#T122 Ocean Bay 600 MW

Generator Interconnection

This analysis was completed to assess the reliability impact for a new generator interconnecting to the PJM System as a Capacity Resource.

Network Impacts

– Option #1

The T122 project was studied as a 600 MW energy / 120 MW Capacity injection into the Ocean Bay Substation 138 kV bus. Project T122 was evaluated for compliance with reliability criteria for summer peak conditions in 2012. Potential network impacts were as follows:

NETWORK IMPACTS

Local Transmission System Impacts

(Normal system conditions with all facilities in service, and contingency analysis per documented Reliability Criteria, generally FERC Form 715, for Transmission Owner's underlying system)

Local Transmission System Impacts – Capacity (120MW)

1. Bridgeville – Taylor 69kV line loads from **108.6% to 112.7%** of its emergency rating (64MVA) for the loss of South Harrington AT1 with the discrete unit outage of the NRG Dover generation complex at the Kent Substation. This T122 project contributes approximately **3 MVA**.

2. The Harrington – South Harrington 69kV line loads from **124.7% to 127.7%** of its emergency rating (91MVA) for the loss of Cheswold – Kent 69kV (Ckt. 6768) with the discrete unit outage of the NRG Dover generation complex at the Kent Substation. This project contributes approximately **3 MVA**.

3. The Harrington – Wells 69kV line loads from **134.1% to 138.5%** of its emergency rating (59MVA) for the loss of Cheswold – Kent 69kV (Ckt. 6768) with the discrete unit outage of the NRG Dover generation complex at the Kent Substation. This project contributes approximately **3 MVA**.

4. The Vaughn – Wells 69kV line loads from **109.8% to 114.4%** of its emergency rating (59MVA) for the loss of Cheswold – Kent 69kV (Ckt. 6768) with the discrete unit outage of the NRG Dover generation complex at the Kent Substation. This project contributes approximately **3 MVA**.

5. The Todd – Vienna 69kV line loads from **105.2% to 108%** of its emergency rating (112MVA) for the loss of Vienna – West Cambridge 69kV (Ckt. 6709). This project contributes approximately **3 MVA**.

6. The Vienna – Vienna Local 69kV line loads from **96.4% to 100.5%** of its emergency rating (95MVA) for the loss of Todd – Vienna 69kV (Ckt. 6702) with the discrete unit outage of the Vienna 8 generator. This project contributes approximately **3 MVA**.

7. The Culver – Ocean City 69kV line loads from **94.1% to 102%** of its emergency rating (93MVA) for the loss of Bishop – Worcester 138kV (Ckt. 13779) with the discrete unit outage the Vienna 8 generator. This project contributes approximately **8 MVA**.

8. The Maridel – Ocean Bay 69kV line loads from **100% to 104.9%** of its emergency rating (137MVA) for the loss of Bishop – Worcester 138kV (Ckt. 13779) with the discrete unit outage of the Vienna 8 generator. This project contributes approximately **7 MVA**.

9. The Ocean Pine – Worcester 69kV line loads from **105.9% to 113.1%** of its emergency rating (78MVA) for the loss of Indian River – Piney Grove 230kV (Ckt. 23002) with the discrete unit outage of Oak Hall Units 1-3. This project contributes approximately **6 MVA**.

10. The Maridel – Ocean City 69kV line loads from **71.2% to 103.4%** of its emergency rating (116MVA) for the loss of Bishop – Worcester 138kV with the discrete unit outage of the Vienna 8 generator. This project contributes approximately **37 MVA**.

Local Transmission System Impacts – Energy (600MW)

11. Bridgeville – Taylor 69kV line loads from **108.6% to 141.3%** of its emergency rating (64MVA) for the loss of South Harrington AT1 with the discrete unit outage of the NRG Dover generation complex at the Kent Substation. This T122 project contributes approximately **21 MVA**.

12. The Harrington – South Harrington 69kV line loads from **124.7% to 149.6%** of its emergency rating (91MVA) for the loss of Cheswold – Kent 69kV (Ckt. 6768) with the discrete unit outage of the NRG Dover generation complex at the Kent Substation. This project contributes approximately **27 MVA**.

13. The Harrington – Wells 69kV line loads from **134.1% to 172.2%** of its emergency rating (59MVA) for the loss of Cheswold – Kent 69kV (Ckt. 6768) with the discrete unit outage of the NRG Dover generation complex at the Kent Substation. This project contributes approximately **23 MVA**.

14. The Vaughn – Wells 69kV line loads from **109.8% to 147.5%** of its emergency rating (59MVA) for the loss of Cheswold – Kent 69kV (Ckt. 6768) with the discrete unit outage of the NRG Dover generation complex at the Kent Substation. This project contributes approximately **22 MVA**.

15. The Todd – Vienna 69kV line loads from **105.2% to 128.2%** of its emergency rating (112MVA) for the loss of Vienna – West Cambridge 69kV (Ckt. 6709). This project contributes approximately **26 MVA**.

16. The Culver – Ocean City 69kV line loads from **94.1% to 141.3%** of its emergency rating (93MVA) for the loss of Bishop – Worcester 138kV (Ckt. 13779) with the discrete unit outage the Vienna 8 generator. This project contributes approximately **44 MVA**.

17. The Maridel – Ocean Bay 69kV line loads from **100% to 132%** of its emergency rating (137MVA) for the loss of Bishop – Worcester 138kV (Ckt. 13779) with the discrete unit outage of the Vienna 8 generator. This project contributes approximately **44 MVA**.

18. The Ocean Pine – Worcester 69kV line loads from **105.9% to 171.4%** of its emergency rating (78MVA) for the loss of Indian River – Piney Grove 230kV (Ckt. 23002) with the discrete unit outage of Oak Hall Units 1-3. This project contributes approximately **51 MVA**.

