55)	$ (2.10)
PLGRP	$ (0.15)	$ (0.55)	$ (2.58)	$ (1.49)	$ (0.12)	$ (2.00)	$ (4.72)	$ (3.09)	$ (2.70)	$ (0.50)	$ (1.08)	$ (2.00)	$ (20.97)
PSEG	$ (0.61)	$ (0.96)	$ (2.54)	$ (1.50)	$ 0.20	$ (2.40)	$ (6.98)	$ (4.55)	$ (3.11)	$ (0.28)	$ (2.02)	$ (2.33)	$ (27.10)
RECO	$ (0.04)	$ (0.10)	$ (0.23)	$ (0.02)	$ 0.05	$ (0.10)	$ (0.15)	$ (0.11)	$ (0.09)	$ 0.01	$ (0.09)	$ (0.05)	$ (0.92)
PJM	$ (8.40)	$ (10.46)	$ (17.24)	$ (16.88)	$ 6.77	$ (13.36)	$ (41.29)	$ (23.66)	$ (20.57)	$ 5.61	$ (16.58)	$ (13.13)	$ (169.20)

Load Payments Savings Due to Artificial Island Solution ($ million, negative value is a benefit, a decrease in load payments)

*Simulation assumes one Salem unit offline for entire year.

DFAX ALLOCATIONS WITH AI PROJECT

500 kV Transmission Line	AEC	BGE	DPL	ECP	JCPL	NEPTUNE	HTP	PECO	PENELEC	PEPCO	PSEG	RE
Salem - New Freedom	7.7%	0.0%	0.0%	1.3%	16.7%	1.8%	1.2%	22.5%	0.0%	0.0%	47.0%	1.9%
Salem - Hope Creek	22.8%	1.1%	0.0%	0.0%	41.4%	4.4%	0.0%	0.0%	0.0%	0.0%	29.1%	1.2%
Salem - Orchard	8.2%	0.0%	0.0%	1.3%	16.7%	1.8%	1.2%	22.6%	0.0%	0.0%	46.5%	1.9%
Orchard - New Freedom	0.0%	0.0%	0.0%	1.7%	17.1%	2.0%	1.5%	20.6%	0.0%	0.0%	54.9%	2.2%
Hope Creek - New Freedom	7.7%	0.0%	0.0%	1.3%	16.8%	1.8%	1.2%	22.4%	0.0%	0.0%	47.0%	1.9%
Hope Creek - Red Lion	1.9%	36.0%	29.4%	1.2%	3.2%	0.3%	1.7%	0.0%	0.0%	26.3%	0.0%	0.0%

DFAX ALLOCATIONS WITHOUT AI PROJECT

500 kV Transmission Line	AEC	BGE	DPL	ECP	JCPL	NEPTUNE	HTP	PECO	PENELEC	PEPCO	PSEG	RE
Salem - New Freedom	7.6%	0.0%	0.0%	1.3%	16.6%	1.8%	1.2%	22.9%	0.0%	0.0%	46.8%	1.9%
Salem - Hope Creek	21.2%	3.8%	7.7%	0.0%	41.2%	4.4%	0.0%	0.0%	0.0%	0.0%	20.9%	0.9%
Salem - Orchard	8.1%	0.0%	0.0%	1.3%	16.6%	1.8%	1.2%	23.1%	0.0%	0.0%	46.2%	1.9%
Orchard - New Freedom	0.0%	0.0%	0.0%	1.7%	16.9%	2.0%	1.5%	21.0%	0.0%	0.0%	54.7%	2.2%
Hope Creek - New Freedom	7.6%	0.0%	0.0%	1.3%	16.7%	1.8%	1.2%	22.8%	0.0%	0.0%	46.7%	1.9%
Hope Creek - Red Lion	0.6%	26.1%	51.6%	0.9%	1.1%	0.1%	1.3%	0.0%	0.1%	18.3%	0.0%	0.0%