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March 12, 2021

Honorable Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E., Room 1A
Washington, D.C. 20426

Re: PJM Interconnection, L.L.C., Docket No. ER21-1364-000

[30-Day Comment Period Requested]

Dear Secretary Bose:

In accordance with PJM Open Access Transmission Tariff ("Tariff"), Schedule 12[1] and Amended and Restated Operating Agreement of PJM Interconnection, L.L.C. ("Operating Agreement"), Schedule 6, section 1.6, and pursuant to section 205 of the Federal Power Act,[2] PJM Interconnection, L.L.C. ("PJM") hereby submits amendments to Tariff, Schedule 12-Appendix A to incorporate cost responsibility assignments for 69 baseline upgrades in the recent update to the Regional Transmission Expansion Plan ("RTEP") approved by the PJM Board of Managers ("PJM Board") on February 10, 2021.[3] PJM requests that the revised Tariff sections become effective on June 10, 2021, 90 days after the date of this filing.

[1] All capitalized terms that are not otherwise defined herein have the meaning as defined in the Tariff, Operating Agreement, and Reliability Assurance Agreement among Load Serving Entities in the PJM Region.

[2] 16 U.S.C. § 824d.

[3] The 69 baseline upgrades approved by the PJM Board on February 10, 2021 with estimated costs totaling $327.79 million include the following: (i) 66 new transmission system enhancements and expansions with an estimated cost of $299.23 million; and (ii) three baseline upgrades, b2779.6, b2779.7 and b3213.1, that are scope changes to existing baseline projects b2779 and b3213 with an estimated cost of $28.56 million.

I. DESCRIPTION OF FILING

A. Tariff, Schedule 12 Requirements to Designate Cost Responsibility Assignments

Pursuant to Tariff, Schedule 12, PJM is required to designate in Tariff, Schedule 12-Appendix A, cost responsibility assignments for all transmission enhancements and expansions included in the RTEP after February 1, 2013.[4] Similarly, Tariff, Schedule 12 requires that within 30 days of the PJM Board's approval of each RTEP, or addition to the RTEP, PJM shall designate in Tariff, Schedule 12-Appendix A, and in a report filed with the Federal Energy Regulatory Commission ("Commission"), the "Responsible Customers"[5] that will be subject to charges related to transmission enhancements and expansions included in the RTEP.[6] Tariff, Schedule 12 further provides that customers designated to be responsible for assignments of costs that PJM files with the Commission shall have 30 days from the date of such filing to submit comments regarding the proposed cost responsibility assignments.[7]

Accordingly, PJM hereby submits amendments to Tariff, Schedule 12-Appendix A to include the new cost responsibility assignments for RTEP upgrades approved by the PJM Board on February 10, 2021. The revised Tariff sections containing new language, including new cost

[4] *PJM Interconnection, L.L.C.*, 142 FERC ¶ 61,214 at PP 411, 448 (2013) (accepting revisions to Tariff, Schedule 12 modifying the cost allocation methodologies for transmission projects included in the RTEP, effective February 1, 2013).

[5] Responsible Customers include "the customers using Point-to-Point Transmission Service and/or Network Integration Transmission Service and Merchant Transmission Facility owners that will be subject to each such Transmission Enhancement Charge." *See* Tariff, Schedule 12, section (b)(viii).

[6] *Id.*; *see also* Operating Agreement, Schedule 6, section 1.6.

[7] *See* Tariff, Schedule 12, section (b)(viii).

responsibility assignments, are reflected in redline and clean format in Attachments B and C, respectively, to this filing.[8]

1. Assignment of Cost Responsibility for Regional Facilities

The new transmission enhancements or expansions included in this most recent update to the RTEP approved by the PJM Board on February 10, 2021 are not Regional Facilities or Necessary Lower Voltage Facilities.[9] Thus, PJM does not include any cost responsibility assignments for such facilities in Tariff, Schedule 12-Appendix A with this filing.

2. Assignments of Cost Responsibility for Lower Voltage Facilities Needed for Reliability

a. Cost Responsibility Assignments that Address Transmission Enhancements Costing More than $5 Million and Require DFAX Analysis

Consistent with Tariff, Schedule 12, PJM submits amendments to the Tariff, Schedule 12-Appendix A to include the cost responsibility assignments for transmission enhancements or expansions that are Lower Voltage Facilities.[10] Twenty-five (25) enhancements or expansions[11] included in this filing, approved by the PJM Board on February 10, 2021, are Lower Voltage

[8] The revised Tariff sections do not include any proposed rates or charges for recovery of any system upgrade costs. In accordance with Tariff, Schedule 12, recovery of the costs of such facilities that the RTEP requires Transmission Owners to construct, own and/or finance is governed by the Transmission Owners' established rates.

[9] As defined in PJM Tariff, Schedule 12, section (b)(i), Regional Facilities include transmission enhancements and expansions that, among other things, will operate at or above 500 kV or will be double-circuit 345 kV facilities; and Necessary Lower Voltage Facilities include transmission enhancements and expansions that operate below 500 kV, or 345 kV in the case of double-circuit 345 kV facilities, that must be constructed or strengthened to support new Regional Facilities.

[10] *See* Tariff, Schedule 12, section (b)(ii)(A) ("If the Lower Voltage Facility is a Reliability Project, [PJM] shall use the DFAX analysis described in section (b)(iii) of this Schedule 12 . . . ."). As defined in PJM Tariff, Schedule 12, section (b)(ii), Lower Voltage Facilities include transmission enhancements and expansions that are not Regional Facilities and are not Necessary Lower Voltage Facilities.

[11] The Lower Voltage Facilities include the following: b2779.6, b2779.7, b3123, b3246.1, b3246.2, b3246.3, b3246.4, b3246.5, b3273.1, b3273.2, b3273.3, b3273.4, b3274, b3276.1, b3276.2, b3276.3, b3303.1, b3303.2, b3304, b3304.1, b3304.2, b3304.3, b3304.4, b3306, and b3312.

Facilities required to address reliability needs for which PJM applied the solution-based DFAX analysis described in Tariff, Schedule 12, section (b)(iii).

b. Cost Responsibility Assignments that Address Transmission Enhancements Costing Less than $5 Million

Tariff, Schedule 12, section (b)(vi) provides that, notwithstanding Tariff, Schedule 12, sections (b)(i), (b)(ii), (b)(iv) and (b)(v), cost responsibility for an enhancement or expansion for which the good faith estimate of the cost of such enhancement or expansion included for the first time in the RTEP does not equal or exceed $5 million shall be assigned to the zone where the enhancement or expansion is to be located. Consistent with Tariff, Schedule 12, section (b)(vi), PJM proposes revisions to Tariff, Schedule 12-Appendix A to include cost responsibility assignments for thirty-four (34) enhancements or expansions needed for reliability.[12] Therefore, consistent with Tariff, Schedule 12, section (b)(vi), cost responsibility for such enhancements or expansions shall be allocated 100 percent to the zone of the Transmission Owner where the enhancements or expansions are to be located.

c. Cost Responsibility Assignments that Address Spare Parts, Replacement Equipment and Circuit Breakers

Tariff, Schedule 12, section (b)(iv)(C) provides that cost responsibility for circuit breakers and associated equipment independently included in the RTEP and not a part of the design specifications of a transmission element of a Required Transmission Enhancement shall be assigned to the zone of the owner of the circuit breakers and associated equipment, if the owner of the circuit breakers and associated equipment is a Transmission Owner listed in Tariff,

[12] The enhancements and expansions allocated pursuant to Tariff, Schedule 12, section (b)(vi) include the following: b3222, b3224, b3226, b3228, b3230, b3233, b3234, b3235, b3236, b3237, b3240, b3241, b3243, b3248, b3253, b3255, b3256, b3257, b3258, b3259, b3265, b3266, b3267, b3275.1, b3275.2, b3275.3, b3275.4, b3275.5, b3275.6, b3275.7, b3300, b3301, b3302, and b3305.

Attachment J. PJM proposes revisions to Tariff, Schedule 12-Appendix A to include cost responsibility assignment for six (6) enhancements needed to address standalone circuit breakers and associated equipment.[13] Therefore, consistent with Tariff, Schedule 12, section (b)(iv)(C), cost responsibility for such enhancements shall be allocated 100 percent to the zone of the Transmission Owner of the circuit breaker and associated equipment.

d. Cost Responsibility Assignments for Transmission Enhancements that Address Reliability Violations on Transmission Facilities Operating At or Below 200 kV

Tariff, Schedule 12, section (b)(xvi), provides that solutions for reliability violations on a facility operating at or below 200 kV not included in a competitive proposal window pursuant to Operating Agreement, Schedule 6, section 1.5.8(c) will be allocated 100 percent to the zone in which the transmission facilities are located.[14] Consistent with Tariff, Schedule 12, section (b)(xvi), PJM proposes revisions to Tariff, Schedule 12-Appendix A to include cost responsibility assignments for four (4) reliability enhancements to address reliability violations on transmission facilities operating at or below 200 kV that were not included in a competitive proposal window.[15] Therefore, consistent with Tariff, Schedule 12, section (b)(xvi), cost responsibility for such enhancements shall be allocated 100 percent to the zone in which the facilities are to be located.

[13] The enhancements and expansions allocated pursuant to Tariff, Schedule 12, section (b)(iv) include the following: b3213.1, b3231, b3232, b3238, b3239, and b3277.

[14] *PJM Interconnection, L.L.C.*, 158 FERC ¶ 61,124 (2017) (accepting Tariff, Schedule 12, section (b)(xvi) cost allocation methodology, effective August 26, 2016, to assign costs of projects exempted from a proposal window pursuant to Operating Agreement, Schedule 6, section 1.5.8(n) 100 percent to the zone in which the transmission facilities will be located).

[15] The baseline upgrades addressing reliability violations on transmission facilities operating at or below 200 kV not included in a competitive proposal window include the following: b3227, b3242, b3244, and b3245.

B. Cost Responsibility Assignment Summary

For informational purposes, PJM also includes as Attachment A to this filing a Cost Responsibility Assignment Summary for the enhancements or expansions approved by the PJM Board on February 10, 2021. In addition to specifying the cost responsibility assignments for the enhancements or expansions, the summary sheets provide the criteria violation and test, a description of the upgrade, in-service date, estimated upgrade costs, and the entity designated with construction responsibility for each enhancement or expansion.

II. COMMENT PERIOD

Tariff, Schedule 12, section (b)(viii) provides that customers designated to be responsible for assignments of cost responsibility shall have 30 days from the date of such filing to seek review regarding the proposed cost responsibility assignments. Consistent with this provision, PJM requests that the comment date for this filing be set 30 days from the date of this filing, April 11, 2021.[16] To accommodate such a comment date, PJM requests an effective date of June 10, 2021 (90 days from the date of this filing) for all revised Tariff sections submitted in this docket.[17]

III. DOCUMENTS ENCLOSED

PJM encloses the following:

1. This transmittal letter;

2. Attachment A – Cost Responsibility Assignment Summary Sheets;

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[16] Because April 11, 2021 falls on a Sunday, comments would be due on Monday, April 12, 2021. *See* 18 C.F.R. § 385.2007 (a)(2) (2020).

[17] *See, e.g., PJM Interconnection, L.L.C.*, Errata Notice of Extending Comment Period, Docket Nos. ER06-456-018, *et al*. (Dec. 2, 2008) (granting extension of time for filing protests or comments to accommodate Tariff, Schedule 12 of the PJM Tariff); *PJM Interconnection, L.L.C.*, Errata Notice Extending Comment Date, Docket No. ER08-229-000 (Nov. 30, 2007) (same); *PJM Interconnection, L.L.C.*, Notice Extending Comment Date, Docket No. ER07-1186- 000 (July 31, 2007) (same).

3. Attachment B – Revised Tariff, Schedule 12-Appendix A (in redlined form); and

4. Attachment C – Revised Tariff, Schedule 12-Appendix A (in clean form).

IV. CORRESPONDENCE AND COMMUNICATIONS

Correspondence and communications with respect to this filing should be sent to the following persons:

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V. SERVICE

PJM has served a copy of this filing on all PJM Members on all state utility regulatory commissions in the PJM Region by posting this filing electronically. In accordance with the Commission's regulations,[18] PJM will post a copy of this filing to the FERC filings section of its internet site, located at the following link: http://www.pjm.com/documents/ferc-manuals/fercfilings.aspx with a specific link to the newly-filed document, and will send an e-mail on the same date as this filing to all PJM Members and all state utility regulatory commissions in

[18] *See* 18 C.F.R. §§ 35.2(e) and 385.2010(f)(3) (2020).

the PJM Region[19] alerting them that this filing has been made by PJM and is available by following such link. If the document is not immediately available by using the referenced link, the document will be available through the referenced link within 24 hours of the filing. Also, a copy of this filing will be available on the FERC's eLibrary website located at the following link: http://www.ferc.gov/docs-filing/elibrary.asp in accordance with the Commission's regulations and Order No. 714.

Respectfully submitted,

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[19] PJM already maintains, updates and regularly uses e-mail lists for all PJM Members and affected state commissions.

Attachment A

Cost Responsibility Assignment Summary Sheets

Baseline Upgrade b2779.6

- Overview of Reliability Problem
  - Criteria Violation: Greater than 300 MW consequential load loss
  - Contingency: Loss of South Butler – Collingwood 345 kV
  - Criteria test: Load Loss Limit (PJM Criteria)

- Overview of Reliability Solution
  - Description of Upgrade: Construct a 345 kV ring bus at Dunton Lake to serve Steel Dynamics, Inc. (SDI) load at 345 kV via two (2) circuits
  - Required Upgrade In-Service Date: November 15, 2021
  - Estimated Upgrade Cost: $ 23.40 M
  - Construction Responsibility: AEP
- Cost Allocation
  - The cost for this baseline upgrade is allocated 100% to AEP. The upgrade benefits load entirely within the zone receiving the allocation. The distribution factor would be based on an interface entirely within the zone. Therefore no distribution factor table is provided

Baseline Upgrade b2779.7

- Overview of Reliability Problem
  - Criteria Violation: Greater than 300 MW consequential load loss
  - Contingency: Loss of the South Butler – Collingwood 345 kV
  - Criteria test: Load Loss Limit (PJM Criteria)

- Overview of Reliability Solution
  - Description of Upgrade: Retire Collingwood 345 kV station
  - Required Upgrade In-Service Date: December 15, 2021
  - Estimated Upgrade Cost: $ 1.40 M
  - Construction Responsibility: AEP

- Cost Allocation
  - The cost for this baseline upgrade is allocated 100% to AEP. The upgrade benefits load entirely within the zone receiving the allocation. The distribution factor would be based on an interface entirely within the zone. Therefore no distribution factor table is provided

Baseline Upgrade b3123

- Overview of Reliability Problem
  - Criteria Violation: N/A
  - Contingency: N/A
  - Criteria test: Sammis 1,2,3 and 4 deactivations

- Overview of Reliability Solution
  - Description of Upgrade: At Sammis 345 kV station: Install a new control building in the switchyard, construct a new station access road, install new switchyard power supply to separate from existing generating station power service, separate all communications circuits, and separate all protection and controls schemes
  - Required Upgrade In-Service Date: June 01, 2022
  - Estimated Upgrade Cost: $ 15.30 M
  - Construction Responsibility: ATSI
- Cost Allocation
  - The cost for this baseline upgrade is allocated 100% to ATSI. The upgrade benefits load entirely within the zone receiving the allocation. The distribution factor would be based on an interface entirely within the zone. Therefore no distribution factor table is provided

Baseline Upgrade b3213.1

- Overview of Reliability Problem
  - Criteria Violation: Over duty breaker
  - Contingency: N/A
  - Criteria test: Short Circuit

- Overview of Reliability Solution
  - Description of Upgrade: Replace the eight (8) Chickahominy 230 kV breakers with 63 kA breakers:
    "SC122", "205022", "209122", 210222-2", "28722", "H222", "21922" and "287T2129"

  - Required Upgrade In-Service Date: June 01, 2023
  - Estimated Upgrade Cost: $ 3.76 M
  - Construction Responsibility: Dominion
- Cost Allocation
  - The cost for this baseline upgrade is allocated 100% to Dominion

Baseline Upgrade b3222

- Overview of Reliability Problem
  - Criteria Violation: FERC Form 715 Criteria Violation - Post contingency voltage violation on the 69 kV system along the Limestone – Lock Haven – Renovo path
  - Contingency: Multiple
  - Criteria test: PPL FERC Form 715 Criteria
- Overview of Reliability Solution
  - Description of Upgrade: Install one (1) 7.2 MVAR fixed cap bank on the Lock Haven – Reno 69 kV line and one (1) 7.2 MVAR fixed cap bank on the Lock Haven – Flemington 69 kV line near the Flemington 69/12 kV substation
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 1.90 M
  - Construction Responsibility: PPL
- Cost Allocation
  - The cost for this baseline upgrade is allocated 100% to PPL

Baseline Upgrade b3224

- Overview of Reliability Problem
  - Criteria Violation: Overload of the Mt. Pleasant – Middletown Tap 138 kV line
  - Contingency: Tower outage of both the Keeney – Steele 230 kV lines
  - Criteria test: Winter Generator Deliverability and Winter N-1 Thermal Overload

- Overview of Reliability Solution
  - Description of Upgrade: Replace a disconnect switch and reconductor a short span of the Mt. Pleasant – Middletown tap 138 kV line
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 0.42 M
  - Construction Responsibility: DPL
- Cost Allocation
  - The cost for this baseline upgrade is allocated 100% to DPL

Baseline Upgrade b3226

- Overview of Reliability Problem
  - Criteria Violation: Post contingency voltage violation at the Peermont and Swainton 69 kV stations
  - Contingency: Multiple
  - Criteria test: Summer N-1 Voltage Magnitude and Voltage Drop
- Overview of Reliability Solution
  - Description of Upgrade: Add 10 MVAR 69 kV capacitor bank at Swainton substation
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 2.90 M
  - Construction Responsibility: AEC

- Cost Allocation
  - The cost for this baseline upgrade is allocated 100% to AEC

Baseline Upgrade b3227

- Overview of Reliability Problem
  - Criteria Violation: Overload of the Corson – Court 69 kV line for several N-1-1 outages including the Corson – Middle 138 kV line and Corson – England 138 kV line
  - Contingency: Multiple N-1-1 contingencies
  - Criteria test: Summer N-1-1 Thermal
- Overview of Reliability Solution
  - Description of Upgrade: Rebuild the Corson – Court 69 kV line to achieve ratings equivalent to 795 ACSR conductor or better
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 13.20 M
  - Construction Responsibility: AEC
- Cost Allocation
  - The driver for this upgrade is less than 200 kV. The cost for this baseline upgrade is allocated 100% to AEC

Baseline Upgrade b3228

- Overview of Reliability Problem
  - Criteria Violation: The Westport to Center 115 kV circuit overloaded
  - Contingency: Loss of the Brandon Shore to Riverside 230 kV circuits #2344 and #2345
  - Criteria test: Generation Deliverability and Winter baseline

- Overview of Reliability Solution
  - Description of Upgrade: Replace two (2) relays at Center substation to increase ratings on the Westport to Center 110552 115 kV circuit
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 0.03 M
  - Construction Responsibility: BGE
- Cost Allocation
  - The cost for this baseline upgrade is allocated 100% to BGE

Baseline Upgrade b3230

- Overview of Reliability Problem
  - Criteria Violation: FERC Form 715 Criteria Violation – Multiple voltage magnitude violations in the RTEP 2025 summer N-1-1 analysis
  - Contingency: Loss of the Dutch Fork 138 kV capacitor followed by the Enon 138 kV capacitor
  - Criteria test: APS FERC Form 715 Criteria
- Overview of Reliability Solution
  - Description of Upgrade: At Enon substation install a second 138 kV, 28.8 MVAR nameplate, capacitor and the associated 138 kV capacitor switcher
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 1.80 M
  - Construction Responsibility: APS
- Cost Allocation
  - The cost for this baseline upgrade is allocated 100% to APS

Baseline Upgrade b3231

- Overview of Reliability Problem
  - Criteria Violation: FERC Form 715 Criteria Violation - The Huntingdon 46 kV breaker No. 2 is overdutied
  - Contingency: N/A
  - Criteria test: Short Circuit
- Overview of Reliability Solution
  - Description of Upgrade: Replace the existing No. 2 cap bank breaker at Huntingdon substation with a new breaker with higher interrupting capability
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 0.80 M
  - Construction Responsibility: PENELEC
- Cost Allocation
  - The cost for this baseline upgrade is allocated 100% to PENELEC

Baseline Upgrade b3232

- Overview of Reliability Problem
  - Criteria Violation: FERC Form 715 Criteria Violation - Three Altoona 46 kV breakers are overdutied
  - Contingency: N/A
  - Criteria test: Short Circuit
- Overview of Reliability Solution
  - Description of Upgrade: Replace the existing Williamsburg, ALH (Hollidaysburg) and bus section breaker at the Altoona substation with a new breaker with higher interrupting capability
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 1.70 M
  - Construction Responsibility: PENELEC
- Cost Allocation
  - The cost for this baseline upgrade is allocated 100% to PENELEC

Baseline Upgrade b3233

- Overview of Reliability Problem
  - Criteria Violation: Post contingency high voltage violations along the Rockwood – Mayersdale North 115 kV line
  - Contingency: Multiple contingencies
  - Criteria test: Light load Voltage
- Overview of Reliability Solution
  - Description of Upgrade: Install one (1) 34 MVAR 115 kV shunt reactor and breaker. Install one (1) 115 kV circuit breaker to expand the substation to a 4-breaker ring bus
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 4.90 M
  - Construction Responsibility: PENELEC
- Cost Allocation
  - The cost for this baseline upgrade is allocated 100% to PENELEC

Baseline Upgrade b3234

- Overview of Reliability Problem
  - Criteria Violation: FERC Form 715 Criteria Violation - High Voltages, based on ATSI TO Criteria, observed for voltage magnitude analysis of the Light Load case in the area of Pine 138 kV
  - Contingency: Multiple
  - Criteria test: ATSI FERC Form 715 Criteria
- Overview of Reliability Solution
  - Description of Upgrade: Extend both the east and west 138 kV buses at Pine substation, and install one (1) 138 kV breaker, associated disconnect switches, and one (1) 100 MVAR reactor
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 3.80 M
  - Construction Responsibility: ATSI
- Cost Allocation
  - The cost for this baseline upgrade is allocated 100% to ATSI

Baseline Upgrade b3235

- Overview of Reliability Problem
  - Criteria Violation: FERC Form 715 Criteria Violation - High Voltage, based on ATSI TO Criteria, observed for voltage magnitude analysis of the Light Load case at Tangy 138 kV
  - Contingency: The loss of the Gavin – Flatlick 765 kV line
  - Criteria test: ATSI FERC FORM 715 Criteria
- Overview of Reliability Solution
  - Description of Upgrade: Extend 138 kV bus work to the west of Tangy substation for the addition of the 100 MVAR reactor bay and one (1) 138 kV 40 kA circuit breaker
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 3.70 M
  - Construction Responsibility: ATSI
- Cost Allocation
  - The cost for this baseline upgrade is allocated 100% to ATSI

Baseline Upgrade b3236

- Overview of Reliability Problem
  - Criteria Violation: FERC Form 715 Criteria Violation - High Voltage, based on ATSI TO Criteria, observed for voltage magnitude analysis of the Light Load case around Broadview, Tech and Morefiel 138 kV buses
  - Contingency: The loss of the Edgewood – Urbana 69 kV line
  - Criteria test: ATSI FERC Form 715 Criteria
- Overview of Reliability Solution
  - Description of Upgrade: Extend the Broadview 138 kV bus by adding two (2) new breakers and associated equipment and install a 75 MVAR reactor
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 4.50 M
  - Construction Responsibility: ATSI
- Cost Allocation
  - The cost for this baseline upgrade is allocated 100% to ATSI

Baseline Upgrade b3237

- Overview of Reliability Problem
  - Criteria Violation: FERC Form 715 Criteria Violation - Post contingency voltage violation on the 46 kV system along the Hill Valley – Mount Union – Mapleton path
  - Contingency: Multiple
  - Criteria test: First Energy FERC Form 715 Criteria
- Overview of Reliability Solution
  - Description of Upgrade: Install two (2) 46 kV 6.12 MVAR capacitors effective at Mt. Union
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 4.00 M
  - Construction Responsibility: PENELEC
- Cost Allocation
  - The cost for this baseline upgrade is allocated 100% to PENELEC

Baseline Upgrade b3238

- Overview of Reliability Problem
  - Criteria Violation: FERC Form 715 Criteria Violation – Seven (7) existing 40 kA Whippany 34.5 kV breakers (X76, B37 (O769), D4, F6, P142, 320BY77 and A157) are overdutied
  - Contingency: N/A
  - Criteria test: Short Circuit
- Overview of Reliability Solution
  - Description of Upgrade: Replace seven (7) overdutied 34.5 kV breakers with 50 kA rated equipment at the Whippany substation
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 8.67 M
  - Construction Responsibility: JCPL
- Cost Allocation
  - The cost for this baseline upgrade is allocated 100% to JCPL

Baseline Upgrade b3239

- Overview of Reliability Problem
  - Criteria Violation: FERC Form 715 Criteria Violation - Fourteen (14) existing 40 kA Freneau 34.5 kV breakers (M139A, M139B, C211, B29, V100, W101, Z104, O15, S45, F32, E31, BK1A, BK1B, BK2A and BK2B) are overdutied
  - Contingency: N/A
  - Criteria test: Short Circuit
- Overview of Reliability Solution
  - Description of Upgrade: Replace fourteen (14) overdutied 34.5 kV breakers with 63 kA rated equipment
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 5.70 M
  - Construction Responsibility: JCPL
- Cost Allocation
  - The cost for this baseline upgrade is allocated 100% to JCPL

Baseline Upgrade b3240

- Overview of Reliability Problem
  - Criteria Violation: Thermal violation on the Cherry Run – Morgan 138 kV line
  - Contingency: Stuck breaker of the BDL3 or BDL4 500 kV breakers at Bedington substation
  - Criteria test: Winter Generator Deliverability
- Overview of Reliability Solution
  - Description of Upgrade: Upgrade Cherry Run and Morgan terminals to make the transmission line the limiting component
  - Required Upgrade In-Service Date: December 01, 2025
  - Estimated Upgrade Cost: $ 0.23 M
  - Construction Responsibility: APS
- Cost Allocation
  - The cost for this baseline upgrade is allocated 100% to APS

Baseline Upgrade b3241

- Overview of Reliability Problem
  - Criteria Violation: Low voltage violation at multiple substations
  - Contingency: Bus contingency at Junction 138 kV substation
  - Criteria test: N-1 and N-1-1 Summer Voltage Magnitude/Drop; APS Form 715 Criteria: Voltage Magnitude/Drop
- Overview of Reliability Solution
  - Description of Upgrade: Install 138 kV, 36 MVAR capacitor and a 5 uF reactor protected by a 138 kV capacitor switcher. Install a breaker on the 138 kV Junction terminal. Install a 138 kV 3.5 uF reactor on the existing Hardy 138 kV capacitor
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 2.85 M
  - Construction Responsibility: APS
- Cost Allocation
  - The cost for this baseline upgrade is allocated 100% to APS

Baseline Upgrade b3242

- Overview of Reliability Problem
  - Criteria Violation: Low voltage violation at multiple 138 kV substations
  - Contingency: N-1-1 contingency on the Bartonville – Meadowbrook and Feagans Mill - Millville 138 kV lines
  - Criteria test: N-1-1 Summer Voltage Magnitude; APS Form 715 Criteria: Voltage Magnitude/Drop
- Overview of Reliability Solution
  - Description of Upgrade: Reconfigure Stonewall 138 kV substation from its current configuration to a six-breaker, breaker-and-a-half layout and add two (2) 36 MVAR capacitors with capacitor switchers
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 13.30 M
  - Construction Responsibility: APS
- Cost Allocation
  - The driver for this upgrade is less than 200 kV. The cost for this baseline upgrade is allocated 100% to APS

Baseline Upgrade b3243

- Overview of Reliability Problem
  - Criteria Violation: FERC Form 715 Criteria Violation - Overload of the Bass – Spy Run1 34.5 kV line
  - Contingency: Multiple N-1-1 contingencies
  - Criteria test: AEP FERC Form 715 Criteria
- Overview of Reliability Solution
  - Description of Upgrade: Replace risers at the Bass 34.5 kV station
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 0.10 M
  - Construction Responsibility: AEP

- Cost Allocation
  - The cost for this baseline upgrade is allocated 100% to AEP

Baseline Upgrade b3244

- Overview of Reliability Problem
  - Criteria Violation: FERC Form 715 Criteria Violation - Overload of the Harlan – Robinson Park 69 kV line
  - Contingency: N-1-1 contingency pair of the loss of Sowers – South Hicksville – Lockwood 138 kV line with South Hicksville 138/69 kV transformer and the loss of the Auburn – Joist – Butler 69 kV line
  - Criteria test: AEP FERC Form 715 Criteria
- Overview of Reliability Solution
  - Description of Upgrade: Rebuild approximately 9 miles of the Robinson Park – Harlan 69 kV line
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 20.90 M
  - Construction Responsibility: AEP
- Cost Allocation
  - The driver for this upgrade is less than 200 kV. The cost for this baseline upgrade is allocated 100% to AEP

Baseline Upgrade b3245

- Overview of Reliability Problem
  - Criteria Violation: Post contingency voltage drop violation on the Williams 115 kV substation
  - Contingency: Line fault stuck breaker contingency loss of the Williams – Tiffany – Laurel Lake – Westover 115 kV circuit
  - Criteria test: Winter Baseline Voltage Drop
- Overview of Reliability Solution
  - Description of Upgrade: Construct a new breaker-and-a-half substation near Tiffany substation. All transmission assets and lines will be relocated to the new substation. The two (2) distribution transformers will be fed via two (2) dedicated 115 kV feeds to the existing Tiffany substation
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 23.20 M
  - Construction Responsibility: PENELEC
- Cost Allocation
  - The driver for this upgrade is less than 200 kV. The cost for this baseline upgrade is allocated 100% to PENELEC

Baseline Upgrade b3246.1

- Overview of Reliability Problem
  - Criteria Violation: Multiple load drop violations in the Manassas area greater than 300 MW
  - Contingency: Multiple
  - Criteria test: N-1-1 Load Drop
- Overview of Reliability Solution
  - Description of Upgrade: Convert 115 kV Line #172 Liberty – Lomar and 115 kV Line #197 Cannon Branch – Lomar to 230 kV to provide a new 230 kV source between Cannon Branch and Liberty. The majority of 115 kV Line #172 Liberty – Lomar and Line #197 Cannon Branch – Lomar is adequate for 230 kV operation. Rebuild 0.36 mile segment between the Lomar and Cannon Branch junction. Lines will have a summer rating of 1047MVA/1047MVA (SN/SE)
  - Required Upgrade In-Service Date: June 01, 2023
  - Estimated Upgrade Cost: $ 10.00 M
  - Construction Responsibility: Dominion
- Cost Allocation
  - Baseline upgrades b3246.1 through b3246.5 constitute a single reliability project. Only Dominion zone has greater than 1% distribution factor. The cost for this baseline upgrade is allocated 100% to Dominion

Baseline Upgrade b3246.2

- Overview of Reliability Problem
  - Criteria Violation: Multiple load drop violations in the Manassas area greater than 300 MW
  - Contingency: Multiple
  - Criteria test: N-1-1 Load Drop
- Overview of Reliability Solution
  - Description of Upgrade: Perform substation work for the 115 kV to 230 kV line conversion at Liberty, Wellington, Godwin, Pioneer, Sandlot and Cannon Branch
  - Required Upgrade In-Service Date: June 01, 2023
  - Estimated Upgrade Cost: $ 21.00 M
  - Construction Responsibility: Dominion
- Cost Allocation
  - Baseline upgrades b3246.1 through b3246.5 constitute a single reliability project. Only Dominion zone has greater than 1% distribution factor. The cost for this baseline upgrade is allocated 100% to Dominion

Baseline Upgrade b3246.3

- Overview of Reliability Problem
  - Criteria Violation: Multiple load drop violations in the Manassas area greater than 300 MW
  - Contingency: Multiple
  - Criteria test: N-1-1 Load Drop
- Overview of Reliability Solution
  - Description of Upgrade: Extend 230 kV Line #2011 Cannon Branch – Clifton to Winters Branch by removing the existing Line #2011 termination at Cannon Branch and extending the line to Brickyard creating 230 kV Line #2011 Brickyard - Clifton. Extend a new 230 kV line between Brickyard and Winters Branch with a summer rating of 1572MVA/1572MVA (SN/SE)
  - Required Upgrade In-Service Date: June 01, 2023
  - Estimated Upgrade Cost: $ 10.00 M
  - Construction Responsibility: Dominion
- Cost Allocation
  - Baseline upgrades b3246.1 through b3246.5 constitute a single reliability project. Only Dominion zone has greater than 1% distribution factor. The cost for this baseline upgrade is allocated 100% to Dominion

Baseline Upgrade b3246.4

- Overview of Reliability Problem
  - Criteria Violation: Multiple load drop violations in the Manassas area greater than 300 MW
  - Contingency: Multiple
  - Criteria test: N-1-1 Load Drop
- Overview of Reliability Solution
  - Description of Upgrade: Perform substation work at Cannon Branch, Brickyard and Winters Branch for the 230 kV Line #2011 Cannon Branch – Clifton extension
  - Required Upgrade In-Service Date: June 01, 2023
  - Estimated Upgrade Cost: $ 4.00 M
  - Construction Responsibility: Dominion
- Cost Allocation
  - Baseline upgrades b3246.1 through b3246.5 constitute a single reliability project. Only Dominion zone has greater than 1% distribution factor. The cost for this baseline upgrade is allocated 100% to Dominion

Baseline Upgrade b3246.5

- Overview of Reliability Problem
  - Criteria Violation: Multiple load drop violations in the Manassas area greater than 300 MW
  - Contingency: Multiple
  - Criteria test: N-1-1 Load Drop
- Overview of Reliability Solution
  - Description of Upgrade: Replace the Gainesville 230 kV 40 kA breaker “216192” with a 50 kA breaker
  - Required Upgrade In-Service Date: June 01, 2023
  - Estimated Upgrade Cost: $ 0.50 M
  - Construction Responsibility: Dominion
- Cost Allocation
  - Baseline upgrades b3246.1 through b3246.5 constitute a single reliability project. Only Dominion zone has greater than 1% distribution factor. The cost for this baseline upgrade is allocated 100% to Dominion

Baseline Upgrade b3248

- Overview of Reliability Problem
  - Criteria Violation: FERC Form 715 Criteria Violation - Voltage drop violation at Wolf Lake, Albion, Philips, Brimfield, North Kendallville and Kendallville 69 kV buses
  - Contingency: Multiple N-1-1 contingency pairs
  - Criteria test: AEP FERC Form 715 Criteria
- Overview of Reliability Solution
  - Description of Upgrade: Install a low side 69 kV circuit breaker at the Albion 138/69 kV transformer #1
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 0.40 M
  - Construction Responsibility: AEP
- Cost Allocation
  - The cost for this baseline upgrade is allocated 100% to AEP

Baseline Upgrade b3253

- Overview of Reliability Problem
  - Criteria Violation: FERC Form 715 Criteria Violation - Voltage magnitude and voltage drop violations at Mill Street, Sugar Hill, Friendship, Central Portsmouth, Cornerstone Station, Ruhlman, Rosemount, Sciotoville, Millbrook Park, Oertels Corners, Siloam, South Shore 69 kV buses and South Lucasville 138 kV bus
  - Contingency: Multiple N-1-1 contingency pairs
  - Criteria test: AEP FERC Form 715 Criteria
- Overview of Reliability Solution
  - Description of Upgrade: Install a 3000A 40 kA 138 kV breaker on the high side of 138/69 kV transformer #5 at the Millbrook Park station. The transformer and associated bus protection will be upgraded accordingly
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 0.63 M
  - Construction Responsibility: AEP
- Cost Allocation
  - The cost for this baseline upgrade is allocated 100% to AEP

Baseline Upgrade b3255

- Overview of Reliability Problem
  - Criteria Violation: FERC Form 715 Criteria Violation - The Sand Hill – Cricket 138 kV line cannot be dispatched below normal rating after the loss of Sand Hill – Warton Hill #1 138 kV line in N-1-1 test
  - Contingency: Loss of the Sand Hill – Warton Hill #1 138 kV line
  - Criteria test: AEP FERC Form 715 Criteria
- Overview of Reliability Solution
  - Description of Upgrade: Upgrade 795 AAC risers at the Sand Hill 138 kV station towards Cricket Switch with 1272 AAC
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 0.04 M
  - Construction Responsibility: AEP
- Cost Allocation
  - The cost for this baseline upgrade is allocated 100% to AEP

Baseline Upgrade b3256

- Overview of Reliability Problem
  - Criteria Violation: FERC Form 715 Criteria Violation - One of the Tidd – Wheeling Steel 138 kV lines #1 and #2 cannot be dispatched below normal rating after the loss of the other line in N-1-1 test
  - Contingency: Loss of the Tidd – Wheeling Steel 138 kV lines #1 or #2
  - Criteria test: AEP FERC Form 715 Criteria
- Overview of Reliability Solution
  - Description of Upgrade: Upgrade 500 MCM Cu risers at Tidd 138 kV station towards Wheeling Steel; replace with 1272 AAC conductor
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 0.07 M
  - Construction Responsibility: AEP
- Cost Allocation
  - The cost for this baseline upgrade is allocated 100% to AEP

Baseline Upgrade b3257

- Overview of Reliability Problem
  - Criteria Violation: FERC Form 715 Criteria Violation - Overload of the Twin Branch 1 – Twin Branch 2 34.5 kV circuit
  - Contingency: Multiple N-1 contingencies and N-1-1 contingency pairs
  - Criteria test: AEP FERC Form 715 Criteria
- Overview of Reliability Solution
  - Description of Upgrade: Replace two spans of 336.4 26/7 ACSR on the Twin Branch – AM General #2 34.5 kV circuit
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 0.14 M
  - Construction Responsibility: AEP
- Cost Allocation
  - The cost for this baseline upgrade is allocated 100% to AEP

Baseline Upgrade b3258

- Overview of Reliability Problem
  - Criteria Violation: FERC Form 715 Criteria Violation - Overload of the Easton – North Canton 69 kV line and voltage drop violations at Belden Village and Wayview 69 kV buses
  - Contingency: N-1-1 contingency pair of the loss of West Canton – Promway – Wayview 138 kV line and the loss of Wagnenhals 138/69/23 kV transformer and the Canton Center – Wagenhals – June Road 138 kV line, LTV Steel – Wagenhals – North East Canton 138 KV line and West Louisville – Georgetown 69 kV line
  - Criteria test: AEP FERC Form 715 Criteria
- Overview of Reliability Solution
  - Description of Upgrade: Install a 3000A 63 kA 138 kV breaker on the high side of 138/69 kV transformer #2 at Wagenhals station. The transformer and associated bus protection will be upgraded accordingly
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 1.10 M
  - Construction Responsibility: AEP
- Cost Allocation
  - The cost for this baseline upgrade is allocated 100% to AEP

Baseline Upgrade b3259

- Overview of Reliability Problem
  - Criteria Violation: FERC Form 715 Criteria Violation - Voltage drop violations at BILLIAR, North Fredericksburg, Shreve, Big Prairie, PAINTVSS, Drake Valley and LOUDNVL 69 kV buses
  - Contingency: Fault on the South Millersburg - West Millersburg – Wooster – East Wooster 138 kV line with stuck breaker at Wooster 138 kV bus
  - Criteria test: AEP FERC Form 715 Criteria
- Overview of Reliability Solution
  - Description of Upgrade: At West Millersburg station, replace the 138 kV MOAB on the West Millersburg – Wooster 138 kV line with a 3000A 40 kA breaker
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 0.68 M
  - Construction Responsibility: AEP
- Cost Allocation
  - The cost for this baseline upgrade is allocated 100% to AEP

Baseline Upgrade b3265

- Overview of Reliability Problem
  - Criteria Violation: FERC Form 715 Criteria Violation - The Arsenal – Riazzi (Z-101) 138 kV line exceeds its normal rating as a result of a N-2 failure of underground cables (Z-47 and Z-48) in a common trench
  - Contingency: N-2 failure of underground cables (Z-47 and Z-48) in a common trench
  - Criteria test: TO Form 715 Criteria
- Overview of Reliability Solution
  - Description of Upgrade: Implement slow circulation on existing underground 138 kV high pressure fluid filled (HPFF) cable between the Arsenal and Riazzi substations
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 2.40 M
  - Construction Responsibility: DL
- Cost Allocation
  - The cost for this baseline upgrade is allocated 100% to DL

Baseline Upgrade b3266

- Overview of Reliability Problem
  - Criteria Violation: FERC Form 715 Criteria Violation - The Clay Village – Clay Village T - 69 KV line section is overloaded
  - Contingency: Loss of the Ghent - Owen County Tap 138 kV line
  - Criteria test: EKPC 715 Criteria
- Overview of Reliability Solution
  - Description of Upgrade: Upgrade the metering CT associated with the Clay Village – Clay Village T 69 kV line section to increase the line ratings
  - Required Upgrade In-Service Date: December 01, 2021
  - Estimated Upgrade Cost: $ 0.03 M
  - Construction Responsibility: EKPC
- Cost Allocation
  - The cost for this baseline upgrade is allocated 100% to EKPC

Baseline Upgrade b3267

- Overview of Reliability Problem
  - Criteria Violation: FERC Form 715 Criteria Violation - Low voltage at the Brodhead 69 kV distribution substation
  - Contingency: Loss of the Brodhead – Three Link 69 kV line
  - Criteria test: EKPC 715 Criteria
- Overview of Reliability Solution
  - Description of Upgrade: Rebuild the 4/0 ACSR Norwood – Shopville 69 kV line section using 556 ACSR/TW
  - Required Upgrade In-Service Date: December 01, 2021
  - Estimated Upgrade Cost: $ 3.79 M
  - Construction Responsibility: EKPC
- Cost Allocation
  - The cost for this baseline upgrade is allocated 100% to EKPC

Baseline Upgrade b3273.1

- Overview of Reliability Problem
  - Criteria Violation: FERC Form 715 Criteria Violation - The East Ottawa – Leipsic – Deshler Tap 69 kV line, East Leipsic – North Leipsic 69 kV line, East Leipsic 138/69 kV transformer, Cairo – East Lima 69 kV line, and McComb OP – New Liberty 34.5 kV line are overloaded
  - Contingency: A tower contingency and multiple N-1-1 contingency pairs
  - Criteria test: AEP FERC Form 715 Criteria
- Overview of Reliability Solution
  - Description of Upgrade: Rebuild and convert the existing 17.6 miles East Leipsic – New Liberty 34.5 kV circuit to 138 kV using 795 ACSR
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 31.35 M
  - Construction Responsibility: AEP
- Cost Allocation
  - Baseline upgrades b3273.1 through b3273.4 constitute a single reliability project. No transmission zone has greater than 1% distribution factor. The cost for this baseline upgrade is allocated 100% to AEP

Baseline Upgrade b3273.2

- Overview of Reliability Problem
  - Criteria Violation: FERC Form 715 Criteria Violation - The East Ottawa – Leipsic – Deshler Tap 69 kV line, East Leipsic – North Leipsic 69 kV line, East Leipsic 138/69 kV transformer, Cairo – East Lima 69 kV line, and McComb OP – New Liberty 34.5 kV line are overloaded
  - Contingency: A tower contingency and multiple N-1-1 contingency pairs
  - Criteria test: AEP FERC Form 715 Criteria
- Overview of Reliability Solution
  - Description of Upgrade: Convert the existing 34.5 kV equipment to 138 kV and expand the existing McComb station to the north and east to allow for new equipment to be installed. Install two (2) new 138 kV box bays to allow for line positions and two (2) new 138/12 kV transformers
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 0.87 M
  - Construction Responsibility: AEP
- Cost Allocation
  - Baseline upgrades b3273.1 through b3273.4 constitute a single reliability project. No transmission zone has greater than 1% distribution factor. The cost for this baseline upgrade is allocated 100% to AEP

Baseline Upgrade b3273.3

- Overview of Reliability Problem
  - Criteria Violation: FERC Form 715 Criteria Violation - The East Ottawa – Leipsic – Deshler Tap 69 kV line, East Leipsic – North Leipsic 69 kV line, East Leipsic 138/69 kV transformer, Cairo – East Lima 69 kV line, and McComb OP – New Liberty 34.5 kV line are overloaded
  - Contingency: A tower contingency and multiple N-1-1 contingency pairs
  - Criteria test: AEP FERC Form 715 Criteria
- Overview of Reliability Solution
  - Description of Upgrade: Expand the existing East Leipsic 138 kV station to the north to allow for another 138 kV line exit to be installed. The new line exit will involve installing a new 138 kV circuit breaker, disconnect switches and the addition of a new dead end structure along with the extension of the existing 138 kV bus work
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 1.30 M
  - Construction Responsibility: AEP
- Cost Allocation
  - Baseline upgrades b3273.1 through b3273.4 constitute a single reliability project. No transmission zone has greater than 1% distribution factor. The cost for this baseline upgrade is allocated 100% to AEP

Baseline Upgrade b3273.4

- Overview of Reliability Problem
  - Criteria Violation: FERC Form 715 Criteria Violation - The East Ottawa – Leipsic – Deshler Tap 69 kV line, East Leipsic – North Leipsic 69 kV line, East Leipsic 138/69 kV transformer, Cairo – East Lima 69 kV line, and McComb OP – New Liberty 34.5 kV line are overloaded
  - Contingency: A tower contingency and multiple N-1-1 contingency pairs
  - Criteria test: AEP FERC FORM 715 Criteria
- Overview of Reliability Solution
  - Description of Upgrade: Add one (1) 138 kV circuit breaker and disconnect switches in order to add an additional line position at New Liberty 138 kV station. Install line relaying potential devices and retire the 34.5 kV breaker 'F'
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 0.90 M
  - Construction Responsibility: AEP
- Cost Allocation
  - Baseline upgrades b3273.1 through b3273.4 constitute a single reliability project. No transmission zone has greater than 1% distribution factor. The cost for this baseline upgrade is allocated 100% to AEP

Baseline Upgrade b3274

- Overview of Reliability Problem
  - Criteria Violation: FERC Form 715 Criteria Violation - The West Newcomerstown – Kimbolton – Salt Fork 69 kV line are overloaded
  - Contingency: N-1-1 contingency pair of the loss of the West Cambridge – East New Concord – PHILO 138 kV line, West Cambridge 138/69 kV transformer and West Cambridge – Cassell JSS 69 kV line, and the loss of the West Byesville – Derwent 69 kV line
  - Criteria test: AEP FERC Form 715 Criteria
- Overview of Reliability Solution
  - Description of Upgrade: Rebuild approximately 8.9 miles of 69 kV line between Newcomerstown and Salt Fork Switch with 556 ACSR conductor
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 15.89 M
  - Construction Responsibility: AEP
- Cost Allocation
  - No transmission zone has greater than 1% distribution factor. The cost for this baseline upgrade is allocated 100% to AEP

Baseline Upgrade b3275.1

- Overview of Reliability Problem
  - Criteria Violation: FERC Form 715 Criteria Violation - The Conner RN – Columbia – Natrium 69 kV line and Kammer – Cresaps – McElroy 69 kV line are overloaded
  - Contingency: A tower contingency and multiple N-1-1 contingency pairs
  - Criteria test: AEP FERC Form 715 Criteria
- Overview of Reliability Solution
  - Description of Upgrade: Rebuild the Kammer Station – Cresaps Switch 69 kV line, approximately 0.5 mile
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 0.93 M
  - Construction Responsibility: AEP
- Cost Allocation
  - The cost for this baseline upgrade is allocated 100% to AEP

Baseline Upgrade b3275.2

- Overview of Reliability Problem
  - Criteria Violation: FERC Form 715 Criteria Violation - The Conner RN – Columbia – Natrium 69 kV line and Kammer – Cresaps – McElroy 69 kV line are overloaded
  - Contingency: A tower contingency and multiple N-1-1 contingency pairs.
  - Criteria test: AEP FERC Form 715 Criteria
- Overview of Reliability Solution
  - Description of Upgrade: Rebuild the Cresaps Switch – McElroy Station 69 kV, approximately 0.67 mile
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 1.25 M
  - Construction Responsibility: AEP
- Cost Allocation
  - The cost for this baseline upgrade is allocated 100% to AEP

Baseline Upgrade b3275.3

- Overview of Reliability Problem
  - Criteria Violation: FERC Form 715 Criteria Violation - The Conner RN – Columbia – Natrium 69 kV line and Kammer – Cresaps – McElroy 69 kV line are overloaded
  - Contingency: A tower contingency and multiple N-1-1 contingency pairs.
  - Criteria test: AEP FERC Form 715 Criteria
- Overview of Reliability Solution
  - Description of Upgrade: Replace a single span of 4/0 ACSR from Moundsville - Natrium structure 93L to Carbon Tap switch 69 kV located between the Colombia Carbon and Conner Run stations. Remainder of the line is 336 ACSR
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 0.01 M
  - Construction Responsibility: AEP
- Cost Allocation
  - The cost for this baseline upgrade is allocated 100% to AEP

Baseline Upgrade b3275.4

- Overview of Reliability Problem
  - Criteria Violation: FERC Form 715 Criteria Violation - The Conner RN – Columbia – Natrium 69 kV line and Kammer – Cresaps – McElroy 69 kV line are overloaded
  - Contingency: A tower contingency and multiple N-1-1 contingency pairs.
  - Criteria test: AEP FERC Form 715 Criteria
- Overview of Reliability Solution
  - Description of Upgrade: Rebuild from Colombia Carbon to Columbia Carbon Tap structure 93N 69 kV, approximately 0.72 mile. The remainder of the line between Colombia Carbon Tap structure 93N and Natrium station is 336 ACSR and will remain
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 1.08 M
  - Construction Responsibility: AEP
- Cost Allocation
  - The cost for this baseline upgrade is allocated 100% to AEP

Baseline Upgrade b3275.5

- Overview of Reliability Problem
  - Criteria Violation: FERC Form 715 Criteria Violation - The Conner RN – Columbia – Natrium 69 kV line and Kammer – Cresaps – McElroy 69 kV line are overloaded
  - Contingency: A tower contingency and multiple N-1-1 contingency pairs.
  - Criteria test: AEP FERC Form 715 Criteria
- Overview of Reliability Solution
  - Description of Upgrade: Replace the Cresaps 69 kV 3-Way Phase-Over-Phase switch and structure with a new 1200A 3-Way switch and steel pole
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 0.71 M
  - Construction Responsibility: AEP
- Cost Allocation
  - The cost for this baseline upgrade is allocated 100% to AEP

Baseline Upgrade b3275.6

- Overview of Reliability Problem
  - Criteria Violation: FERC Form 715 Criteria Violation - The Conner RN – Columbia – Natrium 69 kV line and Kammer – Cresaps – McElroy 69 kV line are overloaded
  - Contingency: A tower contingency and multiple N-1-1 contingency pairs.
  - Criteria test: AEP FERC Form 715 Criteria
- Overview of Reliability Solution
  - Description of Upgrade: Replace 477 MCM Alum bus and risers at McElroy 69 kV station
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 0.33 M
  - Construction Responsibility: AEP
- Cost Allocation
  - The cost for this baseline upgrade is allocated 100% to AEP

Baseline Upgrade b3275.7

- Overview of Reliability Problem
  - Criteria Violation: FERC Form 715 Criteria Violation - The Conner RN – Columbia – Natrium 69 kV line and Kammer – Cresaps – McElroy 69 kV line are overloaded
  - Contingency: A tower contingency and multiple N-1-1 contingency pairs.
  - Criteria test: AEP FERC Form 715 Criteria
- Overview of Reliability Solution
  - Description of Upgrade: Replace Natrium 138 kV bus existing between CB-BT1 and along the 138 kV Main Bus # 1 dropping to CBH1 from the 500 MCM conductors to a 1272 KCM AAC conductor. Replace the dead end clamp and strain insulators
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 0.29 M
  - Construction Responsibility: AEP
- Cost Allocation
  - The cost for this baseline upgrade is allocated 100% to AEP

Baseline Upgrade b3276.1

- Overview of Reliability Problem
  - Criteria Violation: FERC Form 715 Criteria Violation - The East Lancaster – Lancaster 69 kV line and Lancaster – South Lancaster 69 kV line, Ralston – Lancaster Junction 69 kV line are overloaded
  - Contingency: Multiple N-1-1 contingency pairs
  - Criteria test: AEP FERC Form 715 Criteria
- Overview of Reliability Solution
  - Description of Upgrade: Rebuild the 2/0 Copper section of the Lancaster – South Lancaster 69 kV line, approximately 2.9 miles of the 3.2 miles total length with 556 ACSR conductor. The remaining section has a 336 ACSR conductor
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 5.37 M
  - Construction Responsibility: AEP
- Cost Allocation
  - Baseline upgrades b3276.1, b3276.2 and b3276.3 constitute a single reliability project. No transmission zone has greater than 1% distribution factor. The cost for this baseline upgrade is allocated 100% to AEP