19. The Maridel – Ocean City 69kV line loads from **71.2% to 134.9%** of its emergency rating (116MVA) for the loss of Bishop – Worcester 138kV with the discrete unit outage of the Vienna 8 generator. This project contributes approximately **74 MVA**.

20. The Bridgeville – Greenwood 69kV line loads from **80.3% to 113.8%** of its emergency rating (64 MVA) for the loss of South Harrington AT1 with the discrete unite outage of the NRG Dover generation complex at the Kent Substation. This project contributes approximately **21 MVA**.

21. The Kent – New Meredith 69kV line loads from **91.8% to 120.5%** of its emergency rating (93MVA) for the loss of Milford – Steele 230kV (Ckt. 23076). This project contributes approximately **22 MVA**.

22. The New Meredith – Church 69kV line loads from **66.5% to 108.1%** of its emergency rating (93MVA) for the loss of Milford – Steele 230kV (Ckt. 23076). This project contributes approximately **39 MVA**.

23. The North Seaford – Taylor 69kV line loads from **99% to 119%** of its emergency rating (91MVA) for the loss of South Harrington AT1 with the discrete unit

outage of the NRG Dover generation complex at the Kent Substation. This project contributes approximately **18 MVA**.

24. The Airey – Vienna Local 69kV line loads from **100.8% to 114.9%** of its emergency rating (95MVA) for the loss of Todd – Vienna 69kV (Ckt. 6702). This project contributes approximately **13 MVA**.

25. The Airey – West Cambridge 69kV line loads from **92.7% to 109.9%** of its emergency rating (95MVA) for the loss of Todd – Vienna 69kV (Ckt. 6702). This project contributes approximately **16 MVA**.

26. The Ocean Bay – 138th St 69kV line loads from **23.6% to 110%** of its emergency rating (348MVA) for the loss of Bishop – Ocean Bay 138kV (Ckt. 13786) with the discrete unit outage of Indian River Unit 3. This project contributes approximately **300MVA**.

27. The Vienna – Vienna Local 69kV line loads from **101.9% to 115.9%** of its emergency rating (95MVA) for the loss of Todd – Vienna 69kV (Ckt. 6702). This project contributes approximately **18 MVA**.

28. The Ocean Bay 138/69kV transformer loads from **82.7% to 112.9%** of its emergency rating (171MVA) for the loss of Bishop – Worcester 69kV (Ckt. 13779) with the discrete unit outage of Vienna 8 generator. This project contributes approximately **37 MVA**.

29. The Rehoboth 138/69kV transformer loads from **22.3% to 173.3%** of its emergency rating (239MVA) for the loss of Indian River – Robinsonville 138kV (Ckt. 13705). This project contributes approximately **360 MVA**.

30. The Berlin Tap – Sinepuxent 69kV line loads from **63.3% to 110.3%** of its emergency rating (95MVA) for the loss of Bishop – Worcester 139kV (Ckt. 13779) with the discrete unit outage of Oak Hall Units 1-3. This project contributes approximately **44 MVA**.

31. The Culver – Sinepuxent 69kV line loads from **74.8% to 122.6%** of its emergency rating (93MVA) for the loss of Bishop – Worcester 138kV (Ckt. 13779) with the discrete unit outage of Oak Hall Units 1-3. This project contributes approximately **44 MVA**.

32. The Five Points – Lewes Tap 69kV line loads from **25.2% to 153.7%** of its emergency rating (137MVA) for the loss of Indian River – Robinsonville 138kV (Ckt. 13705). This project contributes approximately **175 MVA**.

33. The Harbeson – Sussex 69kV line loads from **76.6% to 108.1%** of its emergency rating (93MVA) for the loss of Cool Springs – Milford 230kV (Ckt. 23069B) with

the discrete unit outage of the Vienna 8 generator. This project contributes approximately **29 MVA**.

34. The Lewes Tap – Midway 69kV line loads from **10.1% to 156.5%** of its emergency rating (147MVA) for the loss of Indian River – Robinsonville 138kV (Ckt. 13705). This project contributes approximately **215 MVA**.

35. The Midway – Rehoboth 69kV line loads from **0% to 153.7%** of its emergency rating (159MVA) for the loss of Indian River – Robinsonville 138kV (Ckt. 13705). This project contributes approximately **243MVA**.

36. The Ocean Pine – New Hope 69kV line loads from **56.1% to 132.7 %** of its emergency rating (70MVA) for the loss of Oak Hall – Pocomoke 138kV (Ckt. 13787) with the discrete unit outage of Oak Hall Units 1-3. This project contributes approximately **53 MVA**.

37. The North Salisbury – Walston Switch 69kV line loads from **35% to 114%** of its emergency rating (70MVA) for the loss of Indian River – Piney Grove 230kV with the discrete unit outage of Oak Hall Units 1-3. This project contributes approximately **55 MVA**.

38. The New Hope – Walston Switch 69kV line loads from **45.1% to 102.1%** of its emergency rating (70MVA) for the loss of Indian River – Piney Grove 230kV with the discrete unit outage of Oak Hall Units 1-3. This project contributes approximately **40 MVA**.

Generator Deliverability

(Normal System with all facilities in-service and Single, or N-1, contingencies for the Capacity portion only of the interconnection)

39. **(PECO)** The Linwood - Chichester 230kV line loads from **99.9% to 101.5%**[1,2] of its normal rating (753MVA) for non-contingency condition. This project contributes approximately **12.6MW**[1,2] to cause this thermal violation.

