

Ramapo Phase Angle Regulator Cost Recovery Discussion

Wes Yeomans

Vice President – Operations

MIWG

April 10, 2017



DRAFT – FOR DISCUSSION PURPOSES ONLY

©COPYRIGHT NYISO 2017. ALL RIGHTS RESERVED

Background

- The NYISO and PJM have commenced a joint stakeholder initiative to consider modifying the NYISO-PJM Joint Operating Agreement (JOA). This will address cost recovery and cost allocation for the expenses Con Edison incurs to maintain two Phase Angle Regulators at the Ramapo Substation
 - See Appendix A for additional information
- The joint PJM-NYISO stakeholder initiative began March 9 at PJM
- The next meeting is April 18 at NYISO

Proposal

- NYISO believes there are significant benefits to both New York and PJM of maintaining two PARs at Ramapo. Delay in reaching agreement on interregional cost allocation should not be permitted to indefinitely delay the installation of a second PAR at Ramapo.
- Assuring Con Edison that it will be able to recover its costs after Con Edison installs and places in-service a second PAR at Ramapo is expected to accelerate the installation of a second PAR at the Ramapo Substation.

NYISO Proposal, cont.

- To obtain the benefits of having two Ramapo PARs in place while NYISO and PJM stakeholders debate cost allocation, NYISO proposes to make modifications to its Tariffs whereby New York LSEs would, on a going-forward basis (commencing on the effective date of the Tariff revisions), pay up to 100% of the charges associated with installing a second PAR at Ramapo and maintaining and operating the two Ramapo PARs.
- The proposed Tariff rules would include provisions to provide reimbursement to New York LSEs for monies paid in excess of the New York allocation that is eventually agreed to when interregional cost allocation issues are resolved, and PJM's customers accept an obligation to contribute a portion of the cost of the Ramapo PARs
 - Joint NYISO & PJM stakeholder discussions addressing interregional cost recovery and allocation will continue

Benefits of Two Ramapo PARs

- **Reliability**
 - Reliability benefits in event of extreme contingencies or restoration
- **Market Efficiency**
 - Reduced total energy import capability from PJM into NYISO
 - Reduced capability to direct PJM AC import schedules into eastern NY
 - Increased production costs in NYISO
 - Increased eastern NY marginal energy prices
 - Decreased Market-to-Market capability
- **Planning**
 - Reduced Installed Reserve Margins & Locational Capacity Requirements
 - Estimated ICAP benefits of approximately \$75 million

Next Steps

- May BIC for vote with tariff language modifications
- May MC for vote with tariff language modifications
- June NYISO Board Approval
- FERC filing
- Con Edison installs spare PAR in Fall 2017
- Continued joint NYISO-PJM stakeholder discussions on regional benefits and regional cost allocation

Appendix

Ramapo PAR Cost

Allocation Discussion

Wes Yeomans
Vice President – Operations
Operating Committee
February 9, 2017

Background

- In 1993, members of the New York Power Pool (NYPP) and the PJM group (i.e., certain PJM transmission owners) executed an agreement requiring Con Edison to purchase, install, own, and maintain two Phase Angle Regulators (PARs) at the Con Edison Ramapo Substation for the purposes of controlling power flows on the 500 kV Branchburg-Ramapo 5018 transmission line between the NYPP and PJM.
- The 1993 Ramapo PAR Agreement defines the monthly cost allocation terms associated with the two Ramapo PARs.
- The agreement requires its signatories to each pay for a portion of the Ramapo PAR costs.
 - 50% of the costs are allocated to members of the NYPP and 50% are allocated to the PJM group.

Background

- At startup, the NYISO -- as successor to the NYPP -- began invoicing and settling the NYPP members' share of the Ramapo cost allocation.
 - NYISO invoices the NY LSEs through Rate Schedule 1.
- At its startup, PJM Interconnection began collecting funds from the PJM TOs who were parties to the 1993 Ramapo PAR Agreement, and transmitting the PJM group's share of the Ramapo cost allocation. This arrangement continued through the end of 2016.