Baseline Upgrade b3276.2

- Overview of Reliability Problem
  - Criteria Violation: FERC Form 715 Criteria Violation - The East Lancaster – Lancaster 69 kV line and Lancaster – South Lancaster 69 kV line, Ralston – Lancaster Junction 69 kV line are overloaded
  - Contingency: Multiple N-1-1 contingency pairs
  - Criteria test: AEP FERC Form 715 Criteria
- Overview of Reliability Solution
  - Description of Upgrade: Rebuild the 1/0 Copper section of the line between Lancaster Junction and Ralston station 69 kV, approximately 2.3 miles of the 3.1 miles total length
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 4.58 M
  - Construction Responsibility: AEP
- Cost Allocation
  - Baseline upgrades b3276.1, b3276.2 and b3276.3 constitute a single reliability project. No transmission zone has greater than 1% distribution factor. The cost for this baseline upgrade is allocated 100% to AEP

Baseline Upgrade b3276.3

- Overview of Reliability Problem
  - Criteria Violation: FERC Form 715 Criteria Violation - The East Lancaster – Lancaster 69 kV line and Lancaster – South Lancaster 69 kV line, Ralston – Lancaster Junction 69 kV line are overloaded
  - Contingency: Multiple N-1-1 contingency pairs
  - Criteria test: AEP FERC Form 715 Criteria
- Overview of Reliability Solution
  - Description of Upgrade: Rebuild the 2/0 Copper portion of the line between East Lancaster Tap and Lancaster 69 kV, approximately 0.81 mile
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 1.20 M
  - Construction Responsibility: AEP
- Cost Allocation
  - Baseline upgrades b3276.1, b3276.2 and b3276.3 constitute a single reliability project. No transmission zone has greater than 1% distribution factor. The cost for this baseline upgrade is allocated 100% to AEP

Baseline Upgrade b3277

- Overview of Reliability Problem
  - Criteria Violation: Breaker Over Duty
  - Contingency: N/A
  - Criteria test: Short Circuit

- Overview of Reliability Solution
  - Description of Upgrade: Replace the existing East Akron 138 kV breaker 'B-22' with 3000A continuous, 40 kA momentary current interrupting rating circuit breaker
  - Required Upgrade In-Service Date: June 01, 2021
  - Estimated Upgrade Cost: $ 0.55 M
  - Construction Responsibility: ATSI
- Cost Allocation
  - The cost for this baseline upgrade is allocated 100% to ATSI

Baseline Upgrade b3300

- Overview of Reliability Problem
  - Criteria Violation: Overload of 230 kV Line #2172
  - Contingency: Multiple contingencies
  - Criteria test: N-1 thermal, Generation Deliverability, N-1-1 thermal, TO Criteria

- Overview of Reliability Solution
  - Description of Upgrade: Reconductor 230 kV Line #2172 from Brambleton to Evergreen Mills along with upgrading the line leads at Brambleton to achieve a summer emergency rating of 1574 MVA
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 2.32 M
  - Construction Responsibility: Dominion
- Cost Allocation
  - The cost for this baseline upgrade is allocated 100% to Dominion

Baseline Upgrade b3301

- Overview of Reliability Problem
  - Criteria Violation: Overload of 230 kV Line #2210
  - Contingency: Multiple contingencies
  - Criteria test: N-1 thermal, Generation Deliverability, N-1-1 thermal, TO Criteria

- Overview of Reliability Solution
  - Description of Upgrade: Reconductor 230 kV Line #2210 from Brambleton to Evergreen Mills along with upgrading the line leads at Brambleton to achieve a summer emergency rating of 1574 MVA
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 2.26 M
  - Construction Responsibility: Dominion
- Cost Allocation
  - The cost for this baseline upgrade is allocated 100% to Dominion

Baseline Upgrade b3302

- Overview of Reliability Problem
  - Criteria Violation: Overload of 230 kV Line #2213
  - Contingency: Loss of 230 kV Line #227 and 230 kV Line #274
  - Criteria test: N-1-1 thermal summer

- Overview of Reliability Solution
  - Description of Upgrade: Reconductor 230 kV Line #2213 from Cabin Run to Yardley Ridge along with upgrading the line leads at Yardley to achieve a summer emergency rating of 1574 MVA
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 1.75 M
  - Construction Responsibility: Dominion
- Cost Allocation
  - The cost for this baseline upgrade is allocated 100% to Dominion

Baseline Upgrade b3303.1

- Overview of Reliability Problem
  - Criteria Violation: 300 MW load loss
  - Contingency: Loss of 230 kV Line #2149 and 230 kV Line #9167
  - Criteria test: N-1-1 300 MW load loss summer and winter

- Overview of Reliability Solution
  - Description of Upgrade: Extend a new single circuit 230 kV Line #9250 from Farmwell substation to Nimbus substation
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 5.65 M
  - Construction Responsibility: Dominion
- Cost Allocation
  - Baseline upgrades b3303.1 and b3303.2 constitute a single reliability project. No transmission zone has greater than 1% distribution factor. The cost for this baseline upgrade is allocated 100% to Dominion

Baseline Upgrade b3303.2

- Overview of Reliability Problem
  - Criteria Violation: 300 MW load loss
  - Contingency: Loss of 230 kV Line #2149 and 230 kV Line #9167
  - Criteria test: N-1-1 300 MW load loss summer and winter

- Overview of Reliability Solution
  - Description of Upgrade: Remove Beaumeade 230 kV Line #2152 line switch
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 0.05 M
  - Construction Responsibility: Dominion

- Cost Allocation
  - Baseline upgrades b3303.1 and b3303.2 constitute a single reliability project. No transmission zone has greater than 1% distribution factor. The cost for this baseline upgrade is allocated 100% to Dominion

Baseline Upgrade b3304

- Overview of Reliability Problem
  - Criteria Violation: 300 MW load loss
  - Contingency: Multiple
  - Criteria test: Common mode and N-1-1 300 MW load loss winter

- Overview of Reliability Solution
  - Description of Upgrade: Midlothian area improvements for 300 MW load drop relief
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 6.22 M
  - Construction Responsibility: Dominion

- Cost Allocation
  - Baseline upgrades b3304, b3304.1 through b3304.4 constitute a single reliability project. Only Dominion zone has greater than 1% distribution factor. The cost for this baseline upgrade is allocated 100% to Dominion

Baseline Upgrade b3304.1

- Overview of Reliability Problem
  - Criteria Violation: 300 MW load loss
  - Contingency: Multiple
  - Criteria test: Common mode & N-1-1 300 MW load loss winter

- Overview of Reliability Solution
  - Description of Upgrade: Cut 230 kV Line #2066 at Trabue junction
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: N/A
  - Construction Responsibility: Dominion

- Cost Allocation
  - Baseline upgrades b3304, b3304.1 through b3304.4 constitute a single reliability project. Only Dominion zone has greater than 1% distribution factor. The cost for this baseline upgrade is allocated 100% to Dominion

Baseline Upgrade b3304.2

- Overview of Reliability Problem
  - Criteria Violation: 300 MW load loss
  - Contingency: Multiple
  - Criteria test: Common mode & N-1-1 300 MW load loss winter

- Overview of Reliability Solution
  - Description of Upgrade: Reconductor idle 230 kV Line #242 (radial from Midlothian to Trabue junction) to allow a minimum summer rating of 1047 MVA and connect to the section of 230 kV Line #2066 between Trabue junction and Winterpock, re-number 230 kV Line #242 structures to Line #2066
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: N/A
  - Construction Responsibility: Dominion
- Cost Allocation
  - Baseline upgrades b3304, b3304.1 through b3304.4 constitute a single reliability project. Only Dominion zone has greater than 1% distribution factor. The cost for this baseline upgrade is allocated 100% to Dominion

Baseline Upgrade b3304.3

- Overview of Reliability Problem
  - Criteria Violation: 300 MW load loss
  - Contingency: Multiple
  - Criteria test: Common mode & N-1-1 300 MW load loss winter

- Overview of Reliability Solution
  - Description of Upgrade: Use the section of idle 115 kV Line #153, between Midlothian and Trabue junction to connect to the section of (former) 230 kV Line #2066 between Trabue junction and Trabue to create new Midlothian – Trabue lines with new line numbers #2218 and #2219
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: N/A
  - Construction Responsibility: Dominion
- Cost Allocation
  - Baseline upgrades b3304, b3304.1 through b3304.4 constitute a single reliability project. Only Dominion zone has greater than 1% distribution factor. The cost for this baseline upgrade is allocated 100% to Dominion

Baseline Upgrade b3304.4

- Overview of Reliability Problem
  - Criteria Violation: 300 MW load loss
  - Contingency: Multiple
  - Criteria test: Common mode & N-1-1 300 MW load loss winter

- Overview of Reliability Solution
  - Description of Upgrade: Create new line terminations at Midlothian for the new Midlothian – Trabue 230 kV lines
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: N/A
  - Construction Responsibility: Dominion
- Cost Allocation
  - Baseline upgrades b3304, b3304.1 through b3304.4 constitute a single reliability project. Only Dominion zone has greater than 1% distribution factor. The cost for this baseline upgrade is allocated 100% to Dominion

Baseline Upgrade b3305

- Overview of Reliability Problem
  - Criteria Violation: The Constitution to Concord 115 kV circuits #110567 and #110568 are overloaded
  - Contingency: Tower line outage loss of the Brandon Shore to Riverside 230 kV Line #2344 and #2345
  - Criteria test: Summer Generator Deliverability
- Overview of Reliability Solution
  - Description of Upgrade: Replace Pumphrey 230/115 kV transformer
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 4.69 M
  - Construction Responsibility: BGE

- Cost Allocation
  - The cost for this baseline upgrade is allocated 100% to BGE

Baseline Upgrade b3306

- Overview of Reliability Problem
  - Criteria Violation: Post contingency high voltage violation on the Pierce Brook 345 kV substation
  - Contingency: Loss of the Pierce Brook – Five Mile 345 kV circuit plus Pierce Brook shunt reactor, and Pierce Brook – Five Mile 345 kV circuit plus Lewis Run - Pierce Brook 230 kV circuits
  - Criteria test: Summer and Winter N-1-1
- Overview of Reliability Solution
  - Description of Upgrade: Install a second 125 MVAR 345 kV shunt reactor and associated equipment at Pierce Brook substation. Install a 345 kV breaker on the high side of the 345/230 kV transformer #1
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 8.08 M
  - Construction Responsibility: PENELEC
- Cost Allocation
  - The cost for this baseline upgrade is allocated 100% to PENELEC. The upgrade benefits load entirely within the zone. The distribution factor would be based on an interface entirely within the zone receiving the allocation. Therefore no distribution factor table is provided.

Baseline Upgrade b3312

- Overview of Reliability Problem
  - Criteria Violation: FERC Form 715 Criteria Violation - The West Mount Vernon 138/69 kV transformer, North Mount Vernon-Mount Vernon 69 kV line, South Mount Vernon-North Mount Vernon 69 kV line and West Mount Vernon-Pittsburg 69 kV line are overloaded
  - Contingency: Multiple N-1-1 contingency pairs
  - Criteria test: AEP FERC Form 715 Criteria
- Overview of Reliability Solution
  - Description of Upgrade: Rebuild approximately 4 miles of existing 69 kV line between West Mount Vernon and Mount Vernon stations. Replace the existing 138/69 kV transformer at West Mount Vernon with a larger 90 MVA unit along with existing 69 kV breaker 'C'
  - Required Upgrade In-Service Date: June 01, 2025
  - Estimated Upgrade Cost: $ 12.93 M
  - Construction Responsibility: AEP
- Cost Allocation
  - No transmission zone has greater than 1% distribution factor. The cost for this baseline upgrade is allocated 100% to AEP

Attachment B

Schedule 12 – Appendix A of the
PJM Open Access Transmission Tariff

(Marked / Redline Format)

SCHEDULE 12 – APPENDIX A

(1) Atlantic City Electric Company

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2123	Upgrade the 69 kV bus at Laurel		AEC (100%)
b2226	Upgrade the Tackahoe to Mill 69 kV circuit		AEC (100%)
b2227	50 MVAR shunt reactor at Mickleton 230 kV and relocate Mickleton #1 230 69 kV transformer		AEC (100%)
b2228	+150/-100 MVAR SVC at Cedar 230 kV		AEC (100%)
b2296	Replace the Mickleton 230kV breaker PCB U with 63kA breaker		AEC (100%)
b2297	Replace the Mickleton 230kV breaker PCB V with 63kA breaker		AEC (100%)
b2305	Rebuild and reconductor 1.2 miles of the US Silica to US Silica #1 69 kV circuit		AEC (100%)
b2306	Rebuild and reconductor 1.67 miles of the US Silica #1 to W1-089 TAP 69 kV circuit		AEC (100%)
b2351	Reconductor section A of Corson - Sea Isle - Swainton 69 kV line		AEC (100%)
b2353	Upgrade the overcurrent protective relaying at Middle T3 and T4 138/69 kV transformers		AEC (100%)
b2354	Install second 230/69 kV transformer and 230 kV circuit breaker at Churchtown substation		AEC (100%)

Atlantic City Electric Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2354.1	Replace Churchtown 69kV breaker 'D'		AEC (100%)
b2476	Install new Dennis 230/69 kV transformer		AEC (100%)
b2477	Upgrade 138 kV and 69 kV breakers at Corson substation		AEC (100%)
b2478	Reconductor 2.74 miles of Sherman - Lincoln 138 kV line and associated substation upgrades		AEC (100%)
b2479	New Orchard - Cardiff 230 kV line (remove, rebuild and reconfigure existing 138 kV line) and associated substation upgrades		AEC (100%)
b2480.1	New Upper Pittsgrove - Lewis 138 kV line and associated substation upgrades		AEC (100%)
b2480.2	Relocate Monroe to Deepwater Tap 138 kV to Landis 138 kV and associated substation upgrades		AEC (100%)
b2480.3	New Landis - Lewis 138 kV line and associated substation upgrades		AEC (100%)
b2481	New Cardiff - Lewis #2 138 kV line and associated substation upgrades		AEC (100%)
b2489	Install a 100 MVAR capacitor at BL England		AEC (100%)

Atlantic City Electric Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2538	Replace the Mickleton 230kV 'MK' breaker with 63kA breaker		AEC (100%)
b2553	Replace Middle T3 138/69 kV transformer with 225 MVA nameplate		AEC (100%)
b2723.1	Replace the Mickleton 69 kV 'PCB A' breaker with 63kA breaker		AEC (100%)
b2723.2	Replace the Mickleton 69 kV 'PCB B' breaker with 63kA breaker		AEC (100%)
b2723.3	Replace the Mickleton 69 kV 'PCB C' breaker with 63kA breaker		AEC (100%)
b2723.4	Replace the Mickleton 69 kV 'PCB Q' breaker with 63kA breaker		AEC (100%)
b2839	Replace the Sickler 69 kV 'H' breaker with 63kA breaker		AEC (100%)
b2840	Replace the Sickler 69 kV 'M' breaker with 63kA breaker		AEC (100%)
b2841	Replace the Sickler 69 kV 'A' breaker with 63kA breaker		AEC (100%)
b2945.1	Rebuild the BL England – Middle Tap 138 kV line to 2000A on double circuited steel poles and new foundations		AEC (100%)
b2945.2	Reconductor BL England – Merion 138 kV (1.9 miles) line		AEC (100%)
b2945.3	Reconductor Merion – Corson 138 kV (8 miles) line		AEC (100%)

Atlantic City Electric Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3135	Install back-up relay on the 138 kV bus at Corson substation		AEC (100%)
b3226	Add 10 MVAR 69 kV capacitor bank at Swainton substation		AEC (100%)
b3227	Rebuild the Corson – Court 69 kV line to achieve ratings equivalent to 795 ACSR conductor or better		AEC (100%)

SCHEDULE 12 – APPENDIX A

(2) Baltimore Gas and Electric Company

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2219	Install a 115 kV tie breaker at Wagner to create a separation from line 110535 and transformer 110-2		BGE (100%)
b2220	Install four 115 kV breakers at Chestnut Hill		BGE (100%)
b2221	Install an SPS to trip approximately 19 MW load at Green St. and Concord		BGE (100%)
b2307	Install a 230/115kV transformer at Raphael Rd and construct approximately 3 miles of 115kV line from Raphael Rd. to Joppatowne. Construct a 115kV three breaker ring at Joppatowne		BGE (100%)
b2308	Build approximately 3 miles of 115kV underground line from Bestgate tap to Waugh Chapel. Create two breaker bay at Waugh Chapel to accommodate the new underground circuit		BGE (100%)
b2396	Build a new Camp Small 115 kV station and install 30 MVAR capacitor		BGE (100%)

Baltimore Gas and Electric Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2396.1	Install a tie breaker at Mays Chapel 115 kV substation		BGE (100%)
b2567	Upgrade the Riverside 115kV substation strain bus conductors on circuits 115012 and 115011 with double bundled 1272 ACSR to achieve ratings of 491/577 MVA SN/SE on both transformer leads		BGE (100%)
b2568	Reconductor Northwest – Northwest #2 115kV 110574 substation tie circuit with 2167 ACSR to achieve ratings of 400/462 MVA SN/SE		BGE (100%)
b2752.6	Conastone 230 kV substation tie-in work (install a new circuit breaker at Conastone 230 kV and upgrade any required terminal equipment to terminate the new circuit)		AEP (6.46%) / APS (8.74%) / BGE (19.74%) / ComEd (2.16%) / Dayton (0.59%) / DEOK (1.02%) / DL (0.01%) / Dominion (39.95%) / EKPC (0.45%) / PEPCO (20.88%)
b2752.7	Reconductor/Rebuild the two Conastone – Northwest 230 kV lines and upgrade terminal equipment on both ends		AEP (6.46%) / APS (8.74%) / BGE (19.74%) / ComEd (2.16%) / Dayton (0.59%) / DEOK (1.02%) / DL (0.01%) / Dominion (39.95%) / EKPC (0.45%) / PEPCO (20.88%)
b2752.8	Replace the Conastone 230 kV ‘2322 B5’ breaker with a 63kA breaker		BGE (100%)

Baltimore Gas and Electric Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2752.9	Replace the Conastone 230 kV '2322 B6' breaker with a 63kA breaker		BGE (100%)
b2766.1	Upgrade substation equipment at Conastone 500 kV to increase facility rating to 2826 MVA normal and 3525 MVA emergency		**Load-Ratio Share Allocation:** AEC (*1.71%*) / AEP (*14.04%*) / APS (*5.61%*) / ATSI (*8.10%*) / BGE (*4.36%*) / ComEd (*13.14%*) / Dayton (*2.15%*) / DEOK (*3.23%*) / DL (*1.73%*) / DPL (*2.65%*) / Dominion (*13.03%*) / EKPC (*1.77%*) / JCPL (*3.84%*) / ME (*1.93%*) / NEPTUNE* (*0.45%*) / OVEC (*0.07%*) / PECO (*5.29%*) / PENELEC (*1.89%*) / PEPCO (*3.82%*) / PPL (*4.72%*) / PSEG (*6.21%*) / RE (*0.26%*)
			DFAX Allocation: AEC (*3.52%*) / *APS (9.95%)* / ATSI (*10.68%*) / BGE (*6.92%*) / DPL (*16.32%*) / JCPL (*11.32%*) / NEPTUNE* (*1.22%*) / *PENELEC (2.30%)* / PEPCO (*12.59%*) / PSEG (*24.22%*) / RE (*0.96%*)

*Neptune Regional Transmission System, LLC

Baltimore Gas and Electric Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2816	Re-connect the Crane – Windy Edge 110591 & 110592 115 kV circuits into the Northeast Substation with the addition of a new 115 kV 3-breaker bay		BGE (100%)
b2992.1	Reconductor the Conastone to Graceton 230 kV 2323 & 2324 circuits. Replace 7 disconnect switches at Conastone substation		AEP (2.25%) / APS (2.58%) / BGE (44.61%) / ComEd (0.51%) / Dayton (0.40%) / DEOK (1.39%) / DL (0.14%) / Dominion (27.05%) / EKPC (0.52%) / PENELEC (0.02%) / PEPCO (20.53%)
b2992.2	Add Bundle conductor on the Graceton – Bagley – Raphael Road 2305 & 2313 230 kV circuits		AEP (2.25%) / APS (2.58%) / BGE (44.61%) / ComEd (0.51%) / Dayton (0.40%) / DEOK (1.39%) / DL (0.14%) / Dominion (27.05%) / EKPC (0.52%) / PENELEC (0.02%) / PEPCO (20.53%)
b2992.3	Replacing short segment of substation conductor on the Windy Edge to Glenarm 110512 115 kV circuit		AEP (2.25%) / APS (2.58%) / BGE (44.61%) / ComEd (0.51%) / Dayton (0.40%) / DEOK (1.39%) / DL (0.14%) / Dominion (27.05%) / EKPC (0.52%) / PENELEC (0.02%) / PEPCO (20.53%)
b2992.4	Reconductor the Raphael Road – Northeast 2315 & 2337 230 kV circuits		AEP (2.25%) / APS (2.58%) / BGE (44.61%) / ComEd (0.51%) / Dayton (0.40%) / DEOK (1.39%) / DL (0.14%) / Dominion (27.05%) / EKPC (0.52%) / PENELEC (0.02%) / PEPCO (20.53%)
b3228	Replace two (2) relays at Center substation to increase ratings on the Westport to Center 110552 115 kV circuit		BGE (100%)
b3305	Replace Pumphrey 230/115 kV transformer		BGE (100%)

SCHEDULE 12 – APPENDIX A

(3) Delmarva Power & Light Company

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2288	Build a new 138 kV line from Piney Grove – Wattsville		DPL (100%)
b2395	Reconductor the Harmony – Chapel St 138 kV circuit		DPL (100%)
b2569	Replace Terminal equipment at Silverside 69 kV substation		DPL (100%)
b2633.7	Implement high speed relaying utilizing OPGW on Red Lion – Hope Creek 500 kV line		**Load-Ratio Share Allocation:** AEC (*1.71%*) / AEP (*14.04%*) / APS (*5.61%*) / ATSI (*8.10%*) / BGE (*4.36%*) / ComEd (*13.14%*) / Dayton (*2.15%*) / DEOK (*3.23%*) / DL (*1.73%*) / DPL (*2.65%*) / Dominion (*13.03%*) / EKPC (*1.77%*) / JCPL (*3.84%*) / ME (*1.93%*) / NEPTUNE* (*0.45%*) / OVEC (*0.07%*) / PECO (*5.29%*) / PENELEC (*1.89%*) / PEPCO (*3.82%*) / PPL (*4.72%*) / PSEG (*6.21%*) / RE (*0.26%*)
			DFAX Allocation: AEC (0.01%) / DPL (99.98%) / JCPL (0.01%)
b2633.10	Interconnect the new Silver Run 230 kV substation with existing Red Lion – Cartanza and Red Lion – Cedar Creek 230 kV lines		AEC (8.01%) / BGE (1.94%) / DPL (12.99%) / JCPL (13.85%) / ME (5.88%) / NEPTUNE* (3.45%) / PECO (17.62%) / PPL (14.85%) / PSEG (20.79%) / RE (0.62%)

*Neptune Regional Transmission System, LLC

Delmarva Power & Light Company (cont.)

Required Transmission Enhancements	Annual Revenue Requirement		Responsible Customer(s)
b2695	Rebuild Worcester – Ocean Pine 69 kV ckt. 1 to 1400A capability summer emergency		DPL (100%)
b2946	Convert existing Preston 69 kV substation to DPL's current design standard of a 3-breaker ring bus		DPL (100%)
b2947.1	Upgrade terminal equipment at DPL's Naamans substation (Darley - Naamans 69 kV)		DPL (100%)
b2947.2	Reconductor 0.11 mile section of Darley - Naamans 69 kV circuit		DPL (100%)
b2948	Upgrade terminal equipment at DPL's Silverside Road substation (Dupont Edge Moor – Silver R. 69 kV)		DPL (100%)
b2987	Install a 30 MVAR capacitor bank at DPL's Cool Springs 69 kV substation. The capacitor bank would be installed in two separate 15 MVAR stages allowing DPL operational flexibility		DPL (100%)
b3143.1	Reconductor the Silverside Road – Darley 69 kV circuit		DPL (100%)
b3143.2	Reconductor the Darley – Naamans 69 kV circuit		DPL (100%)
b3143.3	Replace three (3) existing 1200 A disconnect switches with 2000 A disconnect switches and install three (3) new 2000 A disconnect switches at Silverside 69 kV station		DPL (100%)

Delmarva Power & Light Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3143.4	Replace two (2) 1200 A disconnect switches with 2000 A disconnect switches. Replace existing 954 ACSR and 500 SDCU stranded bus with two (2) 954 ACSR stranded bus. Reconfigure four (4) CTs from 1200 A to 2000 A and install two (2) new 2000 A disconnect switches and two (2) new 954 ACSR stranded bus at Naamans 69 kV station		DPL (100%)
b3143.5	Replace four (4) 1200 A disconnect switches with 2000 A disconnect switches. Replace existing 954 ACSR and 1272 MCM AL stranded bus with two (2) 954 ACSR stranded bus. Reconfigure eight (8) CTs from 1200 A to 2000 A and install four (4) new 2000 A (310 MVA SE / 351 MVA WE) disconnect switches and two (2) new 954 ACSR (331 MVA SE / 369 MVA WE) stranded bus at Darley 69 kV station		DPL (100%)
b3155	Rebuild approx. 12 miles of Wye Mills – Stevensville line		DPL (100%)
b3224	Replace a disconnect switch and reconductor a short span of the Mt. Pleasant – Middletown tap 138 kV line		DPL (100%)

SCHEDULE 12 – APPENDIX A

(4) Jersey Central Power & Light Company

Required Transmission Enhancements	Annual Revenue Requirement		Responsible Customer(s)
b2234	260 MVAR reactor at West Wharton 230 kV		JCPL (100%)
b2270	Advance Raritan River - Replace G1047E breaker at the 230kV Substation		JCPL (100%)
b2271	Advance Raritan River - Replace G1047F breaker at the 230kV Substation		JCPL (100%)
b2272	Advance Raritan River - Replace T1034E breaker at the 230kV Substation		JCPL (100%)
b2273	Advance Raritan River - Replace T1034F breaker at the 230kV Substation		JCPL (100%)
b2274	Advance Raritan River - Replace I1023E breaker at the 230kV Substation		JCPL (100%)
b2275	Advance Raritan River - Replace I1023F breaker at the 230kV Substation		JCPL (100%)
b2289	Freneau Substation - upgrade 2.5 inch pipe to bundled 1590 ACSR conductor at the K1025 230 kV Line Terminal		JCPL (100%)
b2292	Replace the Whippany 230 kV breaker B1 (CAP) with 63kA breaker		JCPL (100%)
b2357	Replace the East Windsor 230 kV breaker 'E1' with 63kA breaker		JCPL (100%)

Jersey Central Power & Light Company (cont.)

Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b2495	Replace transformer leads on the Glen Gardner 230/34.5 kV #1 transformer		JCPL (100%)
b2496	Replace Franklin 115/34.5 kV transformer #2 with 90 MVA transformer		JCPL (100%)
b2497	Reconductor 0.9 miles of the Captive Plastics to Morris Park 34.5 kV circuit (397ACSR) with 556 ACSR		JCPL (100%)
b2498	Extend 5.8 miles of 34.5 kV circuit from North Branch substation to Lebanon substation with 397 ACSR and install 34.5 kV breaker at Lebanon substation		JCPL (100%)
b2500	Upgrade terminal equipment at Monroe on the Englishtown to Monroe (H34) 34.5 kV circuit		JCPL (100%)
b2570	Upgrade limiting terminal facilities at Feneau, Parlin, and Williams substations		JCPL (100%)
b2571	Upgrade the limiting terminal facilities at both Jackson and North Hanover		JCPL (100%)
b2586	Upgrade the V74 34.5 kV transmission line between Allenhurst and Elberon Substations		JCPL (100%)

Jersey Central Power & Light Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2633.6	Implement high speed relaying utilizing OPGW on Deans – East Windsor 500 kV		**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%)
			DFAX Allocation: AEC (0.01%) / DPL (99.98%) / JCPL (0.01%)
b2633.6.1	Implement high speed relaying utilizing OPGW on East Windsor - New Freedom 500 kV		**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%)
			DFAX Allocation: AEC (0.01%) / DPL (99.98%) / JCPL (0.01%)

Jersey Central Power & Light Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2676	Install one (1) 72 MVAR fast switched capacitor at the Englishtown 230 kV substation		JCPL (100%)
b2708	Replace the Oceanview 230/34.5 kV transformer #1		JCPL (100%)
b2709	Replace the Deep Run 230/34.5 kV transformer #1		JCPL (100%)
b2754.2	Install 5 miles of optical ground wire (OPGW) between Gilbert and Springfield 230 kV substations		JCPL (100%)
b2754.3	Install 7 miles of all-dielectric self-supporting (ADSS) fiber optic cable between Morris Park and Northwood 230 kV substations		JCPL (100%)
b2754.6	Upgrade relaying at Morris Park 230 kV		JCPL (100%)
b2754.7	Upgrade relaying at Gilbert 230 kV		JCPL (100%)
b2809	Install a bypass switch at Mount Pleasant 34.5 kV substation to allow the Mount Pleasant substation load to be removed from the N14 line and transfer to O769 line		JCPL (100%)
b3023	Replace West Wharton 115 kV breakers ‘G943A’ and ‘G943B’ with 40kA breakers		JCPL (100%)
b3042	Replace substation conductor at Raritan River 230 kV substation on the Kilmer line terminal		JCPL (100%)

Jersey Central Power & Light Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3130	Construct seven new 34.5 kV circuits on existing pole lines (total of 53.5 miles), rebuild/reconductor two 34.5 kV circuits (total of 5.5 miles) and install a second 115/34.5 kV transformer (Werner)		JCPL (100%)
b3130.1	Construct a new 34.5 kV circuit from Oceanview to Allenhurst 34.5 kV (4 miles)		JCPL (100%)
b3130.2	Construct a new 34.5 kV circuit from Atlantic to Red Bank 34.5 kV (12 miles)		JCPL (100%)
b3130.3	Construct a new 34.5 kV circuit from Freneau to Taylor Lane 34.5 kV (6.5 miles)		JCPL (100%)
b3130.4	Construct a new 34.5 kV circuit from Keyport to Belford 34.5 kV (6 miles)		JCPL (100%)
b3130.5	Construct a new 34.5 kV circuit from Red Bank to Belford 34.5 kV (5 miles)		JCPL (100%)
b3130.6	Construct a new 34.5 kV circuit from Werner to Clark Street (7 miles)		JCPL (100%)
b3130.7	Construct a new 34.5 kV circuit from Atlantic to Freneau (13 miles)		JCPL (100%)
b3130.8	Rebuild/reconductor the Atlantic – Camp Woods Switch Point (3.5 miles) 34.5 kV circuit		JCPL (100%)
b3130.9	Rebuild/reconductor the Allenhurst – Elberon (2 miles) 34.5 kV circuit		JCPL (100%)
b3130.10	Install 2nd 115/34.5 kV transformer at Werner substation		JCPL (100%)

Jersey Central Power & Light Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3238	Replace seven (7) overdutied 34.5 kV breakers with 50 kA rated equipment at the Whippany substation		JCPL (100%)
b3239	Replace fourteen (14) overdutied 34.5 kV breakers with 63 kA rated equipment		JCPL (100%)

SCHEDULE 12 – APPENDIX A

(7) Mid-Atlantic Interstate Transmission, LLC for the Pennsylvania Electric Company Zone

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2212	Shawville Substation: Relocate 230 kV and 115 kV controls from the generating station building to new control building		PENELEC (100%)
b2293	Replace the Erie South 115 kV breaker 'Buffalo Rd' with 40kA breaker		PENELEC (100%)
b2294	Replace the Johnstown 115 kV breaker 'Bon Aire' with 40kA breaker		PENELEC (100%)
b2302	Replace the Erie South 115 kV breaker 'French #2' with 40kA breaker		PENELEC (100%)
b2304	Replace the substation conductor and switch at South Troy 115 kV substation		PENELEC (100%)
b2371	Install 75 MVAR capacitor at the Erie East 230 kV substation		PENELEC (100%)
b2441	Install +250/-100 MVAR SVC at the Erie South 230 kV station		PENELEC (100%)
b2442	Install three 230 kV breakers on the 230 kV side of the Lewistown #1, #2 and #3 transformers		PENELEC (100%)
b2450	Construct a new 115 kV line from Central City West to Bedford North		PENELEC (100%)
b2463	Rebuild and reconductor 115 kV line from East Towanda to S. Troy and upgrade terminal equipment at East Towanda, Tennessee Gas and South Troy		PENELEC (100%)

Mid-Atlantic Interstate Transmission, LLC for the Pennsylvania Electric Company Zone (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2494	Construct Warren 230 kV ring bus and install a second Warren 230/115 kV transformer		PENELEC (100%)
b2552.1	Reconductor the North Meshoppen – Oxbow-Lackawanna 230 kV circuit and upgrade terminal equipment (MAIT portion)		PENELEC (*99.00*%) / PPL (*1.00*%)
b2573	Replace the Warren 115 kV 'B12' breaker with a 40kA breaker		PENELEC (100%)
b2587	Reconfigure Pierce Brook 345 kV station to a ring bus and install a 125 MVAR shunt reactor at the station		PENELEC (100%)
b2621	Replace relays at East Towanda and East Sayre 115 kV substations (158/191 MVA SN/SE)		PENELEC (100%)
b2677	Replace wave trap, bus conductor and relay at Hilltop 115 kV substation. Replace relays at Prospect and Cooper substations		PENELEC (100%)
b2678	Convert the East Towanda 115 kV substation to breaker and half configuration		PENELEC (100%)
b2679	Install a 115 kV Venango Jct. line breaker at Edinboro South		PENELEC (100%)
b2680	Install a 115 kV breaker on Hooversville #1 115/23 kV transformer		PENELEC (100%)
b2681	Install a 115 kV breaker on the Eclipse #2 115/34.5 kV transformer		PENELEC (100%)

Mid-Atlantic Interstate Transmission, LLC for the Pennsylvania Electric Company Zone (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2682	Install two 21.6 MVAR capacitors at the Shade Gap 115 kV substation		PENELEC (100%)
b2683	Install a 36 MVAR 115 kV capacitor and associated equipment at Morgan Street substation		PENELEC (100%)
b2684	Install a 36 MVAR 115 kV capacitor at Central City West substation		PENELEC (100%)
b2685	Install a second 115 kV 3000A bus tie breaker at Hooversville substation		PENELEC (100%)
b2735	Replace the Warren 115 kV 'NO. 2 XFMR' breaker with 40kA breaker		PENELEC (100%)
b2736	Replace the Warren 115 kV 'Warren #1' breaker with 40kA breaker		PENELEC (100%)
b2737	Replace the Warren 115 kV 'A TX #1' breaker with 40kA breaker		PENELEC (100%)
b2738	Replace the Warren 115 kV 'A TX #2' breaker with 40kA breaker		PENELEC (100%)
b2739	Replace the Warren 115 kV 'Warren #2' breaker with 40kA breaker		PENELEC (100%)
b2740	Revise the reclosing of the Hooversville 115 kV 'Ralphton' breaker		PENELEC (100%)
b2741	Revise the reclosing of the Hooversville 115 kV 'Statler Hill' breaker		PENELEC (100%)

Mid-Atlantic Interstate Transmission, LLC for the Pennsylvania Electric Company Zone (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2743.2	Tie in new Rice substation to Conemaugh – Hunterstown 500 kV		AEP (6.46%) / APS (8.74%) / BGE (19.74%) / ComEd (2.16%) / Dayton (0.59%) / DEOK (1.02%) / DL (0.01%) / Dominion (39.95%) / EKPC (0.45%) / PEPCO (20.88%)
b2743.3	Upgrade terminal equipment at Conemaugh 500 kV on the Conemaugh – Hunterstown 500 kV circuit		AEP (6.46%) / APS (8.74%) / BGE (19.74%) / ComEd (2.16%) / Dayton (0.59%) / DEOK (1.02%) / DL (0.01%) / Dominion (39.95%) / EKPC (0.45%) / PEPCO (20.88%)
b2748	Install two 28 MVAR capacitors at Tiffany 115 kV substation		PENELEC (100%)
b2767	Construct a new 345 kV breaker string with three (3) 345 kV breakers at Homer City and move the North autotransformer connection to this new breaker string		PENELEC (100%)
b2803	Reconductor 3.7 miles of the Bethlehem – Leretto 46 kV circuit and replace terminal equipment at Summit 46 kV		PENELEC (100%)
b2804	Install a new relay and replace 4/0 CU bus conductor at Huntingdon 46 kV station, on the Huntingdon – C tap 46 kV circuit		PENELEC (100%)
b2805	Install a new relay and replace 4/0 CU & 250 CU substation conductor at Hollidaysburg 46 kV station, on the Hollidaysburg – HCR Tap 46 kV circuit		PENELEC (100%)

Mid-Atlantic Interstate Transmission, LLC for the Pennsylvania Electric Company Zone (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2806	Install a new relay and replace meter at the Raystown 46 kV substation, on the Raystown – Smithfield 46 kV circuit		PENELEC (100%)
b2807	Replace the CHPV and CRS relay, and adjust the IAC overcurrent relay trip setting; or replace the relay at Eldorado 46 kV substation, on the Eldorado – Gallitzin 46 kV circuit		PENELEC (100%)
b2808	Adjust the JBC overcurrent relay trip setting at Raystown 46 kV, and replace relay and 4/0 CU bus conductor at Huntingdon 46 kV substations, on the Raystown – Huntingdon 46 kV circuit		PENELEC (100%)
b2865	Replace Seward 115 kV breaker "Jackson Road" with 63kA breaker		PENELEC (100%)
b2866	Replace Seward 115 kV breaker "Conemaugh N." with 63kA breaker		PENELEC (100%)
b2867	Replace Seward 115 kV breaker "Conemaugh S." with 63kA breaker		PENELEC (100%)
b2868	Replace Seward 115 kV breaker "No.8 Xfmr" with 63kA breaker		PENELEC (100%)
b2944	Install two 345 kV 80 MVAR shunt reactors at Mainesburg station		PENELEC (100%)

Mid-Atlantic Interstate Transmission, LLC for the Pennsylvania Electric Company Zone (cont.)

Required Transmission Enhancements	Annual Revenue Requirement		Responsible Customer(s)
b2951	Seward, Blairsville East, Shelocta work		PENELEC (100%)
b2951.1	Upgrade Florence 115 kV line terminal equipment at Seward SS		PENELEC (100%)
b2951.2	Replace Blairsville East / Seward 115 kV line tuner, coax, line relaying and carrier set at Shelocta SS		PENELEC (100%)
b2951.3	Replace Seward / Shelocta 115 kV line CVT, tuner, coax, and line relaying at Blairsville East SS		PENELEC (100%)
b2952	Replace the North Meshoppen #3 230/115 kV transformer eliminating the old reactor and installing two breakers to complete a 230 kV ring bus at North Meshoppen		PENELEC (100%)
b2953	Replace the Keystone 500 kV breaker "NO. 14 Cabot" with 50kA breaker		PENELEC (100%)
b2954	Replace the Keystone 500 kV breaker "NO. 16 Cabot" with 50kA breaker		PENELEC (100%)
b2984	Reconfigure the bus at Glory and install a 50.4 MVAR 115 kV capacitor		PENELEC (100%)
b3007.2	Reconductor the Blairsville East to Social Hall 138 kV line and upgrade terminal equipment - PENELEC portion. 4.8 miles total. The new conductor will be 636 ACSS replacing the existing 636 ACSR conductor. At Blairsville East, the wave trap and breaker disconnects will be replaced		PENELEC (100%)

Mid-Atlantic Interstate Transmission, LLC for the Pennsylvania Electric Company Zone (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3008	Upgrade Blairsville East 138/115 kV transformer terminals. This project is an upgrade to the tap of the Seward – Shelocta 115 kV line into Blairsville substation. The project will replace the circuit breaker and adjust relay settings		PENELEC (100%)
b3009	Upgrade Blairsville East 115 kV terminal equipment. Replace 115 kV circuit breaker and disconnects		PENELEC (100%)
b3014	Replace the existing Shelocta 230/115 kV transformer and construct a 230 kV ring bus		PENELEC (100%)
b3016	Upgrade terminal equipment at Corry East 115 kV to increase rating of Four Mile to Corry East 115 kV line. Replace bus conductor		PENELEC (100%)
b3017.1	Rebuild Glade to Warren 230 kV line with hi-temp conductor and substation terminal upgrades. 11.53 miles. New conductor will be 1033 ACSS. Existing conductor is 1033 ACSR		PENELEC (*100*%)
b3017.2	Glade substation terminal upgrades. Replace bus conductor, wave traps, and relaying		PENELEC (*100*%)
b3017.3	Warren substation terminal upgrades. Replace bus conductor, wave traps, and relaying		PENELEC (*100*%)
b3022	Replace Saxton 115 kV breaker 'BUS TIE' with a 40kA breaker		PENELEC (100%)

Mid-Atlantic Interstate Transmission, LLC for the Pennsylvania Electric Company Zone (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3024	Upgrade terminal equipment at Corry East 115 kV to increase rating of Warren to Corry East 115 kV line. Replace bus conductor		PENELEC (100%)
b3043	Install one 115 kV 36 MVAR capacitor at West Fall 115 kV substation		PENELEC (100%)
b3073	Replace the Blairsville East 138/115 kV transformer and associated equipment such as breaker disconnects and bus conductor		PENELEC (100%)
b3077	Reconductor the Franklin Pike B – Wayne 115 kV line (6.78 miles)		PENELEC (100%)
b3078	Reconductor the 138 kV bus and replace the line trap, relays Morgan Street. Reconductor the 138 kV bus at Venango Junction		PENELEC (100%)
b3082	Construct 4-breaker 115 kV ring bus at Geneva		PENELEC (100%)
b3137	Rebuild 20 miles of the East Towanda – North Meshoppen 115 kV line		PENELEC (100%)
b3144	Upgrade bus conductor and relay panels of the Jackson Road – Nanty Glo 46 kV SJN line		PENELEC (100%)
b3144.1	Upgrade line relaying and substation conductor on the 46 kV Nanty Glo line exit at Jackson Road substation		PENELEC (100%)
b3144.2	Upgrade line relaying and substation conductor on the 46 kV Jackson Road line exit at Nanty Glo substation		PENELEC (100%)
b3154	Install one (1) 13.2 MVAR 46 kV capacitor at the Logan substation		PENELEC (100%)

Mid-Atlantic Interstate Transmission, LLC for the Pennsylvania Electric Company Zone (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3231	Replace the existing No. 2 cap bank breaker at Huntingdon substation with a new breaker with higher interrupting capability		PENELEC (100%)
b3232	Replace the existing Williamsburg, ALH (Hollidaysburg) and bus section breaker at the Altoona substation with a new breaker with higher interrupting capability		PENELEC (100%)
b3233	Install one (1) 34 MVAR 115 kV shunt reactor and breaker. Install one (1) 115 kV circuit breaker to expand the substation to a 4-breaker ring bus		PENELEC (100%)
b3237	Install two (2) 46 kV 6.12 MVAR capacitors effective at Mt. Union		PENELEC (100%)
b3245	Construct a new breaker-and-a-half substation near Tiffany substation. All transmission assets and lines will be relocated to the new substation. The two (2) distribution transformers will be fed via two (2) dedicated 115 kV feeds to the existing Tiffany substation		PENELEC (100%)
b3306	Install a second 125 MVAR 345 kV shunt reactor and associated equipment at Pierce Brook substation. Install a 345 kV breaker on the high side of the 345/230 kV transformer #1		PENELEC (100%)

SCHEDULE 12 – APPENDIX A

(9) PPL Electric Utilities Corporation

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b1813.12	Replace the Blooming Grove 230 kV breaker 'Peckville'		PPL (100%)
b2223	Rebuild and reconductor 2.6 miles of the Sunbury - Dauphin 69 kV circuit		PPL (100%)
b2224	Add a 2nd 150 MVA 230/69 kV transformer at Springfield		PPL (100%)
b2237	150 MVAR shunt reactor at Alburtis 500 kV		**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%) **DFAX Allocation:** PPL (100%)
b2238	100 MVAR shunt reactor at Elimsport 230 kV		PPL (100%)

* Neptune Regional Transmission System, LLC

PPL Electric Utilities Corporation (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2269	Rebuild approximately 23.7 miles of the Susquehanna - Jenkins 230kV circuit. This replaces a temporary SPS that is already planned to mitigate the violation until this solution is implemented		PPL (100%)
b2282	Rebuild the Siegfried-Frackville 230 kV line		PPL (100%)
b2406.1	Rebuild Stanton-Providence 69 kV 2&3 9.5 miles with 795 SCSR		PPL (100%)
b2406.2	Reconductor 7 miles of the Lackawanna - Providence 69 kV #1 and #2 with 795 ACSR		PPL (100%)
b2406.3	Rebuild SUB2 Tap 1 (Lackawanna - Scranton 1) 69 kV 1.5 miles 556 ACSR		PPL (100%)
b2406.4	Rebuild SUB2 Tap 2 (Lackawanna - Scranton 1) 69 kV 1.6 miles 556 ACSR		PPL (100%)
b2406.5	Create Providence - Scranton 69 kV #1 and #2, 3.5 miles with 795 ACSR		PPL (100%)
b2406.6	Rebuild Providence 69 kV switchyard		PPL (100%)
b2406.7	Install 2 - 10.8 MVAR capacitors at EYNO 69 kV		PPL (100%)
b2406.8	Rebuild Stanton 230 kV yard		PPL (100%)

PPL Electric Utilities Corporation (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2446	Replace wave trap and protective relays at Montour		PPL (100%)
b2447	Replace wave trap and protective relays at Montour		PPL (100%)
b2448	Install a 2nd Sunbury 900MVA 500-230kV transformer and associated equipment		PPL (100%)
b2552.2	Reconductor the North Meshoppen - Oxbow – Lackawanna 230 kV circuit and upgrade terminal equipment (PPL portion)		PENELEC (*98.84*%) / PPL (*1.16*%)
b2574	Replace the Sunbury 230 kV 'MONTOUR NORT' breaker with a 63kA breaker		PPL (100%)
b2690	Reconductor two spans of the Graceton – Safe Harbor 230 kV transmission line. Includes termination point upgrades		PPL (100%)
b2691	Reconductor three spans limiting Brunner Island – Yorkana 230 kV line, add 2 breakers to Brunner Island switchyard, upgrade associated terminal equipment		PPL (100%)

PPL Electric Utilities Corporation (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2716	Add a 200 MVAR shunt reactor at Lackawanna 500 kV substation		**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%) **DFAX Allocation:** PPL (100%)
b2754.1	Install 7 miles of optical ground wire (OPGW) between Gilbert and Springfield 230 kV substations		PPL (100%)
b2754.4	Use ~ 40 route miles of existing fibers on PPL 230 kV system to establish direct fiber circuits		PPL (100%)
b2754.5	Upgrade relaying at Martins Creek 230 kV		PPL (100%)
b2756	Install 2% reactors at Martins Creek 230 kV		PPL (100%)
b2813	Expand existing Lycoming 69 kV yard to double bus double breaker arrangement		PPL (100%)

* Neptune Regional Transmission System, LLC

PPL Electric Utilities Corporation (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2824	Reconfigure/Expand the Lackawanna 500 kV substation by adding a third bay with three breakers		**Load-Ratio Share Allocation:** AEC (*1.71%*) / AEP (*14.04%*) / APS (*5.61%*) / ATSI (*8.10%*) / BGE (*4.36%*) / ComEd (*13.14%*) / Dayton (*2.15%*) / DEOK (*3.23%*) / DL (*1.73%*) / DPL (*2.65%*) / Dominion (*13.03%*) / EKPC (*1.77%*) / JCPL (*3.84%*) / ME (*1.93%*) / NEPTUNE* (*0.45%*) / OVEC (*0.07%*) / PECO (*5.29%*) / PENELEC (*1.89%*) / PEPCO (*3.82%*) / PPL (*4.72%*) / PSEG (*6.21%*) / RE (*0.26%*) **DFAX Allocation:** PPL (100%)
b2838	Build a new 230/69 kV substation by tapping the Montour – Susquehanna 230 kV double circuits and Berwick – Hunlock & Berwick – Colombia 69 kV circuits		PPL (100%)
b2979	Replace Martins Creek 230 kV circuit breakers with 80 kA rating		PPL (100%)
b3221	Replace terminal equipment (bus conductor) on the 230 kV side of the Steel City 500/230 kV Transformer #1		PPL (100%)
b3222	Install one (1) 7.2 MVAR fixed cap bank on the Lock Haven – Reno 69 kV line and one (1) 7.2 MVAR fixed cap bank on the Lock Haven – Flemington 69 kV line near the Flemington 69/12 kV substation		PPL (100%)

* Neptune Regional Transmission System, LLC

SCHEDULE 12 – APPENDIX A

(14) Monongahela Power Company, The Potomac Edison Company, and West Penn Power Company, all doing business as Allegheny Power

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2117	Reconductor 0.33 miles of the Parkersburg - Belpre line and upgrade Parkersburg terminal equipment		APS (100%)
b2118	Add 44 MVAR Cap at New Martinsville		APS (100%)
b2120	Six-Wire Lake Lynn - Lardin 138 kV circuits		APS (100%)
b2142	Replace Weirton 138 kV breaker "Wylie Ridge 210" with 63 kA breaker		APS (100%)
b2143	Replace Weirton 138 kV breaker "Wylie Ridge 216" with 63 kA breaker		APS (100%)
b2174.8	Replace relays at Mitchell substation		APS (100%)
b2174.9	Replace primary relay at Piney Fork substation		APS (100%)
b2174.10	Perform relay setting changes at Bethel Park substation		APS (100%)
b2213	Armstrong Substation: Relocate 138 kV controls from the generating station building to new control building		APS (100%)
b2214	Albright Substation: Install a new control building in the switchyard and relocate controls and SCADA equipment from the generating station building the new control center		APS (100%)
b2215	Rivesville Switching Station: Relocate controls and SCADA equipment from the generating station building to new control building		APS (100%)

Monongahela Power Company, The Potomac Edison Company, and West Penn Power Company, all doing business as Allegheny Power (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2216	Willow Island: Install a new 138 kV cross bus at Belmont Substation and reconnect and reconfigure the 138 kV lines to facilitate removal of the equipment at Willow Island switching station		APS (100%)
b2235	130 MVAR reactor at Monocacy 230 kV		APS (100%)
b2260	Install a 32.4 MVAR capacitor at Bartonville		APS (100%)
b2261	Install a 33 MVAR capacitor at Damascus		APS (100%)
b2267	Replace 1000 Cu substation conductor and 1200 amp wave trap at Marlowe		APS (100%)
b2268	Reconductor 6.8 miles of 138kV 336 ACSR with 336 ACSS from Double Toll Gate to Riverton		APS (100%)
b2299	Reconductor from Collins Ferry - West Run 138 kV with 556 ACSS		APS (100%)
b2300	Reconductor from Lake Lynn - West Run 138 kV		APS (100%)
b2341	Install 39.6 MVAR Capacitor at Shaffers Corner 138 kV Substation		APS (100%)
b2342	Construct a new 138 kV switching station (Shuman Hill substation), which is next the Mobley 138 kV substation and install a 31.7 MVAR capacitor		APS (100%)
b2343	Install a 31.7 MVAR capacitor at West Union 138 kV substation		APS (100%)

Monongahela Power Company, The Potomac Edison Company, and West Penn Power Company, all doing business as Allegheny Power (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2362	Install a 250 MVAR SVC at Squab Hollow 230 kV		APS (100%)
b2362.1	Install a 230 kV breaker at Squab Hollow 230 kV substation		APS (100%)
b2363	Convert the Shingletown 230 kV bus into a 6 breaker ring bus		APS (100%)
b2364	Install a new 230/138 kV transformer at Squab Hollow 230 kV substation. Loop the Forest - Elko 230 kV line into Squab Hollow. Loop the Brookville - Elko 138 kV line into Squab Hollow		APS (100%)
b2412	Install a 44 MVAR 138 kV capacitor at the Hempfield 138 kV substation		APS (100%)
b2433.1	Install breaker and a half 138 kV substation (Waldo Run) with 4 breakers to accommodate service to MarkWest Sherwood Facility including metering which is cut into Glen Falls Lamberton 138 kV line		APS (100%)
b2433.2	Install a 70 MVAR SVC at the new WaldoRun 138 kV substation		APS (100%)
b2433.3	Install two 31.7 MVAR capacitors at the new WaldoRun 138 kV substation		APS (100%)
b2424	Replace the Weirton 138 kV breaker 'WYLIE RID210' with 63 kA breakers		APS (100%)
b2425	Replace the Weirton 138 kV breaker 'WYLIE RID216' with 63 kA breakers		APS (100%)