General Notes for all PJM identified overloads:

Note 1: The first project to cause an overload has cost responsibility.
If not the first project to cause the overload, a threshold of;

a) 1% increase in overloaded facility loading must be caused by the this Queue generation, ***and*** *b) This Queue generation contribution of 5.0 MW are both required for cost allocation responsibility.*

Note 2: If not the first project to cause the overload but both conditions under Note 1 are met, then a threshold of;

Either of the following are also required for cost allocation responsibility; a) a 5% generator DFAX (6 MW for 120 MW Capacity contingencies or 30 MW for 600 MW energy contingencies), **or** (b) This Queue generation must cause an increase of 5% to the overloaded facility loading*

** DFAX may not be equal to the contribution divided by generator MW size in some cases.*

Multiple Facility Contingency

(Double Circuit Tower Line contingencies only for the full energy output. Stuck breaker and bus fault contingencies will be performed for the Impact Study)

40. **(DP&L)** The Church - Townsend 138kV line loads from **75.12% to 119.14%** of its emergency rating (224MVA) for the tower line outage (DBL_4NCA). This project contributes approximately **98.6MW** to cause this thermal violation.

41. **(DP&L)** The Townsend – Middletown Tap 138kV line loads from **65.05% to 108.69%** of its emergency rating (226MVA) for the tower line outage (DBL_4NCA). This project contributes approximately **98.6MW** to cause this thermal violation.

42. **(DP&L)** The Cedar Creek – Red Lion 230kV line loads from **75.98% to 116.17%** of its emergency rating (679MVA) for the tower line outage (DBL_1NCB). This project contributes approximately **272.9MW** to cause this thermal violation.

Short Circuit Analysis

Will be performed for the Impact Study.

Steady-State Voltage Requirements

(Evaluation of steady-state voltage and reactive requirements)

Will be performed for the Impact Study.

Stability and Reactive Power Requirement

(Results of the dynamic studies should be inserted here)

Will be performed for the Impact Study.

Contribution to Previously Identified Overloads

(This project contributes to the following contingency overloads, i.e. "Network Impacts", identified for earlier generation or transmission interconnection projects in the PJM Queue)

43. **(PECO)** The Linwood - Chichester 230kV (220-43) line loads from **116.11% to 118.75%** of its emergency rating (904MVA) for the single line contingency outage of the Linwood – Chichester 230kV (220-39) line (PE39). This project contributes approximately **23.9MW** to the thermal violation.

44. **(PECO)** The Linwood - Chichester 230kV (220-39) line loads from **115.72% to 118.35%** of its emergency rating (904MVA) for the single line contingency outage Linwood - Chichester 230kV (220-43) (PE43). This project contributes approximately **23.8MW** to the thermal violation.
45. **(PECO)** The Chichester – Eddystone 230kV line loads from **127.58% to 128.79%** of its emergency rating (1235MVA) for the single line contingency outage (PE4). This project contributes approximately **14.9MW** to the thermal violation.

46. **(PECO)** The Chichester - Foulk 230kV line loads from **116.75% to 117.79%** of its emergency rating (1335MVA) for the single line contingency outage (PE36). This project contributes approximately **13.8MW** to the thermal violation.

47. **(PECO)** The Foulk - Concord 230kV line loads from **113.97% to 115.01%** of its emergency rating (1335MVA) for the single line contingency outage (PE36). This project contributes approximately **13.8MW** to the thermal violation.

48. **(DP&L)** The Red Lion - Keeney 230kV line loads from **106.77% to 108.65%** of its emergency rating (932MVA) for the single line contingency outage (PJM64). This project contributes approximately **17.5MW** to the thermal violation.

49. **(DP&L)** The Glasgow - Cecil 138kV line loads from **130.52% to 143.91%** of its emergency rating (79MVA) for the tower line outage (10APECO_A57). This project contributes approximately **10.6MW** to the thermal violation.

50. **(DP&L)** The Milford - Steele 230kV line loads from **180.13% to 246.70%** of its emergency rating (551MVA) for the tower line outage (DBL_4NCA). This project contributes approximately **366.8MW** to the thermal violation.

51. **(DP&L)** The Steele – Oil City 138kV line loads from **110.86% to 154.29%** of its emergency rating (159MVA) for the tower line outage (DBL_1NCB). This project contributes approximately **69.1MW** to the thermal violation.

52. **(DP&L)** The Oil City - Church 138kV line loads from **102.24% to 145.68%** of its emergency rating (159MVA) for the tower line outage (DBL_1NCB). This project contributes approximately **69.1MW** to the thermal violation.

53. **(METED)** The TMI (Three Mile Island) 500/230kV transformer loads from **165.49% to 171.52%** of its emergency rating (1077MVA) for the tower line outage (CONAS_PB). This project contributes approximately **64.9MW** to the thermal violation.

54. **(PECO)** The Nottingham – Graceton – Peach Bottom 230kV line Reactor at Nottingham loads from **219.53% to 227.44%** of its emergency rating (627MVA) for the tower line outage (CONAS_PB). This project contributes approximately **49.6MW** to the thermal violation.

55. **(PECO/BG&E)** The Peach Bottom Tap – Graceton portion of the Nottingham - PB - Graceton 230kV line loads from **219.50% to 227.41%** of its emergency rating (627MVA) for the tower line outage (CONAS_PB). This project contributes approximately **49.6MW** to the thermal violation.

56. **(PECO)** The Nottingham – Peach Bottom Tap portion of the Nottingham – PB - Graceton 230kV line loads from **219.50% to 227.41%** of its emergency rating (627MVA) for the tower line outage (CONAS_PB). This project contributes approximately **49.6MW** to the thermal violation.

57. **(METED/PECO)** The Peach Bottom – TMI (Three Mile Island) 500kV line loads from **106.36% to 112.12%** of its emergency rating (2596MVA) for the tower line outage (CONAS_PB). This project contributes approximately **149.7MW** to the thermal violation.

58. **(BG&E/AP)** The Conastone – North Northwest 500kV line [new line required as an upgrade for earlier queued projects] loads from **186.01% to 191.50%** of its emergency rating (2901MVA) for the tower line outage (CNSTN_NWEST_NNWEST_A). This project contributes approximately **159.5MW** to the thermal violation.

