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January 5, 2018

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. ER18-614-000
[30-Day Comment Period Requested]

Dear Secretary Bose:

In accordance with PJM Open Access Transmission Tariff, Schedule 12 ("Tariff" or "Schedule 12")[1] and Amended and Restated Operating Agreement of PJM Interconnection, L.L.C., Schedule 6, section 1.6 ("Operating Agreement" or "Schedule 6"), and pursuant to section 205 of the Federal Power Act,[2] PJM Interconnection, L.L.C. ("PJM") hereby submits amendments to the Tariff, Schedule 12-Appendix A to incorporate cost responsibility assignments for 45 new baseline upgrades, including its first interregional transmission projects ("Targeted Market Efficiency Projects") between PJM and Midcontinent Independent System Operator, Inc. ("MISO") under the MISO-PJM Joint Operating Agreement ("MISO-PJM JOA"), in the recent update to the Regional Transmission Expansion Plan ("RTEP") approved by the PJM Board of Managers ("PJM Board") on December 6, 2017. PJM requests that the revised Tariff sections become effective on April 5, 2018, **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 ("RAA").

[2] 16 U.S.C. § 824d.

I. DESCRIPTION OF FILING

A. Description of the PJM Board Approved Updated RTEP Upgrades

On December 6, 2017, the PJM Board approved changes to the RTEP, which included approximately $350.45 million in additional baseline transmission enhancements and expansions.[3] With these approvals, the PJM Board has authorized a total of more than $35 billion in investments since 2000.

B. Schedule 12 Requirements to Designate Cost Responsibility Assignments

This filing represents PJM's forty-second filing of cost responsibility assignments for new RTEP baseline upgrades since the Federal Energy Regulatory Commission ("Commission") directed such filings under the Tariff, Schedule 12. Pursuant to Schedule 12, PJM is required to designate in the Tariff, Schedule 12-Appendix A cost responsibility assignments for all transmission enhancements and expansions included in the RTEP.[4] Similarly, Schedule 12 requires that within 30 days of the PJM Board's approval of each RTEP, or an addition to the RTEP, PJM shall designate in Schedule 12-Appendix A, and in a report filed with the Commission, the "Responsible Customers" that will be subject to charges related to transmission enhancements and expansions included in the RTEP.[5]

[3] The PJM Board also approved five interregional transmission projects known as Targeted Market Efficiency Projects between PJM and MISO as provided for under the MISO-PJM JOA. *See, supra* at 7. Four of the five Targeted Market Efficiency Projects are to be located in the MISO region. Therefore, the cost of the four Targeted Market Efficiency Projects to be located in the MISO region were not included in the $350.45 million.

[4] *See* Tariff, Schedule 12, § (b)(viii) (PJM "shall designate in the Schedule 12-Appendix A . . . the cost responsibility assignments determined pursuant to [§] (b)(i) through (v) of this Schedule 12.").

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

Schedule 12 further provides that customers designated to be responsible for assignments of cost responsibility 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.[6]

C. Description of Proposed Amendments to Schedule 12-Appendix A

On March 22, 2013, the Commission accepted revisions to Schedule 12 modifying the cost allocation methodologies for transmission projects included in the RTEP.[7] These revisions were filed by the PJM Transmission Owners in compliance with Order No. 1000 and revised the methodologies for allocating cost responsibility for all RTEP transmission enhancements and expansions, including reliability and economic projects, replacement projects, and high voltage direct current transmission projects. These revisions only apply to the cost allocations for projects included in the RTEP on a prospective basis and do not disturb the cost allocations for projects previously included in the RTEP. Therefore, the cost responsibility assignments for RTEP projects approved after the March 22 Order are segregated in a separate appendix from the previously-approved cost responsibility assignments for RTEP upgrades. Going forward, cost responsibility assignments for all new RTEP projects are located in Schedule 12-Appendix A.