Monongahela Power Company, The Potomac Edison Company, and West Penn Power Company, all doing business as Allegheny Power (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2426	Replace the Oak Grove 138 kV breaker 'OG1' with 63 kA breakers		APS (100%)
b2427	Replace the Oak Grove 138 kV breaker 'OG2' with 63 kA breakers		APS (100%)
b2428	Replace the Oak Grove 138 kV breaker 'OG3' with 63 kA breakers		APS (100%)
b2429	Replace the Oak Grove 138 kV breaker 'OG4' with 63 kA breakers		APS (100%)
b2430	Replace the Oak Grove 138 kV breaker 'OG5' with 63 kA breakers		APS (100%)
b2431	Replace the Oak Grove 138 kV breaker 'OG6' with 63 kA breakers		APS (100%)
b2432	Replace the Ridgeley 138 kV breaker 'RC1' with a 40 kA rated breaker		APS (100%)
b2440	Replace the Cabot 138kV breaker 'C9-KISKI VLY' with 63kA		APS (100%)
b2472	Replace the Ringgold 138 kV breaker ‘RCM1’ with 40kA breakers		APS (100%)
b2473	Replace the Ringgold 138 kV breaker ‘#4 XMFR’ with 40kA breakers		APS (100%)
b2475	Construct a new line between Oak Mound 138 kV substation and Waldo Run 138 kV substation		APS (100%)
b2545.1	Construct a new 138 kV substation (Shuman Hill substation) connected to the Fairview –Willow Island (84) 138 kV line		APS (100%)

Monongahela Power Company, The Potomac Edison Company, and West Penn Power Company, all doing business as Allegheny Power (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2545.2	Install a ring bus station with five active positions and two 52.8 MVAR capacitors with 0.941 mH reactors		APS (100%)
b2545.3	Install a +90/-30 MVAR SVC protected by a 138 kV breaker		APS (100%)
b2545.4	Remove the 31.7 MVAR capacitor bank at Mobley 138 kV		APS (100%)
b2546	Install a 51.8 MVAR (rated) 138 kV capacitor at Nyswaner 138 kV substation		APS (100%)
b2547.1	Construct a new 138 kV six breaker ring bus Hillman substation		APS (100%)
b2547.2	Loop Smith- Imperial 138 kV line into the new Hillman substation		APS (100%)
b2547.3	Install +125/-75 MVAR SVC at Hillman substation		APS (100%)
b2547.4	Install two 31.7 MVAR 138 kV capacitors		APS (100%)
b2548	Eliminate clearance de-rate on Wylie Ridge – Smith 138 kV line and upgrade terminals at Smith 138 kV, new line ratings 294 MVA (Rate A)/350 MVA (Rate B)		APS (100%)
b2612.1	Relocate All Dam 6 138 kV line and the 138 kV line to AE units 1&2		APS (100%)
b2612.2	Install 138 kV, 3000A bus-tie breaker in the open bus-tie position next to the Shaffers corner 138 kV line		APS (100%)

Monongahela Power Company, The Potomac Edison Company, and West Penn Power Company, all doing business as Allegheny Power (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2612.3	Install a 6-pole manual switch, foundation, control cable, and all associated facilities		APS (100%)
b2666	Yukon 138 kV Breaker Replacement		APS (100%)
b2666.1	Replace Yukon 138 kV breaker "Y-11(CHARL1)" with an 80 kA breaker		APS (100%)
b2666.2	Replace Yukon 138 kV breaker "Y-13(BETHEL)" with an 80 kA breaker		APS (100%)
b2666.3	Replace Yukon 138 kV breaker "Y-18(CHARL2)" with an 80 kA breaker		APS (100%)
b2666.4	Replace Yukon 138 kV breaker "Y-19(CHARL2)" with an 80 kA breaker		APS (100%)
b2666.5	Replace Yukon 138 kV breaker "Y-4(4B-2BUS)" with an 80 kA breaker		APS (100%)
b2666.6	Replace Yukon 138 kV breaker "Y-5(LAYTON)" with an 80 kA breaker		APS (100%)
b2666.7	Replace Yukon 138 kV breaker "Y-8(HUNTING)" with an 80 kA breaker		APS (100%)
b2666.8	Replace Yukon 138 kV breaker "Y-9(SPRINGD)" with an 80 kA breaker		APS (100%)
b2666.9	Replace Yukon 138 kV breaker "Y-10(CHRL-SP)" with an 80 kA breaker		APS (100%)
b2666.10	Replace Yukon 138 kV breaker "Y-12(1-1BUS)" with an 80 kA breaker		APS (100%)
b2666.11	Replace Yukon 138 kV breaker "Y-14(4-1BUS)" with an 80 kA breaker		APS (100%)

Monongahela Power Company, The Potomac Edison Company, and West Penn Power Company, all doing business as Allegheny Power (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2666.12	Replace Yukon 138 kV breaker "Y-2(1B-BETHE)" with an 80 kA breaker		APS (100%)
b2666.13	Replace Yukon 138 kV breaker "Y-21(SHEPJ)" with an 80 kA breaker		APS (100%)
b2666.14	Replace Yukon 138 kV breaker "Y-22(SHEPHJT)" with an 80 kA breaker		APS (100%)
b2672	Change CT Ratio at Seneca Caverns from 120/1 to 160/1 and adjust relay settings accordingly		APS (100%)
b2688.3	Carroll Substation: Replace the Germantown 138 kV wave trap, upgrade the bus conductor and adjust CT ratios		AEP (12.91%) / APS (19.04%) / ATSI (1.24%) / ComEd (0.35%) / Dayton (1.45%) / DEOK (2.30%) / DL (1.11%) / Dominion (44.85%) / EKPC (0.78%) / PEPCO (15.85%) / RECO (0.12%)
b2689.3	Upgrade terminal equipment at structure 27A		APS (100%)
b2696	Upgrade 138 kV substation equipment at Butler, Shanor Manor and Krendale substations. New rating of line will be 353 MVA summer normal/422 MVA emergency		APS (100%)
b2700	Remove existing Black Oak SPS		APS (100%)
b2743.6	Reconfigure the Ringgold 230 kV substation to double bus double breaker scheme		AEP (6.46%) / APS (8.74%) / BGE (19.74%) / ComEd (2.16%) / Dayton (0.59%) / DEOK (1.02%) / DL (0.01%) / Dominion (39.95%) / EKPC (0.45%) / PEPCO (20.88%)

Monongahela Power Company, The Potomac Edison Company, and West Penn Power Company, all doing business as Allegheny Power (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2743.6.1	Replace the two Ringgold 230/138 kV transformers		AEP (6.46%) / APS (8.74%) / BGE (19.74%) / ComEd (2.16%) / Dayton (0.59%) / DEOK (1.02%) / DL (0.01%) / Dominion (39.95%) / EKPC (0.45%) / PEPCO (20.88%)
b2743.7	Rebuild/Reconductor the Ringgold – Catoctin 138 kV circuit and upgrade terminal equipment on both ends		AEP (6.46%) / APS (8.74%) / BGE (19.74%) / ComEd (2.16%) / Dayton (0.59%) / DEOK (1.02%) / DL (0.01%) / Dominion (39.95%) / EKPC (0.45%) / PEPCO (20.88%)
b2747.1	Relocate the FirstEnergy Pratts 138 kV terminal CVTs at Gordonsville substation to allow for the installation of a new motor operated switch being installed by Dominion		APS (100%)
b2763	Replace the breaker risers and wave trap at Bredinville 138 kV substation on the Cabrey Junction 138 kV terminal		APS (100%)
b2764	Upgrade Fairview 138 kV breaker risers and disconnect leads; Replace 500 CU breaker risers and 556 ACSR disconnect leads with 795 ACSR		APS (100%)
b2964.1	Replace terminal equipment at Pruntytown and Glen Falls 138 kV station		APS (100%)
b2964.2	Reconductor approximately 8.3 miles of the McAlpin - White Hall Junction 138 kV circuit		APS (100%)

Monongahela Power Company, The Potomac Edison Company, and West Penn Power Company, all doing business as Allegheny Power (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2965	Reconductor the Charleroi – Allenport 138 kV line with 954 ACSR conductor. Replace breaker risers at Charleroi and Allenport		*DL* (100%)
b2966	Reconductor the Yukon – Smithton – Shepler Hill Jct 138 kV line with 795 ACSS conductor. Replace Line Disconnect Switch at Yukon		APS (100%)
b2966.1	Reconductor the Yukon - Smithton - Shepler Hill Jct 138 kV line and replace terminal equipment as necessary to achieve required rating		APS (100%)
b2967	Convert the existing 6 wire Butler - Shanor Manor - Krendale 138 kV line into two separate 138 kV lines. New lines will be Butler - Keisters and Butler - Shanor Manor - Krendale 138 kV		APS (100%)
b2970	Ringgold – Catoctin Solution		APS (100%)
b2970.1	Install two new 230 kV positions at Ringgold for 230/138 kV transformers		APS (100%)
b2970.2	Install new 230 kV position for Ringgold – Catoctin 230 kV line		APS (100%)
b2970.3	Install one new 230 kV breaker at Catoctin substation		APS (100%)
b2970.4	Install new 230/138 kV transformer at Catoctin substation. Convert Ringgold – Catoctin 138 kV line to 230 kV operation		APS (100%)

Monongahela Power Company, The Potomac Edison Company, and West Penn Power Company, all doing business as Allegheny Power (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2970.5	Convert Garfield 138/12.5 kV substation to 230/12.5 kV		APS (100%)
b2996	Construct new Flint Run 500/138 kV substation		See sub-IDs for cost allocations
b2996.1	Construct a new 500/138 kV substation as a 4-breaker ring bus with expansion plans for double-breaker-double-bus on the 500 kV bus and breaker-and-a-half on the 138 kV bus to provide EHV source to the Marcellus shale load growth area. Projected load growth of additional 160 MVA to current plan of 280 MVA, for a total load of 440 MVA served from Waldo Run substation. Construct additional 3-breaker string at Waldo Run 138 kV bus. Relocate the Sherwood #2 line terminal to the new string. Construct two single circuit Flint Run - Waldo Run 138 kV lines using 795 ACSR (approximately 3 miles). After terminal relocation on new 3-breaker string at Waldo Run, terminate new Flint Run 138 kV lines onto the two open terminals		APS (100%)
b2996.2	Loop the Belmont – Harrison 500 kV line into and out of the new Flint Run 500 kV substation (less than 1 mile). Replace primary relaying and carrier sets on Belmont and Harrison 500 kV remote end substations		APS (100%)
b2996.3	Upgrade two (2) existing 138 kV breakers (Rider 50 and #1/4 transformer breaker) at Glen Falls with 63 kA 3000A units		APS (100%)

Monongahela Power Company, The Potomac Edison Company, and West Penn Power Company, all doing business as Allegheny Power (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3005	Reconductor 3.1 mile 556 ACSR portion of Cabot to Butler 138 kV with 556 ACSS and upgrade terminal equipment. 3.1 miles of line will be reconductored for this project. The total length of the line is 7.75 miles		APS (100%)
b3006	Replace four Yukon 500/138 kV transformers with three transformers with higher rating and reconfigure 500 kV bus		APS (*73.55*%) / DL (*26.45*%)
b3007.1	Reconductor the Blairsville East to Social Hall 138 kV line and upgrade terminal equipment - AP portion. 4.8 miles total. The new conductor will be 636 ACSS replacing the existing 636 ACSR conductor. At Social Hall, meters, relays, bus conductor, a wave trap, circuit breaker and disconnects will be replaced		APS (100%)
b3010	Replace terminal equipment at Keystone and Cabot 500 kV buses. At Keystone, bus tubing and conductor, a wave trap, and meter will be replaced. At Cabot, a wave trap and bus conductor will be replaced		APS (100%)
b3011.1	Construct new Route 51 substation and connect 10 138 kV lines to new substation		DL (100%)
b3011.2	Upgrade terminal equipment at Yukon to increase rating on Yukon to Charleroi #2 138 kV line (New Yukon to Route 51 #4 138 kV line)		DL (100%)

Monongahela Power Company, The Potomac Edison Company, and West Penn Power Company, all doing business as Allegheny Power (cont.)

Required Transmission Enhancements	Annual Revenue Requirement		Responsible Customer(s)
b3011.3	Upgrade terminal equipment at Yukon to increase rating on Yukon to Route 51 #1 138 kV line		DL (100%)
b3011.4	Upgrade terminal equipment at Yukon to increase rating on Yukon to Route 51 #2 138 kV line		DL (100%)
b3011.5	Upgrade terminal equipment at Yukon to increase rating on Yukon to Route 51 #3 138 kV line		DL (100%)
b3011.6	Upgrade remote end relays for Yukon – Allenport – Iron Bridge 138 kV line		DL (100%)
b3012.1	Construct two new 138 kV ties with the single structure from APS's new substation to Duquesne's new substation. The estimated line length is approximately 4.7 miles. The line is planned to use multiple ACSS conductors per phase		ATSI (38.21%) / DL (61.79%)
b3012.3	Construct a new Elrama – Route 51 138 kV No.3 line: reconductor 4.7 miles of the existing line, and construct 1.5 miles of a new line to the reconductored portion. Install a new line terminal at APS Route 51 substation		DL (100%)

Monongahela Power Company, The Potomac Edison Company, and West Penn Power Company, all doing business as Allegheny Power (cont.)

Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b3013	Reconductor Vasco Tap to Edgewater Tap 138 kV line. 4.4 miles. The new conductor will be 336 ACSS replacing the existing 336 ACSR conductor		APS (100%)
b3015.6	Reconductor Elrama to Mitchell 138 kV line – AP portion. 4.2 miles total. 2x 795 ACSS/TW 20/7		DL (100%)
b3015.8	Upgrade terminal equipment at Mitchell for Mitchell – Elrama 138 kV line		APS (100%)
b3028	Upgrade substation disconnect leads at William 138 kV substation		APS (100%)
b3051.1	Ronceverte cap bank and terminal upgrades		APS (100%)
b3052	Install a 138 kV capacitor (29.7 MVAR effective) at West Winchester 138 kV		APS (100%)
b3064.3	Upgrade line relaying at Piney Fork and Bethel Park for Piney For – Elrama 138 kV line and Bethel Park – Elrama 138 kV		APS (100%)

Monongahela Power Company, The Potomac Edison Company, and West Penn Power Company, all doing business as Allegheny Power (cont.)

Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b3068	Reconductor the Yukon – Westraver 138 kV line (2.8 miles), replace the line drops and relays at Yukon 138 kV and replace switches at Westraver 138 kV bus		APS (100%)
b3069	Reconductor the Westraver – Route 51 138 kV line (5.63 miles) and replace line switches at Westraver 138 kV bus		APS (100%)
b3070	Reconductor the Yukon – Route 51 #1 138 kV line (8 miles), replace the line drops, relays and line disconnect switch at Yukon 138 kV bus		APS (100%)
b3071	Reconductor the Yukon – Route 51 #2 138 kV line (8 miles) and replace relays at Yukon 138 kV bus		APS (100%)
b3072	Reconductor the Yukon – Route 51 #3 138 kV line (8 miles) and replace relays at Yukon 138 kV bus		APS (100%)
b3074	Reconductor the 138 kV bus at Armstrong substation		APS (100%)
b3075	Replace the 500/138 kV transformer breaker and reconductor 138 kV bus at Cabot substation		APS (100%)
b3076	Reconductor the Edgewater – Loyalhanna 138 kV line (0.67 mile)		APS (100%)
b3079	Replace the Wylie Ridge 500/345 kV transformer #7		ATSI (72.30%) / DL (27.70%)
b3083	Reconductor the 138 kV bus at Butler and reconductor the 138 kV bus and replace line trap at Karns City		APS (100%)

Monongahela Power Company, The Potomac Edison Company, and West Penn Power Company, all doing business as Allegheny Power (cont.)

Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b3128	Relocate 34.5 kV lines from generating station roof R. Paul Smith 138 kV station		APS (100%)
b3230	At Enon substation install a second 138 kV, 28.8 MVAR nameplate, capacitor and the associated 138 kV capacitor switcher		APS (100%)
b3240	Upgrade Cherry Run and Morgan terminals to make the transmission line the limiting component		APS (100%)
b3241	Install 138 kV, 36 MVAR capacitor and a 5 uF reactor protected by a 138 kV capacitor switcher. Install a breaker on the 138 kV Junction terminal. Install a 138 kV 3.5 uF reactor on the existing Hardy 138 kV capacitor		APS (100%)
b3242	Reconfigure Stonewall 138 kV substation from its current configuration to a six-breaker, breaker-and-a-half layout and add two (2) 36 MVAR capacitors with capacitor switchers		APS (100%)

SCHEDULE 12 – APPENDIX A

(17) ***American Electric Power Service Corporation on behalf of its affiliate companies: AEP Appalachian Transmission Company, Inc.; AEP Indiana Michigan Transmission Company, Inc.; AEP Kentucky Transmission Company, Inc.; AEP Ohio Transmission Company, Inc.; AEP West Virginia Transmission Company, Inc.; Appalachian Power Company; Indiana Michigan Power Company; Kentucky Power Company; Kingsport Power Company; Ohio Power Company and Wheeling Power Company***

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b1570.4	Add a 345 kV breaker at Marysville station and a 0.1 mile 345 kV line extension from Marysville to the new 345/69 kV Dayton transformer		AEP (100%)
b1660.1	Cloverdale: install 6-765 kV breakers, incremental work for 2 additional breakers, reconfigure and relocate miscellaneous facilities, establish 500 kV station and 500 kV tie with 765 kV station		**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%)
			DFAX Allocation: Dayton (*8.37*%) / DEOK (*21.94*%) / Dominion (*56.40*%) / EKPC (*13.29*%)

*Neptune Regional Transmission System, LLC

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Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b1797.1	Reconductor the AEP portion of the Cloverdale - Lexington 500 kV line with 2-1780 ACSS	**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%)
		DFAX Allocation: *AEP (0.79%) / APS (53.70%)* / Dayton (*0.15*%) / DEOK (*0.40*%) / Dominion (*1.13*%) / EKPC (*0.23*%) / PEPCO (*43.60*%)
b2055	Upgrade relay at Brues station	AEP (100%)
b2122.3	Upgrade terminal equipment at Howard on the Howard - Brookside 138 kV line to achieve ratings of 252/291 (SN/SE)	AEP (100%)
b2122.4	Perform a sag study on the Howard - Brookside 138 kV line	AEP (100%)
b2229	Install a 300 MVAR reactor at Dequine 345 kV	AEP (100%)

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Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b2230	Replace existing 150 MVAR reactor at Amos 765 kV substation on Amos - N. Proctorville - Hanging Rock with 300 MVAR reactor		**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%) **DFAX Allocation:** AEP (100%)
b2231	Install 765 kV reactor breaker at Dumont 765 kV substation on the Dumont - Wilton Center line		AEP (100%)
b2232	Install 765 kV reactor breaker at Marysville 765 kV substation on the Marysville - Maliszewski line		AEP (100%)
b2233	Change transformer tap settings for the Baker 765/345 kV transformer		AEP (100%)
b2252	Loop the North Muskingum - Crooksville 138 kV line into AEP's Philo 138 kV station which lies approximately 0.4 miles from the line		AEP (100%)

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Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b2253	Install an 86.4 MVAR capacitor bank at Gorsuch 138 kV station in Ohio	AEP (100%)
b2254	Rebuild approximately 4.9 miles of Corner - Degussa 138 kV line in Ohio	AEP (100%)
b2255	Rebuild approximately 2.8 miles of Maliszewski - Polaris 138 kV line in Ohio	AEP (100%)
b2256	Upgrade approximately 36 miles of 138 kV through path facilities between Harrison 138 kV station and Ross 138 kV station in Ohio	AEP (100%)
b2257	Rebuild the Pokagon - Corey 69 kV line as a double circuit 138 kV line with one side at 69 kV and the other side as an express circuit between Pokagon and Corey stations	AEP (100%)
b2258	Rebuild 1.41 miles of #2 CU 46 kV line between Tams Mountain - Slab Fork to 138 kV standards. The line will be strung with 1033 ACSR	AEP (100%)
b2259	Install a new 138/69 kV transformer at George Washington 138/69 kV substation to provide support to the 69 kV system in the area	AEP (100%)

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Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b2286	Rebuild 4.7 miles of Muskingum River - Wolf Creek 138 kV line and remove the 138/138 kV transformer at Wolf Creek Station	AEP (100%)
b2287	Loop in the Meadow Lake - Olive 345 kV circuit into Reynolds 765/345 kV station	AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2344.1	Establish a new 138/12 kV station, transfer and consolidate load from its Nicholsville and Marcellus 34.5 kV stations at this new station		AEP (100%)
b2344.2	Tap the Hydramatic – Valley 138 kV circuit (~ structure 415), build a new 138 kV line (~3.75 miles) to this new station		AEP (100%)
b2344.3	From this station, construct a new 138 kV line (~1.95 miles) to REA's Marcellus station		AEP (100%)
b2344.4	From REA's Marcellus station construct new 138 kV line (~2.35 miles) to a tap point on Valley – Hydramatic 138 kV ckt (~structure 434)		AEP (100%)
b2344.5	Retire sections of the 138 kV line in between structure 415 and 434 (~ 2.65 miles)		AEP (100%)
b2344.6	Retire AEP's Marcellus 34.5/12 kV and Nicholsville 34.5/12 kV stations and also the Marcellus – Valley 34.5 kV line		AEP (100%)
b2345.1	Construct a new 69 kV line from Hartford to Keeler (~8 miles)		AEP (100%)
b2345.2	Rebuild the 34.5 kV lines between Keeler - Sister Lakes and Glenwood tap switch to 69 kV (~12 miles)		AEP (100%)

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Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b2345.3	Implement in - out at Keeler and Sister Lakes 34.5 kV stations	AEP (100%)
b2345.4	Retire Glenwood tap switch and construct a new Rothadew station. These new lines will continue to operate at 34.5 kV	AEP (100%)
b2346	Perform a sag study for Howard - North Bellville - Millwood 138 kV line including terminal equipment upgrades	AEP (100%)
b2347	Replace the North Delphos 600A switch. Rebuild approximately 18.7 miles of 138 kV line North Delphos - S073. Reconductor the line and replace the existing tower structures	AEP (100%)
b2348	Construct a new 138 kV line from Richlands Station to intersect with the Hales Branch - Grassy Creek 138 kV circuit	AEP (100%)
b2374	Change the existing CT ratios of the existing equipment along Bearskin - Smith Mountain 138kV circuit	AEP (100%)
b2375	Change the existing CT ratios of the existing equipment along East Danville-Banister 138kV circuit	AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2376	Replace the Turner 138 kV breaker 'D'		AEP (100%)
b2377	Replace the North Newark 138 kV breaker 'P'		AEP (100%)
b2378	Replace the Sporn 345 kV breaker 'DD'		AEP (100%)
b2379	Replace the Sporn 345 kV breaker 'DD2'		AEP (100%)
b2380	Replace the Muskingum 345 kV breaker 'SE'		AEP (100%)
b2381	Replace the East Lima 138 kV breaker 'E1'		AEP (100%)
b2382	Replace the Delco 138 kV breaker 'R'		AEP (100%)
b2383	Replace the Sporn 345 kV breaker 'AA2'		AEP (100%)
b2384	Replace the Sporn 345 kV breaker 'CC'		AEP (100%)
b2385	Replace the Sporn 345 kV breaker 'CC2'		AEP (100%)
b2386	Replace the Astor 138 kV breaker '102'		AEP (100%)
b2387	Replace the Muskingum 345 kV breaker 'SH'		AEP (100%)
b2388	Replace the Muskingum 345 kV breaker 'SI'		AEP (100%)
b2389	Replace the Hyatt 138 kV breaker '105N'		AEP (100%)
b2390	Replace the Muskingum 345 kV breaker 'SG'		AEP (100%)
b2391	Replace the Hyatt 138 kV breaker '101C'		AEP (100%)
b2392	Replace the Hyatt 138 kV breaker '104N'		AEP (100%)
b2393	Replace the Hyatt 138 kV breaker '104S'		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2394	Replace the Sporn 345 kV breaker 'CC1'		AEP (100%)
b2409	Install two 56.4 MVAR capacitor banks at the Melmore 138 kV station in Ohio		AEP (100%)
b2410	Convert Hogan Mullin 34.5 kV line to 138 kV, establish 138 kV line between Jones Creek and Strawton, rebuild existing Mullin Elwood 34.5 kV and terminate line into Strawton station, retire Mullin station		AEP (100%)
b2411	Rebuild the 3/0 ACSR portion of the Hadley - Kroemer Tap 69 kV line utilizing 795 ACSR conductor		AEP (100%)
b2423	Install a 300 MVAR shunt reactor at AEP's Wyoming 765 kV station		**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%)
			DFAX Allocation: AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2444	Willow - Eureka 138 kV line: Reconductor 0.26 mile of 4/0 CU with 336 ACSS		AEP (100%)
b2445	Complete a sag study of Tidd - Mahans Lake 138 kV line		AEP (100%)
b2449	Rebuild the 7-mile 345 kV line between Meadow Lake and Reynolds 345 kV stations		AEP (100%)
b2462	Add two 138 kV circuit breakers at Fremont station to fix tower contingency '408_2'		AEP (100%)
b2501	Construct a new 138/69 kV Yager station by tapping 2-138 kV FE circuits (Nottingham-Cloverdale, Nottingham-Harmon)		AEP (100%)
b2501.2	Build a new 138 kV line from new Yager station to Azalea station		AEP (100%)
b2501.3	Close the 138 kV loop back into Yager 138 kV by converting part of local 69 kV facilities to 138 kV		AEP (100%)
b2501.4	Build 2 new 69 kV exits to reinforce 69 kV facilities and upgrade conductor between Irish Run 69 kV Switch and Bowerstown 69 kV Switch		AEP (100%)

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Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b2502.1	Construct new 138 kV switching station Nottingham tapping 6-138 kV FE circuits (Holloway-Brookside, Holloway-Harmon #1 and #2, Holloway-Reeds, Holloway-New Stacy, Holloway-Cloverdale). Exit a 138 kV circuit from new station to Freebyrd station	AEP (100%)
b2502.2	Convert Freebyrd 69 kV to 138 kV	AEP (100%)
b2502.3	Rebuild/convert Freebyrd-South Cadiz 69 kV circuit to 138 kV	AEP (100%)
b2502.4	Upgrade South Cadiz to 138 kV breaker and a half	AEP (100%)
b2530	Replace the Sporn 138 kV breaker ‘G1’ with 80kA breaker	AEP (100%)
b2531	Replace the Sporn 138 kV breaker ‘D’ with 80kA breaker	AEP (100%)
b2532	Replace the Sporn 138 kV breaker ‘O1’ with 80kA breaker	AEP (100%)
b2533	Replace the Sporn 138 kV breaker ‘P2’ with 80kA breaker	AEP (100%)
b2534	Replace the Sporn 138 kV breaker ‘U’ with 80kA breaker	AEP (100%)
b2535	Replace the Sporn 138 kV breaker ‘O’ with 80 kA breaker	AEP (100%)

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Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b2536	Replace the Sporn 138 kV breaker 'O2' with 80 kA breaker	AEP (100%)
b2537	Replace the Robinson Park 138 kV breakers A1, A2, B1, B2, C1, C2, D1, D2, E1, E2, and F1 with 63 kA breakers	AEP (100%)
b2555	Reconductor 0.5 miles Tiltonsville – Windsor 138 kV and string the vacant side of the 4.5 mile section using 556 ACSR in a six wire configuration	AEP (100%)
b2556	Install two 138 kV prop structures to increase the maximum operating temperature of the Clinch River- Clinch Field 138 kV line	AEP (100%)
b2581	Temporary operating procedure for delay of upgrade b1464. Open the Corner 138 kV circuit breaker 86 for an overload of the Corner – Washington MP 138 kV line. The tower contingency loss of Belmont – Trissler 138 kV and Belmont – Edgelawn 138 kV should be added to Operational contingency	AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2591	Construct a new 69 kV line approximately 2.5 miles from Colfax to Drewry's. Construct a new Drewry's station and install a new circuit breaker at Colfax station.		AEP (100%)
b2592	Rebuild existing East Coshocton – North Coshocton double circuit line which contains Newcomerstown – N. Coshocton 34.5 kV Circuit and Coshocton – North Coshocton 69 kV circuit		AEP (100%)
b2593	Rebuild existing West Bellaire – Glencoe 69 kV line with 138 kV & 69 kV circuits and install 138/69 kV transformer at Glencoe Switch		AEP (100%)
b2594	Rebuild 1.0 mile of Brantley – Bridge Street 69 kV Line with 1033 ACSR overhead conductor		AEP (100%)
b2595.1	Rebuild 7.82 mile Elkhorn City – Haysi S.S 69 kV line utilizing 1033 ACSR built to 138 kV standards		AEP (100%)
b2595.2	Rebuild 5.18 mile Moss – Haysi SS 69 kV line utilizing 1033 ACSR built to 138 kV standards		AEP (100%)
b2596	Move load from the 34.5 kV bus to the 138 kV bus by installing a new 138/12 kV XF at New Carlisle station in Indiana		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2597	Rebuild approximately 1 mi. section of Dragoon-Virgil Street 34.5 kV line between Dragoon and Dodge Tap switch and replace Dodge switch MOAB to increase thermal capability of Dragoon-Dodge Tap branch		AEP (100%)
b2598	Rebuild approximately 1 mile section of the Kline-Virgil Street 34.5 kV line between Kline and Virgil Street tap. Replace MOAB switches at Beiger, risers at Kline, switches and bus at Virgil Street.		AEP (100%)
b2599	Rebuild approximately 0.1 miles of 69 kV line between Albion and Albion tap		AEP (100%)
b2600	Rebuild Fremont – Pound line as 138 kV		AEP (100%)
b2601	Fremont Station Improvements		AEP (100%)
b2601.1	Replace MOAB towards Beaver Creek with 138 kV breaker		AEP (100%)
b2601.2	Replace MOAB towards Clinch River with 138 kV breaker		AEP (100%)
b2601.3	Replace 138 kV Breaker A with new bus-tie breaker		AEP (100%)
b2601.4	Re-use Breaker A as high side protection on transformer #1		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2601.5	Install two (2) circuit switchers on high side of transformers # 2 and 3 at Fremont Station		AEP (100%)
b2602.1	Install 138 kV breaker E2 at North Proctorville		AEP (100%)
b2602.2	Construct 2.5 Miles of 138 kV 1033 ACSR from East Huntington to Darrah 138 kV substations		AEP (100%)
b2602.3	Install breaker on new line exit at Darrah towards East Huntington		AEP (100%)
b2602.4	Install 138 kV breaker on new line at East Huntington towards Darrah		AEP (100%)
b2602.5	Install 138 kV breaker at East Huntington towards North Proctorville		AEP (100%)
b2603	Boone Area Improvements		AEP (100%)
b2603.1	Purchase approximately a 200X300 station site near Slaughter Creek 46 kV station (Wilbur Station)		AEP (100%)
b2603.2	Install 3 138 kV circuit breakers, Cabin Creek to Hernshaw 138 kV circuit		AEP (100%)
b2603.3	Construct 1 mi. of double circuit 138 kV line on Wilbur – Boone 46 kV line with 1590 ACSS 54/19 conductor @ 482 Degree design temp. and 1-159 12/7 ACSR and one 86 Sq.MM. 0.646” OPGW Static wires		AEP (100%)
b2604	Bellefonte Transformer Addition		AEP (100%)

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Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b2605	Rebuild and reconductor Kammer – George Washington 69 kV circuit and George Washington – Moundsville ckt #1, designed for 138kV. Upgrade limiting equipment at remote ends and at tap stations		AEP (100%)
b2606	Convert Bane – Hammondsville from 23 kV to 69 kV operation		AEP (100%)
b2607	Pine Gap Relay Limit Increase		AEP (100%)
b2608	Richlands Relay Upgrade		AEP (100%)
b2609	Thorofare – Goff Run – Powell Mountain 138 kV Build		AEP (100%)
b2610	Rebuild Pax Branch – Scaraboro as 138 kV		AEP (100%)
b2611	Skin Fork Area Improvements		AEP (100%)
b2611.1	New 138/46 kV station near Skin Fork and other components		AEP (100%)
b2611.2	Construct 3.2 miles of 1033 ACSR double circuit from new Station to cut into Sundial-Baileysville 138 kV line		AEP (100%)
b2634.1	Replace metering BCT on Tanners Creek CB T2 with a slip over CT with higher thermal rating in order to remove 1193 MVA limit on facility (Miami Fort-Tanners Creek 345 kV line)		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2643	Replace the Darrah 138 kV breaker 'L' with 40kA rated breaker		AEP (100%)
b2645	Ohio Central 138 kV Loop		AEP (100%)
b2667	Replace the Muskingum 138 kV bus # 1 and 2		AEP (100%)
b2668	Reconductor Dequine to Meadow Lake 345 kV circuit #1 utilizing dual 954 ACSR 54/7 cardinal conductor		AEP (100%)
b2669	Install a second 345/138 kV transformer at Desoto		AEP (100%)
b2670	Replace switch at Elk Garden 138 kV substation (on the Elk Garden – Lebanon 138 kV circuit)		AEP (100%)
b2671	Replace/upgrade/add terminal equipment at Bradley, Mullensville, Pinnacle Creek, Itmann, and Tams Mountain 138 kV substations. Sag study on Mullens – Wyoming and Mullens – Tams Mt. 138 kV circuits		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2687.1	Install a +/- 450 MVAR SVC at Jacksons Ferry 765 kV substation		**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%)
			DFAX Allocation: AEP (100%)

*Neptune Regional Transmission System, LLC

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Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b2687.2	Install a 300 MVAR shunt line reactor on the Broadford end of the Broadford – Jacksons Ferry 765 kV line		**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%)
			DFAX Allocation: AEP (100%)
b2697.1	Mitigate violations identified by sag study to operate Fieldale-Thornton-Franklin 138 kV overhead line conductor at its max. operating temperature. 6 potential line crossings to be addressed.		AEP (100%)
b2697.2	Replace terminal equipment at AEP's Danville and East Danville substations to improve thermal capacity of Danville – East Danville 138 kV circuit		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2698	Replace relays at AEP's Cloverdale and Jackson's Ferry substations to improve the thermal capacity of Cloverdale – Jackson's Ferry 765 kV line		AEP (100%)
b2701.1	Construct Herlan station as breaker and a half configuration with 9-138 kV CB's on 4 strings and with 2-28.8 MVAR capacitor banks		AEP (100%)
b2701.2	Construct new 138 kV line from Herlan station to Blue Racer station. Estimated approx. 3.2 miles of 1234 ACSS/TW Yukon and OPGW		AEP (100%)
2701.3	Install 1-138 kV CB at Blue Racer to terminate new Herlan circuit		AEP (100%)
b2714	Rebuild/upgrade line between Glencoe and Willow Grove Switch 69 kV		AEP (100%)
b2715	Build approximately 11.5 miles of 34.5 kV line with 556.5 ACSR 26/7 Dove conductor on wood poles from Flushing station to Smyrna station		AEP (100%)
b2727	Replace the South Canton 138 kV breakers 'K', 'J', 'J1', and 'J2' with 80kA breakers		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2731	Convert the Sunnyside – East Sparta – Malvern 23 kV sub-transmission network to 69 kV. The lines are already built to 69 kV standards		AEP (100%)
b2733	Replace South Canton 138 kV breakers 'L' and 'L2' with 80 kA rated breakers		AEP (100%)
b2750.1	Retire Betsy Layne 138/69/43 kV station and replace it with the greenfield Stanville station about a half mile north of the existing Betsy Layne station		AEP (100%)
b2750.2	Relocate the Betsy Layne capacitor bank to the Stanville 69 kV bus and increase the size to 14.4 MVAR		AEP (100%)
b2753.1	Replace existing George Washington station 138 kV yard with GIS 138 kV breaker and a half yard in existing station footprint. Install 138 kV revenue metering for new IPP connection		AEP (100%)
b2753.2	Replace Dilles Bottom 69/4 kV Distribution station as breaker and a half 138 kV yard design including AEP Distribution facilities but initial configuration will constitute a 3 breaker ring bus		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2753.3	Connect two 138 kV 6-wired circuits from "Point A" (currently de-energized and owned by FirstEnergy) in circuit positions previously designated Burger #1 & Burger #2 138 kV. Install interconnection settlement metering on both circuits exiting Holloway		AEP (100%)
b2753.6	Build double circuit 138 kV line from Dilles Bottom to "Point A". Tie each new AEP circuit in with a 6-wired line at Point A. This will create a Dilles Bottom – Holloway 138 kV circuit and a George Washington – Holloway 138 kV circuit		AEP (100%)
b2753.7	Retire line sections (Dilles Bottom – Bellaire and Moundsville – Dilles Bottom 69 kV lines) south of FirstEnergy 138 kV line corridor, near "Point A". Tie George Washington – Moundsville 69 kV circuit to George Washington – West Bellaire 69 kV circuit		AEP (100%)
b2753.8	Rebuild existing 69 kV line as double circuit from George Washington – Dilles Bottom 138 kV. One circuit will cut into Dilles Bottom 138 kV initially and the other will go past with future plans to cut in		AEP (100%)

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Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b2760	Perform a Sag Study of the Saltville – Tazewell 138 kV line to increase the thermal rating of the line		AEP (100%)
b2761.1	Replace the Hazard 161/138 kV transformer		AEP (100%)
b2761.2	Perform a Sag Study of the Hazard – Wooten 161 kV line to increase the thermal rating of the line		AEP (100%)
b2761.3	Rebuild the Hazard – Wooton 161 kV line utilizing 795 26/7 ACSR conductor (300 MVA rating)		AEP (100%)
b2762	Perform a Sag Study of Nagel – West Kingsport 138 kV line to increase the thermal rating of the line		AEP (100%)
b2776	Reconductor the entire Dequine – Meadow Lake 345 kV circuit #2		AEP (100%)
b2777	Reconductor the entire Dequine – Eugene 345 kV circuit #1		*EKPC* (100%)
b2779.1	Construct a new 138 kV station, Campbell Road, tapping into the Grabill – South Hicksville138 kV line		AEP (100%)
b2779.2	Reconstruct sections of the Butler-N.Hicksville and Auburn-Butler 69 kV circuits as 138 kV double circuit and extend 138 kV from Campbell Road station		AEP (100%)

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Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b2779.3	Construct a new 345/138 kV SDI Wilmington Station which will be sourced from Collingwood 345 kV and serve the SDI load at 345 kV and 138 kV, respectively	AEP (100%)
b2779.4	Loop 138 kV circuits in-out of the new SDI Wilmington 138 kV station resulting in a direct circuit to Auburn 138 kV and an indirect circuit to Auburn and Rob Park via Dunton Lake, and a circuit to Campbell Road; Reconductor 138 kV line section between Dunton Lake – SDI Wilmington	AEP (100%)
b2779.5	Expand Auburn 138 kV bus	AEP (100%)
b2779.6	Construct a 345 kV ring bus at Dunton Lake to serve Steel Dynamics, Inc. (SDI) load at 345 kV via two (2) circuits	AEP (100%)
b2779.7	Retire Collingwood 345 kV station	AEP (100%)
b2787	Reconductor 0.53 miles (14 spans) of the Kaiser Jct. - Air Force Jct. Sw section of the Kaiser - Heath 69 kV circuit/line with 336 ACSR to match the rest of the circuit (73 MVA rating, 78% loading)	AEP (100%)

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Required Transmission Enhancements	Annual Revenue Requirement		Responsible Customer(s)
b2788	Install a new 3-way 69 kV line switch to provide service to AEP's Barnesville distribution station. Remove a portion of the #1 copper T-Line from the 69 kV through-path		AEP (100%)
b2789	Rebuild the Brues - Glendale Heights 69 kV line section (5 miles) with 795 ACSR (128 MVA rating, 43% loading)		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2790	Install a 3 MVAR, 34.5 kV cap bank at Caldwell substation		AEP (100%)
b2791	Rebuild Tiffin – Howard, new transformer at Chatfield		AEP (100%)
b2791.1	Rebuild portions of the East Tiffin - Howard 69 kV line from East Tiffin to West Rockaway Switch (0.8 miles) using 795 ACSR Drake conductor (129 MVA rating, 50% loading)		AEP (100%)
b2791.2	Rebuild Tiffin - Howard 69 kV line from St. Stephen's Switch to Hinesville (14.7 miles) using 795 ACSR Drake conductor (90 MVA rating, non-conductor limited, 38% loading)		AEP (100%)
b2791.3	New 138/69 kV transformer with 138/69 kV protection at Chatfield		AEP (100%)
b2791.4	New 138/69 kV protection at existing Chatfield transformer		AEP (100%)
b2792	Replace the Elliott transformer with a 130 MVA unit, reconductor 0.42 miles of the Elliott – Ohio University 69 kV line with 556 ACSR to match the rest of the line conductor (102 MVA rating, 73% loading) and rebuild 4 miles of the Clark Street – Strouds R		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2793	Energize the spare Fremont Center 138/69 kV 130 MVA transformer #3. Reduces overloaded facilities to 46% loading		AEP (100%)
b2794	Construct new 138/69/34 kV station and 1-34 kV circuit (designed for 69 kV) from new station to Decliff station, approximately 4 miles, with 556 ACSR conductor (51 MVA rating)		AEP (100%)
b2795	Install a 34.5 kV 4.8 MVAR capacitor bank at Killbuck 34.5 kV station		AEP (100%)
b2796	Rebuild the Malvern - Oneida Switch 69 kV line section with 795 ACSR (1.8 miles, 125 MVA rating, 55% loading)		AEP (100%)
b2797	Rebuild the Ohio Central - Conesville 69 kV line section (11.8 miles) with 795 ACSR conductor (128 MVA rating, 57% loading). Replace the 50 MVA Ohio Central 138/69 kV XFMR with a 90 MVA unit		AEP (100%)
b2798	Install a 14.4 MVAR capacitor bank at West Hicksville station. Replace ground switch/MOAB at West Hicksville with a circuit switcher		AEP (100%)
b2799	Rebuild Valley - Almena, Almena - Hartford, Riverside - South Haven 69 kV lines. New line exit at Valley Station. New transformers at Almena and Hartford		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2799.1	Rebuild 12 miles of Valley – Almena 69 kV line as a double circuit 138/69 kV line using 795 ACSR conductor (360 MVA rating) to introduce a new 138 kV source into the 69 kV load pocket around Almena station		AEP (100%)
b2799.2	Rebuild 3.2 miles of Almena to Hartford 69 kV line using 795 ACSR conductor (90 MVA rating)		AEP (100%)
b2799.3	Rebuild 3.8 miles of Riverside – South Haven 69 kV line using 795 ACSR conductor (90 MVA rating)		AEP (100%)
b2799.4	At Valley station, add new 138 kV line exit with a 3000 A 40 kA breaker for the new 138 kV line to Almena and replace CB D with a 3000 A 40 kA breaker		AEP (100%)
b2799.5	At Almena station, install a 90 MVA 138/69 kV transformer with low side 3000 A 40 kA breaker and establish a new 138 kV line exit towards Valley		AEP (100%)
b2799.6	At Hartford station, install a second 90 MVA 138/69 kV transformer with a circuit switcher and 3000 A 40 kA low side breaker		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2817	Replace Delaware 138 kV breaker 'P' with a 40 kA breaker		AEP (100%)
b2818	Replace West Huntington 138 kV breaker 'F' with a 40 kA breaker		AEP (100%)
b2819	Replace Madison 138 kV breaker 'V' with a 63 kA breaker		AEP (100%)
b2820	Replace Sterling 138 kV breaker 'G' with a 40 kA breaker		AEP (100%)
b2821	Replace Morse 138 kV breakers '103', '104', '105', and '106' with 63 kA breakers		AEP (100%)
b2822	Replace Clinton 138 kV breakers '105' and '107' with 63 kA breakers		AEP (100%)
b2826.1	Install 300 MVAR reactor at Ohio Central 345 kV substation		AEP (100%)

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Required Transmission Enhancements	Annual Revenue Requirement		Responsible Customer(s)
b2826.2	Install 300 MVAR reactor at West Bellaire 345 kV substation		AEP (100%)
b2831.1	Upgrade the Tanner Creek – Miami Fort 345 kV circuit (AEP portion)		**DFAX Allocation:** Dayton (*61.71%*) / DEOK (*37.68%*) / *OVEC (0.61%)*
b2832	Six wire the Kyger Creek – Sporn 345 kV circuits #1 and #2 and convert them to one circuit		AEP (100%)
b2833	Reconductor the Maddox Creek – East Lima 345 kV circuit with 2-954 ACSS Cardinal conductor		**DFAX Allocation:** *AEP (80.83%) /* Dayton (*18.73%*) */ OVEC (0.44%)*
b2834	Reconductor and string open position and sixwire 6.2 miles of the Chemical – Capitol Hill 138 kV circuit		AEP (100%)
b2872	Replace the South Canton 138 kV breaker 'K2' with a 80 kA breaker		AEP (100%)
b2873	Replace the South Canton 138 kV breaker "M" with a 80 kA breaker		AEP (100%)
b2874	Replace the South Canton 138 kV breaker "M2" with a 80 kA breaker		AEP (100%)
b2878	Upgrade the Clifty Creek 345 kV risers		AEP (100%)
b2880	Rebuild approximately 4.77 miles of the Cannonsburg – South Neal 69 kV line section utilizing 795 ACSR conductor (90 MVA rating)		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2881	Rebuild ~1.7 miles of the Dunn Hollow – London 46 kV line section utilizing 795 26/7 ACSR conductor (58 MVA rating, non-conductor limited)		AEP (100%)
b2882	Rebuild Reusens - Peakland Switch 69 kV line. Replace Peakland Switch		AEP (100%)
b2882.1	Rebuild the Reusens - Peakland Switch 69 kV line (approximately 0.8 miles) utilizing 795 ACSR conductor (86 MVA rating, non-conductor limited)		AEP (100%)
b2882.2	Replace existing Peakland S.S with new 3 way switch phase over phase structure		AEP (100%)
b2883	Rebuild the Craneco – Pardee – Three Forks – Skin Fork 46 kV line section (approximately 7.2 miles) utilizing 795 26/7 ACSR conductor (108 MVA rating)		AEP (100%)
b2884	Install a second transformer at Nagel station, comprised of 3 single phase 250 MVA 500/138 kV transformers. Presently, TVA operates their end of the Boone Dam – Holston 138 kV interconnection as normally open preemptively for the loss of the existing Nagel		AEP (100%)
b2885	New delivery point for City of Jackson		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2885.1	Install a new Ironman Switch to serve a new delivery point requested by the City of Jackson for a load increase request		AEP (100%)
b2885.2	Install a new 138/69 kV station (Rhodes) to serve as a third source to the area to help relieve overloads caused by the customer load increase		AEP (100%)
b2885.3	Replace Coalton Switch with a new three breaker ring bus (Heppner)		AEP (100%)
b2886	Install 90 MVA 138/69 kV transformer, new transformer high and low side 3000 A 40 kA CBs, and a 138 kV 40 kA bus tie breaker at West End Fostoria		AEP (100%)
b2887	Add 2-138 kV CB's and relocate 2-138 kV circuit exits to different bays at Morse Road. Eliminate 3 terminal line by terminating Genoa - Morse circuit at Morse Road		AEP (100%)
b2888	Retire Poston substation. Install new Lemaster substation		AEP (100%)
b2888.1	Remove and retire the Poston 138 kV station		AEP (100%)
b2888.2	Install a new greenfield station, Lemaster 138 kV Station, in the clear		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2888.3	Relocate the Trimble 69 kV AEP Ohio radial delivery point to 138 kV, to be served off of the Poston – Strouds Run – Crooksville 138 kV circuit via a new three-way switch. Retire the Poston - Trimble 69 kV line		AEP (100%)
b2889	Expand Cliffview station		AEP (100%)
b2889.1	Cliffview Station: Establish 138 kV bus. Install two 138/69 kV XFRs (130 MVA), six 138 kV CBs (40 kA 3000 A) and four 69 kV CBs (40 kA 3000 A)		AEP (100%)
b2889.2	Byllesby – Wythe 69 kV: Retire all 13.77 miles (1/0 CU) of this circuit (~4 miles currently in national forest)		AEP (100%)
b2889.3	Galax – Wythe 69 kV: Retire 13.53 miles (1/0 CU section) of line from Lee Highway down to Byllesby. This section is currently double circuited with Byllesby – Wythe 69 kV. Terminate the southern 3/0 ACSR section into the newly opened position at Byllesby		AEP (100%)
b2889.4	Cliffview Line: Tap the existing Pipers Gap – Jubal Early 138 kV line section. Construct double circuit in/out (~2 miles) to newly established 138 kV bus, utilizing 795 26/7 ACSR conductor		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2890.1	Rebuild 23.55 miles of the East Cambridge – Smyrna 34.5 kV circuit with 795 ACSR conductor (128 MVA rating) and convert to 69 kV		AEP (100%)
b2890.2	East Cambridge: Install a 2000 A 69 kV 40 kA circuit breaker for the East Cambridge – Smyrna 69 kV circuit		AEP (100%)
b2890.3	Old Washington: Install 69 kV 2000 A two way phase over phase switch		AEP (100%)
b2890.4	Install 69 kV 2000 A two way phase over phase switch		AEP (100%)
b2891	Rebuild the Midland Switch to East Findlay 34.5 kV line (3.31 miles) with 795 ACSR (63 MVA rating) to match other conductor in the area		AEP (100%)
b2892	Install new 138/12 kV transformer with high side circuit switcher at Leon and a new 138 kV line exit towards Ripley. Establish 138 kV at the Ripley station with a new 138/69 kV 130 MVA transformer and move the distribution load to 138 kV service		AEP (100%)
b2936.1	Rebuild approximately 6.7 miles of 69 kV line between Mottville and Pigeon River using 795 ACSR conductor (129 MVA rating). New construction will be designed to 138 kV standards but operated at 69 kV		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2936.2	Pigeon River Station: Replace existing MOAB Sw. 'W' with a new 69 kV 3000 A 40 kA breaker, and upgrade existing relays towards HMD station. Replace CB H with a 3000 A 40 kA breaker		AEP (100%)
b2937	Replace the existing 636 ACSR 138 kV bus at Fletchers Ridge with a larger 954 ACSR conductor		AEP (100%)
b2938	Perform a sag mitigations on the Broadford – Wolf Hills 138 kV circuit to allow the line to operate to a higher maximum temperature		AEP (100%)
b2958.1	Cut George Washington – Tidd 138 kV circuit into Sand Hill and reconfigure Brues & Warton Hill line entrances		AEP (100%)
b2958.2	Add 2 138 kV 3000 A 40 kA breakers, disconnect switches, and update relaying at Sand Hill station		AEP (100%)
b2968	Upgrade existing 345 kV terminal equipment at Tanner Creek station		AEP (100%)
b2969	Replace terminal equipment on Maddox Creek - East Lima 345 kV circuit		AEP (100%)
b2976	Upgrade terminal equipment at Tanners Creek 345 kV station. Upgrade 345 kV bus and risers at Tanners Creek for the Dearborn circuit		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2988	Replace the Twin Branch 345 kV breaker "JM" with 63 kA breaker and associated substation works including switches, bus leads, control cable and new DICM		AEP (100%)
b2993	Rebuild the Torrey – South Gambrinus Switch – Gambrinus Road 69 kV line section (1.3 miles) with 1033 ACSR 'Curlew' conductor and steel poles		AEP (100%)
b3000	Replace South Canton 138 kV breaker 'N' with an 80kA breaker		AEP (100%)
b3001	Replace South Canton 138 kV breaker 'N1' with an 80kA breaker		AEP (100%)
b3002	Replace South Canton 138 kV breaker 'N2' with an 80kA breaker		AEP (100%)
b3036	Rebuild 15.6 miles of Haviland - North Delphos 138 kV line		AEP (100%)
b3037	Upgrades at the Natrium substation		AEP (100%)
b3038	Reconductor the Capitol Hill – Coco 138 kV line section		AEP (100%)
b3039	Line swaps at Muskingum 138 kV station		AEP (100%)
b3040.1	Rebuild Ravenswood – Racine tap 69 kV line section (~15 miles) to 69 kV standards, utilizing 795 26/7 ACSR conductor		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3040.2	Rebuild existing Ripley – Ravenswood 69 kV circuit (~9 miles) to 69 kV standards, utilizing 795 26/7 ACSR conductor		AEP (100%)
b3040.3	Install new 3-way phase over phase switch at Sarah Lane station to replace the retired switch at Cottageville		AEP (100%)
b3040.4	Install new 138/12 kV 20 MVA transformer at Polymer station to transfer load from Mill Run station to help address overload on the 69 kV network		AEP (100%)
b3040.5	Retire Mill Run station		AEP (100%)
b3040.6	Install 28.8 MVAR cap bank at South Buffalo station		AEP (100%)
b3051.2	Adjust CT tap ratio at Ronceverte 138 kV		AEP (100%)
b3085	Reconductor Kammer – George Washington 138 kV line (approx. 0.08 mile). Replace the wave trap at Kammer 138 kV		AEP (100%)
b3086.1	Rebuild New Liberty – Findlay 34 kV line Str's 1–37 (1.5 miles), utilizing 795 26/7 ACSR conductor		AEP (100%)
b3086.2	Rebuild New Liberty – North Baltimore 34 kV line Str's 1-11 (0.5 mile), utilizing 795 26/7 ACSR conductor		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3086.3	Rebuild West Melrose – Whirlpool 34 kV line Str's 55–80 (1 mile), utilizing 795 26/7 ACSR conductor		AEP (100%)
b3086.4	North Findlay station: Install a 138 kV 3000A 63kA line breaker and low side 34.5 kV 2000A 40kA breaker, high side 138 kV circuit switcher on T1		AEP (100%)
b3086.5	Ebersole station: Install second 90 MVA 138/69/34 kV transformer. Install two low side (69 kV) 2000A 40kA breakers for T1 and T2		AEP (100%)
b3087.1	Construct a new greenfield station to the west (approx. 1.5 miles) of the existing Fords Branch Station in the new Kentucky Enterprise Industrial Park. This station will consist of six 3000A 40kA 138 kV breakers laid out in a ring arrangement, two 30 MVA 138/34.5 kV transformers, and two 30 MVA 138/12 kV transformers. The existing Fords Branch Station will be retired		AEP (100%)
b3087.2	Construct approximately 5 miles of new double circuit 138 kV line in order to loop the new Kewanee station into the existing Beaver Creek – Cedar Creek 138 kV circuit		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3087.3	Remote end work will be required at Cedar Creek Station		AEP (100%)
b3087.4	Install 28.8 MVar switching shunt at the new Fords Branch substation		AEP (100%)
b3095	Rebuild Lakin – Racine Tap 69 kV line section (9.2 miles) to 69 kV standards, utilizing 795 26/7 ACSR conductor		AEP (100%)
b3099	Install a 138 kV 3000A 40 kA circuit switcher on the high side of the existing 138/34.5 kV transformer No.5 at Holston station		AEP (100%)
b3100	Replace the 138 kV MOAB switcher "YY" with a new 138 kV circuit switcher on the high side of Chemical transformer No.6		AEP (100%)
b3101	Rebuild the 1/0 Cu. conductor sections (approx. 1.5 miles) of the Fort Robinson – Moccasin Gap 69 kV line section (approx. 5 miles) utilizing 556 ACSR conductor and upgrade existing relay trip limit (WN/WE: 63 MVA, line limited by remaining conductor sections)		AEP (100%)
b3102	Replace existing 50 MVA 138/69 kV transformers #1 and #2 (both 1957 vintage) at Fremont station with new 130 MVA 138/69 kV transformers		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3103.1	Install a 138/69 kV transformer at Royerton station. Install a 69 kV bus with one 69 kV breaker toward Bosman station. Rebuild the 138 kV portion into a ring bus configuration built for future breaker and a half with four 138 kV breakers		AEP (100%)
b3103.2	Rebuild the Bosman/Strawboard station in the clear across the road to move it out of the flood plain and bring it up to 69 kV standards		AEP (100%)
b3103.3	Retire 138 kV breaker L at Delaware station and re-purpose 138 kV breaker M for the Jay line		AEP (100%)
b3103.4	Retire all 34.5 kV equipment at Hartford City station. Re-purpose breaker M for the Bosman line 69 kV exit		AEP (100%)
b3103.5	Rebuild the 138 kV portion of Jay station as a 6 breaker, breaker and a half station re-using the existing breakers "A", "B", and "G." Rebuild the 69 kV portion of this station as a 6 breaker ring bus re-using the 2 existing 69 kV breakers. Install a new 138/69 kV transformer		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3103.6	Rebuild the 69 kV Hartford City – Armstrong Cork line but instead of terminating it into Armstrong Cork, terminate it into Jay station		AEP (100%)
b3103.7	Build a new 69 kV line from Armstrong Cork – Jay station		AEP (100%)
b3103.8	Rebuild the 34.5 kV Delaware – Bosman line as the 69 kV Royerton – Strawboard line. Retire the line section from Royerton to Delaware stations		AEP (100%)
b3104	Perform a sag study on the Polaris – Westerville 138 kV line (approx. 3.6 miles) to increase the summer emergency rating to 310 MVA		AEP (100%)
b3105	Rebuild the Delaware – Hyatt 138 kV line (approx. 4.3 miles) along with replacing conductors at both Hyatt and Delaware substations		AEP (100%)
b3106	Perform a sag study (6.8 miles of line) to increase the SE rating to 310 MVA. Note that results from the sag study could cover a wide range of outcomes, from no work required to a complete rebuild		AEP (100%)
b3109	Rebuild 5.2 miles Bethel – Sawmill 138 kV line including ADSS		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3112	Construct a single circuit 138 kV line (approx. 3.5 miles) from Amlin to Dublin using 1033 ACSR Curlew (296 MVA SN), convert Dublin station into a ring configuration, and re-terminating the Britton UG cable to Dublin station		AEP (100%)
b3116	Replace existing Mullens 138/46 kV 30 MVA transformer No.4 and associated protective equipment with a new 138/46 kV 90 MVA transformer and associated protective equipment		AEP (100%)
b3118.1	Expand existing Chadwick station and install a second 138/69 kV transformer at a new 138 kV bus tied into the Bellefonte – Grangston 138 kV circuit. The 69 kV bus will be reconfigured into a ring bus arrangement to tie the new transformer into the existing 69 kV via installation of four 3000A 63 kA 69 kV circuit breakers		AEP (100%)
b3118.2	Perform 138 kV remote end work at Grangston station		AEP (100%)
b3118.3	Perform 138 kV remote end work at Bellefonte station		AEP (100%)
b3118.4	Relocate the Chadwick – Leach 69 kV circuit within Chadwick station		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3118.5	Terminate the Bellefonte – Grangston 138 kV circuit to the Chadwick 138 kV bus		AEP (100%)
b3118.6	Chadwick – Tri-State #2 138 kV circuit will be reconfigured within the station to terminate into the newly established 138 kV bus #2 at Chadwick due to construability aspects		AEP (100%)
b3118.7	Reconductor Chadwick – Leach and Chadwick -– England Hill 69 kV lines with 795 ACSS conductor. Perform a LiDAR survey and a sag study to confirm that the reconductored circuits would maintain acceptable clearances		AEP (100%)
b3118.8	Replace the 20 kA 69 kV circuit breaker 'F' at South Neal station with a new 3000A 40 kA 69 kV circuit breaker. Replace line risers towards Leach station		AEP (100%)
b3118.9	Rebuild 336 ACSR portion of Leach – Miller S.S 69 kV line section (approx. 0.3 mile) with 795 ACSS conductor		AEP (100%)
b3118.10	Replace 69 kV line risers (towards Chadwick) at Leach station		AEP (100%)
b3119.1	Rebuild the Jay – Pennville 138 kV line as double circuit 138/69 kV. Build a new 9.8 mile single circuit 69 kV line from near Pennville station to North Portland station		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3119.2	Install three (3) 69 kV breakers to create the "U" string and add a low side breaker on the Jay transformer 2		AEP (100%)
b3119.3	Install two (2) 69 kV breakers at North Portland station to complete the ring and allow for the new line		AEP (100%)
b3129	At Conesville 138 kV station: Remove line leads to generating units, transfer plant AC service to existing station service feeds in Conesville 345/138 kV yard, and separate and reconfigure protection schemes		AEP (100%)
b3131	At East Lima and Haviland 138 kV stations, replace line relays and wavetrap on the East Lima – Haviland 138 kV facility		AEP (100%)
b3132	Rebuild 3.11 miles of the LaPorte Junction – New Buffalo 69 kV line with 795 ACSR		AEP (100%)
b3139	Rebuild the Garden Creek – Whetstone 69 kV line (approx. 4 miles)		AEP (100%)
b3140	Rebuild the Whetstone – Knox Creek 69 kV line (approx. 3.1 miles)		AEP (100%)
b3141	Rebuild the Knox Creek – Coal Creek 69 kV line (approx. 2.9 miles)		AEP (100%)