NETWORK UPGRADE REQUIREMENTS

New System Reinforcements

(Upgrades required to mitigate reliability criteria violations, i.e. "Network Impacts", initially caused by the addition of this project generation)

1. **Bridgeville – Taylor 69kV Line (12.7%) Overload** – This overload requires the rebuild of 3.63 miles of 336.4 ACSR and replacement of associated equipment, at an estimated cost of **$3,000,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

2. **Harrington – South Harrington 69kV Line (27.7%) Overload** – This overload requires the rebuild of 1.87 miles of 336.4 ACSR and replacement of associated equipment, at an estimated cost of **$2,000,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

3. **Harrington – Wells 69kV Line (38.5%) Overload** – This overload requires the rebuild 8.42 miles of 4/0 CU and replacement of associated equipment, at an estimated cost of **$5,500,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

4. **Vaughn – Wells 69kV Line (14.4%) Overload** – This overload requires the rebuild of 2.4 miles of 4/0 CU and replacement of associated equipment, at an estimated cost of **$1,500,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

5. **Todd – Vienna 69kV Line (8%) Overload** – This overload requires the replacement of an 800A line trap, at an estimated cost of **$300,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

6. **Vienna – Vienna Local 69kV Line (0.5%) Overload** – This overload requires the rebuild of 0.1 miles of 636.4 ACSR, at an estimated cost of **$60,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

7. **Culver – Ocean City 69kV Line (2%) Overload** – This overload requires the replacement of a disconnect switch, at an estimated cost of **$300,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

8. **Maridel – Ocean Bay 69kV Line (4.9%) Overload** – This overload requires the rebuild of 2.61 miles of 636.4 ACSR, at an estimated cost of **$2,000,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

9. **Ocean Pine – Worcester 69kV Line (13.1%) Overload** – This overload requires the rebuild of 1.98 miles of 336.4 ACSR, at an estimated cost of **$1,500,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

10. **Maridel – Ocean City 69kV Line (3.4%) Overload** – This overload requires the rebuild of 2.73 miles of 636.4 ACSR and replacement of associated equipment, at an estimated cost of **$2,000,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

11. **Bridgeville – Taylor 69kV Line (41.3%) Overload** – This overload requires the rebuild of 3.63 miles of 336.4 ACSR and replacement of associated equipment, at an estimated cost of **$3,500,000**. The reinforcements would take 12 to 18 months to complete, assuming no major regulatory or environmental impacts.

12. **Harrington – South Harrington 69kV Line (49.6%) Overload** – This overload requires the rebuild of 1.87 miles of 336.4 ACSR and replacement of associated equipment, at an estimated cost of **$2,500,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

13. **Harrington – Wells 69kV Line (72.2%) Overload** – This overload requires the rebuild 8.42 miles of 4/0 CU and replacement of associated equipment, at an estimated cost of **$6,000,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

14. **Vaughn – Wells 69kV Line (47.5%) Overload** – This overload requires the rebuild of 2.4 miles of 4/0 CU and replacement of associated equipment, at an estimated cost of **$1,500,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

15. **Todd – Vienna 69kV Line (28.2%) Overload** – This overload requires the replacement of an 800A line trap, at an estimated cost of **$400,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

16. **Culver – Ocean City 69kV Line (41.3%) Overload** – This overload requires the rebuild of 0.66 miles of 636.4 ACSR, 0.68 miles of 950 KCMIL and replacement of associated equipment, at an estimated cost of **$1,300,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

17. **Maridel – Ocean Bay 69kV Line (32%) Overload** – This overload requires the rebuild of 2.61 miles of 636.4 ACSR and replacement of associated equipment, at an estimated cost of **$2,500,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

18. **Ocean Pine – Worcester 69kV Line (71.4%) Overload** – This overload requires the rebuild of 1.98 miles of 336.4 ACSR and replacement of associated equipment, at an estimated cost of $2,000,000. The reinforcements would take 12 to 18 months to complete, assuming no major regulatory or environmental impacts.

19. **Maridel – Ocean City 69kV Line (34.9%) Overload** – This overload requires the rebuild of 2.73 miles of 636.4 ACSR and replacement of associated equipment, at an estimated cost of **$3,000,000**. The reinforcements would take **12**

to 18 months to complete, assuming no major regulatory or environmental impacts.

20. **Bridgeville – Greenwood 69kV Line (13.8%) Overload** – This overload requires the rebuild of 6.08 miles of 336.4 ACSR and replacement of associated equipment, at an estimated cost of **$4,500,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

21. **Kent – New Meredith 69kV Line (20.5%) Overload** – This overload requires the rebuild of 6.48 miles of 636.4 ACSR and replacement of associated equipment, at an estimated cost of **$4,500,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

22. **New Meredith – Church 69kV Line (8.1%) Overload** – This overload requires the rebuild of 11 miles of 636.4 ACSR and replacement of associated equipment, at an estimated cost of **$7,000,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

23. **North Seaford – Taylor 69kV Line (19%) Overload** – This overload requires the rebuild of 1.53 miles of 336.4 ACSR and replacement of associated equipment, at an estimated cost of **$1,500,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

24. **Airey – Vienna Local 69kV Line (14.9%) Overload** – This overload requires the rebuild of 10.93 miles of 636.4 ACSR, at an estimated cost of **$7,000,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

25. **Airey – West Cambridge 69kV Line (9.9%) Overload** – This overload requires the rebuild of 7.92 miles of 636.4 ACSR, at an estimated cost of **$5,000,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

26. **Ocean Bay – 138th ST 138kV Line (10%) Overload** – This overload requires the rebuild of 2.92 miles of 966.2 ACSR and replacement of associated equipment, at an estimated cost of **$3,000,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