Background

- Pursuant to the 1993 Agreement, only a subset of PJM TOs are contributing to the PJM Group 50%.
- PJM is supportive of working with NYISO and stakeholders to develop an alternative approach to share costs to maintain the joint facilities.

Background

- **On June 24, 2016, a fire at the Ramapo Substation resulted in the catastrophic failure of the Ramapo PAR #3500.**
 - There is currently only one PAR in operation at the Ramapo Substation
- **Con Edison is waiting for certainty on cost allocation prior to installing a replacement PAR at Ramapo.**

Benefits of Two Ramapo PARs

- Reliability
- Economic
- Planning

Reliability Benefits

- **Beyond Criteria Events: Operating (actual) contingencies beyond minimum NERC Planning Criteria can and do occur. Both PJM and NYISO recognize higher levels of reliability during time periods of extreme contingencies with two Ramapo PARs in-service.**
 - Two Ramapo PARs reduce the risk of sustained, customer outages during extreme contingencies (severe thunder storms, ice storms, hurricanes, extreme conditions).
- **Flexibility: The control capability provided by the two Ramapo PARs increases operational flexibility for NYISO. Power injections can be directed where needed for reliability.**
- **Restoration Resource: The Hopatcong-Ramapo 5018 line with two PARs in-service can provide tremendous support during a restoration event in either eastern NY or eastern PJM; as was the case in 2003.**

Economic Benefits – 2018 Base Case

- **Summer Import Limits from PJM to NYISO**

Two Ramapo PARs	1,700 MW
One Ramapo PAR	1,400 MW
Zero Ramapo PARs	1,000 MW

- **Ramapo Target Flows – Prior to May 2017**

Two Ramapo PARs	61% of PJM-NY AC schedule plus 80% of RECO
One Ramapo PAR	46% of PJM-NY AC schedule plus 80% of RECO

- **Ramapo Target Flows – Post May 2017**

Two Ramapo PARs	32% of PJM-NY AC schedule plus 80% of RECO
One Ramapo PAR	16% of PJM-NY AC schedule plus 80% of RECO

Economic Impacts of Operating with One PAR or No PARs

- Reduced total energy import capability from PJM into NYISO
- Reduced capability to direct PJM AC import schedules into eastern NY
- Increased production costs in NYISO
- Increased eastern NY marginal energy prices
- Decreased Market-to-Market capability
- Requires the development of alternatives for PJM to serve RECO load

Planning Benefits

- Based on 2017 IRM Study Report, as presented and accepted by the NYSRC on December 2, 2016, the minimum Installed Reserve Margin (IRM) and Locational Capacity Requirements (LCRs) would increase with one Ramapo PARs assumed out-of-service:

Ramapo PARs In-Service	IRM	Zone J NYC	Zone Long Island
2	118.1%	81.6%	103.5%
1	118.4%	81.8%	104.4%

- Potential market impact of a reduction from two Ramapo PARs to one Ramapo PAR is in excess of \$75 million.

Proposal

- PJM Interconnection and NYISO propose to initiate a joint stakeholder process to modify the NYISO-PJM Joint Operating Agreement (JOA) to develop appropriate recovery for the expenses to maintain two PARS at the Ramapo Substation.
- PJM and NYISO propose to continue the sharing of costs based on the newly developed JOA methodology based on reliability and economic criteria to be developed.

Proposal

- Locations for joint stakeholder meetings will alternate between PJM and NYISO.
- Proposed meeting dates will span February – May 2017.

The Mission of the New York Independent System Operator is to:

- Serve the public interest and
- Provide benefit to stakeholders by
 - Maintaining and enhancing regional reliability
 - Operating open, fair and competitive wholesale electricity markets
 - Planning the power system for the future
 - Providing factual information to policy makers, stakeholders and investors in the power system



www.nyiso.com

ISO NEW YORK
INDEPENDENT
SYSTEM OPERATOR

DRAFT – FOR DISCUSSION PURPOSES ONLY

©COPYRIGHT NYISO 2017. ALL RIGHTS RESERVED