American Electric Power Service Corporation on behalf of its affiliate companies: AEP Appalachian Transmission Company, Inc.; AEP Indiana Michigan Transmission Company, Inc.; AEP Kentucky Transmission Company, Inc.; AEP Ohio Transmission Company, Inc.; AEP West Virginia Transmission Company, Inc.; Appalachian Power Company; Indiana Michigan Power Company; Kentucky Power Company; Kingsport Power Company; Ohio Power Company and Wheeling Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3148.1	Rebuild the 46 kV Bradley – Scarbro line to 96 kV standards using 795 ACSR to achieve a minimum rate of 120 MVA. Rebuild the new line adjacent to the existing one leaving the old line in service until the work is completed		AEP (100%)
b3148.2	Bradley remote end station work, replace 46 kV bus, install new 12 MVAR capacitor bank		AEP (100%)
b3148.3	Replace the existing switch at Sun substation with a 2-way SCADA-controlled motor-operated air-breaker switch		AEP (100%)
b3148.4	Remote end work and associated equipment at Scarbro station		AEP (100%)
b3148.5	Retire Mt. Hope station and transfer load to existing Sun station		AEP (100%)
b3149	Rebuild the 2.3 mile Decatur – South Decatur 69 kV line using 556 ACSR		AEP (100%)
b3150	Rebuild Ferguson 69/12 kV station in the clear as the 138/12 kV Bear station and connect it to an approx. 1 mile double circuit 138 kV extension from the Aviation – Ellison Road 138 kV line to remove the load from the 69 kV line		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3151.1	Rebuild the 30 mile Gateway – Wallen 34.5 kV circuit as the 27 mile Gateway – Wallen 69 kV line		AEP (100%)
b3151.2	Retire approx. 3 miles of the Columbia – Whitley 34.5 kV line		AEP (100%)
b3151.3	At Gateway station, remove all 34.5 kV equipment and install one (1) 69 kV circuit breaker for the new Whitley line entrance		AEP (100%)
b3151.4	Rebuild Whitley as a 69 kV station with two (2) lines and one (1) bus tie circuit breaker		AEP (100%)
b3151.5	Replace the Union 34.5 kV switch with a 69 kV switch structure		AEP (100%)
b3151.6	Replace the Eel River 34.5 kV switch with a 69 kV switch structure		AEP (100%)
b3151.7	Install a 69 kV Bobay switch at Woodland station		AEP (100%)
b3151.8	Replace the Carroll and Churubusco 34.5 kV stations with the 69 kV Snapper station. Snapper station will have two (2) line circuit breakers, one (1) bus tie circuit breaker and a 14.4 MVAR cap bank		AEP (100%)
b3151.9	Remove 34.5 kV circuit breaker "AD" at Wallen station		AEP (100%)
b3151.10	Rebuild the 2.5 miles of the Columbia – Gateway 69 kV line		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3151.11	Rebuild Columbia station in the clear as a 138/69 kV station with two (2) 138/69 kV transformers and 4-breaker ring buses on the high and low side. Station will reuse 69 kV breakers "J" & "K" and 138 kV breaker "D"		AEP (100%)
b3151.12	Rebuild the 13 miles of the Columbia – Richland 69 kV line		AEP (100%)
b3151.13	Rebuild the 0.5 mile Whitley – Columbia City No.1 line as 69 kV		AEP (100%)
b3151.14	Rebuild the 0.5 mile Whitley – Columbia City No.2 line as 69 kV		AEP (100%)
b3151.15	Rebuild the 0.6 mile double circuit section of the Rob Park – South Hicksville / Rob Park – Diebold Road as 69 kV		AEP (100%)
b3160.1	Construct an approx. 2.4 miles double circuit 138 kV extension using 1033 ACSR (Aluminum Conductor Steel Reinforced) to connect Lake Head to the 138 kV network		AEP (100%)
b3160.2	Retire the approx.2.5 miles 34.5 kV Niles – Simplicity Tap line		AEP (100%)
b3160.3	Retire the approx.4.6 miles Lakehead 69 kV Tap		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3160.4	Build new 138/69 kV drop down station to feed Lakehead with a 138 kV breaker, 138 kV switcher, 138/69 kV transformer and a 138 kV Motor-Operated Air Break		AEP (100%)
b3160.5	Rebuild the approx. 1.2 miles Buchanan South 69 kV Radial Tap using 795 ACSR (Aluminum Conductor Steel Reinforced)		AEP (100%)
b3160.6	Rebuild the approx.8.4 miles 69 kV Pletcher – Buchanan Hydro line as the approx. 9 miles Pletcher – Buchanan South 69 kV line using 795 ACSR (Aluminum Conductor Steel Reinforced)		AEP (100%)
b3160.7	Install a PoP (Point-of-Presence) switch at Buchanan South station with 2 line MOABs (Motor-Operated Air Break)		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3208	Retire approximately 38 miles of the 44 mile Clifford – Scottsville 46 kV circuit. Build new 138 kV "in and out" to two new distribution stations to serve the load formerly served by Phoenix, Shipman, Schuyler (AEP), and Rockfish stations. Construct new 138 kV lines from Joshua Falls – Riverville (approx. 10 miles) and Riverville – Gladstone (approx. 5 miles). Install required station upgrades at Joshua Falls, Riverville and Gladstone stations to accommodate the new 138 kV circuits. Rebuild Reusen – Monroe 69 kV (approx. 4 miles)		AEP (100%)
b3209	Rebuild the 10.5 mile Berne – South Decatur 69 kV line using 556 ACSR		AEP (100%)
b3210	Replace approx. 0.7 mile Beatty – Galloway 69 kV line with 4000 kcmil XLPE cable		AEP (100%)
b3220	Install 14.4 MVAR capacitor bank at Whitewood 138 kV		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3243	Replace risers at the Bass 34.5 kV station		AEP (100%)
b3244	Rebuild approximately 9 miles of the Robinson Park – Harlan 69 kV line		AEP (100%)
b3248	Install a low side 69 kV circuit breaker at the Albion 138/69 kV transformer #1		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3253	Install a 3000A 40 kA 138 kV breaker on the high side of 138/69 kV transformer #5 at the Millbrook Park station. The transformer and associated bus protection will be upgraded accordingly		AEP (100%)
b3255	Upgrade 795 AAC risers at the Sand Hill 138 kV station towards Cricket Switch with 1272 AAC		AEP (100%)
b3256	Upgrade 500 MCM Cu risers at Tidd 138 kV station towards Wheeling Steel; replace with 1272 AAC conductor		AEP (100%)
b3257	Replace two spans of 336.4 26/7 ACSR on the Twin Branch – AM General #2 34.5 kV circuit		AEP (100%)
b3258	Install a 3000A 63 kA 138 kV breaker on the high side of 138/69 kV transformer #2 at Wagenhals station. The transformer and associated bus protection will be upgraded accordingly		AEP (100%)
b3259	At West Millersburg station, replace the 138 kV MOAB on the West Millersburg – Wooster 138 kV line with a 3000A 40 kA breaker		AEP (100%)
b3261	Upgrade circuit breaker “R1” at Tanners Creek 345 kV. Install Transient Recovery Voltage capacitor to increase the rating from 50 kA to 63 kA		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3269	At West New Philadelphia station, add a high side 138 kV breaker on the 138/69 kV Transformer #2 along with a 138 kV breaker on the line towards Newcomerstown		AEP (100%)
b3270	Install 1.7 miles of 795 ACSR 138 kV conductor along the other side of Dragoon Tap 138 kV line, which is currently double circuit tower with one position open. Additionally, install a second 138/34.5 kV transformer at Dragoon, install a high side circuit switcher on the current transformer at the Dragoon Station, and install two (2) 138 kV line breakers on the Dragoon – Jackson 138 kV and Dragoon – Twin Branch 138 kV lines		AEP (100%)
b3270.1	Replace Dragoon 34.5 kV breakers “B”, “C”, and “D” with 40 kA breakers		AEP (100%)
b3271	Install a 138 kV circuit breaker at Fremont station on the line towards Fremont Center and install a 9.6 MVAR 69 kV capacitor bank at Bloom Road station		AEP (100%)
b3272	Install two 138 kV circuit switchers on the high side of 138/34.5 kV Transformers #1 and #2 at Rockhill station		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3273.1	Rebuild and convert the existing 17.6 miles East Leipsic – New Liberty 34.5 kV circuit to 138 kV using 795 ACSR		AEP (100%)
b3273.2	Convert the existing 34.5 kV equipment to 138 kV and expand the existing McComb station to the north and east to allow for new equipment to be installed. Install two (2) new 138 kV box bays to allow for line positions and two (2) new 138/12 kV transformers		AEP (100%)
b3273.3	Expand the existing East Leipsic 138 kV station to the north to allow for another 138 kV line exit to be installed. The new line exit will involve installing a new 138 kV circuit breaker, disconnect switches and the addition of a new dead end structure along with the extension of the existing 138 kV bus work		AEP (100%)
b3273.4	Add one (1) 138 kV circuit breaker and disconnect switches in order to add an additional line position at New Liberty 138 kV station. Install line relaying potential devices and retire the 34.5 kV breaker 'F'		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3274	Rebuild approximately 8.9 miles of 69 kV line between Newcomerstown and Salt Fork Switch with 556 ACSR conductor		AEP (100%)
b3275.1	Rebuild the Kammer Station – Cresaps Switch 69 kV line, approximately 0.5 mile		AEP (100%)
b3275.2	Rebuild the Cresaps Switch – McElroy Station 69 kV, approximately 0.67 mile		AEP (100%)
b3275.3	Replace a single span of 4/0 ACSR from Moundsville - Natrium structure 93L to Carbon Tap switch 69 kV located between the Colombia Carbon and Conner Run stations. Remainder of the line is 336 ACSR		AEP (100%)
b3275.4	Rebuild from Colombia Carbon to Columbia Carbon Tap structure 93N 69 kV, approximately 0.72 mile. The remainder of the line between Colombia Carbon Tap structure 93N and Natrium station is 336 ACSR and will remain		AEP (100%)
b3275.5	Replace the Cresaps 69 kV 3-Way Phase-Over-Phase switch and structure with a new 1200A 3-Way switch and steel pole		AEP (100%)
b3275.6	Replace 477 MCM Alum bus and risers at McElroy 69 kV station		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3275.7	Replace Natrium 138 kV bus existing between CB-BT1 and along the 138 kV Main Bus #1 dropping to CBH1 from the 500 MCM conductors to a 1272 KCM AAC conductor. Replace the dead end clamp and strain insulators		AEP (100%)
b3276.1	Rebuild the 2/0 Copper section of the Lancaster – South Lancaster 69 kV line, approximately 2.9 miles of the 3.2 miles total length with 556 ACSR conductor. The remaining section has a 336 ACSR conductor		AEP (100%)
b3276.2	Rebuild the 1/0 Copper section of the line between Lancaster Junction and Ralston station 69 kV, approximately 2.3 miles of the 3.1 miles total length		AEP (100%)
b3276.3	Rebuild the 2/0 Copper portion of the line between East Lancaster Tap and Lancaster 69 kV, approximately 0.81 mile		AEP (100%)
b3312	Rebuild approximately 4 miles of existing 69 kV line between West Mount Vernon and Mount Vernon stations. Replace the existing 138/69 kV transformer at West Mount Vernon with a larger 90 MVA unit along with existing 69 kV breaker 'C'		AEP (100%)

SCHEDULE 12 – APPENDIX A

(18) Duquesne Light Company

Required Transmission Enhancements	Annual Revenue Requirement		Responsible Customer(s)
b2175.1	200 MVAR shunt reactor at Brunot Island 345 kV		DL (100%)
b2175.2	200 MVAR shunt reactor on future Brunot Island – Carson 345 kV circuit		DL (100%)
b2198	Revise the reclosing for the Brunot Island 138 kV breaker ‘Z-40 COLLIER'		DL (100%)
b2199	Revise the reclosing for the Brunot Island 138 kV breaker ‘Z-41 COLLIER'		DL (100%)
b2200	Revise the reclosing for the Crescent 138 kV breaker 'Z-29 Beaver'		DL (100%)
b2201	Revise the reclosing for the Crescent 138 kV breaker 'Z-82 VALLEY'		DL (100%)
b2202	Revise the reclosing for the Crescent 138 kV breaker 'Z-21 NORTH'		DL (100%)
b2203	Revise the reclosing for the Elrama 138 kV breaker 'Z18-USX CLAI'		DL (100%)
b2204	Revise the reclosing for the Elrama 138 kV breaker 'Z13-WEST MIF'		DL (100%)
b2205	Revise the reclosing for the Elrama 138 kV breaker 'Z15 -DRAVOSBU'		DL (100%)
b2206	Revise the reclosing for the Woodville 138 kV breaker 'Z-106 PINEY'		DL (100%)
b2207	Revise the reclosing for the Woodville 138 kV breaker 'Z-64 COLLIER'		DL (100%)
b2208	Revise the reclosing for the Beaver Valley 138 kV breaker 'Z-28 CRESCEN'		DL (100%)

Duquesne Light Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2209	Revise the reclosing for the Cheswick 138 kV breaker Z-51 WILMERD'		DL (100%)
b2280	Replace the USAP 138kV breaker 'XFMR'		DL (100%)
b2303	Revise the reclosing to the Dravosburg 138kV breaker 'Z73 West Mifflin' from 5 sec to 15 sec		DL (100%)
b2563	Operate with the Crescent 345/138 kV #3 autotransformer in-service by replacing 8 overdutied 138 kV breakers at Crescent, 3 138 kV breakers at Beaver Valley, install #1 section 345 kV breaker for 331 circuit at Crescent		DL (100%)
b2632	Replace the Oakland 138 kV 'Z-101 Arsenal' breaker		DL (100%)
b2639	Replace the Crescent 138 kV 'NO3 – 4 138' breaker with a 63kA breaker		DL (100%)
b2640	Replace the Crescent 138 kV 'Z-143 SWCKLY' breaker with a 63kA breaker		DL (100%)
b2641	Replace the Crescent 138 kV 'Z-24 MONTOUR' breaker with a 63kA breaker		DL (100%)
b2642	Replace the Crescent 138 kV 'Z-28 BEAVER' breaker with a 63kA breaker		DL (100%)
b2689.1	Reconductor approximately 7 miles of the Woodville – Peters (Z-117) 138 kV circuit		AEC (0.99%)/ APS (66.14%)/ BGE (4.60%)/ DOM (8.81%)/ DPL (5.83%)/ ECP (0.34%)/ HTP (0.04%)/ Neptune (0.12%)/ PECO (3.39%)/ PEPCO (6.29%)/ PSEG (3.45%)

Duquesne Light Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2689.2	Reconfigure West Mifflin-USS Clairton (Z-15) 138 kV circuit to establish Dravosburg-USS Clairton (Z-14) 138 kV circuit and West Mifflin-Wilson (Z-15) 138 kV circuit		AEC (0.99%)/ APS (66.14%)/ BGE (4.60%)/ DOM (8.81%)/ DPL (5.83%)/ ECP (0.34%)/ HTP (0.04%)/ Neptune (0.12%)/ PECO (3.39%)/ PEPCO (6.29%)/ PSEG (3.45%)
b3011.7	Replace the line terminal equipment and line breaker #85 at Dravosburg 138 kV substation in the Elwyn Z-70 line position/bay, with the breaker duty as 63kA		DL (100%)
b3011.8	Upgrade 138 kV breaker "Z-78 Logans" at Dravosburg		DL (100%)
b3012.2	Construct two new ties from a new FirstEnergy substation to a new Duquesne substation by using two separate structures – Duquesne portion		ATSI (38.21%) / DL (61.79%)
b3012.4	Establish the new tie line in place of the existing Elrama – Mitchell 138 kV line		DL (100%)
b3015.1	Construct new Elrama 138 kV substation and connect 7 138 kV lines to new substation		DL (100%)
b3015.2	Reconductor Elrama to Wilson 138 kV line. 4.8 miles		*APS* (100%)
b3015.3	Reconductor Dravosburg to West Mifflin 138 kV line. 3 miles		DL (100%)
b3015.4	Run new conductor on existing tower to establish the new Dravosburg – Elrama (Z-75) circuit. 10 miles		DL (100%)

Duquesne Light Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3015.5	Reconductor Elrama to Mitchell 138 kV line – DL portion. 4.2 miles total. 2x795 ACSS/TW 20/7		DL (100%)
b3015.7	Reconductor Wilson to West Mifflin 138 kV line. 2 miles. 795 ACSS/TW 20/7		DL (100%)
b3061	Reconductor the West Mifflin – Dravosburg (Z-73) and Dravosburg – Elrama (Z-75) 138 kV lines		DL (100%)
b3062	Install 138 kV tie breaker at West Mifflin		DL (100%)
b3063	Reconductor the Wilson – Dravosburg (Z-72) 138 kV line (approx. 5 miles)		DL (100%)
b3064	Expand Elrama 138 kV substation to loop in existing US Steel Clariton – Piney Fork 138 kV line		DL (100%)
b3064.2	Replace the West Mifflin 138 kV breakers “Z-94”, “Z-74”, “Z-14”, and “Z-13” with 63 kA breakers		DL (100%)
b3065	Install 138 kV tie breaker at Wilson		DL (100%)
b3084	Reconductor the Oakland – Panther Hollow 138 kV line (approx. 1 mile)		DL (100%)
b3212	The Crescent 138 kV oil-type breaker “2-5 TIE” is found to be overdutied following a model review and correction to short circuit base case		DL (100%)
b3217	Reconductor Wilson - Mitchell 138 kV line - DL portion		DL (100%)

Duquesne Light Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3265	Implement slow circulation on existing underground 138 kV high pressure fluid filled (HPFF) cable between the Arsenal and Riazzi substations		DL (100%)

SCHEDULE 12 – APPENDIX A

(20) Virginia Electric and Power Company

Required Transmission Enhancements	Annual Revenue Requirement		Responsible Customer(s)
b1698.7	Replace Loudoun 230 kV breaker '203052' with 63kA rating		Dominion (100%)
b1696.1	Replace the Idylwood 230 kV '25112' breaker with 50kA breaker		Dominion (100%)
b1696.2	Replace the Idylwood 230 kV '209712' breaker with 50kA breaker		Dominion (100%)
b1793.1	Remove the Carolina 22 SPS to include relay logic changes, minor control wiring, relay resets and SCADA programming upon completion of project		Dominion (100%)
b2281	Additional Temporary SPS at Bath County		Dominion (100%)
b2350	Reconductor 211 feet of 545.5 ACAR conductor on 59 Line Elmont - Greenwood DP 115 kV to achieve a summer emergency rating of 906 amps or greater		Dominion (100%)
b2358	Install a 230 kV 54 MVAR capacitor bank on the 2016 line at Harmony Village Substation		Dominion (100%)
b2359	Wreck and rebuild approximately 1.3 miles of existing 230 kV line between Cochran Mill - X4-039 Switching Station		Dominion (100%)
b2360	Build a new 39 mile 230 kV transmission line from Dooms - Lexington on existing right-of-way		Dominion (100%)
b2361	Construct 230 kV OH line along existing Line #2035 corridor, approx. 2.4 miles from Idylwood - Dulles Toll Road (DTR) and 2.1 miles on new right-of-way along DTR to new Scott's Run Substation		Dominion (100%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2368	Replace the Brambleton 230 kV breaker '209502' with 63kA breaker		Dominion (100%)
b2369	Replace the Brambleton 230 kV breaker '213702' with 63kA breaker		Dominion (100%)
b2370	Replace the Brambleton 230 kV breaker 'H302' with 63kA breaker		Dominion (100%)
b2373	Build a 2nd Loudoun - Brambleton 500 kV line within the existing ROW. The Loudoun - Brambleton 230 kV line will be relocated as an underbuild on the new 500 kV line		**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%)
			DFAX Allocation: APS (*25.51*%) / Dominion (*74.49*%)
b2397	Replace the Beaumeade 230 kV breaker '2079T2116' with 63kA		Dominion (100%)
b2398	Replace the Beaumeade 230 kV breaker '2079T2130' with 63kA		Dominion (100%)
b2399	Replace the Beaumeade 230 kV breaker '208192' with 63kA		Dominion (100%)
b2400	Replace the Beaumeade 230 kV breaker '209592' with 63kA		Dominion (100%)
b2401	Replace the Beaumeade 230 kV breaker '211692' with 63kA		Dominion (100%)
b2402	Replace the Beaumeade 230 kV breaker '227T2130' with 63kA		Dominion (100%)

The Annual Revenue Requirement for all Virginia Electric and Power Company projects in this Section 20 shall be as specified in Attachment 7 to Appendix A of Attachment H-16A and under the procedures detailed in Attachment H-16B.

*Neptune Regional Transmission System, LLC

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2403	Replace the Beaumeade 230 kV breaker '274T2130' with 63kA		Dominion (100%)
b2404	Replace the Beaumeade 230 kV breaker '227T2095' with 63kA		Dominion (100%)
b2405	Replace the Pleasant view 230 kV breaker '203T274' with 63kA		Dominion (100%)
b2443	Construct new underground 230 kV line from Glebe to Station C, rebuild Glebe Substation, construct 230 kV high side bus at Station C with option to install 800 MVA PAR		Dominion (97.11%) / ME (0.18%) / PEPCO (2.71%)
b2443.1	Replace the Idylwood 230 kV breaker '203512' with 50kA		Dominion (100%)
b2443.2	Replace the Ox 230 kV breaker '206342' with 63kA breaker		Dominion (100%)
b2443.3	Glebe – Station C PAR		**DFAX Allocation:** Dominion (22.57%) / PEPCO (77.43%)
b2443.6	Install a second 500/230 kV transformer at Possum Point substation and replace bus work and associated equipment as needed		Dominion (100%)
b2443.7	Replace 19 63kA 230 kV breakers with 19 80kA 230 kV breakers		Dominion (100%)
b2457	Replace 24 115 kV wood h-frames with 230 kV Dominion pole H-frame structures on the Clubhouse – Purdy 115 kV line		Dominion (100%)
b2458.1	Replace 12 wood H-frame structures with steel H-frame structures and install shunts on all conductor splices on Carolina – Woodland 115 kV		Dominion (100%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b2458.2	Upgrade all line switches and substation components at Carolina 115 kV to meet or exceed new conductor rating of 174 MVA	Dominion (100%)
b2458.3	Replace 14 wood H-frame structures on Carolina – Woodland 115 kV	Dominion (100%)
b2458.4	Replace 2.5 miles of static wire on Carolina – Woodland 115 kV	Dominion (100%)
b2458.5	Replace 4.5 miles of conductor between Carolina 115 kV and Jackson DP 115 kV with min. 300 MVA summer STE rating; Replace 8 wood H-frame structures located between Carolina and Jackson DP with steel H-frames	Dominion (100%)
b2460.1	Replace Hanover 230 kV substation line switches with 3000A switches	Dominion (100%)
b2460.2	Replace wave traps at Four River 230 kV and Elmont 230 kV substations with 3000A wave traps	Dominion (100%)
b2461	Wreck and rebuild existing Remington CT – Warrenton 230 kV (approx. 12 miles) as a double-circuit 230 kV line	Dominion (100%)
b2461.1	Construct a new 230 kV line approximately 6 miles from NOVEC's Wheeler Substation a new 230 kV switching station in Vint Hill area	Dominion (100%)
b2461.2	Convert NOVEC's Gainesville – Wheeler line (approximately 6 miles) to 230 kV	Dominion (100%)
b2461.3	Complete a Vint Hill – Wheeler – Loudoun 230 kV networked line	Dominion (100%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2471	Replace Midlothian 500 kV breaker 563T576 and motor operated switches with 3 breaker 500 kV ring bus. Terminate Lines # 563 Carson – Midlothian, #576 Midlothian –North Anna, Transformer #2 in new ring		**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%) **DFAX Allocation:** Dominion (100%)
b2504	Rebuild 115 kV Line #32 from Halifax-South Boston (6 miles) for min. of 240 MVA and transfer Welco tap to Line #32. Moving Welco to Line #32 requires disabling auto-sectionalizing scheme		Dominion (100%)
b2505	Install structures in river to remove the 115 kV #65 line (Whitestone-Harmony Village 115 kV) from bridge and improve reliability of the line		Dominion (100%)
b2542	Replace the Loudoun 500 kV 'H2T502' breaker with a 50kA breaker		Dominion (100%)
b2543	Replace the Loudoun 500 kV 'H2T584' breaker with a 50kA breaker		Dominion (100%)
b2565	Reconductor wave trap at Carver Substation with a 2000A wave trap		Dominion (100%)
b2566	Reconductor 1.14 miles of existing line between ACCA and Hermitage and upgrade associated terminal equipment		Dominion (100%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2582	Rebuild the Elmont – Cunningham 500 kV line		**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%) **DFAX Allocation:** Dominion (*100*%)
b2583	Install 500 kV breaker at Ox Substation to remove Ox Tx#1 from H1T561 breaker failure outage.		Dominion (100%)
b2584	Relocate the Bremo load (transformer #5) to #2028 (Bremo-Charlottesville 230 kV) line and Cartersville distribution station to #2027 (Bremo-Midlothian 230 kV) line		Dominion (100%)
b2585	Reconductor 7.63 miles of existing line between Cranes and Stafford, upgrade associated line switches at Stafford		PEPCO (100%)
b2620	Wreck and rebuild the Chesapeake – Deep Creek – Bowers Hill – Hodges Ferry 115 kV line; minimum rating 239 MVA normal/emergency, 275 MVA load dump rating		Dominion (100%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b2622	Rebuild Line #47 between Kings Dominion 115 kV and Fredericksburg 115 kV to current standards with summer emergency rating of 353 MVA at 115 kV	Dominion (100%)
b2623	Rebuild Line #4 between Bremo and Structure 8474 (4.5 miles) to current standards with a summer emergency rating of 261 MVA at 115 kV	Dominion (100%)
b2624	Rebuild 115 kV Lines #18 and #145 between Possum Point Generating Station and NOVEC's Smoketown DP (approx. 8.35 miles) to current 230 kV standards with a normal continuous summer rating of 524 MVA at 115 kV	Dominion (100%)
b2625	Rebuild 115 kV Line #48 between Thole Street and Structure 48/71 to current standard. The remaining line to Sewells Point is 2007 vintage. Rebuild 115 kV Line #107 line, Sewells Point to Oakwood, between structure 107/17 and 107/56 to current standard.	Dominion (100%)
b2626	Rebuild 115 kV Line #34 between Skiffes Creek and Yorktown and the double circuit portion of 115 kV Line #61 to current standards with a summer emergency rating of 353 MVA at 115 kV	Dominion (100%)
b2627	Rebuild 115 kV Line #1 between Crewe 115 kV and Fort Pickett DP 115 kV (12.2 miles) to current standards with summer emergency rating of 261 MVA at 115 kV	Dominion (100%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b2628	Rebuild 115 kV Line #82 Everetts – Voice of America (20.8 miles) to current standards with a summer emergency rating of 261 MVA at 115 kV	Dominion (100%)
b2629	Rebuild the 115 kV Lines #27 and #67 lines from Greenwich 115 kV to Burton 115 kV Structure 27/280 to current standard with a summer emergency rating of 262 MVA at 115 kV	Dominion (100%)
b2630	Install circuit switchers on Gravel Neck Power Station GSU units #4 and #5. Install two 230 kV CCVT's on Lines #2407 and #2408 for loss of source sensing	Dominion (100%)
b2636	Install three 230 kV bus breakers and 230 kV, 100 MVAR Variable Shunt Reactor at Dahlgren to provide line protection during maintenance, remove the operational hazard and provide voltage reduction during light load conditions	Dominion (100%)
b2647	Rebuild Boydton Plank Rd – Kerr Dam 115 kV Line #38 (8.3 miles) to current standards with summer emergency rating of 353 MVA at 115 kV.	Dominion (100%)
b2648	Rebuild Carolina – Kerr Dam 115 kV Line #90 (38.7 miles) to current standards with summer emergency rating of 353 MVA 115 kV.	Dominion (100%)
b2649	Rebuild Clubhouse – Carolina 115 kV Line #130 (17.8 miles) to current standards with summer emergency rating of 353 MVA at 115 kV.	Dominion (100%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b2649.1	Rebuild of 1.7 mile tap to Metcalf and Belfield DP (MEC) due to poor condition. The existing summer rating of the tap is 48 MVA and existing conductor is 4/0 ACSR on wood H-frames. The proposed new rating is 176 MVA using 636 ACSR conductor	Dominion (100%)
b2649.2	Rebuild of 4.1 mile tap to Brinks DP (MEC) due to wood poles built in 1962. The existing summer rating of the tap is 48 MVA and existing conductor is 4/0 ACSR and 393.6 ACSR on wood H-frames. The proposed new rating is 176 MVA using 636 ACSR conductor	Dominion (100%)
b2650	Rebuild Twittys Creek – Pamplin 115 kV Line #154 (17.8 miles) to current standards with summer emergency rating of 353 MVA at 115 kV.	Dominion (100%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2651	Rebuild Buggs Island – Plywood 115 kV Line #127 (25.8 miles) to current standards with summer emergency rating of 353 MVA at 115 kV. The line should be rebuilt for 230 kV and operated at 115 kV.		Dominion (100%)
b2652	Rebuild Greatbridge – Hickory 115 kV Line #16 and Greatbridge – Chesapeake E.C. to current standard with summer emergency rating of 353 MVA at 115 kV.		Dominion (100%)
b2653.1	Build 20 mile 115 kV line from Pantego to Trowbridge with summer emergency rating of 353 MVA.		Dominion (100%)
b2653.2	Install 115 kV four-breaker ring bus at Pantego		Dominion (100%)
b2653.3	Install 115 kV breaker at Trowbridge		Dominion (100%)
b2654.1	Build 15 mile 115 kV line from Scotland Neck to S Justice Branch with summer emergency rating of 353 MVA. New line will be routed to allow HEMC to convert Dawson's Crossroads RP from 34.5 kV to 115 kV.		Dominion (100%)
b2654.2	Install 115 kV three-breaker ring bus at S Justice Branch		Dominion (100%)
b2654.3	Install 115 kV breaker at Scotland Neck		Dominion (100%)
b2654.3	Install a 2nd 224 MVA 230/115 kV transformer at Hathaway		Dominion (100%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2665	Rebuild the Cunningham – Dooms 500 kV line		**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%) **DFAX Allocation:** Dominion (100%)
b2686	Pratts Area Improvement		Dominion (100%)
b2686.1	Build a 230 kV line from Remington Substation to Gordonsville Substation utilizing existing ROW		Dominion (100%)
b2686.2	Install a 3rd 230/115 kV transformer at Gordonsville Substation		Dominion (100%)
b2686.3	Upgrade Line 2088 between Gordonsville Substation and Louisa CT Station		Dominion (100%)
b2686.4	Replace the Remington CT 230 kV breaker "2114T2155" with a 63 kA breaker		Dominion (100%)
b2686.11	Upgrading sections of the Gordonsville – Somerset 115 kV circuit		Dominion (100%)
b2686.12	Upgrading sections of the Somerset – Doubleday 115 kV circuit		Dominion (100%)
b2686.13	Upgrading sections of the Orange – Somerset 115 kV circuit		Dominion (100%)
b2686.14	Upgrading sections of the Mitchell – Mt. Run 115 kV circuit		Dominion (100%)

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Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2717.1	De-energize Davis – Rosslyn #179 and #180 69 kV lines		Dominion (100%)
b2717.2	Remove splicing and stop joints in manholes		Dominion (100%)
b2717.3	Evacuate and dispose of insulating fluid from various reservoirs and cables		Dominion (100%)
b2717.4	Remove all cable along the approx. 2.5 mile route, swab and cap-off conduits for future use, leave existing communication fiber in place		Dominion (100%)
b2719.1	Expand Perth substation and add a 115 kV four breaker ring		Dominion (100%)
b2719.2	Extend the Hickory Grove DP tap 0.28 miles to Perth and terminate it at Perth		Dominion (100%)
b2719.3	Split Line #31 at Perth and terminate it into the new ring bus with 2 breakers separating each of the line terminals to prevent a breaker failure from taking out both 115 kV lines		Dominion (100%)
b2720	Replace the Loudoun 500 kV 'H1T569' breakers with 50kA breaker		Dominion (100%)
b2729	Optimal Capacitors Configuration: New 175 MVAR capacitor at Brambleton, new 175 MVAR capacitor at Ashburn, new 300 MVAR capacitor at Shelhorm, new 150 MVAR capacitor at Liberty		AEC (1.96%) / BGE (14.37%) / Dominion (35.11%) / DPL (3.76%) / ECP (0.29%) / HTP (0.34%) / JCPL (3.31%) / ME (2.51%) / Neptune (0.63%) / PECO (6.26%) / PEPCO (20.23%) / PPL (3.94%) / PSEG (7.29%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2744	Rebuild the Carson – Rogers Rd 500 kV circuit		**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%) **DFAX Allocation:** Dominion (100%)
b2745	Rebuild 21.32 miles of existing line between Chesterfield – Lakeside 230 kV		Dominion (100%)
b2746.1	Rebuild Line #137 Ridge Rd – Kerr Dam 115 kV, 8.0 miles, for 346 MVA summer emergency rating		Dominion (100%)
b2746.2	Rebuild Line #1009 Ridge Rd – Chase City 115 kV, 9.5 miles, for 346 MVA summer emergency rating		Dominion (100%)
b2746.3	Install a second 4.8 MVAR capacitor bank on the 13.8 kV bus of each transformer at Ridge Rd		Dominion (100%)
b2747	Install a Motor Operated Switch and SCADA control between Dominion's Gordonsville 115 kV bus and FirstEnergy's 115 kV line		Dominion (100%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b2757	Install a +/-125 MVAr Statcom at Colington 230 kV		Dominion (100%)
b2758	Rebuild Line #549 Dooms – Valley 500kV		**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%)
			DFAX Allocation: Dominion (*100*%)
b2759	Rebuild Line #550 Mt. Storm – Valley 500kV		**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%)
			DFAX Allocation: APS (87.50%) / ATSI (0.37%) / DL (0.19%) / Dominion (1.04%) / EKPC (10.90%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2800	The 7 mile section from Dozier to Thompsons Corner of line #120 will be rebuilt to current standards using 768.2 ACSS conductor with a summer emergency rating of 346 MVA at 115 kV. Line is proposed to be rebuilt on single circuit steel monopole structure		Dominion (100%)
b2801	Lines #76 and #79 will be rebuilt to current standard using 768.2 ACSS conductor with a summer emergency rating of 346 MVA at 115 kV. Proposed structure for rebuild is double circuit steel monopole structure		Dominion (100%)
b2802	Rebuild Line #171 from Chase City – Boydton Plank Road tap by removing end-of-life facilities and installing 9.4 miles of new conductor. The conductor used will be at current standards with a summer emergency rating of 393 MVA at 115kV		Dominion (100%)
b2815	Build a new Pinewood 115kV switching station at the tap serving North Doswell DP with a 115kV four breaker ring bus		Dominion (100%)
b2842	Update the nameplate for Mount Storm 500 kV "57272" to be 50kA breaker		Dominion (100%)
b2843	Replace the Mount Storm 500 kV "G2TY" with 50kA breaker		Dominion (100%)
b2844	Replace the Mount Storm 500 kV "G2TZ" with 50kA breaker		Dominion (100%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2845	Update the nameplate for Mount Storm 500 kV "G3TSX1" to be 50kA breaker		Dominion (100%)
b2846	Update the nameplate for Mount Storm 500 kV "SX172" to be 50kA breaker		Dominion (100%)
b2847	Update the nameplate for Mount Storm 500 kV "Y72" to be 50kA breaker		Dominion (100%)
b2848	Replace the Mount Storm 500 kV "Z72" with 50kA breaker		Dominion (100%)
b2871	Rebuild 230 kV line #247 from Swamp to Suffolk (31 miles) to current standards with a summer emergency rating of 1047 MVA at 230 kV		Dominion (100%)
b2876	Rebuild line #101 from Mackeys – Creswell 115 kV, 14 miles, with double circuit structures. Install one circuit with provisions for a second circuit. The conductor used will be at current standards with a summer emergency rating of 262 MVA at 115 kV		Dominion (100%)
b2877	Rebuild line #112 from Fudge Hollow – Lowmoor 138 kV (5.16 miles) to current standards with a summer emergency rating of 314 MVA at 138 kV		Dominion (100%)
b2899	Rebuild 230 kV line #231 to current standard with a summer emergency rating of 1046 MVA. Proposed conductor is 2-636 ACSR		Dominion (100%)
b2900	Build a new 230/115 kV switching station connecting to 230 kV network line #2014 (Earleys – Everetts). Provide a 115 kV source from the new station to serve Windsor DP		Dominion (100%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2922	Rebuild 8 of 11 miles of 230 kV lines #211 and #228 to current standard with a summer emergency rating of 1046 MVA for rebuilt section. Proposed conductor is 2-636 ACSR		Dominion (100%)
b2928	Rebuild four structures of 500 kV line #567 from Chickahominy to Surry using galvanized steel and replace the river crossing conductor with 3-1534 ACSR. This will increase the line #567 line rating from 1954 MVA to 2600 MVA		**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%)
			DFAX Allocation: Dominion (100%)
b2929	Rebuild 230 kV line #2144 from Winfall to Swamp (4.3 miles) to current standards with a standard conductor (bundled 636 ACSR) having a summer emergency rating of 1047 MVA at 230 kV		Dominion (100%)
b2960	Replace fixed series capacitors on 500 kV Line #547 at Lexington and on 500 kV Line #548 at Valley		See sub-IDs for cost allocations

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2960.1	Replace fixed series capacitors on 500 kV Line #547 at Lexington		**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%)
			DFAX Allocation: DEOK (*5.63*%) / Dominion (*91.06*%) / EKPC (*3.31*%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b2960.2	Replace fixed series capacitors on 500 kV Line #548 at Valley		**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%)
			DFAX Allocation: DEOK (*17.57*%) / Dominion (*74.24*%) / EKPC (*8.19*%)
b2961	Rebuild approximately 3 miles of Line #205 & Line #2003 from Chesterfield to Locks & Poe respectively		Dominion (100%)
b2962	Split Line #227 (Brambleton – Beaumeade 230 kV) and terminate into existing Belmont substation		Dominion (100%)
b2962.1	Replace the Beaumeade 230 kV breaker "274T2081" with 63kA breaker		Dominion (100%)
b2962.2	Replace the NIVO 230 kV breaker "2116T2130" with 63kA breaker		Dominion (100%)
b2963	Reconductor the Woodbridge to Occoquan 230 kV line segment of Line #2001 with 1047 MVA conductor and replace line terminal equipment at Possum Point, Woodbridge, and Occoquan		Dominion (100%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2978	Install 2-125 MVAR STATCOMs at Rawlings and 1-125 MVAR STATCOM at Clover 500 kV substations		**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%) **DFAX Allocation:** Dominion (100%)
b2980	Rebuild 115 kV Line #43 between Staunton and Harrisonburg (22.8 miles) to current standards with a summer emergency rating of 261 MVA at 115 kV		Dominion (100%)
b2981	Rebuild 115 kV Line #29 segment between Fredericksburg and Aquia Harbor to current 230 kV standards (operating at 115 kV) utilizing steel H-frame structures with 2-636 ACSR to provide a normal continuous summer rating of 524 MVA at 115 kV (1047 MVA at 230 kV)		Dominion (100%)

*Neptune Regional Transmission System, LLC

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b2989	Install a second 230/115 kV Transformer (224 MVA) approximately 1 mile north of Bremo and tie 230 kV Line #2028 (Bremo – Charlottesville) and 115 kV Line #91 (Bremo - Sherwood) together. A three breaker 230 kV ring bus will split Line #2028 into two lines and Line #91 will also be split into two lines with a new three breaker 115 kV ring bus. Install a temporary 230/115 kV transformer at Bremo substation for the interim until the new substation is complete		Dominion (100%)
b2990	Chesterfield to Basin 230 kV line – Replace 0.14 miles of 1109 ACAR with a conductor which will increase the line rating to approximately 706 MVA		Dominion (100%)
b2991	Chaparral to Locks 230 kV line – Replace breaker lead		Dominion (100%)
b2994	Acquire land and build a new switching station (Skippers) at the tap serving Brink DP with a 115 kV four breaker ring to split Line #130 and terminate the end points		Dominion (100%)
b3018	Rebuild Line #49 between New Road and Middleburg substations with single circuit steel structures to current 115 kV standards with a minimum summer emergency rating of 261 MVA		Dominion (100%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b3019	Rebuild 500 kV Line #552 Bristers to Chancellor – 21.6 miles long		**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%)
			DFAX Allocation: Dominion (89.20%) / PEPCO (10.80%)
b3019.1	Update the nameplate for Morrisville 500 kV breaker "H1T594" to be 50kA		Dominion (100%)
b3019.2	Update the nameplate for Morrisville 500 kV breaker "H1T545" to be 50kA		Dominion (100%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b3020	Rebuild 500 kV Line #574 Ladysmith to Elmont – 26.2 miles long		**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%)
			DFAX Allocation: APS (16.36%) / DEOK (11.61%) / Dominion (51.27%) / EKPC (5.30%) / PEPCO (15.46%)
b3021	Rebuild 500 kV Line #581 Ladysmith to Chancellor – 15.2 miles long		**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%)
			DFAX Allocation: Dominion (100%)
b3026	Reconductor Line #274 (Pleasant View – Ashburn – Beaumeade 230 kV) with a minimum rating of 1200 MVA. Also upgrade terminal equipment		Dominion (100%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements	Annual Revenue Requirement		Responsible Customer(s)
b3027.1	Add a 2nd 500/230 kV 840 MVA transformer at Dominion's Ladysmith substation		Dominion (100%)
b3027.2	Reconductor 230 kV Line #2089 between Ladysmith and Ladysmith CT substations to increase the line rating from 1047 MVA to 1225 MVA		Dominion (100%)
b3027.3	Replace the Ladysmith 500 kV breaker "H1T581" with 50kA breaker		Dominion (100%)
b3027.4	Update the nameplate for Ladysmith 500 kV breaker "H1T575" to be 50kA breaker		Dominion (100%)
b3027.5	Update the nameplate for Ladysmith 500 kV breaker "568T574" (will be renumbered as "H2T568") to be 50kA breaker		Dominion (100%)
b3055	Install spare 230/69 kV transformer at Davis substation		Dominion (100%)
b3056	Partial rebuild 230 kV Line #2113 Waller to Lightfoot		Dominion (100%)
b3057	Rebuild 230 kV Lines #2154 and #19 Waller to Skiffes Creek		Dominion (100%)
b3058	Partial rebuild of 230 kV Lines #265, #200 and #2051		Dominion (100%)
b3059	Rebuild 230 kV Line #2173 Loudoun to Elklick		Dominion (100%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b3060	Rebuild 4.6 mile Elklick – Bull Run 230 kV Line #295 and the portion (3.85 miles) of the Clifton – Walney 230 kV Line #265 which shares structures with Line #295	Dominion (100%)
b3088	Rebuild 4.75 mile section of Line #26 between Lexington and Rockbridge with a minimum summer emergency rating of 261 MVA	Dominion (100%)
b3089	Rebuild 230 kV Line #224 between Lanexa and Northern Neck utilizing double circuit structures to current 230 kV standards. Only one circuit is to be installed on the structures with this project with a minimum summer emergency rating of 1047 MVA	Dominion (100%)
b3090	Convert the overhead portion (approx. 1500 feet) of 230 kV Lines #248 & #2023 to underground and convert Glebe substation to gas insulated substation	Dominion (100%)
b3096	Rebuild 230 kV line No.2063 (Clifton – Ox) and part of 230 kV line No.2164 (Clifton – Keene Mill) with double circuit steel structures using double circuit conductor at current 230 kV northern Virginia standards with a minimum rating of 1200 MVA	Dominion (100%)
b3097	Rebuild 4 miles of 115 kV Line #86 between Chesterfield and Centralia to current standards with a minimum summer emergency rating of 393 MVA	Dominion (100%)
b3098	Rebuild 9.8 miles of 115 kV Line #141 between Balcony Falls and Skimmer and 3.8 miles of 115 kV Line #28 between Balcony Falls and Cushaw to current standards with a minimum rating of 261 MVA	Dominion (100%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b3098.1	Rebuild Balcony Falls 115 kV substation		Dominion (100%)
b3110.1	Rebuild Line #2008 between Loudoun to Dulles Junction using single circuit conductor at current 230 kV northern Virginia standards with minimum summer ratings of 1200 MVA. Cut and loop Line #265 (Clifton – Sully) into Bull Run substation. Add three (3) 230 kV breakers at Bull Run to accommodate the new line and upgrade the substation		Dominion (100%)
b3110.2	Replace the Bull Run 230 kV breakers “200T244” and “200T295” with 50 kA breakers		Dominion (100%)
b3110.3	Replace the Clifton 230 kV breakers “201182” and “XT2011” with 63 kA breakers		Dominion (100%)
b3113	Rebuild approximately 1 mile of 115 kV Lines #72 and #53 to current standards with a minimum summer emergency rating of 393 MVA. The resulting summer emergency rating of Line #72 segment from Brown Boveri to Bellwood is 180 MVA. There is no change to Line #53 ratings		Dominion (100%)
b3114	Rebuild the 18.6 mile section of 115 kV Line #81 which includes 1.7 miles of double circuit Line #81 and 230 kV Line #2056. This segment of Line #81 will be rebuilt to current standards with a minimum rating of 261 MVA. Line #2056 rating will not change		Dominion (100%)
b3121	Rebuild Clubhouse – Lakeview 230 kV Line #254 with single-circuit wood pole equivalent structures at the current 230 kV standard with a minimum rating of 1047 MVA		Dominion (100%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b3122	Rebuild Hathaway – Rocky Mount (Duke Energy Progress) 230 kV Line #2181 and Line #2058 with double circuit steel structures using double circuit conductor at current 230 kV standards with a minimum rating of 1047 MVA		Dominion (100%)
b3161.1	Split Chesterfield-Plaza 115 kV Line No. 72 by rebuilding the Brown Boveri tap line as double circuit loop in-and-out of the Brown Boveri Breaker station		Dominion (100%)
b3161.2	Install a 115 kV breaker at the Brown Boveri Breaker station. Site expansion is required to accommodate the new layout		Dominion (100%)
b3162	Acquire land and build a new 230 kV switching station (Stevensburg) with a 224 MVA, 230/115 kV transformer. Gordonsville-Remington 230 kV Line No. 2199 will be cut and connected to the new station. Remington-Mt. Run 115 kV Line No.70 and Mt. Run-Oak Green 115 kV Line No. 2 will also be cut and connected to the new station		Dominion (100%)
b3211	Rebuild the 1.3 mile section of 500 kV Line No. 569 (Loudoun – Morrisville) with single-circuit 500 kV structures at the current 500 kV standard. This will increase the rating of the line to 3424 MVA		Dominion (100%)
b3213	Install 2nd Chickahominy 500/230 kV transformer		Dominion (100%)
b3213.1	Replace the eight (8) Chickahominy 230 kV breakers with 63 kA breakers: "SC122", "205022", "209122", 210222-2", "28722", "H222", "21922" and "287T2129"		Dominion (100%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3223.1	Install a second 230 kV circuit with a minimum summer emergency rating of 1047 MVA between Lanexa and Northern Next substations. The second circuit will utilize the vacant arms on the double-circuit structures that are being installed on Line #224 (Lanexa – Northern Next) as part of the End-of-Life rebuild project (b3089)		Dominion (100%)
b3223.2	Expand the Northern Neck terminal from a 230 kV, 4-breaker ring bus to a 6-breaker ring bus		Dominion (100%)
b3223.3	Expand the Lanexa terminal from a 6-breaker ring bus to a breaker-and-a-half arrangement		Dominion (100%)
b3246.1	Convert 115 kV Line #172 Liberty – Lomar and 115 kV Line #197 Cannon Branch – Lomar to 230 kV to provide a new 230 kV source between Cannon Branch and Liberty. The majority of 115 kV Line #172 Liberty – Lomar and Line #197 Cannon Branch – Lomar is adequate for 230 kV operation. Rebuild 0.36 mile segment between the Lomar and Cannon Branch junction. Lines will have a summer rating of 1047MVA/1047MVA (SN/SE)		Dominion (100%)
b3246.2	Perform substation work for the 115 kV to 230 kV line conversion at Liberty, Wellington, Godwin, Pioneer, Sandlot and Cannon Branch		Dominion (100%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b3246.3	Extend 230 kV Line #2011 Cannon Branch – Clifton to Winters Branch by removing the existing Line #2011 termination at Cannon Branch and extending the line to Brickyard creating 230 kV Line #2011 Brickyard - Clifton. Extend a new 230 kV line between Brickyard and Winters Branch with a summer rating of 1572MVA/1572MVA (SN/SE)		Dominion (100%)
b3246.4	Perform substation work at Cannon Branch, Brickyard and Winters Branch for the 230 kV Line #2011 Cannon Branch – Clifton extension		Dominion (100%)
b3246.5	Replace the Gainesville 230 kV 40 kA breaker "216192" with a 50 kA breaker		Dominion (100%)
b3247	Replace 13 towers with galvanized steel towers on Doubs – Goose Creek 500 kV. Reconductor 3 mile section with three (3) 1351.5 ACSR 45/7. Upgrade line terminal equipment at Goose Creek substation to support the 500 kV line rebuild		**Load-Ratio Share Allocation:** AEC (1.71%) / AEP (14.04%) / APS (5.61%) / ATSI (8.10%) / BGE (4.36%) / ComEd (13.14%) / Dayton (2.15%) / DEOK (3.23%) / DL (1.73%) / DPL (2.65%) / Dominion (13.03%) / EKPC (1.77%) / JCPL (3.84%) / ME (1.93%) / NEPTUNE* (0.45%) / OVEC (0.07%) / PECO (5.29%) / PENELEC (1.89%) / PEPCO (3.82%) / PPL (4.72%) / PSEG (6.21%) / RE (0.26%) **DFAX Allocation:** Dominion (100%)
b3300	Reconductor 230 kV Line #2172 from Brambleton to Evergreen Mills along with upgrading the line leads at Brambleton to achieve a summer emergency rating of 1574 MVA		Dominion (100%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b3301	Reconductor 230 kV Line #2210 from Brambleton to Evergreen Mills along with upgrading the line leads at Brambleton to achieve a summer emergency rating of 1574 MVA	Dominion (100%)
b3302	Reconductor 230 kV Line #2213 from Cabin Run to Yardley Ridge along with upgrading the line leads at Yardley to achieve a summer emergency rating of 1574 MVA	Dominion (100%)
b3303.1	Extend a new single circuit 230 kV Line #9250 from Farmwell substation to Nimbus substation	Dominion (100%)
b3303.2	Remove Beaumeade 230 kV Line #2152 line switch	Dominion (100%)
b3304	Midlothian area improvements for 300 MW load drop relief	Dominion (100%)
b3304.1	Cut 230 kV Line #2066 at Trabue junction	Dominion (100%)
b3304.2	Reconductor idle 230 kV Line #242 (radial from Midlothian to Trabue junction) to allow a minimum summer rating of 1047 MVA and connect to the section of 230 kV Line #2066 between Trabue junction and Winterpock, re-number 230 kV Line #242 structures to Line #2066	Dominion (100%)
b3304.3	Use the section of idle 115 kV Line #153, between Midlothian and Trabue junction to connect to the section of (former) 230 kV Line #2066 between Trabue junction and Trabue to create new Midlothian – Trabue lines with new line numbers #2218 and #2219	Dominion (100%)
b3304.4	Create new line terminations at Midlothian for the new Midlothian – Trabue 230 kV lines	Dominion (100%)

SCHEDULE 12 – APPENDIX A

(23) American Transmission Systems, Inc.