27. **Vienna – Vienna Local 69kV Line (15.9%) Overload** – This overload requires the rebuild of 0.1 miles of 636.4 ACSR and associated equipment, at an estimated cost of **$160,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

28. **Ocean Bay 138/69kV AT1 (12.9%) Overload** – This overload requires the replacement of a 1200A current transformer, at an estimated cost of **$600,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

29. **Rehoboth 138/69kV AT1 (73.3%) Overload** – This overload requires the replacement of the transformer and associated equipment, at an estimated cost of **$8,000,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

30. **Berlin Tap – Sinepuxent 69kV Line (10.3%) Overload** – This overload requires the rebuild of 3.67 miles of 636.4 ACSR, at and estimated cost of **$2,500,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

31. **Culver – Sinepuxent 69kV Line (22.6%) Overload** – This overload requires the rebuild of 1.6 miles of 636.4 ACSR and replacement of associated equipment, at an estimated cost of **$1,500,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

32. **Five Points – Lewes Tap 69kV Line (53.7%) Overload** – This overload requires the rebuild of 1 mile of 636.4 ACSR and replacement of associated equipment, at an estimated cost of **$700,000**.

33. **Harbeson – Sussex 69kV Line (8.1%)** Overload – This overload requires the replacement of a disconnect switch, at an estimated cost of **$300,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

34. **Lewes Tap – Midway 69kV Line (56.5%) Overload** – This overload requires the rebuild of 0.85 miles of 636.4 ACSR and replacement of associated equipment, at an estimated cost of **$1,000,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

35. **Midway – Rehoboth 69kV Line (53.7%) Overload** – This overload requires the rebuild of 4.68 miles of 768.2 ACSS and replacement of associated equipment, at an estimated cost of **$3,500,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

36. **Ocean Pine – New Hope 69kV Line (32.7%) Overload** – This overload requires the rebuild of 0.09 miles of 336.4 ACSR and 4.84 miles of 4/0 CU, at an estimated cost of **$3,000,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

37. **North Salisbury – Walston Switch 69kV Line (14%)** Overload – This overload requires the rebuild of 6.48 miles of 4/0 CU and replacement of associated equipment, at an estimated cost of **$4,500,000**. The reinforcements would take **12 to 18** months to complete, assuming no major regulatory or environmental impacts.

38. **New Hope – Walston Switch 69kV Line (2.1%) Overload** – This overload requires the rebuild of 10.09 miles of 4/0 CU, at an estimated cost of **$6,000,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

39. **(PECO) Linwood – Chichester 230 kV Line Overload**
See Upgrades 43 and 44 below.

40. **Church – Townsend 138kV Line (44.02%) Overload** – This overload requires the rebuild of 12.09 miles of existing 477 ACSR and replacement of associated equipment, at an estimated cost of **$11,000.000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

41. **Townsend – Middletown 138kV Line (43.64%) Overload** – This overload requires the rebuild of 3.81 miles of existing 477 ACSR and 0.28 miles of 636 ACSR, at an estimated cost of **$4,000,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

42. **Cedar Creek – Red Lion 230kV Line (40.19%) Overload** – This overload requires the rebuild of 21.71 miles of existing 1590 ACSR, at an estimated cost of **$22,000,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

Contribution to Previously Identified System Reinforcements *(This project contributes to the Network Impact causing the need for these Network Upgrades. This project will be allocated a cost to be determined during the Impact Study)*

43. **(PECO) Linwood – Chichester 230 kV (220-43) line (18.75%) overload** – This overload requires the line to be re-conductored with a larger conductor ($3,000,000) and replacement of terminal equipment ($5,000,000) at an estimated cost of **$8,000,000**. The reinforcements would take **48 months** to complete. Note: construction times are limited because the line occupies AMTRAK rail R/W. The new rating is expected to be 1239 MVA Normal / 1395 MVA Emergency.

44. **(PECO) Linwood – Chichester 230 kV (220-39) line (18.35%) overload -** This overload requires the line to be re-conductored with a larger conductor ($3,000,000) and replacement of terminal equipment ($5,000,000) at an estimated

cost of **$8,000,000**. The reinforcements would take **48 months** to complete. Note: construction times are limited because the line occupies AMTRAK rail R/W. The new rating is expected to be 1239 MVA Normal / 1395 MVA Emergency.

45. (PECO) Chichester – Eddystone (28.79%) 230 kV - This overload requires the replacement of terminal equipment (both ends) at an estimated cost of **$5,000,000**. The reinforcements would take **30 months** to complete.

46. (PECO) Chichester – Foulks (17.79%) 230 kV - This overload requires the replacement of terminal equipment (both ends) at an estimated cost of **$5,000,000**. The reinforcements would take **30 months** to complete.

47. (PECO) Foulks – Concord 230 kV line (15.01%) overload - This overload requires the replacement of terminal equipment (both ends) at an estimated cost of **$5,000,000**. The reinforcements would take **30 months** to complete.