As required by Schedule 12, PJM hereby submits amendments to Schedule 12-Appendix A to include the new cost responsibility assignments for RTEP upgrades approved by the PJM Board on December 6, 2017.[8] This is the eighteenth filing to include cost responsibility assignments following the March 22 Order in Schedule 12-Appendix A. The revised Tariff

[6] Tariff, Schedule 12, § (b)(viii).

[7] *PJM Interconnection, L.L.C., et al*., 142 FERC ¶ 61,214 at PP 411, 448 (2013) ("March 22 Order").

[8] *See* Tariff, Schedule 12, § (b)(viii).

sections containing new language, including new cost responsibility assignments, are reflected in redline and clean format in Attachments B and C, respectively, to this transmittal letter.[9]

1. Assignments of Cost Responsibility for Regional Facilities

On December 6, 2017, the PJM Board approved three new cost responsibility assignments for transmission enhancements and expansions that are Regional Facilities or Necessary Lower Voltage Facilities (collectively, "Regional Facilities") as defined in Tariff, Schedule 12, section (b)(i). However, baseline upgrades b2953 and 2954 are allocated 100 percent to the zone in which the facility is located as the estimated cost of each enhancement included for the first time in the RTEP does not equal or exceed $5 million.[10] Additionally, baseline upgrade b2960 qualifies as a Regional Facility but it is needed to address Form No. 715 criteria and, therefore, is allocated 100 percent to the zone of the transmission owner who filed the criteria.[11]

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

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

Consistent with the Tariff, Schedule 12, PJM submits amendments to the Tariff, Schedule 12-Appendix A to include the cost responsibility assignments for transmission enhancements and expansions that are not Regional Facilities ("Lower Voltage Facilities").[12] Twelve

[9] 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.

[10] *See, supra* at C.2b.

[11] *See supra* at C.2c.

[12] *See* Tariff, Schedule 12, § (b)(ii)(A) ("If the Lower Voltage Facility is a Reliability Project, [PJM] shall use the DFAX analysis described in § (b)(iii) of this Schedule 12 . . . .").

enhancements and expansions[13] included in this filing, approved by the PJM Board on December 6, 2017, are Lower Voltage Facilities required to address reliability needs for which PJM applied the DFAX analysis described in the Tariff, Schedule 12, section (b)(iii).

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

Schedule 12 section (b)(vi) provides that, notwithstanding the Schedule 12 sections (b)(i), (b)(ii), (b)(iv) and (b)(v), cost responsibility for an enhancement for which the good faith estimate of the cost of such enhancement included for the first time in the RTEP does not equal or exceed $5 million shall be assigned to the zone where the enhancement is to be located. Consistent with Schedule 12 section (b)(vi), PJM proposes revisions to Schedule 12-Appendix A to include cost responsibility assignments for 20 enhancements needed for reliability.[14] Therefore, consistent with Schedule 12 section (b)(vi), cost responsibility for such enhancements shall be allocated 100 percent to the zone of the Transmission Owner where the enhancements are to be located.

c. Cost Responsibility Assignments that Address Form 715 Local Planning Criteria

On February 12, 2016, the Commission accepted, effective May 25, 2015, the PJM Transmission Owners' proposal to allocate 100 percent of the costs of a certain category of RTEP projects, which would not otherwise be included in the RTEP but for the fact they address local transmission owner planning criteria, to the zone of the Transmission Owner that filed the

[13] The 12 Lower Voltage Facilities referenced include: b2761.3, b2952, b2955, b2956, b2959, b2965, b2967, b2970, b2970.1, b2970.2, b2970.3, and b2970.4.