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2019.2	Terminate Burger – Longview 138 kV, Burger – Brookside 138 kV, Burger – Cloverdale 138 kV #1, and Burger – Harmon 138 kV #2 into Holloway substation; Loop Burger – Harmon #1 138 kV and Burger – Knox 138 kV into Holloway substation		ATSI (100%)
b2019.3	Reconfigure Burger 138 kV substation to accommodate two 138 kV line exits and generation facilities		ATSI (100%)
b2019.4	Remove both Burger 138 kV substations (East and West 138 kV buses) and all 138 kV lines on the property		ATSI (100%)
b2019.5	Terminate and de-energize the 138 kV lines on the last structure before the Burger Plant property		ATSI (100%)
b2122.1	Reconductor the ATSI portion of the Howard – Brookside 138 kV line		ATSI (100%)
b2122.2	Upgrade terminal equipment at Brookside on the Howard – Brookside 138 kV line to achieve ratings of 252/291 (SN/SE)		ATSI (100%)
b2188	Revise the reclosing for the Bluebell 138 kV breaker '301-B-94'		ATSI (100%)
b2192	Replace the Longview 138 kV breaker '651-B-32'		ATSI (100%)
b2193	Replace the Lowellville 138 kV breaker '1-10-B 4'		ATSI (100%)

American Transmission Systems, Inc. (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2195	Replace the Roberts 138 kV breaker '601-B-60'		ATSI (100%)
b2196	Replace the Sammis 138 kV breaker '780-B-76'		ATSI (100%)
b2262	New Castle Generating Station – Relocate 138kV, 69kV, and 23kV controls from the generating station building to new control building		ATSI (100%)
b2263	Niles Generation Station – Relocate 138kV and 23kV controls from the generation station building to new control building		ATSI (100%)
b2265	Ashtabula Generating Station – Relocate 138kV controls from the generating station building to new control building		ATSI (100%)
b2284	Increase the design operating temperature on the Cloverdale – Barberton 138kV line		ATSI (100%)
b2285	Increase the design operating temperature on the Cloverdale – Star 138kV line		ATSI (100%)
b2301	Reconductor 0.7 miles of 605 ACSR conductor on the Beaver Black River 138kV line		ATSI (100%)
b2301.1	Wave trap and line drop replacement at Beaver (312/380 MVA SN/SE)		ATSI (100%)
b2349	Replace the East Springfield 138kV breaker 211-B-63 with 40kA		ATSI (100%)
b2367	Replace the East Akron 138kV breaker 36-B-46 with 40kA		ATSI (100%)

American Transmission Systems, Inc. (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2413	Replace a relay at McDowell 138 kV substation		ATSI (100%)
b2434	Build a new London – Tangy 138 kV line		ATSI (100%)
b2435	Build a new East Springfield – London #2 138 kV line		*Dayton* (100%)
b2459	Install +260/-150 MVAR SVC at Lake Shore		ATSI (100%)
b2492	Replace the Beaver 138 kV breaker '426-B-2' with 63kA breaker		ATSI (100%)
b2493	Replace the Hoytdale 138kV breaker '83-B-30' with 63kA breaker		ATSI (100%)
b2557	At Avon substation, replace the existing 345/138 kV 448 MVA #92 transformer with a 560 MVA unit		ATSI (100%)
b2558	Close normally open switch A 13404 to create a Richland J Bus – Richland K Bus 138 kV line		ATSI (100%)
b2559	Reconductor the Black River – Lorain 138 kV line and upgrade Black River and Lorain substation terminal end equipment		ATSI (100%)
b2560	Construct a second 138 kV line between West Fremont and Hayes substation on open tower position of the West Fremont –Groton –Hayes 138 kV line		ATSI (100%)
b2616	Addition of 4th 345/138 kV transformer at Harding		ATSI (100%)

American Transmission Systems, Inc. (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2673	Rebuild the existing double circuit tower line section from Beaver substation to Brownhelm Jct. approx. 2.8 miles		ATSI (100%)
b2674	Rebuild the 6.6 miles of Evergreen to Ivanhoe 138 kV circuit with 477 ACSS conductor		ATSI (100%)
b2675	Install 26.4 MVAR capacitor and associated terminal equipment at Lincoln Park 138 kV substation		ATSI (100%)
b2725	Build new 345/138 kV Lake Avenue substation w/ breaker and a half high side (2 strings), 2-345/138 kV transformers and breaker and a half (2 strings) low side (138 kV). Substation will tie Avon – Beaver 345 kV #1/#2 and Black River – Johnson #1/#2 lines		ATSI (100%)
b2725.1	Replace the Murray 138 kV breaker '453-B-4' with 40kA breaker		ATSI (100%)
b2742	Replace the Hoytdale 138 kV '83-B-26' and '83-B-30' breakers with 63kA breakers		ATSI (100%)
b2753.4	Double capacity for 6 wire "Burger-Cloverdale No. 2" 138 kV line and connect at Holloway and "Point A"		ATSI (100%)
b2753.5	Double capacity for 6 wire "Burger-Longview" 138 kV line and connect at Holloway and "Point A"		ATSI (100%)
b2778	Add 2nd 345/138 kV transformer at Chamberlin substation		ATSI (100%)
b2780	Replace Bruce Mansfield 345 kV breaker 'B57' with an 80 kA breaker, and associated gang-operated disconnect switches D56 and D58		ATSI (100%)

American Transmission Systems, Inc. (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2869	Replace the Crossland 138 kV breaker "B-16" with a 40kA breaker		ATSI (100%)
b2875	Relocate the Richland to Ridgeville 138 kV line from Richland J bus to K, extend the K bus and install a new breaker		ATSI (100%)
b2896	Rebuild/Reconductor the Black River – Lorain 138 kV circuit		ATSI (100%)
b2897	Reconductor the Avon – Lorain 138 kV section and upgrade line drop at Avon		ATSI (100%)
b2898	Reconductor the Beaver – Black River 138 kV with 954Kcmil ACSS conductor and upgrade terminal equipment on both stations		ATSI (100%)
b2942.1	Install a 100 MVAR 345 kV shunt reactor at Hayes substation		ATSI (100%)
b2942.2	Install a 200 MVAR 345 kV shunt reactor at Bayshore substation		ATSI (100%)
b2972	Reconductor limiting span of Lallendorf – Monroe 345 kV		MISO (11.00%) / AEP (5.38%) / APS (4.27%) / ATSI (66.48%) / Dayton (2.71%) / Dominion (5.31%) / DL (4.85%)
b3031	Transfer load off of the Leroy Center - Mayfield Q2 138 kV line by reconfiguring the Pawnee substation primary source, via the existing switches, from the Leroy Center - Mayfield Q2 138 kV line to the Leroy Center - Mayfield Q1 138 kV line		ATSI (100%)

American Transmission Systems, Inc. (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3032	Greenfield - NASA 138 kV terminal upgrades: NASA substation, Greenfield exit: Revise CT tap on breaker B22 and adjust line relay settings; Greenfield substation, NASA exit: Revise CT tap on breaker B1 and adjust line relay settings; replace 336.4 ACSR line drop with 1033.5 AL		ATSI (100%)
b3033	Ottawa – Lakeview 138 kV reconductor and substation upgrades		ATSI (100%)
b3034	Lakeview – Greenfield 138 kV reconductor and substation upgrades		ATSI (100%).
b3066	Reconductor the Cranberry – Jackson 138 kV line (2.1 miles), reconductor 138 kV bus at Cranberry bus and replace 138 kV line switches at Jackson bus		ATSI (100%)
b3067	Reconductor the Jackson – Maple 138 kV line (4.7 miles), replace line switches at Jackson 138 kV and replace the line traps and relays at Maple 138 kV bus		ATSI (100%)
b3080	Reconductor the 138 kV bus at Seneca		ATSI (100%)
b3081	Replace the 138 kV breaker and reconductor the 138 kV bus at Krendale		ATSI (100%)

American Transmission Systems, Inc. (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3123	At Sammis 345 kV station: Install a new control building in the switchyard, construct a new station access road, install new switchyard power supply to separate from existing generating station power service, separate all communications circuits, and separate all protection and controls schemes		ATSI (100%)
b3124	Separate metering, station power, and communication at Bruce Mansfield 345 kV station		ATSI (100%)
b3127	At Bay Shore 138 kV station: Install new switchyard power supply to separate from existing generating station power service, separate all communications circuits, and construct a new station access road		ATSI (100%)
b3152	Reconductor the 8.4 mile section of the Leroy Center – Mayfield Q1 line between Leroy Center and Pawnee Tap to achieve a rating of at least 160 MVA / 192 MVA (SN/SE)		ATSI (100%)
b3234	Extend both the east and west 138 kV buses at Pine substation, and install one (1) 138 kV breaker, associated disconnect switches, and one (1) 100 MVAR reactor		ATSI (100%)
b3235	Extend 138 kV bus work to the west of Tangy substation for the addition of the 100 MVAR reactor bay and one (1) 138 kV 40 kA circuit breaker		ATSI (100%)
b3236	Extend the Broadview 138 kV bus by adding two (2) new breakers and associated equipment and install a 75 MVAR reactor		ATSI (100%)

American Transmission Systems, Inc. (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3277	Replace the existing East Akron 138 kV breaker 'B-22' with 3000A continuous, 40 kA momentary current interrupting rating circuit breaker		ATSI (100%)

SCHEDULE 12 – APPENDIX A

(25) East Kentucky Power Cooperative, Inc.

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2066	Upgrade the operating temperature of the existing conductor for the JK Smith - Union City - Lake Reba Tap 138 kV line		EKPC (100%)
b2309	Upgrade the bus and jumpers with 750 MCM copper conductor at Green County 69 kV substation		EKPC (100%)
b2310	Increase the maximum operating temperature of the North Springfield - South Springfield 69 kV line to 167 degrees Fahrenheit		EKPC (100%)
b2311	Increase the maximum operating temperature of the Loretto - Sulphur Creek 69 kV line to 167 degrees Fahrenheit		EKPC (100%)
b2312	Increase the maximum operating temperature of the South Springfield - Loretto 69 kV line to 167 degrees Fahrenheit		EKPC (100%)
b2313	Construct 8.8 miles of 69 kV line between the Cave City and Bon Ayr distribution substations. Operate this line normally open		EKPC (100%)
b2314.1	Construct 8.6 miles of 69 kV line between the Mercer County Industrial and Van Arsdell distribution substation. Construct a new 69 kV switching station adjacent to Bonds Bill Substation. Loop NorthSpringfield - Van Arsdell 69 kV line through South Anders		EKPC (100%)

East Kentucky Power Cooperative, Inc. (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2314.2	Construct a new 69 kV switching station ("South Anderson") adjacent to the LGE/KU Bonds Mill substation		EKPC (100%)
b2314.3	Loop the North Springfield - Van Arsdell 69 kV line through South Anderson. Terminate the existing 69 kV to the LGE/KU Bonds Mill substation at South Anderson and establish a second 69 kV from S. Anderson to the LGE/KU Bonds Mill sub		EKPC (100%)
b2314.4	Construct 0.12 miles of 69 kV line from South Anderson to the Powell Taylor distribution substation and serve this substation radially from South Anderson		EKPC (100%)
b2315	Increase the size of the existing HT Adams 69 kV, 7.2 MVAR capacitor bank to 14.28 MVAR		EKPC (100%)
b2316	Increase the size of the existing Hunt Farm Junction 69 kV, 8.2 MVAR capacitor bank to 16.33 MVAR		EKPC (100%)
b2317	Construct 10.9 miles of 69 kV line between the Owen County substation and the Keith distribution substation. Operate the existing Penn - Keith 69 kV line normally - open		EKPC (100%)

East Kentucky Power Cooperative, Inc. (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2318	Construct 2.7 miles of 69 kV line between the Fox Hollow substation and the Parkway distribution substations. Serve the Parkway #1 and #2 distribution substations radially from Fox Hollow. Operate the Cave City - Bon Ayr 69 kV line normally - closed		EKPC (100%)
b2319	Increase the maximum operating temperature of the Helechawa - Sublett 69 kV line to 167 degrees Fahrenheit		EKPC (100%)
b2320	Install a 69 kV, 15.31 MVAR capacitor bank at the Perryville substation		EKPC (100%)
b2321	Install a 69 kV, 25.51 MVAR capacitor bank at the Veechdale substation		EKPC (100%)
b2322	Change the CT setting on circuit breaker N35 - 804 at Dale Station to at least 800 amps to increase the relay loadability on the Dale - Three Forks 138 kV line to at least 282 MVA		EKPC (100%)
b2323	Rebuild the existing Cynthiana - Headquarters 69 kV line using 556.5 MCM ACSR conductor and operate this line normally closed		EKPC (100%)
b2324	Remove the existing 1200 - amp line traps at JK Smith and Dale associated with the JK Smith - Dale 138 kV line		EKPC (100%)

East Kentucky Power Cooperative, Inc. (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2325	Increase the maximum operating temperature of the Glendale - Hodgenville 69 kV line to 212 degrees Fahrenheit		EKPC (100%)
b2326	Increase the maximum operating temperature of the Fayette - Davis 69 kV line to 248 degrees Fahrenheit		EKPC (100%)
b2327	Increase the maximum operating temperature of the Boone - Boone Distribution 69 kV line to 302 degrees Fahrenheit		EKPC (100%)
b2328	Increase the maximum operating temperature of the West Bardstown Junction - West Bardstown 69 kV line to 284 degrees Fahrenheit		EKPC (100%)
b2329	Increase the maximum operating temperature of the Magnolia - Summersville 69 kV line to 167 degrees Fahrenheit		EKPC (100%)
b2330	Increase the maximum operating temperature of the Bacon Creek - Liberty Church 69 kV line to 212 degrees Fahrenheit		EKPC (100%)
b2331	Increase the maximum operating temperature of the Headquarters - Millersburg Junction 69 kV line to 167 degrees Fahrenheit		EKPC (100%)
b2332	Increase the maximum operating temperature of the JK Smith - Dale 138 kV line to 275 degrees Fahrenheit		EKPC (100%)

East Kentucky Power Cooperative, Inc. (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2333	Increase the maximum operating temperature of the Elizabethtown - Tunnel Hill 69 kV line to 284 degrees Fahrenheit		EKPC (100%)
b2334	Install a 69 kV, 28.06 MVAR capacitor bank at the Owen County substation		EKPC (100%)
b2335	Install a 69 kV, 14.29 MVAR capacitor bank at the Magoffin County substation		EKPC (100%)
b2336	Increase the maximum operating temperature of the South Corbin - Bacon Creek 69 kV line to 212 degrees Fahrenheit		EKPC (100%)
b2337	Increase the size of the existing Cedar Grove 69 kV, 10.8 MVAR capacitor bank to 20.41 MVAR		EKPC (100%)
b2339	Upgrade the 4/0 copper bus and jumpers at the Nelson County substation associated with the Nelson County - West Bardstown Junction 69 kV line using 500 MCM copper or equivalent equipment		EKPC (100%)
b2340	Increase the Zone 3 distance relay setting at Barren County associated with the Barren County - Horse Cave Tap 69 kV line to at least 85 MVA		EKPC (100%)
b2414	Build the 2nd Summer Shade EKPC - Summer Shade TVA 161 kV circuit		EKPC (100%)
b2544	Increase the MOT of the 266.8 MCM ACSR section (1.4 miles), of the Kargle-KU Elizabethtown 69 kV line section to 266 degrees F		EKPC (100%)

East Kentucky Power Cooperative, Inc. (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2614	Decouple the double-circuited Spurlock – Maysville Industrial Tap 138-kV & Spurlock – Flemingsburg 138-kV line segments		EKPC (100%)
b2615	Upgrade the Bullitt County 161/69 kV transformer facility		EKPC (100%)
b2655	Increase the size of the existing Leon 69 kV capacitor bank from 13.2 MVAR to 18.36 MVAR		EKPC (100%)
b2656	Reconductor the Leon – Airport Road 69 kV line section (5.72 miles) using 556.5 MCM ACTW conductor		EKPC (100%)
b2657	Add 69 kV breaker at Thelma – AEP Thelma 69 kV tie		EKPC (100%)
b2658	Increase the zone 3 distance relay setting at Barren County associated with the Barren County – Horse Cave Junction line to at least 103 MVA		EKPC (100%)
b2659	Rebuild the Seymour Tap – KU Horse Cave Tap 69 kV line section (1.98 miles) to 302 degrees F		EKPC (100%)
b2660	Increase the zone 3 distance relay setting at Elizabethtown associated with the Elizabethtown – Smithersville line section to at least 100 MVA		EKPC (100%)
b2661	Reconductor the Baker Lane – Holloway Junction 69 kV (1.28 miles) line section using 556.5 MCM ACTW wire		EKPC (100%)

East Kentucky Power Cooperative, Inc. (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2662	Increase the maximum operating temperature of the Hickory Plains – PPG 69 kV line section (0.21 miles) to 266 degrees F		EKPC (100%)
b2663	Increase the zone 3 distance relay setting at EKPC Elizabethtown associated with the EKPC Elizabethtown to KU Elizabethtown 69 kV line to at least 126 MVA		EKPC (100%)
b2664	Increase the maximum operating temperature of the Tharp Tap – KU Elizabethtown 69 kV line section (2.11 miles) to 266 degrees F. (LTE at 248 degrees F)		EKPC (100%)
b2710	Upgrade the Summer Shade bus and CT associated with the 161/69 kV transformer #1		EKPC (100%)
b2711	Install 25.5 MVAR 69 kV capacitor at Sewellton Junction 69 kV substation		EKPC (100%)
b2730	Upgrade Denny – Gregory Tap 69 kV line facility		EKPC (100%)
b2781	Increase maximum operating temperature of Davis – Nicholasville 69 kV line section 266.8 MCM conductor to 284°F (LTE of 266°F)		EKPC (100%)
b2782	Increase the maximum operating temperature of Plumville – Rectorville 69 kV line section 266.8 MCM conductor to 212°F (LTE of 185°F)		EKPC (100%)
b2783	Rebuild the Davis – Fayette 69 kV line section to 556.5 MCM (3.15 miles)		EKPC (100%)

East Kentucky Power Cooperative, Inc. (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2784	Increase overcurrent relay at West Berea 138/69 kV to at least 139 MVA Winter LTE		EKPC (100%)
b2785	Install a 13.776 MVAR cap bank at Three Links 69 kV		EKPC (100%)
b2786	Increase Williamstown cap bank to 11.225 MVAR		EKPC (100%)
b2827	Upgrade the current 5% impedance 1200A line reactor, which connects the 4SPURLOCK – 4SPUR-KENT-R and 4SPUR-KENT-R – 4KENTON 138kV line sections, to a 6.5% impedance 1600A line reactor		EKPC (100%)
b2879.2	Reconductor EKPC portion of the Stuart – Spurlock 345 kV line		EKPC (100%)
b2893	Rebuild the existing (1.5 mile), 1/0 MCM ACSR South Bardstown – West Bardstown Jct. 69 kV line using 556.5 MCM ACTW conductor		EKPC (100%)
b2902	Rebuild the Brodhead – Three Links Jct. 69 kV line section (8.2 miles) using 556.5 MCM ACTW wire		EKPC (100%)
b2903	Raise the V-low setting for Summer Shade 69 kV cap bank to 1.01 pu		EKPC (100%)
b2904	Raise the V-low setting for Newby 69 kV cap bank to 0.955 pu		EKPC (100%)
b2905	Resize the Albany 69 kV capacitor bank from 8.4 to 13.776 MVAR		EKPC (100%)

East Kentucky Power Cooperative, Inc. (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2906	Increase the Zone 3 distance relay setting at Baker Lane associated with the Baker Lane - Holloway Jct. 69 kV line to at least 142 MVA LTE Winter		EKPC (100%)
b2907	Upgrade the metering CT associated with the Clay Village - KU Clay Village 69 kV tap line section to 600 A; at least 64 MVA Winter LTE. Upgrade the distance relay associated with the Clay Village - KU Clay Village 69 kV tap line section to at least 64 MVA		EKPC (100%)
b2908	Upgrade the distance relay associated with Dale – JK Smith 138 kV line section to 362 MVA normal rating		EKPC (100%)
b2909	Increase the MOT of the EKPC Elizabethtown – Tharp Tap 69 kV line section (1.7 miles) to 302°F (LTE at 284°F)		EKPC (100%)
b2910	Upgrade the distance relay at the Hodgenville station associated with the Glendale – Hodgenville 69 kV line section to at least 90 MVA Winter LTE		EKPC (100%)
b2911	Upgrade the overcurrent relay setting associated with Powell County 138/69 kV transformer to at least 139 MVA Winter LTE		EKPC (100%)
b2912	Upgrade the existing S408-605, 600 A KU Russell Springs Tap – Russell County 69 kV disconnect switch to 1200 A		EKPC (100%)

East Kentucky Power Cooperative, Inc. (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2913	Upgrade distance relay at the Stephensburg station associated with Stephensburg – Glendale 69 kV line section to at least Winter LTE 100 MVA		EKPC (100%)
b2914	Rebuild Tharp Tap – KU Elizabethtown 69 kV line section to 795 MCM (2.11 miles)		EKPC (100%)
b2915	Resize the sideview 69 kV capacitor bank from 6.12 MVAR to 9.18 MVAR		EKPC (100%)
b2916	Upgrade the existing metering CTs (Quantity of 2) associated with the East Bardstown - KU Bardstown Industrial Tap 69 kV line section to 1200 A, at least 100 MVA Winter LTE; and upgrade the existing East Bardstown bus and jumpers from 4/0 to 500 MCM copper		EKPC (100%)
b2917	Replace the existing 100 MVA 138/69 kV transformer bank at the West Berea substation with a 150 MVA transformer		EKPC (100%)
b2918	Upgrade the 4/0 bus and jumpers associated with the West Berea Jct. – Three Links Jct. 69 kV line to 500 MCM copper or equivalent equipment at the Three Links Jct. substation		EKPC (100%)
b2919	Install a 69 kV, 15.31 MVAR capacitor bank at South Anderson substation		EKPC (100%)
b2920	Rebuild Boone - Big Bone Tap 69 kV line section using 556.5 MCM ACTW conductor (6.3 miles)		EKPC (100%)

East Kentucky Power Cooperative, Inc. (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2921	New TVA 161 kV interconnection to TVA's East Glasgow Tap - East Glasgow 161 kV line section (~1 mile due West of Fox Hollow). Add Fox Hollow 161/69 kV 150 MVA transformer. Construct new Fox Hollow - Fox Hollow Jct. 161 kV line section using 795 MCM ACSR (~1 mile) and new 161 kV switching station at point of interconnection with TVA		EKPC (100%)
b2939	Increase the conductor MOT for the Dale – JK Smith 138 kV line to 275°F. The new summer ratings would be 229/296		EKPC (100%)
b2940	Upgrade the distance relay on the Wayne Co – Wayne Co KY 161 kV line to increase the line winter rating would be 167/167		EKPC (100%)
b3044	Increase the MOT of the double circuit Cooper – Somerset 69 kV line 266.8 MCM conductor from 212°F to 266°F		EKPC (100%)
b3045	Increase the MOT of Liberty Church tap – Bacon Creek tap 69 kV line 266.8 MCM conductor from 212°F to 266°F		EKPC (100%)
b3046	Increase the MOT of Summer Shade – JB Galloway Jct. 69 kV line 266.8 MCM conductor from 167°F to 212°F		EKPC (100%)

East Kentucky Power Cooperative, Inc. (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3047	Upgrade the existing 4/0 CU line jumpers with double 500 MCM CU associated with the Green Co - KU Green Co 69 kV line section. Also, replace the existing 600 A disconnect switches with 1200 A associated with the Green Co 161/69 kV transformer		EKPC (100%)
b3094	Move 69 kV 12.0 MVAR capacitor bank from Greenbriar to Bullitt Co 69 kV substation		EKPC (100%)
b3266	Upgrade the metering CT associated with the Clay Village – Clay Village T 69 kV line section to increase the line ratings		EKPC (100%)
b3267	Rebuild the 4/0 ACSR Norwood – Shopville 69 kV line section using 556 ACSR/TW		EKPC (100%)

Attachment C

Schedule 12 – Appendix A of the
PJM Open Access Transmission Tariff

(Clean Format)

SCHEDULE 12 – APPENDIX A

(1) Atlantic City Electric Company

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2123	Upgrade the 69 kV bus at Laurel		AEC (100%)
b2226	Upgrade the Tackahoe to Mill 69 kV circuit		AEC (100%)
b2227	50 MVAR shunt reactor at Mickleton 230 kV and relocate Mickleton #1 230 69 kV transformer		AEC (100%)
b2228	+150/-100 MVAR SVC at Cedar 230 kV		AEC (100%)
b2296	Replace the Mickleton 230kV breaker PCB U with 63kA breaker		AEC (100%)
b2297	Replace the Mickleton 230kV breaker PCB V with 63kA breaker		AEC (100%)
b2305	Rebuild and reconductor 1.2 miles of the US Silica to US Silica #1 69 kV circuit		AEC (100%)
b2306	Rebuild and reconductor 1.67 miles of the US Silica #1 to W1-089 TAP 69 kV circuit		AEC (100%)
b2351	Reconductor section A of Corson - Sea Isle - Swainton 69 kV line		AEC (100%)
b2353	Upgrade the overcurrent protective relaying at Middle T3 and T4 138/69 kV transformers		AEC (100%)
b2354	Install second 230/69 kV transformer and 230 kV circuit breaker at Churchtown substation		AEC (100%)

Atlantic City Electric Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2354.1	Replace Churchtown 69kV breaker 'D'		AEC (100%)
b2476	Install new Dennis 230/69 kV transformer		AEC (100%)
b2477	Upgrade 138 kV and 69 kV breakers at Corson substation		AEC (100%)
b2478	Reconductor 2.74 miles of Sherman - Lincoln 138 kV line and associated substation upgrades		AEC (100%)
b2479	New Orchard - Cardiff 230 kV line (remove, rebuild and reconfigure existing 138 kV line) and associated substation upgrades		AEC (100%)
b2480.1	New Upper Pittsgrove - Lewis 138 kV line and associated substation upgrades		AEC (100%)
b2480.2	Relocate Monroe to Deepwater Tap 138 kV to Landis 138 kV and associated substation upgrades		AEC (100%)
b2480.3	New Landis - Lewis 138 kV line and associated substation upgrades		AEC (100%)
b2481	New Cardiff - Lewis #2 138 kV line and associated substation upgrades		AEC (100%)
b2489	Install a 100 MVAR capacitor at BL England		AEC (100%)

Atlantic City Electric Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2538	Replace the Mickleton 230kV 'MK' breaker with 63kA breaker		AEC (100%)
b2553	Replace Middle T3 138/69 kV transformer with 225 MVA nameplate		AEC (100%)
b2723.1	Replace the Mickleton 69 kV 'PCB A' breaker with 63kA breaker		AEC (100%)
b2723.2	Replace the Mickleton 69 kV 'PCB B' breaker with 63kA breaker		AEC (100%)
b2723.3	Replace the Mickleton 69 kV 'PCB C' breaker with 63kA breaker		AEC (100%)
b2723.4	Replace the Mickleton 69 kV 'PCB Q' breaker with 63kA breaker		AEC (100%)
b2839	Replace the Sickler 69 kV 'H' breaker with 63kA breaker		AEC (100%)
b2840	Replace the Sickler 69 kV 'M' breaker with 63kA breaker		AEC (100%)
b2841	Replace the Sickler 69 kV 'A' breaker with 63kA breaker		AEC (100%)
b2945.1	Rebuild the BL England – Middle Tap 138 kV line to 2000A on double circuited steel poles and new foundations		AEC (100%)
b2945.2	Reconductor BL England – Merion 138 kV (1.9 miles) line		AEC (100%)
b2945.3	Reconductor Merion – Corson 138 kV (8 miles) line		AEC (100%)

Atlantic City Electric Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3135	Install back-up relay on the 138 kV bus at Corson substation		AEC (100%)
b3226	Add 10 MVAR 69 kV capacitor bank at Swainton substation		AEC (100%)
b3227	Rebuild the Corson – Court 69 kV line to achieve ratings equivalent to 795 ACSR conductor or better		AEC (100%)

SCHEDULE 12 – APPENDIX A

(2) Baltimore Gas and Electric Company

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2219	Install a 115 kV tie breaker at Wagner to create a separation from line 110535 and transformer 110-2		BGE (100%)
b2220	Install four 115 kV breakers at Chestnut Hill		BGE (100%)
b2221	Install an SPS to trip approximately 19 MW load at Green St. and Concord		BGE (100%)
b2307	Install a 230/115kV transformer at Raphael Rd and construct approximately 3 miles of 115kV line from Raphael Rd. to Joppatowne. Construct a 115kV three breaker ring at Joppatowne		BGE (100%)
b2308	Build approximately 3 miles of 115kV underground line from Bestgate tap to Waugh Chapel. Create two breaker bay at Waugh Chapel to accommodate the new underground circuit		BGE (100%)
b2396	Build a new Camp Small 115 kV station and install 30 MVAR capacitor		BGE (100%)

Baltimore Gas and Electric Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2396.1	Install a tie breaker at Mays Chapel 115 kV substation		BGE (100%)
b2567	Upgrade the Riverside 115kV substation strain bus conductors on circuits 115012 and 115011 with double bundled 1272 ACSR to achieve ratings of 491/577 MVA SN/SE on both transformer leads		BGE (100%)
b2568	Reconductor Northwest – Northwest #2 115kV 110574 substation tie circuit with 2167 ACSR to achieve ratings of 400/462 MVA SN/SE		BGE (100%)
b2752.6	Conastone 230 kV substation tie-in work (install a new circuit breaker at Conastone 230 kV and upgrade any required terminal equipment to terminate the new circuit)		AEP (6.46%) / APS (8.74%) / BGE (19.74%) / ComEd (2.16%) / Dayton (0.59%) / DEOK (1.02%) / DL (0.01%) / Dominion (39.95%) / EKPC (0.45%) / PEPCO (20.88%)
b2752.7	Reconductor/Rebuild the two Conastone – Northwest 230 kV lines and upgrade terminal equipment on both ends		AEP (6.46%) / APS (8.74%) / BGE (19.74%) / ComEd (2.16%) / Dayton (0.59%) / DEOK (1.02%) / DL (0.01%) / Dominion (39.95%) / EKPC (0.45%) / PEPCO (20.88%)
b2752.8	Replace the Conastone 230 kV '2322 B5' breaker with a 63kA breaker		BGE (100%)

Baltimore Gas and Electric Company (cont.)

Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b2752.9	Replace the Conastone 230 kV '2322 B6' breaker with a 63kA breaker		BGE (100%)
b2766.1	Upgrade substation equipment at Conastone 500 kV to increase facility rating to 2826 MVA normal and 3525 MVA emergency		**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%)
			DFAX Allocation: AEC (*3.52*%) / *APS (9.95%)* / ATSI (*10.68*%) / BGE (*6.92*%) / DPL (*16.32*%) / JCPL (*11.32*%) / NEPTUNE* (*1.22*%) / *PENELEC (2.30%)* / PEPCO (*12.59*%) / PSEG (*24.22*%) / RE (*0.96*%)

*Neptune Regional Transmission System, LLC

Baltimore Gas and Electric Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2816	Re-connect the Crane – Windy Edge 110591 & 110592 115 kV circuits into the Northeast Substation with the addition of a new 115 kV 3-breaker bay		BGE (100%)
b2992.1	Reconductor the Conastone to Graceton 230 kV 2323 & 2324 circuits. Replace 7 disconnect switches at Conastone substation		AEP (2.25%) / APS (2.58%) / BGE (44.61%) / ComEd (0.51%) / Dayton (0.40%) / DEOK (1.39%) / DL (0.14%) / Dominion (27.05%) / EKPC (0.52%) / PENELEC (0.02%) / PEPCO (20.53%)
b2992.2	Add Bundle conductor on the Graceton – Bagley – Raphael Road 2305 & 2313 230 kV circuits		AEP (2.25%) / APS (2.58%) / BGE (44.61%) / ComEd (0.51%) / Dayton (0.40%) / DEOK (1.39%) / DL (0.14%) / Dominion (27.05%) / EKPC (0.52%) / PENELEC (0.02%) / PEPCO (20.53%)
b2992.3	Replacing short segment of substation conductor on the Windy Edge to Glenarm 110512 115 kV circuit		AEP (2.25%) / APS (2.58%) / BGE (44.61%) / ComEd (0.51%) / Dayton (0.40%) / DEOK (1.39%) / DL (0.14%) / Dominion (27.05%) / EKPC (0.52%) / PENELEC (0.02%) / PEPCO (20.53%)
b2992.4	Reconductor the Raphael Road – Northeast 2315 & 2337 230 kV circuits		AEP (2.25%) / APS (2.58%) / BGE (44.61%) / ComEd (0.51%) / Dayton (0.40%) / DEOK (1.39%) / DL (0.14%) / Dominion (27.05%) / EKPC (0.52%) / PENELEC (0.02%) / PEPCO (20.53%)
b3228	Replace two (2) relays at Center substation to increase ratings on the Westport to Center 110552 115 kV circuit		BGE (100%)
b3305	Replace Pumphrey 230/115 kV transformer		BGE (100%)

SCHEDULE 12 – APPENDIX A

(3) Delmarva Power & Light Company

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2288	Build a new 138 kV line from Piney Grove – Wattsville		DPL (100%)
b2395	Reconductor the Harmony – Chapel St 138 kV circuit		DPL (100%)
b2569	Replace Terminal equipment at Silverside 69 kV substation		DPL (100%)
b2633.7	Implement high speed relaying utilizing OPGW on Red Lion – Hope Creek 500 kV line		**Load-Ratio Share Allocation:** AEC (*1.71%*) / AEP (*14.04%*) / APS (*5.61%*) / ATSI (*8.10%*) / BGE (*4.36%*) / ComEd (*13.14%*) / Dayton (*2.15%*) / DEOK (*3.23%*) / DL (*1.73%*) / DPL (*2.65%*) / Dominion (*13.03%*) / EKPC (*1.77%*) / JCPL (*3.84%*) / ME (*1.93%*) / NEPTUNE* (*0.45%*) / OVEC (*0.07%*) / PECO (*5.29%*) / PENELEC (*1.89%*) / PEPCO (*3.82%*) / PPL (*4.72%*) / PSEG (*6.21%*) / RE (*0.26%*)
			DFAX Allocation: AEC (0.01%) / DPL (99.98%) / JCPL (0.01%)
b2633.10	Interconnect the new Silver Run 230 kV substation with existing Red Lion – Cartanza and Red Lion – Cedar Creek 230 kV lines		AEC (8.01%) / BGE (1.94%) / DPL (12.99%) / JCPL (13.85%) / ME (5.88%) / NEPTUNE* (3.45%) / PECO (17.62%) / PPL (14.85%) / PSEG (20.79%) / RE (0.62%)

*Neptune Regional Transmission System, LLC

Delmarva Power & Light Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2695	Rebuild Worcester – Ocean Pine 69 kV ckt. 1 to 1400A capability summer emergency		DPL (100%)
b2946	Convert existing Preston 69 kV substation to DPL's current design standard of a 3-breaker ring bus		DPL (100%)
b2947.1	Upgrade terminal equipment at DPL's Naamans substation (Darley - Naamans 69 kV)		DPL (100%)
b2947.2	Reconductor 0.11 mile section of Darley - Naamans 69 kV circuit		DPL (100%)
b2948	Upgrade terminal equipment at DPL's Silverside Road substation (Dupont Edge Moor – Silver R. 69 kV)		DPL (100%)
b2987	Install a 30 MVAR capacitor bank at DPL's Cool Springs 69 kV substation. The capacitor bank would be installed in two separate 15 MVAR stages allowing DPL operational flexibility		DPL (100%)
b3143.1	Reconductor the Silverside Road – Darley 69 kV circuit		DPL (100%)
b3143.2	Reconductor the Darley – Naamans 69 kV circuit		DPL (100%)
b3143.3	Replace three (3) existing 1200 A disconnect switches with 2000 A disconnect switches and install three (3) new 2000 A disconnect switches at Silverside 69 kV station		DPL (100%)

Delmarva Power & Light Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3143.4	Replace two (2) 1200 A disconnect switches with 2000 A disconnect switches. Replace existing 954 ACSR and 500 SDCU stranded bus with two (2) 954 ACSR stranded bus. Reconfigure four (4) CTs from 1200 A to 2000 A and install two (2) new 2000 A disconnect switches and two (2) new 954 ACSR stranded bus at Naamans 69 kV station		DPL (100%)
b3143.5	Replace four (4) 1200 A disconnect switches with 2000 A disconnect switches. Replace existing 954 ACSR and 1272 MCM AL stranded bus with two (2) 954 ACSR stranded bus. Reconfigure eight (8) CTs from 1200 A to 2000 A and install four (4) new 2000 A (310 MVA SE / 351 MVA WE) disconnect switches and two (2) new 954 ACSR (331 MVA SE / 369 MVA WE) stranded bus at Darley 69 kV station		DPL (100%)
b3155	Rebuild approx. 12 miles of Wye Mills – Stevensville line		DPL (100%)
b3224	Replace a disconnect switch and reconductor a short span of the Mt. Pleasant – Middletown tap 138 kV line		DPL (100%)

SCHEDULE 12 – APPENDIX A

(4) Jersey Central Power & Light Company

Required Transmission Enhancements	Annual Revenue Requirement		Responsible Customer(s)
b2234	260 MVAR reactor at West Wharton 230 kV		JCPL (100%)
b2270	Advance Raritan River - Replace G1047E breaker at the 230kV Substation		JCPL (100%)
b2271	Advance Raritan River - Replace G1047F breaker at the 230kV Substation		JCPL (100%)
b2272	Advance Raritan River - Replace T1034E breaker at the 230kV Substation		JCPL (100%)
b2273	Advance Raritan River - Replace T1034F breaker at the 230kV Substation		JCPL (100%)
b2274	Advance Raritan River - Replace I1023E breaker at the 230kV Substation		JCPL (100%)
b2275	Advance Raritan River - Replace I1023F breaker at the 230kV Substation		JCPL (100%)
b2289	Freneau Substation - upgrade 2.5 inch pipe to bundled 1590 ACSR conductor at the K1025 230 kV Line Terminal		JCPL (100%)
b2292	Replace the Whippany 230 kV breaker B1 (CAP) with 63kA breaker		JCPL (100%)
b2357	Replace the East Windsor 230 kV breaker 'E1' with 63kA breaker		JCPL (100%)

Jersey Central Power & Light Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2495	Replace transformer leads on the Glen Gardner 230/34.5 kV #1 transformer		JCPL (100%)
b2496	Replace Franklin 115/34.5 kV transformer #2 with 90 MVA transformer		JCPL (100%)
b2497	Reconductor 0.9 miles of the Captive Plastics to Morris Park 34.5 kV circuit (397ACSR) with 556 ACSR		JCPL (100%)
b2498	Extend 5.8 miles of 34.5 kV circuit from North Branch substation to Lebanon substation with 397 ACSR and install 34.5 kV breaker at Lebanon substation		JCPL (100%)
b2500	Upgrade terminal equipment at Monroe on the Englishtown to Monroe (H34) 34.5 kV circuit		JCPL (100%)
b2570	Upgrade limiting terminal facilities at Feneau, Parlin, and Williams substations		JCPL (100%)
b2571	Upgrade the limiting terminal facilities at both Jackson and North Hanover		JCPL (100%)
b2586	Upgrade the V74 34.5 kV transmission line between Allenhurst and Elberon Substations		JCPL (100%)

Jersey Central Power & Light Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2633.6	Implement high speed relaying utilizing OPGW on Deans – East Windsor 500 kV		**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%)
			DFAX Allocation: AEC (0.01%) / DPL (99.98%) / JCPL (0.01%)
b2633.6.1	Implement high speed relaying utilizing OPGW on East Windsor - New Freedom 500 kV		**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%)
			DFAX Allocation: AEC (0.01%) / DPL (99.98%) / JCPL (0.01%)

Jersey Central Power & Light Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2676	Install one (1) 72 MVAR fast switched capacitor at the Englishtown 230 kV substation		JCPL (100%)
b2708	Replace the Oceanview 230/34.5 kV transformer #1		JCPL (100%)
b2709	Replace the Deep Run 230/34.5 kV transformer #1		JCPL (100%)
b2754.2	Install 5 miles of optical ground wire (OPGW) between Gilbert and Springfield 230 kV substations		JCPL (100%)
b2754.3	Install 7 miles of all-dielectric self-supporting (ADSS) fiber optic cable between Morris Park and Northwood 230 kV substations		JCPL (100%)
b2754.6	Upgrade relaying at Morris Park 230 kV		JCPL (100%)
b2754.7	Upgrade relaying at Gilbert 230 kV		JCPL (100%)
b2809	Install a bypass switch at Mount Pleasant 34.5 kV substation to allow the Mount Pleasant substation load to be removed from the N14 line and transfer to O769 line		JCPL (100%)
b3023	Replace West Wharton 115 kV breakers ‘G943A’ and ‘G943B’ with 40kA breakers		JCPL (100%)
b3042	Replace substation conductor at Raritan River 230 kV substation on the Kilmer line terminal		JCPL (100%)

Jersey Central Power & Light Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3130	Construct seven new 34.5 kV circuits on existing pole lines (total of 53.5 miles), rebuild/reconductor two 34.5 kV circuits (total of 5.5 miles) and install a second 115/34.5 kV transformer (Werner)		JCPL (100%)
b3130.1	Construct a new 34.5 kV circuit from Oceanview to Allenhurst 34.5 kV (4 miles)		JCPL (100%)
b3130.2	Construct a new 34.5 kV circuit from Atlantic to Red Bank 34.5 kV (12 miles)		JCPL (100%)
b3130.3	Construct a new 34.5 kV circuit from Freneau to Taylor Lane 34.5 kV (6.5 miles)		JCPL (100%)
b3130.4	Construct a new 34.5 kV circuit from Keyport to Belford 34.5 kV (6 miles)		JCPL (100%)
b3130.5	Construct a new 34.5 kV circuit from Red Bank to Belford 34.5 kV (5 miles)		JCPL (100%)
b3130.6	Construct a new 34.5 kV circuit from Werner to Clark Street (7 miles)		JCPL (100%)
b3130.7	Construct a new 34.5 kV circuit from Atlantic to Freneau (13 miles)		JCPL (100%)
b3130.8	Rebuild/reconductor the Atlantic – Camp Woods Switch Point (3.5 miles) 34.5 kV circuit		JCPL (100%)
b3130.9	Rebuild/reconductor the Allenhurst – Elberon (2 miles) 34.5 kV circuit		JCPL (100%)
b3130.10	Install 2nd 115/34.5 kV transformer at Werner substation		JCPL (100%)

Jersey Central Power & Light Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3238	Replace seven (7) overdutied 34.5 kV breakers with 50 kA rated equipment at the Whippany substation		JCPL (100%)
b3239	Replace fourteen (14) overdutied 34.5 kV breakers with 63 kA rated equipment		JCPL (100%)

SCHEDULE 12 – APPENDIX A

(7) Mid-Atlantic Interstate Transmission, LLC for the Pennsylvania Electric Company Zone

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2212	Shawville Substation: Relocate 230 kV and 115 kV controls from the generating station building to new control building		PENELEC (100%)
b2293	Replace the Erie South 115 kV breaker 'Buffalo Rd' with 40kA breaker		PENELEC (100%)
b2294	Replace the Johnstown 115 kV breaker 'Bon Aire' with 40kA breaker		PENELEC (100%)
b2302	Replace the Erie South 115 kV breaker 'French #2' with 40kA breaker		PENELEC (100%)
b2304	Replace the substation conductor and switch at South Troy 115 kV substation		PENELEC (100%)
b2371	Install 75 MVAR capacitor at the Erie East 230 kV substation		PENELEC (100%)
b2441	Install +250/-100 MVAR SVC at the Erie South 230 kV station		PENELEC (100%)
b2442	Install three 230 kV breakers on the 230 kV side of the Lewistown #1, #2 and #3 transformers		PENELEC (100%)
b2450	Construct a new 115 kV line from Central City West to Bedford North		PENELEC (100%)
b2463	Rebuild and reconductor 115 kV line from East Towanda to S. Troy and upgrade terminal equipment at East Towanda, Tennessee Gas and South Troy		PENELEC (100%)

Mid-Atlantic Interstate Transmission, LLC for the Pennsylvania Electric Company Zone (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2494	Construct Warren 230 kV ring bus and install a second Warren 230/115 kV transformer		PENELEC (100%)
b2552.1	Reconductor the North Meshoppen – Oxbow-Lackawanna 230 kV circuit and upgrade terminal equipment (MAIT portion)		PENELEC (*99.00*%) / PPL (*1.00*%)
b2573	Replace the Warren 115 kV 'B12' breaker with a 40kA breaker		PENELEC (100%)
b2587	Reconfigure Pierce Brook 345 kV station to a ring bus and install a 125 MVAR shunt reactor at the station		PENELEC (100%)
b2621	Replace relays at East Towanda and East Sayre 115 kV substations (158/191 MVA SN/SE)		PENELEC (100%)
b2677	Replace wave trap, bus conductor and relay at Hilltop 115 kV substation. Replace relays at Prospect and Cooper substations		PENELEC (100%)
b2678	Convert the East Towanda 115 kV substation to breaker and half configuration		PENELEC (100%)
b2679	Install a 115 kV Venango Jct. line breaker at Edinboro South		PENELEC (100%)
b2680	Install a 115 kV breaker on Hooversville #1 115/23 kV transformer		PENELEC (100%)
b2681	Install a 115 kV breaker on the Eclipse #2 115/34.5 kV transformer		PENELEC (100%)