48. **Red Lion – Keeney 230kV Line (1.88%) Overload** – This overload requires the replacement of a 2000A Line Trap at Keeney, at an estimated cost of **$300,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

49. **DPL Glasgow – Cecil 138 kV Line (43.9%) Overload** -

50. **Milford – Steele 230kV Line (146.7%) Overload** – This overload requires the rebuild of 23.42 miles of existing 1590 ACSR and replacement of associated equipment, at an estimated cost of **$24,000,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

51. **Steele – Oil City 138kV Line (54.29%) Overload** – This overload requires the rebuild of 0.56 miles of 477 ACSR and replacement of associated equipment, at an estimated cost of **$900,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

52. **Oil City – Church 138kV Line (45.68%) Overload** – This overload requires the rebuild of 25.10 miles of 477 ACSR and replacement of associated equipment, at an estimated cost of **$21,000,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

53. **(Met Ed) Three Mile Island 500-230 kV Transformer (69.49%) Overload** - This overload requires the addition of a second 500-230 kV transformer at TMI. The estimated cost to add a second 500-230 kV transformer is **$15,000,000** and the time required is approximately **36 months.**

54. **Nottingham Reactor** (piece of the Nottingham – Peach Bottom Tap – Graceton three terminal 230 kV line #220-08) **66.54 % Overload** - Replace the line reactor with a higher rated reactor. The estimated magnitude cost for this upgrade is **$200,000**. Estimated construction time is **12 months.**

55. **Peach Bottom Tap to Graceton** (piece of the Nottingham – Peach Bottom Tap – Graceton three terminal 230 kV line #220-08) **119.5 % Overload** -

    The estimated magnitude cost for this upgrade is **$61,000,000**. Estimated construction time is **48 months**.

    Description of Work:
    Relocate 220-08 line from overhead to two underground pipe type cables (this also facilitates the construction of the additional 500 kV lines between Peach Bottom and Conastone that are required for Queue S105 and previous projects) over its distance from Peach Bottom to Graceton (5.6 miles on the PECO Energy side of PA/MD border and 1.8 miles on the BG&E side).

    Note: 220-08 line is an offsite source for Peach Bottom Nuclear Generating Station and its integrity must be maintained.

56. **Nottingham to Peach Bottom Tap** (piece of the Nottingham – Peach Bottom Tap – Graceton three terminal 230 kV line #220-08) **119.5% Overload** - Rebuild the Nottingham to Peach Bottom Tap portion of the 230 kV line to meet high capacity requirements. Includes $20,000,000 for a new river crossing. The estimated magnitude cost for this upgrade is **$40,000,000**. Estimated construction time is **48 months.**

57. (PECO / Met Ed) Peach Bottom – TMI 500 kV Line (6.36%) Overload –
This overload requires the replacement of terminal equipment (at the PECO Peach Bottom end only) at an estimated cost of **$3,000,000**. The reinforcements would take **30 months** to complete.

58. Conastone – North Northwest 500 kV Line (186%) Overload - The estimated cost to build a second Conastone – North Northwest 500 kV line is **$119,200,000** and it will take **96 to 120 months** to construct.

Description of Work:
Construct a second Conastone to North Northwest line parallel to the proposed first Conastone to North Northwest line on the same Right of Way. Total length is approximately 19.6 miles. Conductor will be a 3 - bundle 1,590 kcm ACSR. Estimated cost is $110,000,000. In addition, one new 500 kV one-breaker bay will be required at Conastone ($1,500,000) and one new 500 kV three-breaker bay will be required at North Northwest ($7,700,000)

POTENTIAL ISSUES

Delivery of the Energy Portion of Interconnection Request

PJM also studied the delivery of the energy portion of this interconnection request. Any problems identified below may result in operational restrictions to the project under study or other PJM generation. The developer can proceed with network upgrades to eliminate the operational restriction at their discretion by submitting a Merchant Transmission Interconnection request. **These are not required reliability upgrades.**

As a result of the aggregate energy resources in the area, the following violations were identified:

1. **(PECO)** The Printz - Ridley 230kV line loads from **130.0% to 132.6%** of its emergency rating (1432MVA) for the single line contingency outage (PE23). This project contributes approximately **37.8MW** to the thermal **congestion**.

2. **(PECO)** The Eddystone – Island Road 230kV line loads from **125.3% to 128.0%** of its emergency rating (1410MVA) for the single line contingency outage (PE46). This project contributes approximately **38.7MW** to the thermal **congestion**.

3. **(PECO)** The Linwood - Chichester 230kV (220-43) line loads from **128.4% to 139.6%** of its emergency rating (904MVA) for the single line contingency outage (PE39). This project contributes approximately **101.4MW** to the thermal **congestion**.

See Reliability Upgrade requirement 43.

4. **(PECO)** The Linwood – Chichester 230kV line (220-39) loads from **127.9% to 139.1%** of its emergency rating (904MVA) for the single line contingency outage (PE43). This project contributes approximately **101.1MW** to the thermal **congestion**.

See Reliability Upgrade requirement 44.

5. **(PECO)** The Ridley - Macdade 230kV line loads from **118.8% to 121.4%** of its emergency rating (1432MVA) for the single line contingency outage (PE23). This project contributes approximately **38.5MW** to the thermal **congestion**.

6. **(PECO)** The Macdade – Elmwood 230kV line loads from **118.1% to 121.0%** of its emergency rating (1339MVA) for the single line contingency outage (PE23). This project contributes approximately **38.5MW** to the thermal **congestion.**

7. **(PECO)** The Linwood - Chichester 230kV (220-43) line loads from **107.7% to 114.8%** (DC power flow) of its normal rating (753MVA) for non-contingency condition. This project contributes approximately **53.7MW** to the thermal **congestion**.

See Reliability Upgrade requirement 43.

8. **(DP&L)** The Ocean Bay - Bishop 138kV line loads from **28.1% to 129.4%** of its emergency rating (336MVA) for the single line contingency outage (CKT 13731). This project contributes approximately **529.3MW** to the thermal **congestion**.

Ocean Bay – Bishop 138kV Line (129.4%) Overload – This overload requires the rebuild of 2.81 miles of 3250 AL and 7.21 miles of 954 ACSR and replacement of associated equipment, at an estimated cost of **$9,000,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impa

9. **(DP&L)** The 138th St - Bethany 138kV line loads from **35.2% to 104.5%** of its emergency rating (348MVA) for the single line contingency outage (CKT 13786). This project contributes approximately **486.1MW** to the thermal **congestion**.