[14] The upgrades allocated pursuant to Schedule 12, § (b)(vi) include the following reliability upgrades: b2752.8, b2752.9, b2946, b2947.1, b2947.2, b2948, b2950, b2951, b2951.2, b2951.3, b2953, b2954, b2962, b2963, b2964.1, b2964.2, b2966, b2968, and b2969.

criteria in its FERC Form No. 715.[15] Consistent with Schedule 12 section (b)(xv), which details the cost allocation methodology for projects selected solely to address Form 715 criteria, PJM proposes revisions to Schedule 12-Appendix A to include cost responsibility assignments for three lower voltage facility enhancements that solely address Form 715 local planning criteria.[16]

d. Cost Responsibility Assignments for Reliability Violations on Facilities Operating Below 200 kV that are Exempted from PJM's Competitive Proposal Window Process

On February 2, 2017, the Commission accepted, effective August 26, 2016, proposed revisions to the PJM Tariff, Schedule 12 and the PJM Operating Agreement at Schedule 6, submitted to comply with the Commission's August 26, 2016 order,[17] accepting PJM's April 1, 2016 filing[18] exempting from PJM's competitive proposal window process, except under certain circumstances, reliability violations on transmission facilities operating below 200 kV. In its September 26, 2016 compliance filing,[19] PJM, as authorized by the PJM Transmission Owners acting through the Consolidated Transmission Owners Agreement, proposed to amend Schedule 12 to include a new section (b)(xvi) to provide that solutions for reliability violations on a facility operating at or below 200 kV transmission facility not included in a competitive proposal window pursuant to section 1.5.8(c) of Schedule 6 of the Operating Agreement will be allocated to the zone in which the transmission facility is to be located. Consistent with Schedule 12 section (b)(xvi), which details the cost allocation methodology for transmission facilities operating at or below 200 kV that were not included in a competitive proposal window,

[15] *PJM Interconnection, L.L.C.,* 154 FERC ¶ 61,096 at P 13 (Feb. 12, 2016) ("February 12 Order").

[16] The following upgrades were selected solely to address Form 715 criteria: b2958.1, b2958.2, and b2961.

[17] *PJM Interconnection, L.L.C.*, 156 FERC ¶ 61,132 (Aug. 26, 2016) ("August 26 Order").

[18] *PJM Interconnection, L.L.C.*, Proposed Lower Voltage Threshold Exemption Filing Letter, Docket No. ER16-1335-000 (Apr. 1, 2016) ("April 1 Filing").

[19] *PJM Interconnection, L.L.C.*, Compliance Filing, ER16-1335-002 (Sept. 26, 2016).

PJM proposes revisions to Schedule 12-Appendix A to include cost responsibility assignments for two reliability enhancements operating at or below 200 kV that were not included in a competitive proposal window.[20]

3. Assignments of Cost Responsibility for Lower Voltage Facilities that Address Market Efficiency Criteria

This filing includes six upgrades that were approved by the PJM Board to address market efficiency needs. One of the market efficiency upgrades addresses regional needs.[21] The remaining five enhancements are interregional transmission projects identified as Targeted Market Efficiency Projects in the MISO-PJM JOA.[22]

a. Regional Market Efficiency Project

The cost responsibility assignment for the new enhancement or expansion to relieve one or more economic constraints to zones[23] that show a decrease in the net present value of the Changes in Load Energy and Capacity Payments are determined for the first 15 years of the life of the Economic Project. Cost Responsibility is assigned based on each zone's *pro rata* share of the sum of the net present values of the Changes in Load Energy and Capacity Payments only of the zones in which the net present value of the Changes in Load Energy and Capacity Payments show a decrease. The one regional market efficiency project b2976 approved by the PJM Board on December 6, 2017, was allocated 100 percent to the zone of the Transmission Owner in which the enhancement is to be located consistent with section (b)(vi) as the estimated cost of those upgrade are less than $5 million.

[20] The following upgrades are transmission facilities operating at or below 200 kV that were not included in a competitive proposal window: b2945.1, b2945.2 and b2945.3.

[21] The regional market efficiency upgrade is b2976.

[22] The Targeted Market Efficiency Projects include: b2971, b2972, b2973, b2974 and b2975.