Mid-Atlantic Interstate Transmission, LLC for the Pennsylvania Electric Company Zone (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2682	Install two 21.6 MVAR capacitors at the Shade Gap 115 kV substation		PENELEC (100%)
b2683	Install a 36 MVAR 115 kV capacitor and associated equipment at Morgan Street substation		PENELEC (100%)
b2684	Install a 36 MVAR 115 kV capacitor at Central City West substation		PENELEC (100%)
b2685	Install a second 115 kV 3000A bus tie breaker at Hooversville substation		PENELEC (100%)
b2735	Replace the Warren 115 kV 'NO. 2 XFMR' breaker with 40kA breaker		PENELEC (100%)
b2736	Replace the Warren 115 kV 'Warren #1' breaker with 40kA breaker		PENELEC (100%)
b2737	Replace the Warren 115 kV 'A TX #1' breaker with 40kA breaker		PENELEC (100%)
b2738	Replace the Warren 115 kV 'A TX #2' breaker with 40kA breaker		PENELEC (100%)
b2739	Replace the Warren 115 kV 'Warren #2' breaker with 40kA breaker		PENELEC (100%)
b2740	Revise the reclosing of the Hooversville 115 kV 'Ralphton' breaker		PENELEC (100%)
b2741	Revise the reclosing of the Hooversville 115 kV 'Statler Hill' breaker		PENELEC (100%)

Mid-Atlantic Interstate Transmission, LLC for the Pennsylvania Electric Company Zone (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2743.2	Tie in new Rice substation to Conemaugh – Hunterstown 500 kV		AEP (6.46%) / APS (8.74%) / BGE (19.74%) / ComEd (2.16%) / Dayton (0.59%) / DEOK (1.02%) / DL (0.01%) / Dominion (39.95%) / EKPC (0.45%) / PEPCO (20.88%)
b2743.3	Upgrade terminal equipment at Conemaugh 500 kV on the Conemaugh – Hunterstown 500 kV circuit		AEP (6.46%) / APS (8.74%) / BGE (19.74%) / ComEd (2.16%) / Dayton (0.59%) / DEOK (1.02%) / DL (0.01%) / Dominion (39.95%) / EKPC (0.45%) / PEPCO (20.88%)
b2748	Install two 28 MVAR capacitors at Tiffany 115 kV substation		PENELEC (100%)
b2767	Construct a new 345 kV breaker string with three (3) 345 kV breakers at Homer City and move the North autotransformer connection to this new breaker string		PENELEC (100%)
b2803	Reconductor 3.7 miles of the Bethlehem – Leretto 46 kV circuit and replace terminal equipment at Summit 46 kV		PENELEC (100%)
b2804	Install a new relay and replace 4/0 CU bus conductor at Huntingdon 46 kV station, on the Huntingdon – C tap 46 kV circuit		PENELEC (100%)
b2805	Install a new relay and replace 4/0 CU & 250 CU substation conductor at Hollidaysburg 46 kV station, on the Hollidaysburg – HCR Tap 46 kV circuit		PENELEC (100%)

Mid-Atlantic Interstate Transmission, LLC for the Pennsylvania Electric Company Zone (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2806	Install a new relay and replace meter at the Raystown 46 kV substation, on the Raystown – Smithfield 46 kV circuit		PENELEC (100%)
b2807	Replace the CHPV and CRS relay, and adjust the IAC overcurrent relay trip setting; or replace the relay at Eldorado 46 kV substation, on the Eldorado – Gallitzin 46 kV circuit		PENELEC (100%)
b2808	Adjust the JBC overcurrent relay trip setting at Raystown 46 kV, and replace relay and 4/0 CU bus conductor at Huntingdon 46 kV substations, on the Raystown – Huntingdon 46 kV circuit		PENELEC (100%)
b2865	Replace Seward 115 kV breaker "Jackson Road" with 63kA breaker		PENELEC (100%)
b2866	Replace Seward 115 kV breaker "Conemaugh N." with 63kA breaker		PENELEC (100%)
b2867	Replace Seward 115 kV breaker "Conemaugh S." with 63kA breaker		PENELEC (100%)
b2868	Replace Seward 115 kV breaker "No.8 Xfmr" with 63kA breaker		PENELEC (100%)
b2944	Install two 345 kV 80 MVAR shunt reactors at Mainesburg station		PENELEC (100%)

Mid-Atlantic Interstate Transmission, LLC for the Pennsylvania Electric Company Zone (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2951	Seward, Blairsville East, Shelocta work		PENELEC (100%)
b2951.1	Upgrade Florence 115 kV line terminal equipment at Seward SS		PENELEC (100%)
b2951.2	Replace Blairsville East / Seward 115 kV line tuner, coax, line relaying and carrier set at Shelocta SS		PENELEC (100%)
b2951.3	Replace Seward / Shelocta 115 kV line CVT, tuner, coax, and line relaying at Blairsville East SS		PENELEC (100%)
b2952	Replace the North Meshoppen #3 230/115 kV transformer eliminating the old reactor and installing two breakers to complete a 230 kV ring bus at North Meshoppen		PENELEC (100%)
b2953	Replace the Keystone 500 kV breaker "NO. 14 Cabot" with 50kA breaker		PENELEC (100%)
b2954	Replace the Keystone 500 kV breaker "NO. 16 Cabot" with 50kA breaker		PENELEC (100%)
b2984	Reconfigure the bus at Glory and install a 50.4 MVAR 115 kV capacitor		PENELEC (100%)
b3007.2	Reconductor the Blairsville East to Social Hall 138 kV line and upgrade terminal equipment - PENELEC portion. 4.8 miles total. The new conductor will be 636 ACSS replacing the existing 636 ACSR conductor. At Blairsville East, the wave trap and breaker disconnects will be replaced		PENELEC (100%)

Mid-Atlantic Interstate Transmission, LLC for the Pennsylvania Electric Company Zone (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3008	Upgrade Blairsville East 138/115 kV transformer terminals. This project is an upgrade to the tap of the Seward – Shelocta 115 kV line into Blairsville substation. The project will replace the circuit breaker and adjust relay settings		PENELEC (100%)
b3009	Upgrade Blairsville East 115 kV terminal equipment. Replace 115 kV circuit breaker and disconnects		PENELEC (100%)
b3014	Replace the existing Shelocta 230/115 kV transformer and construct a 230 kV ring bus		PENELEC (100%)
b3016	Upgrade terminal equipment at Corry East 115 kV to increase rating of Four Mile to Corry East 115 kV line. Replace bus conductor		PENELEC (100%)
b3017.1	Rebuild Glade to Warren 230 kV line with hi-temp conductor and substation terminal upgrades. 11.53 miles. New conductor will be 1033 ACSS. Existing conductor is 1033 ACSR		PENELEC (*100*%)
b3017.2	Glade substation terminal upgrades. Replace bus conductor, wave traps, and relaying		PENELEC (*100*%)
b3017.3	Warren substation terminal upgrades. Replace bus conductor, wave traps, and relaying		PENELEC (*100*%)
b3022	Replace Saxton 115 kV breaker 'BUS TIE' with a 40kA breaker		PENELEC (100%)

Mid-Atlantic Interstate Transmission, LLC for the Pennsylvania Electric Company Zone (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3024	Upgrade terminal equipment at Corry East 115 kV to increase rating of Warren to Corry East 115 kV line. Replace bus conductor		PENELEC (100%)
b3043	Install one 115 kV 36 MVAR capacitor at West Fall 115 kV substation		PENELEC (100%)
b3073	Replace the Blairsville East 138/115 kV transformer and associated equipment such as breaker disconnects and bus conductor		PENELEC (100%)
b3077	Reconductor the Franklin Pike B – Wayne 115 kV line (6.78 miles)		PENELEC (100%)
b3078	Reconductor the 138 kV bus and replace the line trap, relays Morgan Street. Reconductor the 138 kV bus at Venango Junction		PENELEC (100%)
b3082	Construct 4-breaker 115 kV ring bus at Geneva		PENELEC (100%)
b3137	Rebuild 20 miles of the East Towanda – North Meshoppen 115 kV line		PENELEC (100%)
b3144	Upgrade bus conductor and relay panels of the Jackson Road – Nanty Glo 46 kV SJN line		PENELEC (100%)
b3144.1	Upgrade line relaying and substation conductor on the 46 kV Nanty Glo line exit at Jackson Road substation		PENELEC (100%)
b3144.2	Upgrade line relaying and substation conductor on the 46 kV Jackson Road line exit at Nanty Glo substation		PENELEC (100%)
b3154	Install one (1) 13.2 MVAR 46 kV capacitor at the Logan substation		PENELEC (100%)

Mid-Atlantic Interstate Transmission, LLC for the Pennsylvania Electric Company Zone (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3231	Replace the existing No. 2 cap bank breaker at Huntingdon substation with a new breaker with higher interrupting capability		PENELEC (100%)
b3232	Replace the existing Williamsburg, ALH (Hollidaysburg) and bus section breaker at the Altoona substation with a new breaker with higher interrupting capability		PENELEC (100%)
b3233	Install one (1) 34 MVAR 115 kV shunt reactor and breaker. Install one (1) 115 kV circuit breaker to expand the substation to a 4-breaker ring bus		PENELEC (100%)
b3237	Install two (2) 46 kV 6.12 MVAR capacitors effective at Mt. Union		PENELEC (100%)
b3245	Construct a new breaker-and-a-half substation near Tiffany substation. All transmission assets and lines will be relocated to the new substation. The two (2) distribution transformers will be fed via two (2) dedicated 115 kV feeds to the existing Tiffany substation		PENELEC (100%)
b3306	Install a second 125 MVAR 345 kV shunt reactor and associated equipment at Pierce Brook substation. Install a 345 kV breaker on the high side of the 345/230 kV transformer #1		PENELEC (100%)

SCHEDULE 12 – APPENDIX A

(9) PPL Electric Utilities Corporation

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b1813.12	Replace the Blooming Grove 230 kV breaker 'Peckville'		PPL (100%)
b2223	Rebuild and reconductor 2.6 miles of the Sunbury - Dauphin 69 kV circuit		PPL (100%)
b2224	Add a 2nd 150 MVA 230/69 kV transformer at Springfield		PPL (100%)
b2237	150 MVAR shunt reactor at Alburtis 500 kV		**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%) **DFAX Allocation:** PPL (100%)
b2238	100 MVAR shunt reactor at Elimsport 230 kV		PPL (100%)

* Neptune Regional Transmission System, LLC

PPL Electric Utilities Corporation (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2269	Rebuild approximately 23.7 miles of the Susquehanna - Jenkins 230kV circuit. This replaces a temporary SPS that is already planned to mitigate the violation until this solution is implemented		PPL (100%)
b2282	Rebuild the Siegfried-Frackville 230 kV line		PPL (100%)
b2406.1	Rebuild Stanton-Providence 69 kV 2&3 9.5 miles with 795 SCSR		PPL (100%)
b2406.2	Reconductor 7 miles of the Lackawanna - Providence 69 kV #1 and #2 with 795 ACSR		PPL (100%)
b2406.3	Rebuild SUB2 Tap 1 (Lackawanna - Scranton 1) 69 kV 1.5 miles 556 ACSR		PPL (100%)
b2406.4	Rebuild SUB2 Tap 2 (Lackawanna - Scranton 1) 69 kV 1.6 miles 556 ACSR		PPL (100%)
b2406.5	Create Providence - Scranton 69 kV #1 and #2, 3.5 miles with 795 ACSR		PPL (100%)
b2406.6	Rebuild Providence 69 kV switchyard		PPL (100%)
b2406.7	Install 2 - 10.8 MVAR capacitors at EYNO 69 kV		PPL (100%)
b2406.8	Rebuild Stanton 230 kV yard		PPL (100%)

PPL Electric Utilities Corporation (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2446	Replace wave trap and protective relays at Montour		PPL (100%)
b2447	Replace wave trap and protective relays at Montour		PPL (100%)
b2448	Install a 2nd Sunbury 900MVA 500-230kV transformer and associated equipment		PPL (100%)
b2552.2	Reconductor the North Meshoppen - Oxbow – Lackawanna 230 kV circuit and upgrade terminal equipment (PPL portion)		PENELEC (*98.84*%) / PPL (*1.16*%)
b2574	Replace the Sunbury 230 kV 'MONTOUR NORT' breaker with a 63kA breaker		PPL (100%)
b2690	Reconductor two spans of the Graceton – Safe Harbor 230 kV transmission line. Includes termination point upgrades		PPL (100%)
b2691	Reconductor three spans limiting Brunner Island – Yorkana 230 kV line, add 2 breakers to Brunner Island switchyard, upgrade associated terminal equipment		PPL (100%)

PPL Electric Utilities Corporation (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2716	Add a 200 MVAR shunt reactor at Lackawanna 500 kV substation		**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%) **DFAX Allocation:** PPL (100%)
b2754.1	Install 7 miles of optical ground wire (OPGW) between Gilbert and Springfield 230 kV substations		PPL (100%)
b2754.4	Use ~ 40 route miles of existing fibers on PPL 230 kV system to establish direct fiber circuits		PPL (100%)
b2754.5	Upgrade relaying at Martins Creek 230 kV		PPL (100%)
b2756	Install 2% reactors at Martins Creek 230 kV		PPL (100%)
b2813	Expand existing Lycoming 69 kV yard to double bus double breaker arrangement		PPL (100%)

* Neptune Regional Transmission System, LLC

PPL Electric Utilities Corporation (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2824	Reconfigure/Expand the Lackawanna 500 kV substation by adding a third bay with three breakers		**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%) **DFAX Allocation:** PPL (100%)
b2838	Build a new 230/69 kV substation by tapping the Montour – Susquehanna 230 kV double circuits and Berwick – Hunlock & Berwick – Colombia 69 kV circuits		PPL (100%)
b2979	Replace Martins Creek 230 kV circuit breakers with 80 kA rating		PPL (100%)
b3221	Replace terminal equipment (bus conductor) on the 230 kV side of the Steel City 500/230 kV Transformer #1		PPL (100%)
b3222	Install one (1) 7.2 MVAR fixed cap bank on the Lock Haven – Reno 69 kV line and one (1) 7.2 MVAR fixed cap bank on the Lock Haven – Flemington 69 kV line near the Flemington 69/12 kV substation		PPL (100%)

* Neptune Regional Transmission System, LLC

SCHEDULE 12 – APPENDIX A

(14) Monongahela Power Company, The Potomac Edison Company, and West Penn Power Company, all doing business as Allegheny Power

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2117	Reconductor 0.33 miles of the Parkersburg - Belpre line and upgrade Parkersburg terminal equipment		APS (100%)
b2118	Add 44 MVAR Cap at New Martinsville		APS (100%)
b2120	Six-Wire Lake Lynn - Lardin 138 kV circuits		APS (100%)
b2142	Replace Weirton 138 kV breaker "Wylie Ridge 210" with 63 kA breaker		APS (100%)
b2143	Replace Weirton 138 kV breaker "Wylie Ridge 216" with 63 kA breaker		APS (100%)
b2174.8	Replace relays at Mitchell substation		APS (100%)
b2174.9	Replace primary relay at Piney Fork substation		APS (100%)
b2174.10	Perform relay setting changes at Bethel Park substation		APS (100%)
b2213	Armstrong Substation: Relocate 138 kV controls from the generating station building to new control building		APS (100%)
b2214	Albright Substation: Install a new control building in the switchyard and relocate controls and SCADA equipment from the generating station building the new control center		APS (100%)
b2215	Rivesville Switching Station: Relocate controls and SCADA equipment from the generating station building to new control building		APS (100%)

Monongahela Power Company, The Potomac Edison Company, and West Penn Power Company, all doing business as Allegheny Power (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2216	Willow Island: Install a new 138 kV cross bus at Belmont Substation and reconnect and reconfigure the 138 kV lines to facilitate removal of the equipment at Willow Island switching station		APS (100%)
b2235	130 MVAR reactor at Monocacy 230 kV		APS (100%)
b2260	Install a 32.4 MVAR capacitor at Bartonville		APS (100%)
b2261	Install a 33 MVAR capacitor at Damascus		APS (100%)
b2267	Replace 1000 Cu substation conductor and 1200 amp wave trap at Marlowe		APS (100%)
b2268	Reconductor 6.8 miles of 138kV 336 ACSR with 336 ACSS from Double Toll Gate to Riverton		APS (100%)
b2299	Reconductor from Collins Ferry - West Run 138 kV with 556 ACSS		APS (100%)
b2300	Reconductor from Lake Lynn - West Run 138 kV		APS (100%)
b2341	Install 39.6 MVAR Capacitor at Shaffers Corner 138 kV Substation		APS (100%)
b2342	Construct a new 138 kV switching station (Shuman Hill substation), which is next the Mobley 138 kV substation and install a 31.7 MVAR capacitor		APS (100%)
b2343	Install a 31.7 MVAR capacitor at West Union 138 kV substation		APS (100%)

Monongahela Power Company, The Potomac Edison Company, and West Penn Power Company, all doing business as Allegheny Power (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2362	Install a 250 MVAR SVC at Squab Hollow 230 kV		APS (100%)
b2362.1	Install a 230 kV breaker at Squab Hollow 230 kV substation		APS (100%)
b2363	Convert the Shingletown 230 kV bus into a 6 breaker ring bus		APS (100%)
b2364	Install a new 230/138 kV transformer at Squab Hollow 230 kV substation. Loop the Forest - Elko 230 kV line into Squab Hollow. Loop the Brookville - Elko 138 kV line into Squab Hollow		APS (100%)
b2412	Install a 44 MVAR 138 kV capacitor at the Hempfield 138 kV substation		APS (100%)
b2433.1	Install breaker and a half 138 kV substation (Waldo Run) with 4 breakers to accommodate service to MarkWest Sherwood Facility including metering which is cut into Glen Falls Lamberton 138 kV line		APS (100%)
b2433.2	Install a 70 MVAR SVC at the new WaldoRun 138 kV substation		APS (100%)
b2433.3	Install two 31.7 MVAR capacitors at the new WaldoRun 138 kV substation		APS (100%)
b2424	Replace the Weirton 138 kV breaker 'WYLIE RID210' with 63 kA breakers		APS (100%)
b2425	Replace the Weirton 138 kV breaker 'WYLIE RID216' with 63 kA breakers		APS (100%)

Monongahela Power Company, The Potomac Edison Company, and West Penn Power Company, all doing business as Allegheny Power (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2426	Replace the Oak Grove 138 kV breaker 'OG1' with 63 kA breakers		APS (100%)
b2427	Replace the Oak Grove 138 kV breaker 'OG2' with 63 kA breakers		APS (100%)
b2428	Replace the Oak Grove 138 kV breaker 'OG3' with 63 kA breakers		APS (100%)
b2429	Replace the Oak Grove 138 kV breaker 'OG4' with 63 kA breakers		APS (100%)
b2430	Replace the Oak Grove 138 kV breaker 'OG5' with 63 kA breakers		APS (100%)
b2431	Replace the Oak Grove 138 kV breaker 'OG6' with 63 kA breakers		APS (100%)
b2432	Replace the Ridgeley 138 kV breaker 'RC1' with a 40 kA rated breaker		APS (100%)
b2440	Replace the Cabot 138kV breaker 'C9-KISKI VLY' with 63kA		APS (100%)
b2472	Replace the Ringgold 138 kV breaker ‘RCM1’ with 40kA breakers		APS (100%)
b2473	Replace the Ringgold 138 kV breaker ‘#4 XMFR’ with 40kA breakers		APS (100%)
b2475	Construct a new line between Oak Mound 138 kV substation and Waldo Run 138 kV substation		APS (100%)
b2545.1	Construct a new 138 kV substation (Shuman Hill substation) connected to the Fairview –Willow Island (84) 138 kV line		APS (100%)

Monongahela Power Company, The Potomac Edison Company, and West Penn Power Company, all doing business as Allegheny Power (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2545.2	Install a ring bus station with five active positions and two 52.8 MVAR capacitors with 0.941 mH reactors		APS (100%)
b2545.3	Install a +90/-30 MVAR SVC protected by a 138 kV breaker		APS (100%)
b2545.4	Remove the 31.7 MVAR capacitor bank at Mobley 138 kV		APS (100%)
b2546	Install a 51.8 MVAR (rated) 138 kV capacitor at Nyswaner 138 kV substation		APS (100%)
b2547.1	Construct a new 138 kV six breaker ring bus Hillman substation		APS (100%)
b2547.2	Loop Smith- Imperial 138 kV line into the new Hillman substation		APS (100%)
b2547.3	Install +125/-75 MVAR SVC at Hillman substation		APS (100%)
b2547.4	Install two 31.7 MVAR 138 kV capacitors		APS (100%)
b2548	Eliminate clearance de-rate on Wylie Ridge – Smith 138 kV line and upgrade terminals at Smith 138 kV, new line ratings 294 MVA (Rate A)/350 MVA (Rate B)		APS (100%)
b2612.1	Relocate All Dam 6 138 kV line and the 138 kV line to AE units 1&2		APS (100%)
b2612.2	Install 138 kV, 3000A bus-tie breaker in the open bus-tie position next to the Shaffers corner 138 kV line		APS (100%)

Monongahela Power Company, The Potomac Edison Company, and West Penn Power Company, all doing business as Allegheny Power (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2612.3	Install a 6-pole manual switch, foundation, control cable, and all associated facilities		APS (100%)
b2666	Yukon 138 kV Breaker Replacement		APS (100%)
b2666.1	Replace Yukon 138 kV breaker "Y-11(CHARL1)" with an 80 kA breaker		APS (100%)
b2666.2	Replace Yukon 138 kV breaker "Y-13(BETHEL)" with an 80 kA breaker		APS (100%)
b2666.3	Replace Yukon 138 kV breaker "Y-18(CHARL2)" with an 80 kA breaker		APS (100%)
b2666.4	Replace Yukon 138 kV breaker "Y-19(CHARL2)" with an 80 kA breaker		APS (100%)
b2666.5	Replace Yukon 138 kV breaker "Y-4(4B-2BUS)" with an 80 kA breaker		APS (100%)
b2666.6	Replace Yukon 138 kV breaker "Y-5(LAYTON)" with an 80 kA breaker		APS (100%)
b2666.7	Replace Yukon 138 kV breaker "Y-8(HUNTING)" with an 80 kA breaker		APS (100%)
b2666.8	Replace Yukon 138 kV breaker "Y-9(SPRINGD)" with an 80 kA breaker		APS (100%)
b2666.9	Replace Yukon 138 kV breaker "Y-10(CHRL-SP)" with an 80 kA breaker		APS (100%)
b2666.10	Replace Yukon 138 kV breaker "Y-12(1-1BUS)" with an 80 kA breaker		APS (100%)
b2666.11	Replace Yukon 138 kV breaker "Y-14(4-1BUS)" with an 80 kA breaker		APS (100%)

Monongahela Power Company, The Potomac Edison Company, and West Penn Power Company, all doing business as Allegheny Power (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2666.12	Replace Yukon 138 kV breaker "Y-2(1B-BETHE)" with an 80 kA breaker		APS (100%)
b2666.13	Replace Yukon 138 kV breaker "Y-21(SHEPJ)" with an 80 kA breaker		APS (100%)
b2666.14	Replace Yukon 138 kV breaker "Y-22(SHEPHJT)" with an 80 kA breaker		APS (100%)
b2672	Change CT Ratio at Seneca Caverns from 120/1 to 160/1 and adjust relay settings accordingly		APS (100%)
b2688.3	Carroll Substation: Replace the Germantown 138 kV wave trap, upgrade the bus conductor and adjust CT ratios		AEP (12.91%) / APS (19.04%) / ATSI (1.24%) / ComEd (0.35%) / Dayton (1.45%) / DEOK (2.30%) / DL (1.11%) / Dominion (44.85%) / EKPC (0.78%) / PEPCO (15.85%) / RECO (0.12%)
b2689.3	Upgrade terminal equipment at structure 27A		APS (100%)
b2696	Upgrade 138 kV substation equipment at Butler, Shanor Manor and Krendale substations. New rating of line will be 353 MVA summer normal/422 MVA emergency		APS (100%)
b2700	Remove existing Black Oak SPS		APS (100%)
b2743.6	Reconfigure the Ringgold 230 kV substation to double bus double breaker scheme		AEP (6.46%) / APS (8.74%) / BGE (19.74%) / ComEd (2.16%) / Dayton (0.59%) / DEOK (1.02%) / DL (0.01%) / Dominion (39.95%) / EKPC (0.45%) / PEPCO (20.88%)

Monongahela Power Company, The Potomac Edison Company, and West Penn Power Company, all doing business as Allegheny Power (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2743.6.1	Replace the two Ringgold 230/138 kV transformers		AEP (6.46%) / APS (8.74%) / BGE (19.74%) / ComEd (2.16%) / Dayton (0.59%) / DEOK (1.02%) / DL (0.01%) / Dominion (39.95%) / EKPC (0.45%) / PEPCO (20.88%)
b2743.7	Rebuild/Reconductor the Ringgold – Catoctin 138 kV circuit and upgrade terminal equipment on both ends		AEP (6.46%) / APS (8.74%) / BGE (19.74%) / ComEd (2.16%) / Dayton (0.59%) / DEOK (1.02%) / DL (0.01%) / Dominion (39.95%) / EKPC (0.45%) / PEPCO (20.88%)
b2747.1	Relocate the FirstEnergy Pratts 138 kV terminal CVTs at Gordonsville substation to allow for the installation of a new motor operated switch being installed by Dominion		APS (100%)
b2763	Replace the breaker risers and wave trap at Bredinville 138 kV substation on the Cabrey Junction 138 kV terminal		APS (100%)
b2764	Upgrade Fairview 138 kV breaker risers and disconnect leads; Replace 500 CU breaker risers and 556 ACSR disconnect leads with 795 ACSR		APS (100%)
b2964.1	Replace terminal equipment at Pruntytown and Glen Falls 138 kV station		APS (100%)
b2964.2	Reconductor approximately 8.3 miles of the McAlpin - White Hall Junction 138 kV circuit		APS (100%)

Monongahela Power Company, The Potomac Edison Company, and West Penn Power Company, all doing business as Allegheny Power (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2965	Reconductor the Charleroi – Allenport 138 kV line with 954 ACSR conductor. Replace breaker risers at Charleroi and Allenport		*DL* (100%)
b2966	Reconductor the Yukon – Smithton – Shepler Hill Jct 138 kV line with 795 ACSS conductor. Replace Line Disconnect Switch at Yukon		APS (100%)
b2966.1	Reconductor the Yukon - Smithton - Shepler Hill Jct 138 kV line and replace terminal equipment as necessary to achieve required rating		APS (100%)
b2967	Convert the existing 6 wire Butler - Shanor Manor - Krendale 138 kV line into two separate 138 kV lines. New lines will be Butler - Keisters and Butler - Shanor Manor - Krendale 138 kV		APS (100%)
b2970	Ringgold – Catoctin Solution		APS (100%)
b2970.1	Install two new 230 kV positions at Ringgold for 230/138 kV transformers		APS (100%)
b2970.2	Install new 230 kV position for Ringgold – Catoctin 230 kV line		APS (100%)
b2970.3	Install one new 230 kV breaker at Catoctin substation		APS (100%)
b2970.4	Install new 230/138 kV transformer at Catoctin substation. Convert Ringgold – Catoctin 138 kV line to 230 kV operation		APS (100%)

Monongahela Power Company, The Potomac Edison Company, and West Penn Power Company, all doing business as Allegheny Power (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2970.5	Convert Garfield 138/12.5 kV substation to 230/12.5 kV		APS (100%)
b2996	Construct new Flint Run 500/138 kV substation		See sub-IDs for cost allocations
b2996.1	Construct a new 500/138 kV substation as a 4-breaker ring bus with expansion plans for double-breaker-double-bus on the 500 kV bus and breaker-and-a-half on the 138 kV bus to provide EHV source to the Marcellus shale load growth area. Projected load growth of additional 160 MVA to current plan of 280 MVA, for a total load of 440 MVA served from Waldo Run substation. Construct additional 3-breaker string at Waldo Run 138 kV bus. Relocate the Sherwood #2 line terminal to the new string. Construct two single circuit Flint Run - Waldo Run 138 kV lines using 795 ACSR (approximately 3 miles). After terminal relocation on new 3-breaker string at Waldo Run, terminate new Flint Run 138 kV lines onto the two open terminals		APS (100%)
b2996.2	Loop the Belmont – Harrison 500 kV line into and out of the new Flint Run 500 kV substation (less than 1 mile). Replace primary relaying and carrier sets on Belmont and Harrison 500 kV remote end substations		APS (100%)
b2996.3	Upgrade two (2) existing 138 kV breakers (Rider 50 and #1/4 transformer breaker) at Glen Falls with 63 kA 3000A units		APS (100%)

Monongahela Power Company, The Potomac Edison Company, and West Penn Power Company, all doing business as Allegheny Power (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3005	Reconductor 3.1 mile 556 ACSR portion of Cabot to Butler 138 kV with 556 ACSS and upgrade terminal equipment. 3.1 miles of line will be reconductored for this project. The total length of the line is 7.75 miles		APS (100%)
b3006	Replace four Yukon 500/138 kV transformers with three transformers with higher rating and reconfigure 500 kV bus		APS (*73.55*%) / DL (*26.45*%)
b3007.1	Reconductor the Blairsville East to Social Hall 138 kV line and upgrade terminal equipment - AP portion. 4.8 miles total. The new conductor will be 636 ACSS replacing the existing 636 ACSR conductor. At Social Hall, meters, relays, bus conductor, a wave trap, circuit breaker and disconnects will be replaced		APS (100%)
b3010	Replace terminal equipment at Keystone and Cabot 500 kV buses. At Keystone, bus tubing and conductor, a wave trap, and meter will be replaced. At Cabot, a wave trap and bus conductor will be replaced		APS (100%)
b3011.1	Construct new Route 51 substation and connect 10 138 kV lines to new substation		DL (100%)
b3011.2	Upgrade terminal equipment at Yukon to increase rating on Yukon to Charleroi #2 138 kV line (New Yukon to Route 51 #4 138 kV line)		DL (100%)

Monongahela Power Company, The Potomac Edison Company, and West Penn Power Company, all doing business as Allegheny Power (cont.)

Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b3011.3	Upgrade terminal equipment at Yukon to increase rating on Yukon to Route 51 #1 138 kV line		DL (100%)
b3011.4	Upgrade terminal equipment at Yukon to increase rating on Yukon to Route 51 #2 138 kV line		DL (100%)
b3011.5	Upgrade terminal equipment at Yukon to increase rating on Yukon to Route 51 #3 138 kV line		DL (100%)
b3011.6	Upgrade remote end relays for Yukon – Allenport – Iron Bridge 138 kV line		DL (100%)
b3012.1	Construct two new 138 kV ties with the single structure from APS's new substation to Duquesne's new substation. The estimated line length is approximately 4.7 miles. The line is planned to use multiple ACSS conductors per phase		ATSI (38.21%) / DL (61.79%)
b3012.3	Construct a new Elrama – Route 51 138 kV No.3 line: reconductor 4.7 miles of the existing line, and construct 1.5 miles of a new line to the reconductored portion. Install a new line terminal at APS Route 51 substation		DL (100%)

Monongahela Power Company, The Potomac Edison Company, and West Penn Power Company, all doing business as Allegheny Power (cont.)

Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b3013	Reconductor Vasco Tap to Edgewater Tap 138 kV line. 4.4 miles. The new conductor will be 336 ACSS replacing the existing 336 ACSR conductor	APS (100%)
b3015.6	Reconductor Elrama to Mitchell 138 kV line – AP portion. 4.2 miles total. 2x 795 ACSS/TW 20/7	DL (100%)
b3015.8	Upgrade terminal equipment at Mitchell for Mitchell – Elrama 138 kV line	APS (100%)
b3028	Upgrade substation disconnect leads at William 138 kV substation	APS (100%)
b3051.1	Ronceverte cap bank and terminal upgrades	APS (100%)
b3052	Install a 138 kV capacitor (29.7 MVAR effective) at West Winchester 138 kV	APS (100%)
b3064.3	Upgrade line relaying at Piney Fork and Bethel Park for Piney For – Elrama 138 kV line and Bethel Park – Elrama 138 kV	APS (100%)

Monongahela Power Company, The Potomac Edison Company, and West Penn Power Company, all doing business as Allegheny Power (cont.)

Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b3068	Reconductor the Yukon – Westraver 138 kV line (2.8 miles), replace the line drops and relays at Yukon 138 kV and replace switches at Westraver 138 kV bus		APS (100%)
b3069	Reconductor the Westraver – Route 51 138 kV line (5.63 miles) and replace line switches at Westraver 138 kV bus		APS (100%)
b3070	Reconductor the Yukon – Route 51 #1 138 kV line (8 miles), replace the line drops, relays and line disconnect switch at Yukon 138 kV bus		APS (100%)
b3071	Reconductor the Yukon – Route 51 #2 138 kV line (8 miles) and replace relays at Yukon 138 kV bus		APS (100%)
b3072	Reconductor the Yukon – Route 51 #3 138 kV line (8 miles) and replace relays at Yukon 138 kV bus		APS (100%)
b3074	Reconductor the 138 kV bus at Armstrong substation		APS (100%)
b3075	Replace the 500/138 kV transformer breaker and reconductor 138 kV bus at Cabot substation		APS (100%)
b3076	Reconductor the Edgewater – Loyalhanna 138 kV line (0.67 mile)		APS (100%)
b3079	Replace the Wylie Ridge 500/345 kV transformer #7		ATSI (72.30%) / DL (27.70%)
b3083	Reconductor the 138 kV bus at Butler and reconductor the 138 kV bus and replace line trap at Karns City		APS (100%)

Monongahela Power Company, The Potomac Edison Company, and West Penn Power Company, all doing business as Allegheny Power (cont.)

Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b3128	Relocate 34.5 kV lines from generating station roof R. Paul Smith 138 kV station		APS (100%)
b3230	At Enon substation install a second 138 kV, 28.8 MVAR nameplate, capacitor and the associated 138 kV capacitor switcher		APS (100%)
b3240	Upgrade Cherry Run and Morgan terminals to make the transmission line the limiting component		APS (100%)
b3241	Install 138 kV, 36 MVAR capacitor and a 5 uF reactor protected by a 138 kV capacitor switcher. Install a breaker on the 138 kV Junction terminal. Install a 138 kV 3.5 uF reactor on the existing Hardy 138 kV capacitor		APS (100%)
b3242	Reconfigure Stonewall 138 kV substation from its current configuration to a six-breaker, breaker-and-a-half layout and add two (2) 36 MVAR capacitors with capacitor switchers		APS (100%)

SCHEDULE 12 – APPENDIX A

(17) ***American Electric Power Service Corporation on behalf of its affiliate companies: AEP Appalachian Transmission Company, Inc.; AEP Indiana Michigan Transmission Company, Inc.; AEP Kentucky Transmission Company, Inc.; AEP Ohio Transmission Company, Inc.; AEP West Virginia Transmission Company, Inc.; Appalachian Power Company; Indiana Michigan Power Company; Kentucky Power Company; Kingsport Power Company; Ohio Power Company and Wheeling Power Company***

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b1570.4	Add a 345 kV breaker at Marysville station and a 0.1 mile 345 kV line extension from Marysville to the new 345/69 kV Dayton transformer		AEP (100%)
b1660.1	Cloverdale: install 6-765 kV breakers, incremental work for 2 additional breakers, reconfigure and relocate miscellaneous facilities, establish 500 kV station and 500 kV tie with 765 kV station		**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%)
			DFAX Allocation: Dayton (*8.37*%) / DEOK (*21.94*%) / Dominion (*56.40*%) / EKPC (*13.29*%)

*Neptune Regional Transmission System, LLC

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Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b1797.1	Reconductor the AEP portion of the Cloverdale - Lexington 500 kV line with 2-1780 ACSS	**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%)
		DFAX Allocation: *AEP (0.79%) / APS (53.70%)* / Dayton (*0.15*%) / DEOK (*0.40*%) / Dominion (*1.13*%) / EKPC (*0.23*%) / PEPCO (*43.60*%)
b2055	Upgrade relay at Brues station	AEP (100%)
b2122.3	Upgrade terminal equipment at Howard on the Howard - Brookside 138 kV line to achieve ratings of 252/291 (SN/SE)	AEP (100%)
b2122.4	Perform a sag study on the Howard - Brookside 138 kV line	AEP (100%)
b2229	Install a 300 MVAR reactor at Dequine 345 kV	AEP (100%)

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Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b2230	Replace existing 150 MVAR reactor at Amos 765 kV substation on Amos - N. Proctorville - Hanging Rock with 300 MVAR reactor		**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%) **DFAX Allocation:** AEP (100%)
b2231	Install 765 kV reactor breaker at Dumont 765 kV substation on the Dumont - Wilton Center line		AEP (100%)
b2232	Install 765 kV reactor breaker at Marysville 765 kV substation on the Marysville - Maliszewski line		AEP (100%)
b2233	Change transformer tap settings for the Baker 765/345 kV transformer		AEP (100%)
b2252	Loop the North Muskingum - Crooksville 138 kV line into AEP's Philo 138 kV station which lies approximately 0.4 miles from the line		AEP (100%)

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Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b2253	Install an 86.4 MVAR capacitor bank at Gorsuch 138 kV station in Ohio	AEP (100%)
b2254	Rebuild approximately 4.9 miles of Corner - Degussa 138 kV line in Ohio	AEP (100%)
b2255	Rebuild approximately 2.8 miles of Maliszewski - Polaris 138 kV line in Ohio	AEP (100%)
b2256	Upgrade approximately 36 miles of 138 kV through path facilities between Harrison 138 kV station and Ross 138 kV station in Ohio	AEP (100%)
b2257	Rebuild the Pokagon - Corey 69 kV line as a double circuit 138 kV line with one side at 69 kV and the other side as an express circuit between Pokagon and Corey stations	AEP (100%)
b2258	Rebuild 1.41 miles of #2 CU 46 kV line between Tams Mountain - Slab Fork to 138 kV standards. The line will be strung with 1033 ACSR	AEP (100%)
b2259	Install a new 138/69 kV transformer at George Washington 138/69 kV substation to provide support to the 69 kV system in the area	AEP (100%)

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Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b2286	Rebuild 4.7 miles of Muskingum River - Wolf Creek 138 kV line and remove the 138/138 kV transformer at Wolf Creek Station	AEP (100%)
b2287	Loop in the Meadow Lake - Olive 345 kV circuit into Reynolds 765/345 kV station	AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2344.1	Establish a new 138/12 kV station, transfer and consolidate load from its Nicholsville and Marcellus 34.5 kV stations at this new station		AEP (100%)
b2344.2	Tap the Hydramatic – Valley 138 kV circuit (~ structure 415), build a new 138 kV line (~3.75 miles) to this new station		AEP (100%)
b2344.3	From this station, construct a new 138 kV line (~1.95 miles) to REA's Marcellus station		AEP (100%)
b2344.4	From REA's Marcellus station construct new 138 kV line (~2.35 miles) to a tap point on Valley – Hydramatic 138 kV ckt (~structure 434)		AEP (100%)
b2344.5	Retire sections of the 138 kV line in between structure 415 and 434 (~ 2.65 miles)		AEP (100%)
b2344.6	Retire AEP's Marcellus 34.5/12 kV and Nicholsville 34.5/12 kV stations and also the Marcellus – Valley 34.5 kV line		AEP (100%)
b2345.1	Construct a new 69 kV line from Hartford to Keeler (~8 miles)		AEP (100%)
b2345.2	Rebuild the 34.5 kV lines between Keeler - Sister Lakes and Glenwood tap switch to 69 kV (~12 miles)		AEP (100%)

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Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b2345.3	Implement in - out at Keeler and Sister Lakes 34.5 kV stations	AEP (100%)
b2345.4	Retire Glenwood tap switch and construct a new Rothadew station. These new lines will continue to operate at 34.5 kV	AEP (100%)
b2346	Perform a sag study for Howard - North Bellville - Millwood 138 kV line including terminal equipment upgrades	AEP (100%)
b2347	Replace the North Delphos 600A switch. Rebuild approximately 18.7 miles of 138 kV line North Delphos - S073. Reconductor the line and replace the existing tower structures	AEP (100%)
b2348	Construct a new 138 kV line from Richlands Station to intersect with the Hales Branch - Grassy Creek 138 kV circuit	AEP (100%)
b2374	Change the existing CT ratios of the existing equipment along Bearskin - Smith Mountain 138kV circuit	AEP (100%)
b2375	Change the existing CT ratios of the existing equipment along East Danville-Banister 138kV circuit	AEP (100%)

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Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b2376	Replace the Turner 138 kV breaker 'D'	AEP (100%)
b2377	Replace the North Newark 138 kV breaker 'P'	AEP (100%)
b2378	Replace the Sporn 345 kV breaker 'DD'	AEP (100%)
b2379	Replace the Sporn 345 kV breaker 'DD2'	AEP (100%)
b2380	Replace the Muskingum 345 kV breaker 'SE'	AEP (100%)
b2381	Replace the East Lima 138 kV breaker 'E1'	AEP (100%)
b2382	Replace the Delco 138 kV breaker 'R'	AEP (100%)
b2383	Replace the Sporn 345 kV breaker 'AA2'	AEP (100%)
b2384	Replace the Sporn 345 kV breaker 'CC'	AEP (100%)
b2385	Replace the Sporn 345 kV breaker 'CC2'	AEP (100%)
b2386	Replace the Astor 138 kV breaker '102'	AEP (100%)
b2387	Replace the Muskingum 345 kV breaker 'SH'	AEP (100%)
b2388	Replace the Muskingum 345 kV breaker 'SI'	AEP (100%)
b2389	Replace the Hyatt 138 kV breaker '105N'	AEP (100%)
b2390	Replace the Muskingum 345 kV breaker 'SG'	AEP (100%)
b2391	Replace the Hyatt 138 kV breaker '101C'	AEP (100%)
b2392	Replace the Hyatt 138 kV breaker '104N'	AEP (100%)
b2393	Replace the Hyatt 138 kV breaker '104S'	AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2394	Replace the Sporn 345 kV breaker 'CC1'		AEP (100%)
b2409	Install two 56.4 MVAR capacitor banks at the Melmore 138 kV station in Ohio		AEP (100%)
b2410	Convert Hogan Mullin 34.5 kV line to 138 kV, establish 138 kV line between Jones Creek and Strawton, rebuild existing Mullin Elwood 34.5 kV and terminate line into Strawton station, retire Mullin station		AEP (100%)
b2411	Rebuild the 3/0 ACSR portion of the Hadley - Kroemer Tap 69 kV line utilizing 795 ACSR conductor		AEP (100%)
b2423	Install a 300 MVAR shunt reactor at AEP's Wyoming 765 kV station		**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%)
			DFAX Allocation: AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2444	Willow - Eureka 138 kV line: Reconductor 0.26 mile of 4/0 CU with 336 ACSS		AEP (100%)
b2445	Complete a sag study of Tidd - Mahans Lake 138 kV line		AEP (100%)
b2449	Rebuild the 7-mile 345 kV line between Meadow Lake and Reynolds 345 kV stations		AEP (100%)
b2462	Add two 138 kV circuit breakers at Fremont station to fix tower contingency '408_2'		AEP (100%)
b2501	Construct a new 138/69 kV Yager station by tapping 2-138 kV FE circuits (Nottingham-Cloverdale, Nottingham-Harmon)		AEP (100%)
b2501.2	Build a new 138 kV line from new Yager station to Azalea station		AEP (100%)
b2501.3	Close the 138 kV loop back into Yager 138 kV by converting part of local 69 kV facilities to 138 kV		AEP (100%)
b2501.4	Build 2 new 69 kV exits to reinforce 69 kV facilities and upgrade conductor between Irish Run 69 kV Switch and Bowerstown 69 kV Switch		AEP (100%)

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Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b2502.1	Construct new 138 kV switching station Nottingham tapping 6-138 kV FE circuits (Holloway-Brookside, Holloway-Harmon #1 and #2, Holloway-Reeds, Holloway-New Stacy, Holloway-Cloverdale). Exit a 138 kV circuit from new station to Freebyrd station	AEP (100%)
b2502.2	Convert Freebyrd 69 kV to 138 kV	AEP (100%)
b2502.3	Rebuild/convert Freebyrd-South Cadiz 69 kV circuit to 138 kV	AEP (100%)
b2502.4	Upgrade South Cadiz to 138 kV breaker and a half	AEP (100%)
b2530	Replace the Sporn 138 kV breaker ‘G1’ with 80kA breaker	AEP (100%)
b2531	Replace the Sporn 138 kV breaker ‘D’ with 80kA breaker	AEP (100%)
b2532	Replace the Sporn 138 kV breaker ‘O1’ with 80kA breaker	AEP (100%)
b2533	Replace the Sporn 138 kV breaker ‘P2’ with 80kA breaker	AEP (100%)
b2534	Replace the Sporn 138 kV breaker ‘U’ with 80kA breaker	AEP (100%)
b2535	Replace the Sporn 138 kV breaker ‘O’ with 80 kA breaker	AEP (100%)

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Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b2536	Replace the Sporn 138 kV breaker 'O2' with 80 kA breaker	AEP (100%)
b2537	Replace the Robinson Park 138 kV breakers A1, A2, B1, B2, C1, C2, D1, D2, E1, E2, and F1 with 63 kA breakers	AEP (100%)
b2555	Reconductor 0.5 miles Tiltonsville – Windsor 138 kV and string the vacant side of the 4.5 mile section using 556 ACSR in a six wire configuration	AEP (100%)
b2556	Install two 138 kV prop structures to increase the maximum operating temperature of the Clinch River- Clinch Field 138 kV line	AEP (100%)
b2581	Temporary operating procedure for delay of upgrade b1464. Open the Corner 138 kV circuit breaker 86 for an overload of the Corner – Washington MP 138 kV line. The tower contingency loss of Belmont – Trissler 138 kV and Belmont – Edgelawn 138 kV should be added to Operational contingency	AEP (100%)

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Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b2591	Construct a new 69 kV line approximately 2.5 miles from Colfax to Drewry's. Construct a new Drewry's station and install a new circuit breaker at Colfax station.	AEP (100%)
b2592	Rebuild existing East Coshocton – North Coshocton double circuit line which contains Newcomerstown – N. Coshocton 34.5 kV Circuit and Coshocton – North Coshocton 69 kV circuit	AEP (100%)
b2593	Rebuild existing West Bellaire – Glencoe 69 kV line with 138 kV & 69 kV circuits and install 138/69 kV transformer at Glencoe Switch	AEP (100%)
b2594	Rebuild 1.0 mile of Brantley – Bridge Street 69 kV Line with 1033 ACSR overhead conductor	AEP (100%)
b2595.1	Rebuild 7.82 mile Elkhorn City – Haysi S.S 69 kV line utilizing 1033 ACSR built to 138 kV standards	AEP (100%)
b2595.2	Rebuild 5.18 mile Moss – Haysi SS 69 kV line utilizing 1033 ACSR built to 138 kV standards	AEP (100%)
b2596	Move load from the 34.5 kV bus to the 138 kV bus by installing a new 138/12 kV XF at New Carlisle station in Indiana	AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2597	Rebuild approximately 1 mi. section of Dragoon-Virgil Street 34.5 kV line between Dragoon and Dodge Tap switch and replace Dodge switch MOAB to increase thermal capability of Dragoon-Dodge Tap branch		AEP (100%)
b2598	Rebuild approximately 1 mile section of the Kline-Virgil Street 34.5 kV line between Kline and Virgil Street tap. Replace MOAB switches at Beiger, risers at Kline, switches and bus at Virgil Street.		AEP (100%)
b2599	Rebuild approximately 0.1 miles of 69 kV line between Albion and Albion tap		AEP (100%)
b2600	Rebuild Fremont – Pound line as 138 kV		AEP (100%)
b2601	Fremont Station Improvements		AEP (100%)
b2601.1	Replace MOAB towards Beaver Creek with 138 kV breaker		AEP (100%)
b2601.2	Replace MOAB towards Clinch River with 138 kV breaker		AEP (100%)
b2601.3	Replace 138 kV Breaker A with new bus-tie breaker		AEP (100%)
b2601.4	Re-use Breaker A as high side protection on transformer #1		AEP (100%)

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Required Transmission Enhancements	Annual Revenue Requirement		Responsible Customer(s)
b2601.5	Install two (2) circuit switchers on high side of transformers # 2 and 3 at Fremont Station		AEP (100%)
b2602.1	Install 138 kV breaker E2 at North Proctorville		AEP (100%)
b2602.2	Construct 2.5 Miles of 138 kV 1033 ACSR from East Huntington to Darrah 138 kV substations		AEP (100%)
b2602.3	Install breaker on new line exit at Darrah towards East Huntington		AEP (100%)
b2602.4	Install 138 kV breaker on new line at East Huntington towards Darrah		AEP (100%)
b2602.5	Install 138 kV breaker at East Huntington towards North Proctorville		AEP (100%)
b2603	Boone Area Improvements		AEP (100%)
b2603.1	Purchase approximately a 200X300 station site near Slaughter Creek 46 kV station (Wilbur Station)		AEP (100%)
b2603.2	Install 3 138 kV circuit breakers, Cabin Creek to Hernshaw 138 kV circuit		AEP (100%)
b2603.3	Construct 1 mi. of double circuit 138 kV line on Wilbur – Boone 46 kV line with 1590 ACSS 54/19 conductor @ 482 Degree design temp. and 1-159 12/7 ACSR and one 86 Sq.MM. 0.646” OPGW Static wires		AEP (100%)
b2604	Bellefonte Transformer Addition		AEP (100%)

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Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b2605	Rebuild and reconductor Kammer – George Washington 69 kV circuit and George Washington – Moundsville ckt #1, designed for 138kV. Upgrade limiting equipment at remote ends and at tap stations		AEP (100%)
b2606	Convert Bane – Hammondsville from 23 kV to 69 kV operation		AEP (100%)
b2607	Pine Gap Relay Limit Increase		AEP (100%)
b2608	Richlands Relay Upgrade		AEP (100%)
b2609	Thorofare – Goff Run – Powell Mountain 138 kV Build		AEP (100%)
b2610	Rebuild Pax Branch – Scaraboro as 138 kV		AEP (100%)
b2611	Skin Fork Area Improvements		AEP (100%)
b2611.1	New 138/46 kV station near Skin Fork and other components		AEP (100%)
b2611.2	Construct 3.2 miles of 1033 ACSR double circuit from new Station to cut into Sundial-Baileysville 138 kV line		AEP (100%)
b2634.1	Replace metering BCT on Tanners Creek CB T2 with a slip over CT with higher thermal rating in order to remove 1193 MVA limit on facility (Miami Fort-Tanners Creek 345 kV line)		AEP (100%)

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Required Transmission Enhancements	Annual Revenue Requirement		Responsible Customer(s)
b2643	Replace the Darrah 138 kV breaker 'L' with 40kA rated breaker		AEP (100%)
b2645	Ohio Central 138 kV Loop		AEP (100%)
b2667	Replace the Muskingum 138 kV bus # 1 and 2		AEP (100%)
b2668	Reconductor Dequine to Meadow Lake 345 kV circuit #1 utilizing dual 954 ACSR 54/7 cardinal conductor		AEP (100%)
b2669	Install a second 345/138 kV transformer at Desoto		AEP (100%)
b2670	Replace switch at Elk Garden 138 kV substation (on the Elk Garden – Lebanon 138 kV circuit)		AEP (100%)
b2671	Replace/upgrade/add terminal equipment at Bradley, Mullensville, Pinnacle Creek, Itmann, and Tams Mountain 138 kV substations. Sag study on Mullens – Wyoming and Mullens – Tams Mt. 138 kV circuits		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2687.1	Install a +/- 450 MVAR SVC at Jacksons Ferry 765 kV substation		**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%)
			DFAX Allocation: AEP (100%)

*Neptune Regional Transmission System, LLC

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Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b2687.2	Install a 300 MVAR shunt line reactor on the Broadford end of the Broadford – Jacksons Ferry 765 kV line		**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%)
			DFAX Allocation: AEP (100%)
b2697.1	Mitigate violations identified by sag study to operate Fieldale-Thornton-Franklin 138 kV overhead line conductor at its max. operating temperature. 6 potential line crossings to be addressed.		AEP (100%)
b2697.2	Replace terminal equipment at AEP's Danville and East Danville substations to improve thermal capacity of Danville – East Danville 138 kV circuit		AEP (100%)