138th ST – Bethany 138kV Line (4.5%) Overload – This overload requires the rebuild of 5.7 miles of 966.2 ACSR, at an estimated cost of **$5,000,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

10. **(DP&L)** The Piney - Loretto 138kV line loads from **120.8% to 130.9%** of its emergency rating (159MVA) for the single line contingency outage (CKT 13787). This project contributes approximately **16.1MW** to the thermal **congestion**.

Piney Grove – Loretto 138kV Line (30.9%) Overload – This overload requires the rebuild of 9.51 miles of 477 ACSR and replacement of associated equipment, at an estimated cost of **$8,000,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

11. **(PECO)** The Elmwood – Grays Ferry 230kV line loads **from 113.3% to 116.2%** of its emergency rating (1339MVA) for the single line contingency outage (PE23). This project contributes approximately 38.5MW to the thermal congestion.

12. **(PECO)** The Island Road – Grays Ferry 230kV line loads from **112.5% to 115.1%** of its emergency rating (1374MVA) for the single line contingency outage (PE46). This project contributes approximately **36.7MW** to the thermal **congestion**.

13. **(PECO)** The Parrish - Master 230kV line loads from **104.8% to 107.9%** of its emergency rating (874MVA) for the single line contingency outage (PJM89A). This project contributes approximately **26.7MW** to the thermal **congestion.**

14. **(PECO)** The Eddystone - Printz 230kV line loads from **116.7% to 120.0%** of its emergency rating (1193MVA) for the single line contingency outage (PE23). This project contributes approximately **39.3MW** to the thermal **congestion**.

15. **(DP&L)** The Indian River – Cool Springs 230kV line loads from **144.3% to 186.5%** of its emergency rating (679MVA) for the single line contingency outage (CKT23069). This project contributes approximately **286.7MW** to the thermal **congestion**.

Indian River – Cool Springs 230kV Line (42.2%) Overload – This overload requires the rebuild of 13.25 miles of 1590 ACSR and replacement of associated equipment, at an estimated cost of **$14,000,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

16. **(DP&L)** The Indian River - Nelson 138kV line loads from **124.0% to 166.5%** of its emergency rating (193MVA) for the single line contingency outage (CKT23076). This project contributes approximately **82.0MW** to the thermal **congestion**.

Indian River – Nelson 138kV Line (66.5%) Overload – This overload requires the rebuild of 21.39 miles of 477 ACSR and replacement of associated equipment, at and estimated cost of **$18,000,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

17. **(DP&L)** The Indian River – Nelson 138kV line loads from **97.0% to 137.0%** of its normal rating (159MVA) for non-contingency condition. This project contributes approximately **63.7MW** to the thermal **congestion**.

Same as 16.

18. **(DP&L)** The Edgemoor - Claymont 230kV line loads from **100.8% to 111.6%** of its emergency rating (805MVA) for the single line contingency outage (PE77). This project contributes approximately **87.2MW** to the thermal **congestion**.

Edge Moor – Claymont 230kV Line (11.6%) Overload – This overload requires the rebuild of 7.10 miles of 1590 ACSR and replacement of associated equipment, at an estimated cost of **$8,000,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

19. **(DP&L)** The Indian River - Milford 230kV line loads from **145.2% to 193.7%** of its emergency rating (679MVA) for the single line contingency outage (CKT23034A). This project contributes approximately **329.6MW** to the thermal **congestion**

Indian River – Milford 230kV Line (93.7%) Overload – This overload requires the rebuild of 26.5 miles of 1590 ACSR and replacement of associated equipment, at an estimated cost of **$28,000,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

20. **(DP&L)** The Cool Springs - Milford 230kV line loads from **146.6% to 197.0%** of its emergency rating (679MVA) for the single line contingency outage (CKT23069). This project contributes approximately **341.8MW** to the thermal **congestion**.

Cool Springs – Milford 230kV Line (97%) Overload – This overload requires the rebuild of 13.25 miles of 1590 ACSR and replacement of associated equipment, at an

estimated cost of **$14,000,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

21. **(DP&L)** The Indian River – North Seaford 138kV line loads from **105.6% to 144.2%** of its emergency rating (242MVA) for the single line contingency outage (CKT23034A). This project contributes approximately **93.3MW** to the thermal **congestion**.

Indian River – North Seaford 138kV Line (44.2%) Overload – This overload requires the rebuild of 25.46 miles of 954 ACSR and replacement of associated equipment, at an estimated cost of **$21,000,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

22. **(DP&L)** The Indian River – Cool Springs 230kV line loads from **106.4% to 135.8%** of its normal rating (551MVA) for non-contingency condition. This project contributes approximately **161.6MW** to the thermal **congestion**.

See number 15.

23. **(DP&L)** The Indian River - Milford 230kV line loads from **105.4% to 139.0%** of its normal rating (551MVA) for non-contingency condition. This project contributes approximately **185.1MW** to the thermal **congestion**.

Already identified as a required upgrade.

24. **(PECO/DP&L)** The Claymont - Linwood 230kV line loads from **93.5% to 105.5%** of its emergency rating (805MVA) for the single line contingency outage (PE77). This project contributes approximately **96.4MW** to the thermal **congestion**.

Claymont – Linwood 230kV Line (93.5%) Overload – This overload requires the rebuild of 8.5 miles of 1590 ACSR and replacement of associated equipment, at an estimated cost of **$10,000,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

25. **(DP&L)** The Cool Springs - Milford 230kV line loads from **103.7% to 141.6%** of its normal rating (551MVA) for non-contingency condition. This project contributes approximately **208.7MW** to the thermal **congestion**.

See number 20.

26. **(PECO)** The Chichester - Eddystone 230kV line loads from **135.5% to 141.6%** of its emergency rating (1235MVA) for the single line contingency outage (PE4). This project contributes approximately **74.3MW** to the thermal **congestion**.
See Reliability Upgrade requirement 45.

