



Fifth Addendum To 2002 Baseline RTEP Report

The reinforcements described below were required on the PJM system due to requests received within the last six months to retire the following generators. Ongoing analysis may identify the need for additional reinforcements to support these retirements.

Gude Landfill 1 & 2
Kearny 7 & 8
Sewaren 1, 2, 3, 4
Hudson 1

1. The single contingency involving the loss of Linden - Tosco 230 kV circuit results in a voltage drop violation at the Aldene 230 kV substation under the 2005 load deliverability test for Eastern MAAC. The recommended solution is to add 150 MVARs of capacitors at the Aldene 230 kV substation by June 2005. The estimated cost is \$1.25 million.
2. The single contingency involving the loss of the Richmond - Camden 230 kV circuit results in a voltage magnitude violation at the Camden 230 kV substation under the 2005 load deliverability test for PSEG. The recommended solution is to add 150 MVARs of capacitors at the Camden 230 kV substation by June 2005. The estimated cost is \$1.25 million.
3. The single contingency involving loss of the Linden – Bayaway 230 kV Phase Angle Regulator results in voltage drop violations at the Bayaway, Linden and Doremus Place 138 kV substations under the 2005 load deliverability test for PSEG. The recommended solution is to provide bypass capability for the reactors on the circuits out of the Essex 138 kV substation by June 2005. The estimated cost is \$0.5 million.
4. The single contingency involving the loss of the Salem – Windsor 500 kV circuit results in widespread voltage drop violations in Eastern MAAC under the 2005 load deliverability test for Eastern MAAC. The recommended solution is to add 180 MVARs of distributed capacitors in JCP&L (65 MVAR are being added in northern JCP&L and 115 MVAR are being added to southern JCP&L) and 72 MVARs of capacitors at the Kittatinny 230 kV substation by June 2005. The estimated cost of the distributed capacitors is \$2.7 million. The estimated cost of the 72 MVAR capacitors is \$0.8 million.
5. The single contingency involving the loss of the Branchburg - Deans 500 kV circuit results in an overload on the derated Branchburg 500/230 kV transformers under the 2005 load deliverability test for Eastern MAAC. The recommended temporary solution is to add a Special Protection Scheme (SPS) at the Bridgewater 230 kV substation to automatically open the 230 kV breaker for outage of the Branchburg – Deans 500 kV and Deans 500/230 kV #1 transformer by June 2005. The estimated cost is \$0.1 million. The recommended permanent solution is to replace the derated Branchburg 500/230 kV transformers by June 2007. The estimated cost is \$20 million.
6. The single contingency involving the loss of the Branchburg - Deans 500 kV circuit along with the application of the SPS at the Bridgewater results in an overload on the Bennetts Lane – Adams “X” 230 kV circuit and an overload on the Adams “X” – Brunswick 230 kV circuit



under the 2005 load deliverability test for Eastern MAAC. The recommended solution is to replace terminal equipment to increase Brunswick – Adams – Bennetts Lane 230 kV to conductor rating by June 2005. The estimated cost is \$0.5 million.

7. The single contingency involving the loss of the Branchburg – Readington 230 kV circuit results in an overload on the Branchburg - Flagtown 230 kV circuit under the 2005 load deliverability test for Eastern MAAC. The recommended solution is to replace terminal equipment to increase circuit to conductor rating by June 2005. The estimated cost is \$0.5 million.
8. The single contingency involving the loss of the Branchburg – Readington 230 kV circuit results in an overload on the Flagtown - Somerville 230 kV circuit under the 2006 load deliverability test for Eastern MAAC. The recommended solution is to replace terminal equipment to increase circuit to conductor rating by June 2006. The estimated cost is \$0.5 million.
9. The single contingency involving the loss of the New Freedom 500/230 kV transformer #3 results in an overload on the derated New Freedom 500/230 kV #2 under the 2007 load deliverability test for Eastern MAAC. The recommended solution is to replace the derated New Freedom 500/230 kV transformer by June 2007. The estimated cost is \$10 million.
10. The double circuit tower line contingency involving the loss of the Gilbert – Morristown and Portland - Greystone 230 kV circuits results in an overload on the Portland - Kittatinny 230 kV circuit under the 2007 generator deliverability. The recommended solution is to reconductor the circuit with 1590 ACSS conductor by June 2007. The estimated cost is \$4.4 million.
11. The double circuit tower line contingency involving the loss of the Kittatinny - Pohatcong and Portland - Greystone 230 kV circuits results in an overload on the Kittatinny - Newton 230 kV circuit under the 2007 generator deliverability. The recommended solution is to reconductor the circuit with 1590 ACSS conductor and replace the wave trap at the Newton 230 kV substation by June 2007. The estimated cost is \$20 million.