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Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b2698	Replace relays at AEP's Cloverdale and Jackson's Ferry substations to improve the thermal capacity of Cloverdale – Jackson's Ferry 765 kV line	AEP (100%)
b2701.1	Construct Herlan station as breaker and a half configuration with 9-138 kV CB's on 4 strings and with 2-28.8 MVAR capacitor banks	AEP (100%)
b2701.2	Construct new 138 kV line from Herlan station to Blue Racer station. Estimated approx. 3.2 miles of 1234 ACSS/TW Yukon and OPGW	AEP (100%)
2701.3	Install 1-138 kV CB at Blue Racer to terminate new Herlan circuit	AEP (100%)
b2714	Rebuild/upgrade line between Glencoe and Willow Grove Switch 69 kV	AEP (100%)
b2715	Build approximately 11.5 miles of 34.5 kV line with 556.5 ACSR 26/7 Dove conductor on wood poles from Flushing station to Smyrna station	AEP (100%)
b2727	Replace the South Canton 138 kV breakers 'K', 'J', 'J1', and 'J2' with 80kA breakers	AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2731	Convert the Sunnyside – East Sparta – Malvern 23 kV sub-transmission network to 69 kV. The lines are already built to 69 kV standards		AEP (100%)
b2733	Replace South Canton 138 kV breakers 'L' and 'L2' with 80 kA rated breakers		AEP (100%)
b2750.1	Retire Betsy Layne 138/69/43 kV station and replace it with the greenfield Stanville station about a half mile north of the existing Betsy Layne station		AEP (100%)
b2750.2	Relocate the Betsy Layne capacitor bank to the Stanville 69 kV bus and increase the size to 14.4 MVAR		AEP (100%)
b2753.1	Replace existing George Washington station 138 kV yard with GIS 138 kV breaker and a half yard in existing station footprint. Install 138 kV revenue metering for new IPP connection		AEP (100%)
b2753.2	Replace Dilles Bottom 69/4 kV Distribution station as breaker and a half 138 kV yard design including AEP Distribution facilities but initial configuration will constitute a 3 breaker ring bus		AEP (100%)

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Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b2753.3	Connect two 138 kV 6-wired circuits from "Point A" (currently de-energized and owned by FirstEnergy) in circuit positions previously designated Burger #1 & Burger #2 138 kV. Install interconnection settlement metering on both circuits exiting Holloway	AEP (100%)
b2753.6	Build double circuit 138 kV line from Dilles Bottom to "Point A". Tie each new AEP circuit in with a 6-wired line at Point A. This will create a Dilles Bottom – Holloway 138 kV circuit and a George Washington – Holloway 138 kV circuit	AEP (100%)
b2753.7	Retire line sections (Dilles Bottom – Bellaire and Moundsville – Dilles Bottom 69 kV lines) south of FirstEnergy 138 kV line corridor, near "Point A". Tie George Washington – Moundsville 69 kV circuit to George Washington – West Bellaire 69 kV circuit	AEP (100%)
b2753.8	Rebuild existing 69 kV line as double circuit from George Washington – Dilles Bottom 138 kV. One circuit will cut into Dilles Bottom 138 kV initially and the other will go past with future plans to cut in	AEP (100%)

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Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b2760	Perform a Sag Study of the Saltville – Tazewell 138 kV line to increase the thermal rating of the line	AEP (100%)
b2761.1	Replace the Hazard 161/138 kV transformer	AEP (100%)
b2761.2	Perform a Sag Study of the Hazard – Wooten 161 kV line to increase the thermal rating of the line	AEP (100%)
b2761.3	Rebuild the Hazard – Wooton 161 kV line utilizing 795 26/7 ACSR conductor (300 MVA rating)	AEP (100%)
b2762	Perform a Sag Study of Nagel – West Kingsport 138 kV line to increase the thermal rating of the line	AEP (100%)
b2776	Reconductor the entire Dequine – Meadow Lake 345 kV circuit #2	AEP (100%)
b2777	Reconductor the entire Dequine – Eugene 345 kV circuit #1	*EKPC* (100%)
b2779.1	Construct a new 138 kV station, Campbell Road, tapping into the Grabill – South Hicksville138 kV line	AEP (100%)
b2779.2	Reconstruct sections of the Butler-N.Hicksville and Auburn-Butler 69 kV circuits as 138 kV double circuit and extend 138 kV from Campbell Road station	AEP (100%)

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Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b2779.3	Construct a new 345/138 kV SDI Wilmington Station which will be sourced from Collingwood 345 kV and serve the SDI load at 345 kV and 138 kV, respectively	AEP (100%)
b2779.4	Loop 138 kV circuits in-out of the new SDI Wilmington 138 kV station resulting in a direct circuit to Auburn 138 kV and an indirect circuit to Auburn and Rob Park via Dunton Lake, and a circuit to Campbell Road; Reconductor 138 kV line section between Dunton Lake – SDI Wilmington	AEP (100%)
b2779.5	Expand Auburn 138 kV bus	AEP (100%)
b2779.6	Construct a 345 kV ring bus at Dunton Lake to serve Steel Dynamics, Inc. (SDI) load at 345 kV via two (2) circuits	AEP (100%)
b2779.7	Retire Collingwood 345 kV station	AEP (100%)
b2787	Reconductor 0.53 miles (14 spans) of the Kaiser Jct. - Air Force Jct. Sw section of the Kaiser - Heath 69 kV circuit/line with 336 ACSR to match the rest of the circuit (73 MVA rating, 78% loading)	AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2788	Install a new 3-way 69 kV line switch to provide service to AEP's Barnesville distribution station. Remove a portion of the #1 copper T-Line from the 69 kV through-path		AEP (100%)
b2789	Rebuild the Brues - Glendale Heights 69 kV line section (5 miles) with 795 ACSR (128 MVA rating, 43% loading)		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2790	Install a 3 MVAR, 34.5 kV cap bank at Caldwell substation		AEP (100%)
b2791	Rebuild Tiffin – Howard, new transformer at Chatfield		AEP (100%)
b2791.1	Rebuild portions of the East Tiffin - Howard 69 kV line from East Tiffin to West Rockaway Switch (0.8 miles) using 795 ACSR Drake conductor (129 MVA rating, 50% loading)		AEP (100%)
b2791.2	Rebuild Tiffin - Howard 69 kV line from St. Stephen's Switch to Hinesville (14.7 miles) using 795 ACSR Drake conductor (90 MVA rating, non-conductor limited, 38% loading)		AEP (100%)
b2791.3	New 138/69 kV transformer with 138/69 kV protection at Chatfield		AEP (100%)
b2791.4	New 138/69 kV protection at existing Chatfield transformer		AEP (100%)
b2792	Replace the Elliott transformer with a 130 MVA unit, reconductor 0.42 miles of the Elliott – Ohio University 69 kV line with 556 ACSR to match the rest of the line conductor (102 MVA rating, 73% loading) and rebuild 4 miles of the Clark Street – Strouds R		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2793	Energize the spare Fremont Center 138/69 kV 130 MVA transformer #3. Reduces overloaded facilities to 46% loading		AEP (100%)
b2794	Construct new 138/69/34 kV station and 1-34 kV circuit (designed for 69 kV) from new station to Decliff station, approximately 4 miles, with 556 ACSR conductor (51 MVA rating)		AEP (100%)
b2795	Install a 34.5 kV 4.8 MVAR capacitor bank at Killbuck 34.5 kV station		AEP (100%)
b2796	Rebuild the Malvern - Oneida Switch 69 kV line section with 795 ACSR (1.8 miles, 125 MVA rating, 55% loading)		AEP (100%)
b2797	Rebuild the Ohio Central - Conesville 69 kV line section (11.8 miles) with 795 ACSR conductor (128 MVA rating, 57% loading). Replace the 50 MVA Ohio Central 138/69 kV XFMR with a 90 MVA unit		AEP (100%)
b2798	Install a 14.4 MVAR capacitor bank at West Hicksville station. Replace ground switch/MOAB at West Hicksville with a circuit switcher		AEP (100%)
b2799	Rebuild Valley - Almena, Almena - Hartford, Riverside - South Haven 69 kV lines. New line exit at Valley Station. New transformers at Almena and Hartford		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2799.1	Rebuild 12 miles of Valley – Almena 69 kV line as a double circuit 138/69 kV line using 795 ACSR conductor (360 MVA rating) to introduce a new 138 kV source into the 69 kV load pocket around Almena station		AEP (100%)
b2799.2	Rebuild 3.2 miles of Almena to Hartford 69 kV line using 795 ACSR conductor (90 MVA rating)		AEP (100%)
b2799.3	Rebuild 3.8 miles of Riverside – South Haven 69 kV line using 795 ACSR conductor (90 MVA rating)		AEP (100%)
b2799.4	At Valley station, add new 138 kV line exit with a 3000 A 40 kA breaker for the new 138 kV line to Almena and replace CB D with a 3000 A 40 kA breaker		AEP (100%)
b2799.5	At Almena station, install a 90 MVA 138/69 kV transformer with low side 3000 A 40 kA breaker and establish a new 138 kV line exit towards Valley		AEP (100%)
b2799.6	At Hartford station, install a second 90 MVA 138/69 kV transformer with a circuit switcher and 3000 A 40 kA low side breaker		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2817	Replace Delaware 138 kV breaker 'P' with a 40 kA breaker		AEP (100%)
b2818	Replace West Huntington 138 kV breaker 'F' with a 40 kA breaker		AEP (100%)
b2819	Replace Madison 138 kV breaker 'V' with a 63 kA breaker		AEP (100%)
b2820	Replace Sterling 138 kV breaker 'G' with a 40 kA breaker		AEP (100%)
b2821	Replace Morse 138 kV breakers '103', '104', '105', and '106' with 63 kA breakers		AEP (100%)
b2822	Replace Clinton 138 kV breakers '105' and '107' with 63 kA breakers		AEP (100%)
b2826.1	Install 300 MVAR reactor at Ohio Central 345 kV substation		AEP (100%)

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Required Transmission Enhancements	Annual Revenue Requirement		Responsible Customer(s)
b2826.2	Install 300 MVAR reactor at West Bellaire 345 kV substation		AEP (100%)
b2831.1	Upgrade the Tanner Creek – Miami Fort 345 kV circuit (AEP portion)		**DFAX Allocation:** Dayton (*61.71%*) / DEOK (*37.68%*) / *OVEC (0.61%)*
b2832	Six wire the Kyger Creek – Sporn 345 kV circuits #1 and #2 and convert them to one circuit		AEP (100%)
b2833	Reconductor the Maddox Creek – East Lima 345 kV circuit with 2-954 ACSS Cardinal conductor		**DFAX Allocation:** *AEP (80.83%) /* Dayton (*18.73%*) */ OVEC (0.44%)*
b2834	Reconductor and string open position and sixwire 6.2 miles of the Chemical – Capitol Hill 138 kV circuit		AEP (100%)
b2872	Replace the South Canton 138 kV breaker 'K2' with a 80 kA breaker		AEP (100%)
b2873	Replace the South Canton 138 kV breaker "M" with a 80 kA breaker		AEP (100%)
b2874	Replace the South Canton 138 kV breaker "M2" with a 80 kA breaker		AEP (100%)
b2878	Upgrade the Clifty Creek 345 kV risers		AEP (100%)
b2880	Rebuild approximately 4.77 miles of the Cannonsburg – South Neal 69 kV line section utilizing 795 ACSR conductor (90 MVA rating)		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2881	Rebuild ~1.7 miles of the Dunn Hollow – London 46 kV line section utilizing 795 26/7 ACSR conductor (58 MVA rating, non-conductor limited)		AEP (100%)
b2882	Rebuild Reusens - Peakland Switch 69 kV line. Replace Peakland Switch		AEP (100%)
b2882.1	Rebuild the Reusens - Peakland Switch 69 kV line (approximately 0.8 miles) utilizing 795 ACSR conductor (86 MVA rating, non-conductor limited)		AEP (100%)
b2882.2	Replace existing Peakland S.S with new 3 way switch phase over phase structure		AEP (100%)
b2883	Rebuild the Craneco – Pardee – Three Forks – Skin Fork 46 kV line section (approximately 7.2 miles) utilizing 795 26/7 ACSR conductor (108 MVA rating)		AEP (100%)
b2884	Install a second transformer at Nagel station, comprised of 3 single phase 250 MVA 500/138 kV transformers. Presently, TVA operates their end of the Boone Dam – Holston 138 kV interconnection as normally open preemptively for the loss of the existing Nagel		AEP (100%)
b2885	New delivery point for City of Jackson		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2885.1	Install a new Ironman Switch to serve a new delivery point requested by the City of Jackson for a load increase request		AEP (100%)
b2885.2	Install a new 138/69 kV station (Rhodes) to serve as a third source to the area to help relieve overloads caused by the customer load increase		AEP (100%)
b2885.3	Replace Coalton Switch with a new three breaker ring bus (Heppner)		AEP (100%)
b2886	Install 90 MVA 138/69 kV transformer, new transformer high and low side 3000 A 40 kA CBs, and a 138 kV 40 kA bus tie breaker at West End Fostoria		AEP (100%)
b2887	Add 2-138 kV CB's and relocate 2-138 kV circuit exits to different bays at Morse Road. Eliminate 3 terminal line by terminating Genoa - Morse circuit at Morse Road		AEP (100%)
b2888	Retire Poston substation. Install new Lemaster substation		AEP (100%)
b2888.1	Remove and retire the Poston 138 kV station		AEP (100%)
b2888.2	Install a new greenfield station, Lemaster 138 kV Station, in the clear		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2888.3	Relocate the Trimble 69 kV AEP Ohio radial delivery point to 138 kV, to be served off of the Poston – Strouds Run – Crooksville 138 kV circuit via a new three-way switch. Retire the Poston - Trimble 69 kV line		AEP (100%)
b2889	Expand Cliffview station		AEP (100%)
b2889.1	Cliffview Station: Establish 138 kV bus. Install two 138/69 kV XFRs (130 MVA), six 138 kV CBs (40 kA 3000 A) and four 69 kV CBs (40 kA 3000 A)		AEP (100%)
b2889.2	Byllesby – Wythe 69 kV: Retire all 13.77 miles (1/0 CU) of this circuit (~4 miles currently in national forest)		AEP (100%)
b2889.3	Galax – Wythe 69 kV: Retire 13.53 miles (1/0 CU section) of line from Lee Highway down to Byllesby. This section is currently double circuited with Byllesby – Wythe 69 kV. Terminate the southern 3/0 ACSR section into the newly opened position at Byllesby		AEP (100%)
b2889.4	Cliffview Line: Tap the existing Pipers Gap – Jubal Early 138 kV line section. Construct double circuit in/out (~2 miles) to newly established 138 kV bus, utilizing 795 26/7 ACSR conductor		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2890.1	Rebuild 23.55 miles of the East Cambridge – Smyrna 34.5 kV circuit with 795 ACSR conductor (128 MVA rating) and convert to 69 kV		AEP (100%)
b2890.2	East Cambridge: Install a 2000 A 69 kV 40 kA circuit breaker for the East Cambridge – Smyrna 69 kV circuit		AEP (100%)
b2890.3	Old Washington: Install 69 kV 2000 A two way phase over phase switch		AEP (100%)
b2890.4	Install 69 kV 2000 A two way phase over phase switch		AEP (100%)
b2891	Rebuild the Midland Switch to East Findlay 34.5 kV line (3.31 miles) with 795 ACSR (63 MVA rating) to match other conductor in the area		AEP (100%)
b2892	Install new 138/12 kV transformer with high side circuit switcher at Leon and a new 138 kV line exit towards Ripley. Establish 138 kV at the Ripley station with a new 138/69 kV 130 MVA transformer and move the distribution load to 138 kV service		AEP (100%)
b2936.1	Rebuild approximately 6.7 miles of 69 kV line between Mottville and Pigeon River using 795 ACSR conductor (129 MVA rating). New construction will be designed to 138 kV standards but operated at 69 kV		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2936.2	Pigeon River Station: Replace existing MOAB Sw. 'W' with a new 69 kV 3000 A 40 kA breaker, and upgrade existing relays towards HMD station. Replace CB H with a 3000 A 40 kA breaker		AEP (100%)
b2937	Replace the existing 636 ACSR 138 kV bus at Fletchers Ridge with a larger 954 ACSR conductor		AEP (100%)
b2938	Perform a sag mitigations on the Broadford – Wolf Hills 138 kV circuit to allow the line to operate to a higher maximum temperature		AEP (100%)
b2958.1	Cut George Washington – Tidd 138 kV circuit into Sand Hill and reconfigure Brues & Warton Hill line entrances		AEP (100%)
b2958.2	Add 2 138 kV 3000 A 40 kA breakers, disconnect switches, and update relaying at Sand Hill station		AEP (100%)
b2968	Upgrade existing 345 kV terminal equipment at Tanner Creek station		AEP (100%)
b2969	Replace terminal equipment on Maddox Creek - East Lima 345 kV circuit		AEP (100%)
b2976	Upgrade terminal equipment at Tanners Creek 345 kV station. Upgrade 345 kV bus and risers at Tanners Creek for the Dearborn circuit		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2988	Replace the Twin Branch 345 kV breaker "JM" with 63 kA breaker and associated substation works including switches, bus leads, control cable and new DICM		AEP (100%)
b2993	Rebuild the Torrey – South Gambrinus Switch – Gambrinus Road 69 kV line section (1.3 miles) with 1033 ACSR 'Curlew' conductor and steel poles		AEP (100%)
b3000	Replace South Canton 138 kV breaker 'N' with an 80kA breaker		AEP (100%)
b3001	Replace South Canton 138 kV breaker 'N1' with an 80kA breaker		AEP (100%)
b3002	Replace South Canton 138 kV breaker 'N2' with an 80kA breaker		AEP (100%)
b3036	Rebuild 15.6 miles of Haviland - North Delphos 138 kV line		AEP (100%)
b3037	Upgrades at the Natrium substation		AEP (100%)
b3038	Reconductor the Capitol Hill – Coco 138 kV line section		AEP (100%)
b3039	Line swaps at Muskingum 138 kV station		AEP (100%)
b3040.1	Rebuild Ravenswood – Racine tap 69 kV line section (~15 miles) to 69 kV standards, utilizing 795 26/7 ACSR conductor		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3040.2	Rebuild existing Ripley – Ravenswood 69 kV circuit (~9 miles) to 69 kV standards, utilizing 795 26/7 ACSR conductor		AEP (100%)
b3040.3	Install new 3-way phase over phase switch at Sarah Lane station to replace the retired switch at Cottageville		AEP (100%)
b3040.4	Install new 138/12 kV 20 MVA transformer at Polymer station to transfer load from Mill Run station to help address overload on the 69 kV network		AEP (100%)
b3040.5	Retire Mill Run station		AEP (100%)
b3040.6	Install 28.8 MVAR cap bank at South Buffalo station		AEP (100%)
b3051.2	Adjust CT tap ratio at Ronceverte 138 kV		AEP (100%)
b3085	Reconductor Kammer – George Washington 138 kV line (approx. 0.08 mile). Replace the wave trap at Kammer 138 kV		AEP (100%)
b3086.1	Rebuild New Liberty – Findlay 34 kV line Str's 1–37 (1.5 miles), utilizing 795 26/7 ACSR conductor		AEP (100%)
b3086.2	Rebuild New Liberty – North Baltimore 34 kV line Str's 1-11 (0.5 mile), utilizing 795 26/7 ACSR conductor		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3086.3	Rebuild West Melrose – Whirlpool 34 kV line Str's 55–80 (1 mile), utilizing 795 26/7 ACSR conductor		AEP (100%)
b3086.4	North Findlay station: Install a 138 kV 3000A 63kA line breaker and low side 34.5 kV 2000A 40kA breaker, high side 138 kV circuit switcher on T1		AEP (100%)
b3086.5	Ebersole station: Install second 90 MVA 138/69/34 kV transformer. Install two low side (69 kV) 2000A 40kA breakers for T1 and T2		AEP (100%)
b3087.1	Construct a new greenfield station to the west (approx. 1.5 miles) of the existing Fords Branch Station in the new Kentucky Enterprise Industrial Park. This station will consist of six 3000A 40kA 138 kV breakers laid out in a ring arrangement, two 30 MVA 138/34.5 kV transformers, and two 30 MVA 138/12 kV transformers. The existing Fords Branch Station will be retired		AEP (100%)
b3087.2	Construct approximately 5 miles of new double circuit 138 kV line in order to loop the new Kewanee station into the existing Beaver Creek – Cedar Creek 138 kV circuit		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3087.3	Remote end work will be required at Cedar Creek Station		AEP (100%)
b3087.4	Install 28.8 MVar switching shunt at the new Fords Branch substation		AEP (100%)
b3095	Rebuild Lakin – Racine Tap 69 kV line section (9.2 miles) to 69 kV standards, utilizing 795 26/7 ACSR conductor		AEP (100%)
b3099	Install a 138 kV 3000A 40 kA circuit switcher on the high side of the existing 138/34.5 kV transformer No.5 at Holston station		AEP (100%)
b3100	Replace the 138 kV MOAB switcher "YY" with a new 138 kV circuit switcher on the high side of Chemical transformer No.6		AEP (100%)
b3101	Rebuild the 1/0 Cu. conductor sections (approx. 1.5 miles) of the Fort Robinson – Moccasin Gap 69 kV line section (approx. 5 miles) utilizing 556 ACSR conductor and upgrade existing relay trip limit (WN/WE: 63 MVA, line limited by remaining conductor sections)		AEP (100%)
b3102	Replace existing 50 MVA 138/69 kV transformers #1 and #2 (both 1957 vintage) at Fremont station with new 130 MVA 138/69 kV transformers		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3103.1	Install a 138/69 kV transformer at Royerton station. Install a 69 kV bus with one 69 kV breaker toward Bosman station. Rebuild the 138 kV portion into a ring bus configuration built for future breaker and a half with four 138 kV breakers		AEP (100%)
b3103.2	Rebuild the Bosman/Strawboard station in the clear across the road to move it out of the flood plain and bring it up to 69 kV standards		AEP (100%)
b3103.3	Retire 138 kV breaker L at Delaware station and re-purpose 138 kV breaker M for the Jay line		AEP (100%)
b3103.4	Retire all 34.5 kV equipment at Hartford City station. Re-purpose breaker M for the Bosman line 69 kV exit		AEP (100%)
b3103.5	Rebuild the 138 kV portion of Jay station as a 6 breaker, breaker and a half station re-using the existing breakers "A", "B", and "G." Rebuild the 69 kV portion of this station as a 6 breaker ring bus re-using the 2 existing 69 kV breakers. Install a new 138/69 kV transformer		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3103.6	Rebuild the 69 kV Hartford City – Armstrong Cork line but instead of terminating it into Armstrong Cork, terminate it into Jay station		AEP (100%)
b3103.7	Build a new 69 kV line from Armstrong Cork – Jay station		AEP (100%)
b3103.8	Rebuild the 34.5 kV Delaware – Bosman line as the 69 kV Royerton – Strawboard line. Retire the line section from Royerton to Delaware stations		AEP (100%)
b3104	Perform a sag study on the Polaris – Westerville 138 kV line (approx. 3.6 miles) to increase the summer emergency rating to 310 MVA		AEP (100%)
b3105	Rebuild the Delaware – Hyatt 138 kV line (approx. 4.3 miles) along with replacing conductors at both Hyatt and Delaware substations		AEP (100%)
b3106	Perform a sag study (6.8 miles of line) to increase the SE rating to 310 MVA. Note that results from the sag study could cover a wide range of outcomes, from no work required to a complete rebuild		AEP (100%)
b3109	Rebuild 5.2 miles Bethel – Sawmill 138 kV line including ADSS		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3112	Construct a single circuit 138 kV line (approx. 3.5 miles) from Amlin to Dublin using 1033 ACSR Curlew (296 MVA SN), convert Dublin station into a ring configuration, and re-terminating the Britton UG cable to Dublin station		AEP (100%)
b3116	Replace existing Mullens 138/46 kV 30 MVA transformer No.4 and associated protective equipment with a new 138/46 kV 90 MVA transformer and associated protective equipment		AEP (100%)
b3118.1	Expand existing Chadwick station and install a second 138/69 kV transformer at a new 138 kV bus tied into the Bellefonte – Grangston 138 kV circuit. The 69 kV bus will be reconfigured into a ring bus arrangement to tie the new transformer into the existing 69 kV via installation of four 3000A 63 kA 69 kV circuit breakers		AEP (100%)
b3118.2	Perform 138 kV remote end work at Grangston station		AEP (100%)
b3118.3	Perform 138 kV remote end work at Bellefonte station		AEP (100%)
b3118.4	Relocate the Chadwick – Leach 69 kV circuit within Chadwick station		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3118.5	Terminate the Bellefonte – Grangston 138 kV circuit to the Chadwick 138 kV bus		AEP (100%)
b3118.6	Chadwick – Tri-State #2 138 kV circuit will be reconfigured within the station to terminate into the newly established 138 kV bus #2 at Chadwick due to construability aspects		AEP (100%)
b3118.7	Reconductor Chadwick – Leach and Chadwick -– England Hill 69 kV lines with 795 ACSS conductor. Perform a LiDAR survey and a sag study to confirm that the reconductored circuits would maintain acceptable clearances		AEP (100%)
b3118.8	Replace the 20 kA 69 kV circuit breaker 'F' at South Neal station with a new 3000A 40 kA 69 kV circuit breaker. Replace line risers towards Leach station		AEP (100%)
b3118.9	Rebuild 336 ACSR portion of Leach – Miller S.S 69 kV line section (approx. 0.3 mile) with 795 ACSS conductor		AEP (100%)
b3118.10	Replace 69 kV line risers (towards Chadwick) at Leach station		AEP (100%)
b3119.1	Rebuild the Jay – Pennville 138 kV line as double circuit 138/69 kV. Build a new 9.8 mile single circuit 69 kV line from near Pennville station to North Portland station		AEP (100%)

American Electric Power Service Corporation on behalf of its affiliate companies: AEP Appalachian Transmission Company, Inc.; AEP Indiana Michigan Transmission Company, Inc.; AEP Kentucky Transmission Company, Inc.; AEP Ohio Transmission Company, Inc.; AEP West Virginia Transmission Company, Inc.; Appalachian Power Company; Indiana Michigan Power Company; Kentucky Power Company; Kingsport Power Company; Ohio Power Company and Wheeling Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3119.2	Install three (3) 69 kV breakers to create the "U" string and add a low side breaker on the Jay transformer 2		AEP (100%)
b3119.3	Install two (2) 69 kV breakers at North Portland station to complete the ring and allow for the new line		AEP (100%)
b3129	At Conesville 138 kV station: Remove line leads to generating units, transfer plant AC service to existing station service feeds in Conesville 345/138 kV yard, and separate and reconfigure protection schemes		AEP (100%)
b3131	At East Lima and Haviland 138 kV stations, replace line relays and wavetrap on the East Lima – Haviland 138 kV facility		AEP (100%)
b3132	Rebuild 3.11 miles of the LaPorte Junction – New Buffalo 69 kV line with 795 ACSR		AEP (100%)
b3139	Rebuild the Garden Creek – Whetstone 69 kV line (approx. 4 miles)		AEP (100%)
b3140	Rebuild the Whetstone – Knox Creek 69 kV line (approx. 3.1 miles)		AEP (100%)
b3141	Rebuild the Knox Creek – Coal Creek 69 kV line (approx. 2.9 miles)		AEP (100%)

American Electric Power Service Corporation on behalf of its affiliate companies: AEP Appalachian Transmission Company, Inc.; AEP Indiana Michigan Transmission Company, Inc.; AEP Kentucky Transmission Company, Inc.; AEP Ohio Transmission Company, Inc.; AEP West Virginia Transmission Company, Inc.; Appalachian Power Company; Indiana Michigan Power Company; Kentucky Power Company; Kingsport Power Company; Ohio Power Company and Wheeling Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3148.1	Rebuild the 46 kV Bradley – Scarbro line to 96 kV standards using 795 ACSR to achieve a minimum rate of 120 MVA. Rebuild the new line adjacent to the existing one leaving the old line in service until the work is completed		AEP (100%)
b3148.2	Bradley remote end station work, replace 46 kV bus, install new 12 MVAR capacitor bank		AEP (100%)
b3148.3	Replace the existing switch at Sun substation with a 2-way SCADA-controlled motor-operated air-breaker switch		AEP (100%)
b3148.4	Remote end work and associated equipment at Scarbro station		AEP (100%)
b3148.5	Retire Mt. Hope station and transfer load to existing Sun station		AEP (100%)
b3149	Rebuild the 2.3 mile Decatur – South Decatur 69 kV line using 556 ACSR		AEP (100%)
b3150	Rebuild Ferguson 69/12 kV station in the clear as the 138/12 kV Bear station and connect it to an approx. 1 mile double circuit 138 kV extension from the Aviation – Ellison Road 138 kV line to remove the load from the 69 kV line		AEP (100%)

American Electric Power Service Corporation on behalf of its affiliate companies: AEP Appalachian Transmission Company, Inc.; AEP Indiana Michigan Transmission Company, Inc.; AEP Kentucky Transmission Company, Inc.; AEP Ohio Transmission Company, Inc.; AEP West Virginia Transmission Company, Inc.; Appalachian Power Company; Indiana Michigan Power Company; Kentucky Power Company; Kingsport Power Company; Ohio Power Company and Wheeling Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3151.1	Rebuild the 30 mile Gateway – Wallen 34.5 kV circuit as the 27 mile Gateway – Wallen 69 kV line		AEP (100%)
b3151.2	Retire approx. 3 miles of the Columbia – Whitley 34.5 kV line		AEP (100%)
b3151.3	At Gateway station, remove all 34.5 kV equipment and install one (1) 69 kV circuit breaker for the new Whitley line entrance		AEP (100%)
b3151.4	Rebuild Whitley as a 69 kV station with two (2) lines and one (1) bus tie circuit breaker		AEP (100%)
b3151.5	Replace the Union 34.5 kV switch with a 69 kV switch structure		AEP (100%)
b3151.6	Replace the Eel River 34.5 kV switch with a 69 kV switch structure		AEP (100%)
b3151.7	Install a 69 kV Bobay switch at Woodland station		AEP (100%)
b3151.8	Replace the Carroll and Churubusco 34.5 kV stations with the 69 kV Snapper station. Snapper station will have two (2) line circuit breakers, one (1) bus tie circuit breaker and a 14.4 MVAR cap bank		AEP (100%)
b3151.9	Remove 34.5 kV circuit breaker "AD" at Wallen station		AEP (100%)
b3151.10	Rebuild the 2.5 miles of the Columbia – Gateway 69 kV line		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3151.11	Rebuild Columbia station in the clear as a 138/69 kV station with two (2) 138/69 kV transformers and 4-breaker ring buses on the high and low side. Station will reuse 69 kV breakers "J" & "K" and 138 kV breaker "D"		AEP (100%)
b3151.12	Rebuild the 13 miles of the Columbia – Richland 69 kV line		AEP (100%)
b3151.13	Rebuild the 0.5 mile Whitley – Columbia City No.1 line as 69 kV		AEP (100%)
b3151.14	Rebuild the 0.5 mile Whitley – Columbia City No.2 line as 69 kV		AEP (100%)
b3151.15	Rebuild the 0.6 mile double circuit section of the Rob Park – South Hicksville / Rob Park – Diebold Road as 69 kV		AEP (100%)
b3160.1	Construct an approx. 2.4 miles double circuit 138 kV extension using 1033 ACSR (Aluminum Conductor Steel Reinforced) to connect Lake Head to the 138 kV network		AEP (100%)
b3160.2	Retire the approx.2.5 miles 34.5 kV Niles – Simplicity Tap line		AEP (100%)
b3160.3	Retire the approx.4.6 miles Lakehead 69 kV Tap		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3160.4	Build new 138/69 kV drop down station to feed Lakehead with a 138 kV breaker, 138 kV switcher, 138/69 kV transformer and a 138 kV Motor-Operated Air Break		AEP (100%)
b3160.5	Rebuild the approx. 1.2 miles Buchanan South 69 kV Radial Tap using 795 ACSR (Aluminum Conductor Steel Reinforced)		AEP (100%)
b3160.6	Rebuild the approx.8.4 miles 69 kV Pletcher – Buchanan Hydro line as the approx. 9 miles Pletcher – Buchanan South 69 kV line using 795 ACSR (Aluminum Conductor Steel Reinforced)		AEP (100%)
b3160.7	Install a PoP (Point-of-Presence) switch at Buchanan South station with 2 line MOABs (Motor-Operated Air Break)		AEP (100%)

American Electric Power Service Corporation on behalf of its affiliate companies: AEP Appalachian Transmission Company, Inc.; AEP Indiana Michigan Transmission Company, Inc.; AEP Kentucky Transmission Company, Inc.; AEP Ohio Transmission Company, Inc.; AEP West Virginia Transmission Company, Inc.; Appalachian Power Company; Indiana Michigan Power Company; Kentucky Power Company; Kingsport Power Company; Ohio Power Company and Wheeling Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3208	Retire approximately 38 miles of the 44 mile Clifford – Scottsville 46 kV circuit. Build new 138 kV "in and out" to two new distribution stations to serve the load formerly served by Phoenix, Shipman, Schuyler (AEP), and Rockfish stations. Construct new 138 kV lines from Joshua Falls – Riverville (approx. 10 miles) and Riverville – Gladstone (approx. 5 miles). Install required station upgrades at Joshua Falls, Riverville and Gladstone stations to accommodate the new 138 kV circuits. Rebuild Reusen – Monroe 69 kV (approx. 4 miles)		AEP (100%)
b3209	Rebuild the 10.5 mile Berne – South Decatur 69 kV line using 556 ACSR		AEP (100%)
b3210	Replace approx. 0.7 mile Beatty – Galloway 69 kV line with 4000 kcmil XLPE cable		AEP (100%)
b3220	Install 14.4 MVAR capacitor bank at Whitewood 138 kV		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3243	Replace risers at the Bass 34.5 kV station		AEP (100%)
b3244	Rebuild approximately 9 miles of the Robinson Park – Harlan 69 kV line		AEP (100%)
b3248	Install a low side 69 kV circuit breaker at the Albion 138/69 kV transformer #1		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3253	Install a 3000A 40 kA 138 kV breaker on the high side of 138/69 kV transformer #5 at the Millbrook Park station. The transformer and associated bus protection will be upgraded accordingly		AEP (100%)
b3255	Upgrade 795 AAC risers at the Sand Hill 138 kV station towards Cricket Switch with 1272 AAC		AEP (100%)
b3256	Upgrade 500 MCM Cu risers at Tidd 138 kV station towards Wheeling Steel; replace with 1272 AAC conductor		AEP (100%)
b3257	Replace two spans of 336.4 26/7 ACSR on the Twin Branch – AM General #2 34.5 kV circuit		AEP (100%)
b3258	Install a 3000A 63 kA 138 kV breaker on the high side of 138/69 kV transformer #2 at Wagenhals station. The transformer and associated bus protection will be upgraded accordingly		AEP (100%)
b3259	At West Millersburg station, replace the 138 kV MOAB on the West Millersburg – Wooster 138 kV line with a 3000A 40 kA breaker		AEP (100%)
b3261	Upgrade circuit breaker “R1” at Tanners Creek 345 kV. Install Transient Recovery Voltage capacitor to increase the rating from 50 kA to 63 kA		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3269	At West New Philadelphia station, add a high side 138 kV breaker on the 138/69 kV Transformer #2 along with a 138 kV breaker on the line towards Newcomerstown		AEP (100%)
b3270	Install 1.7 miles of 795 ACSR 138 kV conductor along the other side of Dragoon Tap 138 kV line, which is currently double circuit tower with one position open. Additionally, install a second 138/34.5 kV transformer at Dragoon, install a high side circuit switcher on the current transformer at the Dragoon Station, and install two (2) 138 kV line breakers on the Dragoon – Jackson 138 kV and Dragoon – Twin Branch 138 kV lines		AEP (100%)
b3270.1	Replace Dragoon 34.5 kV breakers “B”, “C”, and “D” with 40 kA breakers		AEP (100%)
b3271	Install a 138 kV circuit breaker at Fremont station on the line towards Fremont Center and install a 9.6 MVAR 69 kV capacitor bank at Bloom Road station		AEP (100%)
b3272	Install two 138 kV circuit switchers on the high side of 138/34.5 kV Transformers #1 and #2 at Rockhill station		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3273.1	Rebuild and convert the existing 17.6 miles East Leipsic – New Liberty 34.5 kV circuit to 138 kV using 795 ACSR		AEP (100%)
b3273.2	Convert the existing 34.5 kV equipment to 138 kV and expand the existing McComb station to the north and east to allow for new equipment to be installed. Install two (2) new 138 kV box bays to allow for line positions and two (2) new 138/12 kV transformers		AEP (100%)
b3273.3	Expand the existing East Leipsic 138 kV station to the north to allow for another 138 kV line exit to be installed. The new line exit will involve installing a new 138 kV circuit breaker, disconnect switches and the addition of a new dead end structure along with the extension of the existing 138 kV bus work		AEP (100%)
b3273.4	Add one (1) 138 kV circuit breaker and disconnect switches in order to add an additional line position at New Liberty 138 kV station. Install line relaying potential devices and retire the 34.5 kV breaker 'F'		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3274	Rebuild approximately 8.9 miles of 69 kV line between Newcomerstown and Salt Fork Switch with 556 ACSR conductor		AEP (100%)
b3275.1	Rebuild the Kammer Station – Cresaps Switch 69 kV line, approximately 0.5 mile		AEP (100%)
b3275.2	Rebuild the Cresaps Switch – McElroy Station 69 kV, approximately 0.67 mile		AEP (100%)
b3275.3	Replace a single span of 4/0 ACSR from Moundsville - Natrium structure 93L to Carbon Tap switch 69 kV located between the Colombia Carbon and Conner Run stations. Remainder of the line is 336 ACSR		AEP (100%)
b3275.4	Rebuild from Colombia Carbon to Columbia Carbon Tap structure 93N 69 kV, approximately 0.72 mile. The remainder of the line between Colombia Carbon Tap structure 93N and Natrium station is 336 ACSR and will remain		AEP (100%)
b3275.5	Replace the Cresaps 69 kV 3-Way Phase-Over-Phase switch and structure with a new 1200A 3-Way switch and steel pole		AEP (100%)
b3275.6	Replace 477 MCM Alum bus and risers at McElroy 69 kV station		AEP (100%)

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Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3275.7	Replace Natrium 138 kV bus existing between CB-BT1 and along the 138 kV Main Bus #1 dropping to CBH1 from the 500 MCM conductors to a 1272 KCM AAC conductor. Replace the dead end clamp and strain insulators		AEP (100%)
b3276.1	Rebuild the 2/0 Copper section of the Lancaster – South Lancaster 69 kV line, approximately 2.9 miles of the 3.2 miles total length with 556 ACSR conductor. The remaining section has a 336 ACSR conductor		AEP (100%)
b3276.2	Rebuild the 1/0 Copper section of the line between Lancaster Junction and Ralston station 69 kV, approximately 2.3 miles of the 3.1 miles total length		AEP (100%)
b3276.3	Rebuild the 2/0 Copper portion of the line between East Lancaster Tap and Lancaster 69 kV, approximately 0.81 mile		AEP (100%)
b3312	Rebuild approximately 4 miles of existing 69 kV line between West Mount Vernon and Mount Vernon stations. Replace the existing 138/69 kV transformer at West Mount Vernon with a larger 90 MVA unit along with existing 69 kV breaker 'C'		AEP (100%)

SCHEDULE 12 – APPENDIX A

(18) Duquesne Light Company

Required Transmission Enhancements	Annual Revenue Requirement		Responsible Customer(s)
b2175.1	200 MVAR shunt reactor at Brunot Island 345 kV		DL (100%)
b2175.2	200 MVAR shunt reactor on future Brunot Island – Carson 345 kV circuit		DL (100%)
b2198	Revise the reclosing for the Brunot Island 138 kV breaker ‘Z-40 COLLIER'		DL (100%)
b2199	Revise the reclosing for the Brunot Island 138 kV breaker ‘Z-41 COLLIER'		DL (100%)
b2200	Revise the reclosing for the Crescent 138 kV breaker 'Z-29 Beaver'		DL (100%)
b2201	Revise the reclosing for the Crescent 138 kV breaker 'Z-82 VALLEY'		DL (100%)
b2202	Revise the reclosing for the Crescent 138 kV breaker 'Z-21 NORTH'		DL (100%)
b2203	Revise the reclosing for the Elrama 138 kV breaker 'Z18-USX CLAI'		DL (100%)
b2204	Revise the reclosing for the Elrama 138 kV breaker 'Z13-WEST MIF'		DL (100%)
b2205	Revise the reclosing for the Elrama 138 kV breaker 'Z15 -DRAVOSBU'		DL (100%)
b2206	Revise the reclosing for the Woodville 138 kV breaker 'Z-106 PINEY'		DL (100%)
b2207	Revise the reclosing for the Woodville 138 kV breaker 'Z-64 COLLIER'		DL (100%)
b2208	Revise the reclosing for the Beaver Valley 138 kV breaker 'Z-28 CRESCEN'		DL (100%)

Duquesne Light Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2209	Revise the reclosing for the Cheswick 138 kV breaker Z-51 WILMERD'		DL (100%)
b2280	Replace the USAP 138kV breaker 'XFMR'		DL (100%)
b2303	Revise the reclosing to the Dravosburg 138kV breaker 'Z73 West Mifflin' from 5 sec to 15 sec		DL (100%)
b2563	Operate with the Crescent 345/138 kV #3 autotransformer in-service by replacing 8 overdutied 138 kV breakers at Crescent, 3 138 kV breakers at Beaver Valley, install #1 section 345 kV breaker for 331 circuit at Crescent		DL (100%)
b2632	Replace the Oakland 138 kV 'Z-101 Arsenal' breaker		DL (100%)
b2639	Replace the Crescent 138 kV 'NO3 – 4 138' breaker with a 63kA breaker		DL (100%)
b2640	Replace the Crescent 138 kV 'Z-143 SWCKLY' breaker with a 63kA breaker		DL (100%)
b2641	Replace the Crescent 138 kV 'Z-24 MONTOUR' breaker with a 63kA breaker		DL (100%)
b2642	Replace the Crescent 138 kV 'Z-28 BEAVER' breaker with a 63kA breaker		DL (100%)
b2689.1	Reconductor approximately 7 miles of the Woodville – Peters (Z-117) 138 kV circuit		AEC (0.99%)/ APS (66.14%)/ BGE (4.60%)/ DOM (8.81%)/ DPL (5.83%)/ ECP (0.34%)/ HTP (0.04%)/ Neptune (0.12%)/ PECO (3.39%)/ PEPCO (6.29%)/ PSEG (3.45%)

Duquesne Light Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2689.2	Reconfigure West Mifflin-USS Clairton (Z-15) 138 kV circuit to establish Dravosburg-USS Clairton (Z-14) 138 kV circuit and West Mifflin-Wilson (Z-15) 138 kV circuit		AEC (0.99%)/ APS (66.14%)/ BGE (4.60%)/ DOM (8.81%)/ DPL (5.83%)/ ECP (0.34%)/ HTP (0.04%)/ Neptune (0.12%)/ PECO (3.39%)/ PEPCO (6.29%)/ PSEG (3.45%)
b3011.7	Replace the line terminal equipment and line breaker #85 at Dravosburg 138 kV substation in the Elwyn Z-70 line position/bay, with the breaker duty as 63kA		DL (100%)
b3011.8	Upgrade 138 kV breaker "Z-78 Logans" at Dravosburg		DL (100%)
b3012.2	Construct two new ties from a new FirstEnergy substation to a new Duquesne substation by using two separate structures – Duquesne portion		ATSI (38.21%) / DL (61.79%)
b3012.4	Establish the new tie line in place of the existing Elrama – Mitchell 138 kV line		DL (100%)
b3015.1	Construct new Elrama 138 kV substation and connect 7 138 kV lines to new substation		DL (100%)
b3015.2	Reconductor Elrama to Wilson 138 kV line. 4.8 miles		*APS* (100%)
b3015.3	Reconductor Dravosburg to West Mifflin 138 kV line. 3 miles		DL (100%)
b3015.4	Run new conductor on existing tower to establish the new Dravosburg – Elrama (Z-75) circuit. 10 miles		DL (100%)

Duquesne Light Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3015.5	Reconductor Elrama to Mitchell 138 kV line – DL portion. 4.2 miles total. 2x795 ACSS/TW 20/7		DL (100%)
b3015.7	Reconductor Wilson to West Mifflin 138 kV line. 2 miles. 795 ACSS/TW 20/7		DL (100%)
b3061	Reconductor the West Mifflin – Dravosburg (Z-73) and Dravosburg – Elrama (Z-75) 138 kV lines		DL (100%)
b3062	Install 138 kV tie breaker at West Mifflin		DL (100%)
b3063	Reconductor the Wilson – Dravosburg (Z-72) 138 kV line (approx. 5 miles)		DL (100%)
b3064	Expand Elrama 138 kV substation to loop in existing US Steel Clariton – Piney Fork 138 kV line		DL (100%)
b3064.2	Replace the West Mifflin 138 kV breakers “Z-94”, “Z-74”, “Z-14”, and “Z-13” with 63 kA breakers		DL (100%)
b3065	Install 138 kV tie breaker at Wilson		DL (100%)
b3084	Reconductor the Oakland – Panther Hollow 138 kV line (approx. 1 mile)		DL (100%)
b3212	The Crescent 138 kV oil-type breaker “2-5 TIE” is found to be overdutied following a model review and correction to short circuit base case		DL (100%)
b3217	Reconductor Wilson - Mitchell 138 kV line - DL portion		DL (100%)

Duquesne Light Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3265	Implement slow circulation on existing underground 138 kV high pressure fluid filled (HPFF) cable between the Arsenal and Riazzi substations		DL (100%)

SCHEDULE 12 – APPENDIX A

(20) Virginia Electric and Power Company

Required Transmission Enhancements	Annual Revenue Requirement		Responsible Customer(s)
b1698.7	Replace Loudoun 230 kV breaker '203052' with 63kA rating		Dominion (100%)
b1696.1	Replace the Idylwood 230 kV '25112' breaker with 50kA breaker		Dominion (100%)
b1696.2	Replace the Idylwood 230 kV '209712' breaker with 50kA breaker		Dominion (100%)
b1793.1	Remove the Carolina 22 SPS to include relay logic changes, minor control wiring, relay resets and SCADA programming upon completion of project		Dominion (100%)
b2281	Additional Temporary SPS at Bath County		Dominion (100%)
b2350	Reconductor 211 feet of 545.5 ACAR conductor on 59 Line Elmont - Greenwood DP 115 kV to achieve a summer emergency rating of 906 amps or greater		Dominion (100%)
b2358	Install a 230 kV 54 MVAR capacitor bank on the 2016 line at Harmony Village Substation		Dominion (100%)
b2359	Wreck and rebuild approximately 1.3 miles of existing 230 kV line between Cochran Mill - X4-039 Switching Station		Dominion (100%)
b2360	Build a new 39 mile 230 kV transmission line from Dooms - Lexington on existing right-of-way		Dominion (100%)
b2361	Construct 230 kV OH line along existing Line #2035 corridor, approx. 2.4 miles from Idylwood - Dulles Toll Road (DTR) and 2.1 miles on new right-of-way along DTR to new Scott's Run Substation		Dominion (100%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2368	Replace the Brambleton 230 kV breaker '209502' with 63kA breaker		Dominion (100%)
b2369	Replace the Brambleton 230 kV breaker '213702' with 63kA breaker		Dominion (100%)
b2370	Replace the Brambleton 230 kV breaker 'H302' with 63kA breaker		Dominion (100%)
b2373	Build a 2nd Loudoun - Brambleton 500 kV line within the existing ROW. The Loudoun - Brambleton 230 kV line will be relocated as an underbuild on the new 500 kV line		**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%)
			DFAX Allocation: APS (*25.51*%) / Dominion (*74.49*%)
b2397	Replace the Beaumeade 230 kV breaker '2079T2116' with 63kA		Dominion (100%)
b2398	Replace the Beaumeade 230 kV breaker '2079T2130' with 63kA		Dominion (100%)
b2399	Replace the Beaumeade 230 kV breaker '208192' with 63kA		Dominion (100%)
b2400	Replace the Beaumeade 230 kV breaker '209592' with 63kA		Dominion (100%)
b2401	Replace the Beaumeade 230 kV breaker '211692' with 63kA		Dominion (100%)
b2402	Replace the Beaumeade 230 kV breaker '227T2130' with 63kA		Dominion (100%)

The Annual Revenue Requirement for all Virginia Electric and Power Company projects in this Section 20 shall be as specified in Attachment 7 to Appendix A of Attachment H-16A and under the procedures detailed in Attachment H-16B.