27. **(PECO)** The Master – North Philadelphia 230kV line loads from **98.2% to 102.1%** of its emergency rating (882MVA) for the single line contingency outage (PE69). This project contributes approximately **34.0MW** to the thermal **congestion**.

28. **(DP&L)** The Indian River (Units 2&3) – North Seaford 138kV line loads from **74.2% to 103.4%** of its normal rating (242MVA) for non-contingency condition. This project contributes approximately **70.8MW** to the thermal **congestion**.

See number 21.

29. **(PECO)** The Grays Ferry - Tunnel 230kV line loads from **115.2% to 119.4%** of its emergency rating (1395MVA) for the single line contingency outage (PE69). This project contributes approximately **58.4MW** to the thermal **congestion**.

30. **(DP&L)** The Milford - Steele 230kV line loads from **93.9% to 119.7%** of its normal rating (551MVA) for non-contingency condition. This project contributes approximately **142.3MW** to the thermal **congestion**.

Already identified as a required upgrade. Number 50.

31. **(DP&L)** The South Harrington - Felton 138kV line loads from **91.8% to 122.2%** of its emergency rating (242MVA) for the single line contingency outage (CKT23031). This project contributes approximately **73.7MW** to the thermal **congestion**.

South Harrington – Felton 138kV Line (22.2%) Overload – This overload requires the rebuild of 8.44 miles of 954 ACSR, at an estimated cost of **$7,000,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

32. **(DP&L)** The Nelson - Vienna 138kV line loads from **75.0% to 112.8%** of its emergency rating (226MVA) for the single line contingency outage (CKT23076). This project contributes approximately **85.4MW** to the thermal **congestion**.

Nelson – Vienna 138kV Line (12.8%) Overload – This project requires the rebuild of 13.2 miles of 336.4 ACSR and replacement of associated equipment, at an estimated cost of **$11,000,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

33. **(PECO)** The Tunnel - Parrish 230kV line loads from **113.0% to 117.2%** of its emergency rating (1395MVA) for the single line contingency outage (PE69). This project contributes approximately **58.4MW** to the thermal **congestion**.

34. **(DP&L)** The College Road - Cheswold 138kV line loads from **80.5% to 110.9%** of its emergency rating (242MVA) for the single line contingency outage (CKT23031). This project contributes approximately **73.7MW** to the thermal **congestion**.

College Road – Cheswold 138kV Line (10.9%) Overload – This requires the rebuild of 2.12 miles of 954 ACSR, at an estimated cost of **$2,000,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impact.

35. **(DP&L)** The Felton – College Road 138kV line loads from **80.5% to 110.9%** of its emergency rating (242MVA) for the single line contingency outage (CKT23031). This project contributes approximately **73.7MW** to the thermal **congestion**.

Felton – College Road 138kV (10.9%) Line Overload – This requires the rebuild of 12.14 miles of 954 ACSR, at an estimated cost of $10,000,000. The reinforcements would take 12 to 18 months to complete, assuming no major regulatory or environmental impacts.

36. **(PECO)** The Chichester - Foulks 230kV line loads from **123.7% to 128.9%** of its emergency rating (1335MVA) for the single line contingency outage (PE36). This project contributes approximately **69.2MW** to the thermal **congestion**.

See Reliability Upgrade requirement 47.

37. **(PECO)** The Foulk - Concord 230kV line loads from **120.9% to 126.1%** of its emergency rating (1335MVA) for the single line contingency outage (PE36). This project contributes approximately **69.2MW** to the thermal **congestion**.

See Reliability Upgrade requirement 47.

38. **(PSEG/JCP&L)** The New Freedom – East Windsor 500kV line loads from **103.2% to 106.1%** of its normal rating (2650MVA) for non-contingency condition. This project contributes approximately **79.1MW** to the thermal **congestion**.

39. **(PSEG/JCP&L)** The New Freedom – East Wndsor 500kV line loads from **107.4% to 113.5%** of its emergency rating (3040MVA) for the single line contingency outage (PJM27B). This project contributes approximately **183.5MW** to the thermal **congestion**.

40. **(PECO)** The Chichester - Foulks 230kV line loads from **103.8% to 107.7%** of its normal rating (1036MVA) for non-contingency condition. This project contributes approximately **41.2MW** to the thermal **congestion**.

See Reliability Upgrade requirement 46.

41. **(PECO)** The Foulk - Concord 230kV line loads from **100.2% to 104.2%** of its normal rating (1036MVA) for non-contingency condition. This project contributes approximately **41.2MW** to the thermal **congestion**.

See Reliability Upgrade requirement 47.

42. **(DP&L)** The Red Lion - Keeney 230kV line loads from **127.3% to 136.7%** of its emergency rating (932MVA) for the single line contingency outage (PJM64). This project contributes approximately **87.6MW** to the thermal **congestion**.

Red Lion – Keeney 230kV (36.7%) Line Overload – This requires the replacement of a 2000A line trap, 2000A disconnect switch, and 3000A ring bus breaker, at an estimated cost of **$1,500,000**. The reinforcements would take **12 to 18 months** to complete, assuming no major regulatory or environmental impacts.

43. **(PECO)** The Rock Springs – Peach Bottom 500kV line loads from **97.6% to 107.1%** of its emergency rating (3112MVA) for the single line contingency outage (PJM89A). This project contributes approximately **295.9MW** to the thermal **congestion**.

Network Impacts

– Option #2 (138th Street Substation)

The T122 project was studied as a 600 MW energy / 120 MW Capacity injection into the 138th Street Substation 138 kV bus. Project T122 was evaluated for compliance with reliability criteria for summer peak conditions in 2012. Potential network impacts were as follows:

Network Impacts and Network Upgrade Requirements are virtually the same as Option #1.