

Integrating Energy Efficiency into the Capacity Market

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RPM Order Directs PJM to Incorporate Energy Efficiency into the Capacity Market

Section II.P of the RPM Settlement commits PJM to “establish an additional process... for pursuing and supporting demand response and **incorporating energy efficiency applications.**”*

* Paragraph 133 of the RPM Order issued December 22, 2006

Process for Integrating Energy Efficiency into the Capacity Market

- Assess the problem
- Consider options that accomplish the goal
- Evaluate impact of the options on the end-use customer
- Consider the impact of the options on the existing market design

Hypothetical For Analysis

- NJ College is located in the JCP&L zone in EMAAC
- PLC ticket for 1/1/07 = 10MW
- Assume the Final RPM Zonal Scaling Factor (Final ZSF) for JCP&L for the entire 2007/2008 Planning Year is 1.04533
- Forecast Pool Requirement (FPR) for 2007/2008 Planning Year = 1.079
- NJ College planned an Energy Efficiency investment in lighting = 1 MW (includes gross up for losses)
- NJ College executed contract for Energy Efficiency 9/1/06
- Flourescents installed 10/1/06

Analysis Under Current RPM Rules

- **1 MW of Energy Efficiency does not qualify as a Load Management resource because it is not dispatchable during an emergency**
- The PLC ticket for NJ College for 1/1/08 will be 9 MWs (reflecting the 1 MW reduction produced by the Energy Efficiency investment)
- **There is a 15 month gap (10/1/06-1/1/08) when the EE has been deployed but receives no capacity value**
- Note that the EE begins receiving Energy Market value immediately

NJ College 2007/2008 Planning Year Capacity Payments – Impact of No Solution

- Capacity obligation for 2007:
 - 10 MW PLC X 1.04533 Final ZSF X 1.079 FPR =
11.28 MW
- 11.28 MW X \$177.00 X 214 days = \$427,263.84
- Capacity Obligation for 2008:
 - 9 MW PLC X 1.04533 Final ZSF X 1.079 FPR = 10.15
MW
- 10.15 MW X \$177.00 X 152 days = \$273,075.60
- Total cost of capacity = \$700,339.44

NJ College 2007/2008 Planning Year Capacity Payments – ILR Solution

- Qualify 1 MW of Firm Service Level ILR for the 2007/2008 Planning Year
- Test the EE providing the ILR to verify MWs of capability
- Do not add the 1 MW back to the PLC ticket for 1/1/08
- This solution shrinks the 15 month gap to 8 months
- Note that to avoid any double recognition while shrinking the time gap PJM would need to stop ILR payments effective 1/1/08

Financial Impact on NJ College of ILR Solution

- Total cost of capacity of \$700,339.44 is reduced by \$66,917.72 to \$633,421.72
- $1\text{MW} \times .957 \text{ DR Factor} \times 1.079 \text{ FPR} = 1.03 \text{ MW of ILR}$
- $1.03 \text{ MW} \times \$177.51 \times 366 \text{ days} = \$66,917.72$

NJ College 2007/2008 Planning Year Capacity Payments – DR Solution

- Allow NJ College's CSP to bid the 1 MW as DR into the April transitional auction for 2007/2008 Planning Year
- Test the EE providing the DR to verify MWs of capability
- Do not add back the 1 MW to the PLC ticket for 1/1/08
- Note that to avoid any double recognition while shrinking the time gap PJM would need to stop DR payments effective 1/1/08

Financial Impact on NJ College of DR Solution

- Total cost of capacity of \$700,339.44 is reduced by \$74,517.64 to \$625,821.80
- $1 \text{ MW} \times .957 \text{ DR Factor} \times 1.079 \text{ FPR} = 1.03 \text{ MW of DR}$
- $1.03 \text{ MW} \times \$197.67 \times 366 \text{ days} = \$74,517.64$

NJ College 2007/2008 Planning Year Capacity Payments – EDC Solution

- EDC confirms the EE installation on 10/1/06
- EDC reduces NJ College's PLC ticket for 1/1/07 by 1 MW from 10 MWs to 9 MWs
- EDC reduces NJ College's transmission ticket for 1/1/07 by 1 MW from 10 MWs to 9 MWs
- This shrinks the 15 month gap to 3 months

Financial Impact on NJ College of EDC Solution

- Capacity obligation for 2007:
 - 9 MW PLC X 1.04533 Final ZSF X 1.079 FPR
= 10.15 MW
- 10.15 MW X \$177.00 X 366 days =
\$657,537.30
- Total cost of capacity = \$657,537.30

Comparison of Capacity Cost Impacts on NJ College

- No Solution = \$700,339.44
- ILR Solution = \$633,421.72
- ILR Solution with 2008 ILR payments backed out = \$661,212.69
 - 1.03 MW X \$177.51 X 152 days = \$27,790.97
- DR Solution = \$625,821.80
- DR Solution with 2008 DR payments backed out = \$656,769.02
 - 1.03 MW X \$197.67 X 152 days = \$30,947.22
- EDC Solution = \$657,537.30

Additional Issues that Need Resolution

- Proposed ILR and DR solutions are within FERC's authority but require stakeholder
 - Understanding of timing gap and its impact on incenting end-use customer behavior
 - Acceptance of Firm Service Level framework
- Solution still needed for segment of the retail market without interval meters
 - Development of Measurement and Verification rules
 - Process for review and acceptance of Measurement and Verification rules