*Neptune Regional Transmission System, LLC

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2403	Replace the Beaumeade 230 kV breaker '274T2130' with 63kA		Dominion (100%)
b2404	Replace the Beaumeade 230 kV breaker '227T2095' with 63kA		Dominion (100%)
b2405	Replace the Pleasant view 230 kV breaker '203T274' with 63kA		Dominion (100%)
b2443	Construct new underground 230 kV line from Glebe to Station C, rebuild Glebe Substation, construct 230 kV high side bus at Station C with option to install 800 MVA PAR		Dominion (97.11%) / ME (0.18%) / PEPCO (2.71%)
b2443.1	Replace the Idylwood 230 kV breaker '203512' with 50kA		Dominion (100%)
b2443.2	Replace the Ox 230 kV breaker '206342' with 63kA breaker		Dominion (100%)
b2443.3	Glebe – Station C PAR		**DFAX Allocation:** Dominion (22.57%) / PEPCO (77.43%)
b2443.6	Install a second 500/230 kV transformer at Possum Point substation and replace bus work and associated equipment as needed		Dominion (100%)
b2443.7	Replace 19 63kA 230 kV breakers with 19 80kA 230 kV breakers		Dominion (100%)
b2457	Replace 24 115 kV wood h-frames with 230 kV Dominion pole H-frame structures on the Clubhouse – Purdy 115 kV line		Dominion (100%)
b2458.1	Replace 12 wood H-frame structures with steel H-frame structures and install shunts on all conductor splices on Carolina – Woodland 115 kV		Dominion (100%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2458.2	Upgrade all line switches and substation components at Carolina 115 kV to meet or exceed new conductor rating of 174 MVA		Dominion (100%)
b2458.3	Replace 14 wood H-frame structures on Carolina – Woodland 115 kV		Dominion (100%)
b2458.4	Replace 2.5 miles of static wire on Carolina – Woodland 115 kV		Dominion (100%)
b2458.5	Replace 4.5 miles of conductor between Carolina 115 kV and Jackson DP 115 kV with min. 300 MVA summer STE rating; Replace 8 wood H-frame structures located between Carolina and Jackson DP with steel H-frames		Dominion (100%)
b2460.1	Replace Hanover 230 kV substation line switches with 3000A switches		Dominion (100%)
b2460.2	Replace wave traps at Four River 230 kV and Elmont 230 kV substations with 3000A wave traps		Dominion (100%)
b2461	Wreck and rebuild existing Remington CT – Warrenton 230 kV (approx. 12 miles) as a double-circuit 230 kV line		Dominion (100%)
b2461.1	Construct a new 230 kV line approximately 6 miles from NOVEC's Wheeler Substation a new 230 kV switching station in Vint Hill area		Dominion (100%)
b2461.2	Convert NOVEC's Gainesville – Wheeler line (approximately 6 miles) to 230 kV		Dominion (100%)
b2461.3	Complete a Vint Hill – Wheeler – Loudoun 230 kV networked line		Dominion (100%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2471	Replace Midlothian 500 kV breaker 563T576 and motor operated switches with 3 breaker 500 kV ring bus. Terminate Lines # 563 Carson – Midlothian, #576 Midlothian –North Anna, Transformer #2 in new ring		**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%) **DFAX Allocation:** Dominion (100%)
b2504	Rebuild 115 kV Line #32 from Halifax-South Boston (6 miles) for min. of 240 MVA and transfer Welco tap to Line #32. Moving Welco to Line #32 requires disabling auto-sectionalizing scheme		Dominion (100%)
b2505	Install structures in river to remove the 115 kV #65 line (Whitestone-Harmony Village 115 kV) from bridge and improve reliability of the line		Dominion (100%)
b2542	Replace the Loudoun 500 kV ‘H2T502’ breaker with a 50kA breaker		Dominion (100%)
b2543	Replace the Loudoun 500 kV ‘H2T584’ breaker with a 50kA breaker		Dominion (100%)
b2565	Reconductor wave trap at Carver Substation with a 2000A wave trap		Dominion (100%)
b2566	Reconductor 1.14 miles of existing line between ACCA and Hermitage and upgrade associated terminal equipment		Dominion (100%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2582	Rebuild the Elmont – Cunningham 500 kV line		**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%) **DFAX Allocation:** Dominion (*100*%)
b2583	Install 500 kV breaker at Ox Substation to remove Ox Tx#1 from H1T561 breaker failure outage.		Dominion (100%)
b2584	Relocate the Bremo load (transformer #5) to #2028 (Bremo-Charlottesville 230 kV) line and Cartersville distribution station to #2027 (Bremo-Midlothian 230 kV) line		Dominion (100%)
b2585	Reconductor 7.63 miles of existing line between Cranes and Stafford, upgrade associated line switches at Stafford		PEPCO (100%)
b2620	Wreck and rebuild the Chesapeake – Deep Creek – Bowers Hill – Hodges Ferry 115 kV line; minimum rating 239 MVA normal/emergency, 275 MVA load dump rating		Dominion (100%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2622	Rebuild Line #47 between Kings Dominion 115 kV and Fredericksburg 115 kV to current standards with summer emergency rating of 353 MVA at 115 kV		Dominion (100%)
b2623	Rebuild Line #4 between Bremo and Structure 8474 (4.5 miles) to current standards with a summer emergency rating of 261 MVA at 115 kV		Dominion (100%)
b2624	Rebuild 115 kV Lines #18 and #145 between Possum Point Generating Station and NOVEC's Smoketown DP (approx. 8.35 miles) to current 230 kV standards with a normal continuous summer rating of 524 MVA at 115 kV		Dominion (100%)
b2625	Rebuild 115 kV Line #48 between Thole Street and Structure 48/71 to current standard. The remaining line to Sewells Point is 2007 vintage. Rebuild 115 kV Line #107 line, Sewells Point to Oakwood, between structure 107/17 and 107/56 to current standard.		Dominion (100%)
b2626	Rebuild 115 kV Line #34 between Skiffes Creek and Yorktown and the double circuit portion of 115 kV Line #61 to current standards with a summer emergency rating of 353 MVA at 115 kV		Dominion (100%)
b2627	Rebuild 115 kV Line #1 between Crewe 115 kV and Fort Pickett DP 115 kV (12.2 miles) to current standards with summer emergency rating of 261 MVA at 115 kV		Dominion (100%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2628	Rebuild 115 kV Line #82 Everetts – Voice of America (20.8 miles) to current standards with a summer emergency rating of 261 MVA at 115 kV		Dominion (100%)
b2629	Rebuild the 115 kV Lines #27 and #67 lines from Greenwich 115 kV to Burton 115 kV Structure 27/280 to current standard with a summer emergency rating of 262 MVA at 115 kV		Dominion (100%)
b2630	Install circuit switchers on Gravel Neck Power Station GSU units #4 and #5. Install two 230 kV CCVT's on Lines #2407 and #2408 for loss of source sensing		Dominion (100%)
b2636	Install three 230 kV bus breakers and 230 kV, 100 MVAR Variable Shunt Reactor at Dahlgren to provide line protection during maintenance, remove the operational hazard and provide voltage reduction during light load conditions		Dominion (100%)
b2647	Rebuild Boydton Plank Rd – Kerr Dam 115 kV Line #38 (8.3 miles) to current standards with summer emergency rating of 353 MVA at 115 kV.		Dominion (100%)
b2648	Rebuild Carolina – Kerr Dam 115 kV Line #90 (38.7 miles) to current standards with summer emergency rating of 353 MVA 115 kV.		Dominion (100%)
b2649	Rebuild Clubhouse – Carolina 115 kV Line #130 (17.8 miles) to current standards with summer emergency rating of 353 MVA at 115 kV.		Dominion (100%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2649.1	Rebuild of 1.7 mile tap to Metcalf and Belfield DP (MEC) due to poor condition. The existing summer rating of the tap is 48 MVA and existing conductor is 4/0 ACSR on wood H-frames. The proposed new rating is 176 MVA using 636 ACSR conductor		Dominion (100%)
b2649.2	Rebuild of 4.1 mile tap to Brinks DP (MEC) due to wood poles built in 1962. The existing summer rating of the tap is 48 MVA and existing conductor is 4/0 ACSR and 393.6 ACSR on wood H-frames. The proposed new rating is 176 MVA using 636 ACSR conductor		Dominion (100%)
b2650	Rebuild Twittys Creek – Pamplin 115 kV Line #154 (17.8 miles) to current standards with summer emergency rating of 353 MVA at 115 kV.		Dominion (100%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements	Annual Revenue Requirement		Responsible Customer(s)
b2651	Rebuild Buggs Island – Plywood 115 kV Line #127 (25.8 miles) to current standards with summer emergency rating of 353 MVA at 115 kV. The line should be rebuilt for 230 kV and operated at 115 kV.		Dominion (100%)
b2652	Rebuild Greatbridge – Hickory 115 kV Line #16 and Greatbridge – Chesapeake E.C. to current standard with summer emergency rating of 353 MVA at 115 kV.		Dominion (100%)
b2653.1	Build 20 mile 115 kV line from Pantego to Trowbridge with summer emergency rating of 353 MVA.		Dominion (100%)
b2653.2	Install 115 kV four-breaker ring bus at Pantego		Dominion (100%)
b2653.3	Install 115 kV breaker at Trowbridge		Dominion (100%)
b2654.1	Build 15 mile 115 kV line from Scotland Neck to S Justice Branch with summer emergency rating of 353 MVA. New line will be routed to allow HEMC to convert Dawson's Crossroads RP from 34.5 kV to 115 kV.		Dominion (100%)
b2654.2	Install 115 kV three-breaker ring bus at S Justice Branch		Dominion (100%)
b2654.3	Install 115 kV breaker at Scotland Neck		Dominion (100%)
b2654.3	Install a 2nd 224 MVA 230/115 kV transformer at Hathaway		Dominion (100%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2665	Rebuild the Cunningham – Dooms 500 kV line		**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%) **DFAX Allocation:** Dominion (100%)
b2686	Pratts Area Improvement		Dominion (100%)
b2686.1	Build a 230 kV line from Remington Substation to Gordonsville Substation utilizing existing ROW		Dominion (100%)
b2686.2	Install a 3rd 230/115 kV transformer at Gordonsville Substation		Dominion (100%)
b2686.3	Upgrade Line 2088 between Gordonsville Substation and Louisa CT Station		Dominion (100%)
b2686.4	Replace the Remington CT 230 kV breaker "2114T2155" with a 63 kA breaker		Dominion (100%)
b2686.11	Upgrading sections of the Gordonsville – Somerset 115 kV circuit		Dominion (100%)
b2686.12	Upgrading sections of the Somerset – Doubleday 115 kV circuit		Dominion (100%)
b2686.13	Upgrading sections of the Orange – Somerset 115 kV circuit		Dominion (100%)
b2686.14	Upgrading sections of the Mitchell – Mt. Run 115 kV circuit		Dominion (100%)

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Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2717.1	De-energize Davis – Rosslyn #179 and #180 69 kV lines		Dominion (100%)
b2717.2	Remove splicing and stop joints in manholes		Dominion (100%)
b2717.3	Evacuate and dispose of insulating fluid from various reservoirs and cables		Dominion (100%)
b2717.4	Remove all cable along the approx. 2.5 mile route, swab and cap-off conduits for future use, leave existing communication fiber in place		Dominion (100%)
b2719.1	Expand Perth substation and add a 115 kV four breaker ring		Dominion (100%)
b2719.2	Extend the Hickory Grove DP tap 0.28 miles to Perth and terminate it at Perth		Dominion (100%)
b2719.3	Split Line #31 at Perth and terminate it into the new ring bus with 2 breakers separating each of the line terminals to prevent a breaker failure from taking out both 115 kV lines		Dominion (100%)
b2720	Replace the Loudoun 500 kV 'H1T569' breakers with 50kA breaker		Dominion (100%)
b2729	Optimal Capacitors Configuration: New 175 MVAR capacitor at Brambleton, new 175 MVAR capacitor at Ashburn, new 300 MVAR capacitor at Shelhorm, new 150 MVAR capacitor at Liberty		AEC (1.96%) / BGE (14.37%) / Dominion (35.11%) / DPL (3.76%) / ECP (0.29%) / HTP (0.34%) / JCPL (3.31%) / ME (2.51%) / Neptune (0.63%) / PECO (6.26%) / PEPCO (20.23%) / PPL (3.94%) / PSEG (7.29%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2744	Rebuild the Carson – Rogers Rd 500 kV circuit		**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%) **DFAX Allocation:** Dominion (100%)
b2745	Rebuild 21.32 miles of existing line between Chesterfield – Lakeside 230 kV		Dominion (100%)
b2746.1	Rebuild Line #137 Ridge Rd – Kerr Dam 115 kV, 8.0 miles, for 346 MVA summer emergency rating		Dominion (100%)
b2746.2	Rebuild Line #1009 Ridge Rd – Chase City 115 kV, 9.5 miles, for 346 MVA summer emergency rating		Dominion (100%)
b2746.3	Install a second 4.8 MVAR capacitor bank on the 13.8 kV bus of each transformer at Ridge Rd		Dominion (100%)
b2747	Install a Motor Operated Switch and SCADA control between Dominion's Gordonsville 115 kV bus and FirstEnergy's 115 kV line		Dominion (100%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b2757	Install a +/-125 MVAr Statcom at Colington 230 kV		Dominion (100%)
b2758	Rebuild Line #549 Dooms – Valley 500kV		**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%)
			DFAX Allocation: Dominion (*100*%)
b2759	Rebuild Line #550 Mt. Storm – Valley 500kV		**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%)
			DFAX Allocation: APS (87.50%) / ATSI (0.37%) / DL (0.19%) / Dominion (1.04%) / EKPC (10.90%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b2800	The 7 mile section from Dozier to Thompsons Corner of line #120 will be rebuilt to current standards using 768.2 ACSS conductor with a summer emergency rating of 346 MVA at 115 kV. Line is proposed to be rebuilt on single circuit steel monopole structure		Dominion (100%)
b2801	Lines #76 and #79 will be rebuilt to current standard using 768.2 ACSS conductor with a summer emergency rating of 346 MVA at 115 kV. Proposed structure for rebuild is double circuit steel monopole structure		Dominion (100%)
b2802	Rebuild Line #171 from Chase City – Boydton Plank Road tap by removing end-of-life facilities and installing 9.4 miles of new conductor. The conductor used will be at current standards with a summer emergency rating of 393 MVA at 115kV		Dominion (100%)
b2815	Build a new Pinewood 115kV switching station at the tap serving North Doswell DP with a 115kV four breaker ring bus		Dominion (100%)
b2842	Update the nameplate for Mount Storm 500 kV "57272" to be 50kA breaker		Dominion (100%)
b2843	Replace the Mount Storm 500 kV "G2TY" with 50kA breaker		Dominion (100%)
b2844	Replace the Mount Storm 500 kV "G2TZ" with 50kA breaker		Dominion (100%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2845	Update the nameplate for Mount Storm 500 kV "G3TSX1" to be 50kA breaker		Dominion (100%)
b2846	Update the nameplate for Mount Storm 500 kV "SX172" to be 50kA breaker		Dominion (100%)
b2847	Update the nameplate for Mount Storm 500 kV "Y72" to be 50kA breaker		Dominion (100%)
b2848	Replace the Mount Storm 500 kV "Z72" with 50kA breaker		Dominion (100%)
b2871	Rebuild 230 kV line #247 from Swamp to Suffolk (31 miles) to current standards with a summer emergency rating of 1047 MVA at 230 kV		Dominion (100%)
b2876	Rebuild line #101 from Mackeys – Creswell 115 kV, 14 miles, with double circuit structures. Install one circuit with provisions for a second circuit. The conductor used will be at current standards with a summer emergency rating of 262 MVA at 115 kV		Dominion (100%)
b2877	Rebuild line #112 from Fudge Hollow – Lowmoor 138 kV (5.16 miles) to current standards with a summer emergency rating of 314 MVA at 138 kV		Dominion (100%)
b2899	Rebuild 230 kV line #231 to current standard with a summer emergency rating of 1046 MVA. Proposed conductor is 2-636 ACSR		Dominion (100%)
b2900	Build a new 230/115 kV switching station connecting to 230 kV network line #2014 (Earleys – Everetts). Provide a 115 kV source from the new station to serve Windsor DP		Dominion (100%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2922	Rebuild 8 of 11 miles of 230 kV lines #211 and #228 to current standard with a summer emergency rating of 1046 MVA for rebuilt section. Proposed conductor is 2-636 ACSR		Dominion (100%)
b2928	Rebuild four structures of 500 kV line #567 from Chickahominy to Surry using galvanized steel and replace the river crossing conductor with 3-1534 ACSR. This will increase the line #567 line rating from 1954 MVA to 2600 MVA		**Load-Ratio Share Allocation:** AEC (*1.71%*) / AEP (*14.04%*) / APS (*5.61%*) / ATSI (*8.10%*) / BGE (*4.36%*) / ComEd (*13.14%*) / Dayton (*2.15%*) / DEOK (*3.23%*) / DL (*1.73%*) / DPL (*2.65%*) / Dominion (*13.03%*) / EKPC (*1.77%*) / JCPL (*3.84%*) / ME (*1.93%*) / NEPTUNE* (*0.45%*) / OVEC (*0.07%*) / PECO (*5.29%*) / PENELEC (*1.89%*) / PEPCO (*3.82%*) / PPL (*4.72%*) / PSEG (*6.21%*) / RE (*0.26%*) **DFAX Allocation:** Dominion (100%)
b2929	Rebuild 230 kV line #2144 from Winfall to Swamp (4.3 miles) to current standards with a standard conductor (bundled 636 ACSR) having a summer emergency rating of 1047 MVA at 230 kV		Dominion (100%)
b2960	Replace fixed series capacitors on 500 kV Line #547 at Lexington and on 500 kV Line #548 at Valley		See sub-IDs for cost allocations

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2960.1	Replace fixed series capacitors on 500 kV Line #547 at Lexington		**Load-Ratio Share Allocation:** AEC (*1.71%*) / AEP (*14.04%*) / APS (*5.61%*) / ATSI (*8.10%*) / BGE (*4.36%*) / ComEd (*13.14%*) / Dayton (*2.15%*) / DEOK (*3.23%*) / DL (*1.73%*) / DPL (*2.65%*) / Dominion (*13.03%*) / EKPC (*1.77%*) / JCPL (*3.84%*) / ME (*1.93%*) / NEPTUNE* (*0.45%*) / OVEC (*0.07%*) / PECO (*5.29%*) / PENELEC (*1.89%*) / PEPCO (*3.82%*) / PPL (*4.72%*) / PSEG (*6.21%*) / RE (*0.26%*)
			DFAX Allocation: DEOK (*5.63%*) / Dominion (*91.06%*) / EKPC (*3.31%*)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2960.2	Replace fixed series capacitors on 500 kV Line #548 at Valley		**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%) **DFAX Allocation:** DEOK (*17.57*%) / Dominion (*74.24*%) / EKPC (*8.19*%)
b2961	Rebuild approximately 3 miles of Line #205 & Line #2003 from Chesterfield to Locks & Poe respectively		Dominion (100%)
b2962	Split Line #227 (Brambleton – Beaumeade 230 kV) and terminate into existing Belmont substation		Dominion (100%)
b2962.1	Replace the Beaumeade 230 kV breaker "274T2081" with 63kA breaker		Dominion (100%)
b2962.2	Replace the NIVO 230 kV breaker "2116T2130" with 63kA breaker		Dominion (100%)
b2963	Reconductor the Woodbridge to Occoquan 230 kV line segment of Line #2001 with 1047 MVA conductor and replace line terminal equipment at Possum Point, Woodbridge, and Occoquan		Dominion (100%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2978	Install 2-125 MVAR STATCOMs at Rawlings and 1-125 MVAR STATCOM at Clover 500 kV substations		**Load-Ratio Share Allocation:** AEC (*1.71%*) / AEP (*14.04%*) / APS (*5.61%*) / ATSI (*8.10%*) / BGE (*4.36%*) / ComEd (*13.14%*) / Dayton (*2.15%*) / DEOK (*3.23%*) / DL (*1.73%*) / DPL (*2.65%*) / Dominion (*13.03%*) / EKPC (*1.77%*) / JCPL (*3.84%*) / ME (*1.93%*) / NEPTUNE* (*0.45%*) / OVEC (*0.07%*) / PECO (*5.29%*) / PENELEC (*1.89%*) / PEPCO (*3.82%*) / PPL (*4.72%*) / PSEG (*6.21%*) / RE (*0.26%*) **DFAX Allocation:** Dominion (100%)
b2980	Rebuild 115 kV Line #43 between Staunton and Harrisonburg (22.8 miles) to current standards with a summer emergency rating of 261 MVA at 115 kV		Dominion (100%)
b2981	Rebuild 115 kV Line #29 segment between Fredericksburg and Aquia Harbor to current 230 kV standards (operating at 115 kV) utilizing steel H-frame structures with 2-636 ACSR to provide a normal continuous summer rating of 524 MVA at 115 kV (1047 MVA at 230 kV)		Dominion (100%)

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Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2989	Install a second 230/115 kV Transformer (224 MVA) approximately 1 mile north of Bremo and tie 230 kV Line #2028 (Bremo – Charlottesville) and 115 kV Line #91 (Bremo - Sherwood) together. A three breaker 230 kV ring bus will split Line #2028 into two lines and Line #91 will also be split into two lines with a new three breaker 115 kV ring bus. Install a temporary 230/115 kV transformer at Bremo substation for the interim until the new substation is complete		Dominion (100%)
b2990	Chesterfield to Basin 230 kV line – Replace 0.14 miles of 1109 ACAR with a conductor which will increase the line rating to approximately 706 MVA		Dominion (100%)
b2991	Chaparral to Locks 230 kV line – Replace breaker lead		Dominion (100%)
b2994	Acquire land and build a new switching station (Skippers) at the tap serving Brink DP with a 115 kV four breaker ring to split Line #130 and terminate the end points		Dominion (100%)
b3018	Rebuild Line #49 between New Road and Middleburg substations with single circuit steel structures to current 115 kV standards with a minimum summer emergency rating of 261 MVA		Dominion (100%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3019	Rebuild 500 kV Line #552 Bristers to Chancellor – 21.6 miles long		**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%)
			DFAX Allocation: Dominion (89.20%) / PEPCO (10.80%)
b3019.1	Update the nameplate for Morrisville 500 kV breaker "H1T594" to be 50kA		Dominion (100%)
b3019.2	Update the nameplate for Morrisville 500 kV breaker "H1T545" to be 50kA		Dominion (100%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3020	Rebuild 500 kV Line #574 Ladysmith to Elmont – 26.2 miles long		**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%)
			DFAX Allocation: APS (16.36%) / DEOK (11.61%) / Dominion (51.27%) / EKPC (5.30%) / PEPCO (15.46%)
b3021	Rebuild 500 kV Line #581 Ladysmith to Chancellor – 15.2 miles long		**Load-Ratio Share Allocation:** AEC (*1.71*%) / AEP (*14.04*%) / APS (*5.61*%) / ATSI (*8.10*%) / BGE (*4.36*%) / ComEd (*13.14*%) / Dayton (*2.15*%) / DEOK (*3.23*%) / DL (*1.73*%) / DPL (*2.65*%) / Dominion (*13.03*%) / EKPC (*1.77*%) / JCPL (*3.84*%) / ME (*1.93*%) / NEPTUNE* (*0.45*%) / OVEC (*0.07*%) / PECO (*5.29*%) / PENELEC (*1.89*%) / PEPCO (*3.82*%) / PPL (*4.72*%) / PSEG (*6.21*%) / RE (*0.26*%)
			DFAX Allocation: Dominion (100%)
b3026	Reconductor Line #274 (Pleasant View – Ashburn – Beaumeade 230 kV) with a minimum rating of 1200 MVA. Also upgrade terminal equipment		Dominion (100%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3027.1	Add a 2nd 500/230 kV 840 MVA transformer at Dominion's Ladysmith substation		Dominion (100%)
b3027.2	Reconductor 230 kV Line #2089 between Ladysmith and Ladysmith CT substations to increase the line rating from 1047 MVA to 1225 MVA		Dominion (100%)
b3027.3	Replace the Ladysmith 500 kV breaker "H1T581" with 50kA breaker		Dominion (100%)
b3027.4	Update the nameplate for Ladysmith 500 kV breaker "H1T575" to be 50kA breaker		Dominion (100%)
b3027.5	Update the nameplate for Ladysmith 500 kV breaker "568T574" (will be renumbered as "H2T568") to be 50kA breaker		Dominion (100%)
b3055	Install spare 230/69 kV transformer at Davis substation		Dominion (100%)
b3056	Partial rebuild 230 kV Line #2113 Waller to Lightfoot		Dominion (100%)
b3057	Rebuild 230 kV Lines #2154 and #19 Waller to Skiffes Creek		Dominion (100%)
b3058	Partial rebuild of 230 kV Lines #265, #200 and #2051		Dominion (100%)
b3059	Rebuild 230 kV Line #2173 Loudoun to Elklick		Dominion (100%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3060	Rebuild 4.6 mile Elklick – Bull Run 230 kV Line #295 and the portion (3.85 miles) of the Clifton – Walney 230 kV Line #265 which shares structures with Line #295		Dominion (100%)
b3088	Rebuild 4.75 mile section of Line #26 between Lexington and Rockbridge with a minimum summer emergency rating of 261 MVA		Dominion (100%)
b3089	Rebuild 230 kV Line #224 between Lanexa and Northern Neck utilizing double circuit structures to current 230 kV standards. Only one circuit is to be installed on the structures with this project with a minimum summer emergency rating of 1047 MVA		Dominion (100%)
b3090	Convert the overhead portion (approx. 1500 feet) of 230 kV Lines #248 & #2023 to underground and convert Glebe substation to gas insulated substation		Dominion (100%)
b3096	Rebuild 230 kV line No.2063 (Clifton – Ox) and part of 230 kV line No.2164 (Clifton – Keene Mill) with double circuit steel structures using double circuit conductor at current 230 kV northern Virginia standards with a minimum rating of 1200 MVA		Dominion (100%)
b3097	Rebuild 4 miles of 115 kV Line #86 between Chesterfield and Centralia to current standards with a minimum summer emergency rating of 393 MVA		Dominion (100%)
b3098	Rebuild 9.8 miles of 115 kV Line #141 between Balcony Falls and Skimmer and 3.8 miles of 115 kV Line #28 between Balcony Falls and Cushaw to current standards with a minimum rating of 261 MVA		Dominion (100%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3098.1	Rebuild Balcony Falls 115 kV substation		Dominion (100%)
b3110.1	Rebuild Line #2008 between Loudoun to Dulles Junction using single circuit conductor at current 230 kV northern Virginia standards with minimum summer ratings of 1200 MVA. Cut and loop Line #265 (Clifton – Sully) into Bull Run substation. Add three (3) 230 kV breakers at Bull Run to accommodate the new line and upgrade the substation		Dominion (100%)
b3110.2	Replace the Bull Run 230 kV breakers "200T244" and "200T295" with 50 kA breakers		Dominion (100%)
b3110.3	Replace the Clifton 230 kV breakers "201182" and "XT2011" with 63 kA breakers		Dominion (100%)
b3113	Rebuild approximately 1 mile of 115 kV Lines #72 and #53 to current standards with a minimum summer emergency rating of 393 MVA. The resulting summer emergency rating of Line #72 segment from Brown Boveri to Bellwood is 180 MVA. There is no change to Line #53 ratings		Dominion (100%)
b3114	Rebuild the 18.6 mile section of 115 kV Line #81 which includes 1.7 miles of double circuit Line #81 and 230 kV Line #2056. This segment of Line #81 will be rebuilt to current standards with a minimum rating of 261 MVA. Line #2056 rating will not change		Dominion (100%)
b3121	Rebuild Clubhouse – Lakeview 230 kV Line #254 with single-circuit wood pole equivalent structures at the current 230 kV standard with a minimum rating of 1047 MVA		Dominion (100%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b3122	Rebuild Hathaway – Rocky Mount (Duke Energy Progress) 230 kV Line #2181 and Line #2058 with double circuit steel structures using double circuit conductor at current 230 kV standards with a minimum rating of 1047 MVA		Dominion (100%)
b3161.1	Split Chesterfield-Plaza 115 kV Line No. 72 by rebuilding the Brown Boveri tap line as double circuit loop in-and-out of the Brown Boveri Breaker station		Dominion (100%)
b3161.2	Install a 115 kV breaker at the Brown Boveri Breaker station. Site expansion is required to accommodate the new layout		Dominion (100%)
b3162	Acquire land and build a new 230 kV switching station (Stevensburg) with a 224 MVA, 230/115 kV transformer. Gordonsville-Remington 230 kV Line No. 2199 will be cut and connected to the new station. Remington-Mt. Run 115 kV Line No.70 and Mt. Run-Oak Green 115 kV Line No. 2 will also be cut and connected to the new station		Dominion (100%)
b3211	Rebuild the 1.3 mile section of 500 kV Line No. 569 (Loudoun – Morrisville) with single-circuit 500 kV structures at the current 500 kV standard. This will increase the rating of the line to 3424 MVA		Dominion (100%)
b3213	Install 2nd Chickahominy 500/230 kV transformer		Dominion (100%)
b3213.1	Replace the eight (8) Chickahominy 230 kV breakers with 63 kA breakers: “SC122”, “205022”, “209122”, 210222-2”, “28722”, “H222”, “21922” and “287T2129”		Dominion (100%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3223.1	Install a second 230 kV circuit with a minimum summer emergency rating of 1047 MVA between Lanexa and Northern Next substations. The second circuit will utilize the vacant arms on the double-circuit structures that are being installed on Line #224 (Lanexa – Northern Next) as part of the End-of-Life rebuild project (b3089)		Dominion (100%)
b3223.2	Expand the Northern Neck terminal from a 230 kV, 4-breaker ring bus to a 6-breaker ring bus		Dominion (100%)
b3223.3	Expand the Lanexa terminal from a 6-breaker ring bus to a breaker-and-a-half arrangement		Dominion (100%)
b3246.1	Convert 115 kV Line #172 Liberty – Lomar and 115 kV Line #197 Cannon Branch – Lomar to 230 kV to provide a new 230 kV source between Cannon Branch and Liberty. The majority of 115 kV Line #172 Liberty – Lomar and Line #197 Cannon Branch – Lomar is adequate for 230 kV operation. Rebuild 0.36 mile segment between the Lomar and Cannon Branch junction. Lines will have a summer rating of 1047MVA/1047MVA (SN/SE)		Dominion (100%)
b3246.2	Perform substation work for the 115 kV to 230 kV line conversion at Liberty, Wellington, Godwin, Pioneer, Sandlot and Cannon Branch		Dominion (100%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3246.3	Extend 230 kV Line #2011 Cannon Branch – Clifton to Winters Branch by removing the existing Line #2011 termination at Cannon Branch and extending the line to Brickyard creating 230 kV Line #2011 Brickyard - Clifton. Extend a new 230 kV line between Brickyard and Winters Branch with a summer rating of 1572MVA/1572MVA (SN/SE)		Dominion (100%)
b3246.4	Perform substation work at Cannon Branch, Brickyard and Winters Branch for the 230 kV Line #2011 Cannon Branch – Clifton extension		Dominion (100%)
b3246.5	Replace the Gainesville 230 kV 40 kA breaker "216192" with a 50 kA breaker		Dominion (100%)
b3247	Replace 13 towers with galvanized steel towers on Doubs – Goose Creek 500 kV. Reconductor 3 mile section with three (3) 1351.5 ACSR 45/7. Upgrade line terminal equipment at Goose Creek substation to support the 500 kV line rebuild		**Load-Ratio Share Allocation:** AEC (1.71%) / AEP (14.04%) / APS (5.61%) / ATSI (8.10%) / BGE (4.36%) / ComEd (13.14%) / Dayton (2.15%) / DEOK (3.23%) / DL (1.73%) / DPL (2.65%) / Dominion (13.03%) / EKPC (1.77%) / JCPL (3.84%) / ME (1.93%) / NEPTUNE* (0.45%) / OVEC (0.07%) / PECO (5.29%) / PENELEC (1.89%) / PEPCO (3.82%) / PPL (4.72%) / PSEG (6.21%) / RE (0.26%) **DFAX Allocation:** Dominion (100%)
b3300	Reconductor 230 kV Line #2172 from Brambleton to Evergreen Mills along with upgrading the line leads at Brambleton to achieve a summer emergency rating of 1574 MVA		Dominion (100%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3301	Reconductor 230 kV Line #2210 from Brambleton to Evergreen Mills along with upgrading the line leads at Brambleton to achieve a summer emergency rating of 1574 MVA		Dominion (100%)
b3302	Reconductor 230 kV Line #2213 from Cabin Run to Yardley Ridge along with upgrading the line leads at Yardley to achieve a summer emergency rating of 1574 MVA		Dominion (100%)
b3303.1	Extend a new single circuit 230 kV Line #9250 from Farmwell substation to Nimbus substation		Dominion (100%)
b3303.2	Remove Beaumeade 230 kV Line #2152 line switch		Dominion (100%)
b3304	Midlothian area improvements for 300 MW load drop relief		Dominion (100%)
b3304.1	Cut 230 kV Line #2066 at Trabue junction		Dominion (100%)
b3304.2	Reconductor idle 230 kV Line #242 (radial from Midlothian to Trabue junction) to allow a minimum summer rating of 1047 MVA and connect to the section of 230 kV Line #2066 between Trabue junction and Winterpock, re-number 230 kV Line #242 structures to Line #2066		Dominion (100%)
b3304.3	Use the section of idle 115 kV Line #153, between Midlothian and Trabue junction to connect to the section of (former) 230 kV Line #2066 between Trabue junction and Trabue to create new Midlothian – Trabue lines with new line numbers #2218 and #2219		Dominion (100%)
b3304.4	Create new line terminations at Midlothian for the new Midlothian – Trabue 230 kV lines		Dominion (100%)

SCHEDULE 12 – APPENDIX A

(23) American Transmission Systems, Inc.

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2019.2	Terminate Burger – Longview 138 kV, Burger – Brookside 138 kV, Burger – Cloverdale 138 kV #1, and Burger – Harmon 138 kV #2 into Holloway substation; Loop Burger – Harmon #1 138 kV and Burger – Knox 138 kV into Holloway substation		ATSI (100%)
b2019.3	Reconfigure Burger 138 kV substation to accommodate two 138 kV line exits and generation facilities		ATSI (100%)
b2019.4	Remove both Burger 138 kV substations (East and West 138 kV buses) and all 138 kV lines on the property		ATSI (100%)
b2019.5	Terminate and de-energize the 138 kV lines on the last structure before the Burger Plant property		ATSI (100%)
b2122.1	Reconductor the ATSI portion of the Howard – Brookside 138 kV line		ATSI (100%)
b2122.2	Upgrade terminal equipment at Brookside on the Howard – Brookside 138 kV line to achieve ratings of 252/291 (SN/SE)		ATSI (100%)
b2188	Revise the reclosing for the Bluebell 138 kV breaker '301-B-94'		ATSI (100%)
b2192	Replace the Longview 138 kV breaker '651-B-32'		ATSI (100%)
b2193	Replace the Lowellville 138 kV breaker '1-10-B 4'		ATSI (100%)

American Transmission Systems, Inc. (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2195	Replace the Roberts 138 kV breaker '601-B-60'		ATSI (100%)
b2196	Replace the Sammis 138 kV breaker '780-B-76'		ATSI (100%)
b2262	New Castle Generating Station – Relocate 138kV, 69kV, and 23kV controls from the generating station building to new control building		ATSI (100%)
b2263	Niles Generation Station – Relocate 138kV and 23kV controls from the generation station building to new control building		ATSI (100%)
b2265	Ashtabula Generating Station – Relocate 138kV controls from the generating station building to new control building		ATSI (100%)
b2284	Increase the design operating temperature on the Cloverdale – Barberton 138kV line		ATSI (100%)
b2285	Increase the design operating temperature on the Cloverdale – Star 138kV line		ATSI (100%)
b2301	Reconductor 0.7 miles of 605 ACSR conductor on the Beaver Black River 138kV line		ATSI (100%)
b2301.1	Wave trap and line drop replacement at Beaver (312/380 MVA SN/SE)		ATSI (100%)
b2349	Replace the East Springfield 138kV breaker 211-B-63 with 40kA		ATSI (100%)
b2367	Replace the East Akron 138kV breaker 36-B-46 with 40kA		ATSI (100%)

American Transmission Systems, Inc. (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2413	Replace a relay at McDowell 138 kV substation		ATSI (100%)
b2434	Build a new London – Tangy 138 kV line		ATSI (100%)
b2435	Build a new East Springfield – London #2 138 kV line		*Dayton* (100%)
b2459	Install +260/-150 MVAR SVC at Lake Shore		ATSI (100%)
b2492	Replace the Beaver 138 kV breaker '426-B-2' with 63kA breaker		ATSI (100%)
b2493	Replace the Hoytdale 138kV breaker '83-B-30' with 63kA breaker		ATSI (100%)
b2557	At Avon substation, replace the existing 345/138 kV 448 MVA #92 transformer with a 560 MVA unit		ATSI (100%)
b2558	Close normally open switch A 13404 to create a Richland J Bus – Richland K Bus 138 kV line		ATSI (100%)
b2559	Reconductor the Black River – Lorain 138 kV line and upgrade Black River and Lorain substation terminal end equipment		ATSI (100%)
b2560	Construct a second 138 kV line between West Fremont and Hayes substation on open tower position of the West Fremont –Groton –Hayes 138 kV line		ATSI (100%)
b2616	Addition of 4th 345/138 kV transformer at Harding		ATSI (100%)

American Transmission Systems, Inc. (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2673	Rebuild the existing double circuit tower line section from Beaver substation to Brownhelm Jct. approx. 2.8 miles		ATSI (100%)
b2674	Rebuild the 6.6 miles of Evergreen to Ivanhoe 138 kV circuit with 477 ACSS conductor		ATSI (100%)
b2675	Install 26.4 MVAR capacitor and associated terminal equipment at Lincoln Park 138 kV substation		ATSI (100%)
b2725	Build new 345/138 kV Lake Avenue substation w/ breaker and a half high side (2 strings), 2-345/138 kV transformers and breaker and a half (2 strings) low side (138 kV). Substation will tie Avon – Beaver 345 kV #1/#2 and Black River – Johnson #1/#2 lines		ATSI (100%)
b2725.1	Replace the Murray 138 kV breaker '453-B-4' with 40kA breaker		ATSI (100%)
b2742	Replace the Hoytdale 138 kV '83-B-26' and '83-B-30' breakers with 63kA breakers		ATSI (100%)
b2753.4	Double capacity for 6 wire "Burger-Cloverdale No. 2" 138 kV line and connect at Holloway and "Point A"		ATSI (100%)
b2753.5	Double capacity for 6 wire "Burger-Longview" 138 kV line and connect at Holloway and "Point A"		ATSI (100%)
b2778	Add 2nd 345/138 kV transformer at Chamberlin substation		ATSI (100%)
b2780	Replace Bruce Mansfield 345 kV breaker 'B57' with an 80 kA breaker, and associated gang-operated disconnect switches D56 and D58		ATSI (100%)

American Transmission Systems, Inc. (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2869	Replace the Crossland 138 kV breaker "B-16" with a 40kA breaker		ATSI (100%)
b2875	Relocate the Richland to Ridgeville 138 kV line from Richland J bus to K, extend the K bus and install a new breaker		ATSI (100%)
b2896	Rebuild/Reconductor the Black River – Lorain 138 kV circuit		ATSI (100%)
b2897	Reconductor the Avon – Lorain 138 kV section and upgrade line drop at Avon		ATSI (100%)
b2898	Reconductor the Beaver – Black River 138 kV with 954Kcmil ACSS conductor and upgrade terminal equipment on both stations		ATSI (100%)
b2942.1	Install a 100 MVAR 345 kV shunt reactor at Hayes substation		ATSI (100%)
b2942.2	Install a 200 MVAR 345 kV shunt reactor at Bayshore substation		ATSI (100%)
b2972	Reconductor limiting span of Lallendorf – Monroe 345 kV		MISO (11.00%) / AEP (5.38%) / APS (4.27%) / ATSI (66.48%) / Dayton (2.71%) / Dominion (5.31%) / DL (4.85%)
b3031	Transfer load off of the Leroy Center - Mayfield Q2 138 kV line by reconfiguring the Pawnee substation primary source, via the existing switches, from the Leroy Center - Mayfield Q2 138 kV line to the Leroy Center - Mayfield Q1 138 kV line		ATSI (100%)

American Transmission Systems, Inc. (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3032	Greenfield - NASA 138 kV terminal upgrades: NASA substation, Greenfield exit: Revise CT tap on breaker B22 and adjust line relay settings; Greenfield substation, NASA exit: Revise CT tap on breaker B1 and adjust line relay settings; replace 336.4 ACSR line drop with 1033.5 AL		ATSI (100%)
b3033	Ottawa – Lakeview 138 kV reconductor and substation upgrades		ATSI (100%)
b3034	Lakeview – Greenfield 138 kV reconductor and substation upgrades		ATSI (100%).
b3066	Reconductor the Cranberry – Jackson 138 kV line (2.1 miles), reconductor 138 kV bus at Cranberry bus and replace 138 kV line switches at Jackson bus		ATSI (100%)
b3067	Reconductor the Jackson – Maple 138 kV line (4.7 miles), replace line switches at Jackson 138 kV and replace the line traps and relays at Maple 138 kV bus		ATSI (100%)
b3080	Reconductor the 138 kV bus at Seneca		ATSI (100%)
b3081	Replace the 138 kV breaker and reconductor the 138 kV bus at Krendale		ATSI (100%)

American Transmission Systems, Inc. (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3123	At Sammis 345 kV station: Install a new control building in the switchyard, construct a new station access road, install new switchyard power supply to separate from existing generating station power service, separate all communications circuits, and separate all protection and controls schemes		ATSI (100%)
b3124	Separate metering, station power, and communication at Bruce Mansfield 345 kV station		ATSI (100%)
b3127	At Bay Shore 138 kV station: Install new switchyard power supply to separate from existing generating station power service, separate all communications circuits, and construct a new station access road		ATSI (100%)
b3152	Reconductor the 8.4 mile section of the Leroy Center – Mayfield Q1 line between Leroy Center and Pawnee Tap to achieve a rating of at least 160 MVA / 192 MVA (SN/SE)		ATSI (100%)
b3234	Extend both the east and west 138 kV buses at Pine substation, and install one (1) 138 kV breaker, associated disconnect switches, and one (1) 100 MVAR reactor		ATSI (100%)
b3235	Extend 138 kV bus work to the west of Tangy substation for the addition of the 100 MVAR reactor bay and one (1) 138 kV 40 kA circuit breaker		ATSI (100%)
b3236	Extend the Broadview 138 kV bus by adding two (2) new breakers and associated equipment and install a 75 MVAR reactor		ATSI (100%)

American Transmission Systems, Inc. (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3277	Replace the existing East Akron 138 kV breaker 'B-22' with 3000A continuous, 40 kA momentary current interrupting rating circuit breaker		ATSI (100%)

SCHEDULE 12 – APPENDIX A

(25) East Kentucky Power Cooperative, Inc.

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2066	Upgrade the operating temperature of the existing conductor for the JK Smith - Union City - Lake Reba Tap 138 kV line		EKPC (100%)
b2309	Upgrade the bus and jumpers with 750 MCM copper conductor at Green County 69 kV substation		EKPC (100%)
b2310	Increase the maximum operating temperature of the North Springfield - South Springfield 69 kV line to 167 degrees Fahrenheit		EKPC (100%)
b2311	Increase the maximum operating temperature of the Loretto - Sulphur Creek 69 kV line to 167 degrees Fahrenheit		EKPC (100%)
b2312	Increase the maximum operating temperature of the South Springfield - Loretto 69 kV line to 167 degrees Fahrenheit		EKPC (100%)
b2313	Construct 8.8 miles of 69 kV line between the Cave City and Bon Ayr distribution substations. Operate this line normally open		EKPC (100%)
b2314.1	Construct 8.6 miles of 69 kV line between the Mercer County Industrial and Van Arsdell distribution substation. Construct a new 69 kV switching station adjacent to Bonds Bill Substation. Loop NorthSpringfield - Van Arsdell 69 kV line through South Anders		EKPC (100%)

East Kentucky Power Cooperative, Inc. (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2314.2	Construct a new 69 kV switching station ("South Anderson") adjacent to the LGE/KU Bonds Mill substation		EKPC (100%)
b2314.3	Loop the North Springfield - Van Arsdell 69 kV line through South Anderson. Terminate the existing 69 kV to the LGE/KU Bonds Mill substation at South Anderson and establish a second 69 kV from S. Anderson to the LGE/KU Bonds Mill sub		EKPC (100%)
b2314.4	Construct 0.12 miles of 69 kV line from South Anderson to the Powell Taylor distribution substation and serve this substation radially from South Anderson		EKPC (100%)
b2315	Increase the size of the existing HT Adams 69 kV, 7.2 MVAR capacitor bank to 14.28 MVAR		EKPC (100%)
b2316	Increase the size of the existing Hunt Farm Junction 69 kV, 8.2 MVAR capacitor bank to 16.33 MVAR		EKPC (100%)
b2317	Construct 10.9 miles of 69 kV line between the Owen County substation and the Keith distribution substation. Operate the existing Penn - Keith 69 kV line normally - open		EKPC (100%)

East Kentucky Power Cooperative, Inc. (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2318	Construct 2.7 miles of 69 kV line between the Fox Hollow substation and the Parkway distribution substations. Serve the Parkway #1 and #2 distribution substations radially from Fox Hollow. Operate the Cave City - Bon Ayr 69 kV line normally - closed		EKPC (100%)
b2319	Increase the maximum operating temperature of the Helechawa - Sublett 69 kV line to 167 degrees Fahrenheit		EKPC (100%)
b2320	Install a 69 kV, 15.31 MVAR capacitor bank at the Perryville substation		EKPC (100%)
b2321	Install a 69 kV, 25.51 MVAR capacitor bank at the Veechdale substation		EKPC (100%)
b2322	Change the CT setting on circuit breaker N35 - 804 at Dale Station to at least 800 amps to increase the relay loadability on the Dale - Three Forks 138 kV line to at least 282 MVA		EKPC (100%)
b2323	Rebuild the existing Cynthiana - Headquarters 69 kV line using 556.5 MCM ACSR conductor and operate this line normally closed		EKPC (100%)
b2324	Remove the existing 1200 - amp line traps at JK Smith and Dale associated with the JK Smith - Dale 138 kV line		EKPC (100%)

East Kentucky Power Cooperative, Inc. (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2325	Increase the maximum operating temperature of the Glendale - Hodgenville 69 kV line to 212 degrees Fahrenheit		EKPC (100%)
b2326	Increase the maximum operating temperature of the Fayette - Davis 69 kV line to 248 degrees Fahrenheit		EKPC (100%)
b2327	Increase the maximum operating temperature of the Boone - Boone Distribution 69 kV line to 302 degrees Fahrenheit		EKPC (100%)
b2328	Increase the maximum operating temperature of the West Bardstown Junction - West Bardstown 69 kV line to 284 degrees Fahrenheit		EKPC (100%)
b2329	Increase the maximum operating temperature of the Magnolia - Summersville 69 kV line to 167 degrees Fahrenheit		EKPC (100%)
b2330	Increase the maximum operating temperature of the Bacon Creek - Liberty Church 69 kV line to 212 degrees Fahrenheit		EKPC (100%)
b2331	Increase the maximum operating temperature of the Headquarters - Millersburg Junction 69 kV line to 167 degrees Fahrenheit		EKPC (100%)
b2332	Increase the maximum operating temperature of the JK Smith - Dale 138 kV line to 275 degrees Fahrenheit		EKPC (100%)

East Kentucky Power Cooperative, Inc. (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2333	Increase the maximum operating temperature of the Elizabethtown - Tunnel Hill 69 kV line to 284 degrees Fahrenheit		EKPC (100%)
b2334	Install a 69 kV, 28.06 MVAR capacitor bank at the Owen County substation		EKPC (100%)
b2335	Install a 69 kV, 14.29 MVAR capacitor bank at the Magoffin County substation		EKPC (100%)
b2336	Increase the maximum operating temperature of the South Corbin - Bacon Creek 69 kV line to 212 degrees Fahrenheit		EKPC (100%)
b2337	Increase the size of the existing Cedar Grove 69 kV, 10.8 MVAR capacitor bank to 20.41 MVAR		EKPC (100%)
b2339	Upgrade the 4/0 copper bus and jumpers at the Nelson County substation associated with the Nelson County - West Bardstown Junction 69 kV line using 500 MCM copper or equivalent equipment		EKPC (100%)
b2340	Increase the Zone 3 distance relay setting at Barren County associated with the Barren County - Horse Cave Tap 69 kV line to at least 85 MVA		EKPC (100%)
b2414	Build the 2nd Summer Shade EKPC - Summer Shade TVA 161 kV circuit		EKPC (100%)
b2544	Increase the MOT of the 266.8 MCM ACSR section (1.4 miles), of the Kargle-KU Elizabethtown 69 kV line section to 266 degrees F		EKPC (100%)

East Kentucky Power Cooperative, Inc. (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2614	Decouple the double-circuited Spurlock – Maysville Industrial Tap 138-kV & Spurlock – Flemingsburg 138-kV line segments		EKPC (100%)
b2615	Upgrade the Bullitt County 161/69 kV transformer facility		EKPC (100%)
b2655	Increase the size of the existing Leon 69 kV capacitor bank from 13.2 MVAR to 18.36 MVAR		EKPC (100%)
b2656	Reconductor the Leon – Airport Road 69 kV line section (5.72 miles) using 556.5 MCM ACTW conductor		EKPC (100%)
b2657	Add 69 kV breaker at Thelma – AEP Thelma 69 kV tie		EKPC (100%)
b2658	Increase the zone 3 distance relay setting at Barren County associated with the Barren County – Horse Cave Junction line to at least 103 MVA		EKPC (100%)
b2659	Rebuild the Seymour Tap – KU Horse Cave Tap 69 kV line section (1.98 miles) to 302 degrees F		EKPC (100%)
b2660	Increase the zone 3 distance relay setting at Elizabethtown associated with the Elizabethtown – Smithersville line section to at least 100 MVA		EKPC (100%)
b2661	Reconductor the Baker Lane – Holloway Junction 69 kV (1.28 miles) line section using 556.5 MCM ACTW wire		EKPC (100%)

East Kentucky Power Cooperative, Inc. (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2662	Increase the maximum operating temperature of the Hickory Plains – PPG 69 kV line section (0.21 miles) to 266 degrees F		EKPC (100%)
b2663	Increase the zone 3 distance relay setting at EKPC Elizabethtown associated with the EKPC Elizabethtown to KU Elizabethtown 69 kV line to at least 126 MVA		EKPC (100%)
b2664	Increase the maximum operating temperature of the Tharp Tap – KU Elizabethtown 69 kV line section (2.11 miles) to 266 degrees F. (LTE at 248 degrees F)		EKPC (100%)
b2710	Upgrade the Summer Shade bus and CT associated with the 161/69 kV transformer #1		EKPC (100%)
b2711	Install 25.5 MVAR 69 kV capacitor at Sewellton Junction 69 kV substation		EKPC (100%)
b2730	Upgrade Denny – Gregory Tap 69 kV line facility		EKPC (100%)
b2781	Increase maximum operating temperature of Davis – Nicholasville 69 kV line section 266.8 MCM conductor to 284°F (LTE of 266°F)		EKPC (100%)
b2782	Increase the maximum operating temperature of Plumville – Rectorville 69 kV line section 266.8 MCM conductor to 212°F (LTE of 185°F)		EKPC (100%)
b2783	Rebuild the Davis – Fayette 69 kV line section to 556.5 MCM (3.15 miles)		EKPC (100%)

East Kentucky Power Cooperative, Inc. (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2784	Increase overcurrent relay at West Berea 138/69 kV to at least 139 MVA Winter LTE		EKPC (100%)
b2785	Install a 13.776 MVAR cap bank at Three Links 69 kV		EKPC (100%)
b2786	Increase Williamstown cap bank to 11.225 MVAR		EKPC (100%)
b2827	Upgrade the current 5% impedance 1200A line reactor, which connects the 4SPURLOCK – 4SPUR-KENT-R and 4SPUR-KENT-R – 4KENTON 138kV line sections, to a 6.5% impedance 1600A line reactor		EKPC (100%)
b2879.2	Reconductor EKPC portion of the Stuart – Spurlock 345 kV line		EKPC (100%)
b2893	Rebuild the existing (1.5 mile), 1/0 MCM ACSR South Bardstown – West Bardstown Jct. 69 kV line using 556.5 MCM ACTW conductor		EKPC (100%)
b2902	Rebuild the Brodhead – Three Links Jct. 69 kV line section (8.2 miles) using 556.5 MCM ACTW wire		EKPC (100%)
b2903	Raise the V-low setting for Summer Shade 69 kV cap bank to 1.01 pu		EKPC (100%)
b2904	Raise the V-low setting for Newby 69 kV cap bank to 0.955 pu		EKPC (100%)
b2905	Resize the Albany 69 kV capacitor bank from 8.4 to 13.776 MVAR		EKPC (100%)

East Kentucky Power Cooperative, Inc. (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2906	Increase the Zone 3 distance relay setting at Baker Lane associated with the Baker Lane - Holloway Jct. 69 kV line to at least 142 MVA LTE Winter		EKPC (100%)
b2907	Upgrade the metering CT associated with the Clay Village - KU Clay Village 69 kV tap line section to 600 A; at least 64 MVA Winter LTE. Upgrade the distance relay associated with the Clay Village - KU Clay Village 69 kV tap line section to at least 64 MVA		EKPC (100%)
b2908	Upgrade the distance relay associated with Dale – JK Smith 138 kV line section to 362 MVA normal rating		EKPC (100%)
b2909	Increase the MOT of the EKPC Elizabethtown – Tharp Tap 69 kV line section (1.7 miles) to 302°F (LTE at 284°F)		EKPC (100%)
b2910	Upgrade the distance relay at the Hodgenville station associated with the Glendale – Hodgenville 69 kV line section to at least 90 MVA Winter LTE		EKPC (100%)
b2911	Upgrade the overcurrent relay setting associated with Powell County 138/69 kV transformer to at least 139 MVA Winter LTE		EKPC (100%)
b2912	Upgrade the existing S408-605, 600 A KU Russell Springs Tap – Russell County 69 kV disconnect switch to 1200 A		EKPC (100%)

East Kentucky Power Cooperative, Inc. (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2913	Upgrade distance relay at the Stephensburg station associated with Stephensburg – Glendale 69 kV line section to at least Winter LTE 100 MVA		EKPC (100%)
b2914	Rebuild Tharp Tap – KU Elizabethtown 69 kV line section to 795 MCM (2.11 miles)		EKPC (100%)
b2915	Resize the sideview 69 kV capacitor bank from 6.12 MVAR to 9.18 MVAR		EKPC (100%)
b2916	Upgrade the existing metering CTs (Quantity of 2) associated with the East Bardstown - KU Bardstown Industrial Tap 69 kV line section to 1200 A, at least 100 MVA Winter LTE; and upgrade the existing East Bardstown bus and jumpers from 4/0 to 500 MCM copper		EKPC (100%)
b2917	Replace the existing 100 MVA 138/69 kV transformer bank at the West Berea substation with a 150 MVA transformer		EKPC (100%)
b2918	Upgrade the 4/0 bus and jumpers associated with the West Berea Jct. – Three Links Jct. 69 kV line to 500 MCM copper or equivalent equipment at the Three Links Jct. substation		EKPC (100%)
b2919	Install a 69 kV, 15.31 MVAR capacitor bank at South Anderson substation		EKPC (100%)
b2920	Rebuild Boone - Big Bone Tap 69 kV line section using 556.5 MCM ACTW conductor (6.3 miles)		EKPC (100%)

East Kentucky Power Cooperative, Inc. (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2921	New TVA 161 kV interconnection to TVA's East Glasgow Tap - East Glasgow 161 kV line section (~1 mile due West of Fox Hollow). Add Fox Hollow 161/69 kV 150 MVA transformer. Construct new Fox Hollow - Fox Hollow Jct. 161 kV line section using 795 MCM ACSR (~1 mile) and new 161 kV switching station at point of interconnection with TVA		EKPC (100%)
b2939	Increase the conductor MOT for the Dale – JK Smith 138 kV line to 275°F. The new summer ratings would be 229/296		EKPC (100%)
b2940	Upgrade the distance relay on the Wayne Co – Wayne Co KY 161 kV line to increase the line winter rating would be 167/167		EKPC (100%)
b3044	Increase the MOT of the double circuit Cooper – Somerset 69 kV line 266.8 MCM conductor from 212°F to 266°F		EKPC (100%)
b3045	Increase the MOT of Liberty Church tap – Bacon Creek tap 69 kV line 266.8 MCM conductor from 212°F to 266°F		EKPC (100%)
b3046	Increase the MOT of Summer Shade – JB Galloway Jct. 69 kV line 266.8 MCM conductor from 167°F to 212°F		EKPC (100%)

East Kentucky Power Cooperative, Inc. (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b3047	Upgrade the existing 4/0 CU line jumpers with double 500 MCM CU associated with the Green Co - KU Green Co 69 kV line section. Also, replace the existing 600 A disconnect switches with 1200 A associated with the Green Co 161/69 kV transformer		EKPC (100%)
b3094	Move 69 kV 12.0 MVAR capacitor bank from Greenbriar to Bullitt Co 69 kV substation		EKPC (100%)
b3266	Upgrade the metering CT associated with the Clay Village – Clay Village T 69 kV line section to increase the line ratings		EKPC (100%)
b3267	Rebuild the 4/0 ACSR Norwood – Shopville 69 kV line section using 556 ACSR/TW		EKPC (100%)