[23] Economic constraints are described in the Operating Agreement, Schedule 6, § 1.5.7(b)(iii).

b. Interregional Market Efficiency Projects

On December 6, 2017, the PJM Board approved its first interregional transmission projects between the PJM and MISO referred to as Targeted Market Efficiency Projects.

PJM, MISO and their respective transmission owners first proposed revisions to the MISO-PJM JOA on December 30, 2016 to include a new category of interregional transmission projects referred as Targeted Market Efficiency Projects, as well as a method for allocating the costs of such projects between PJM and MISO.[24] Targeted Market Efficiency Projects were proposed to reduce current congestion on Reciprocal Coordinated Flowgates along the MISO-PJM border to benefit customers and improve coordination between the RTOs. The Targeted Market Efficiency Project process is a streamlined process focused on relatively small, low cost, short lead time upgrades to existing facilities intended to deliver "quick hit" solutions with a payback period of only four years.[25]

The method proposed to allocate costs of a Targeted Market Efficiency Project between the RTOs was based on each RTO's share of the expected benefits from the transmission project, i.e., each RTO's share of the total avoided congestion, as modified by market-to-market settlements. The filing parties also subsequently filed separate methods for allocating PJM's and MISO's share of the cost of a Targeted Market Efficiency Project within their respective regions. In Docket No. ER17-1406-000, the PJM Transmission Owners proposed to revise Schedule 12 of the PJM Tariff[26] to assign the costs of a Targeted Market Efficiency Project to the zones and

[24] *PJM Interconnection, L.L.C.*, Proposed Revisions to MISO-PJM JOA for Targeted Market Efficiency Projects, Docket No. ER17-718-000 (Dec. 30, 2017; *Midcontinent Independent System Operator, Inc.*, Proposed Revisions to MISO-PJM JOA for Targeted Market Efficiency Projects Process and Cost Allocation, Docket No. ER17-719-000 (Dec. 30, 2017); and *PJM Interconnection, L.L.C.*, Proposed Revisions to MISO-PJM JOA for Targeted Market Efficiency Projects Cost Allocation, Docket No. ER17-729-000 (Dec. 30, 2017).

[25] MISO-PJM JOA, §§ 9.3 and 9.4.

[26] PJM Tariff, Schedule 12 § (b)(xvii).

merchant transmission facilities in the PJM region that are shown to have experienced net positive congestion over a two-year historical period as determined by PJM and MISO.

On October 3, 2017, the Commission accepted, subject to condition, the RTOs' proposed revisions to the MISO-PJM JOA to add Targeted Market Efficiency Projects, as well as a method for allocating the costs of these transmission projects between the RTOs, effective June 28, 2017.[27] Additionally, by letter order dated October 3, 2017, the Commission accepted the revisions to Schedule 12 of the PJM Tariff as proposed by the PJM Transmission Owners in Docket No. ER17-1406-000 to establish a method to allocate the costs of Targeted Market Efficiency Projects within the PJM region.[28]

Consistent with Schedule 12 section (b)(xvii), which details the cost allocation methodology for a Targeted Market Efficiency Project to the zones and merchant transmission facilities in the PJM region that are shown to have experienced net positive congestion over a two-year historical period as determined by a TMEP study conducted by PJM and MISO, PJM proposes revisions to Schedule 12-Appendix A to include the regional cost responsibility assignments for five Targeted Market Efficiency Projects.[29]

D. Cost Responsibility Assignment Summary

For informational purposes, PJM also includes in Attachment A to this transmittal letter a Cost Responsibility Assignment Summary for the enhancements or expansions approved by the PJM Board on December 6, 2017. In addition to specifying the cost responsibility assignments for the enhancements and expansions, the summary sheets provide the criteria violation and test,

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[27] *See PJM Interconnection, L.L.C.*, 161 FERC ¶ 61,005 (Oct. 3, 2017).

[28] *PJM Interconnection, L.L.C.*, Revisions to Schedule 12 for Targeted Market Efficiency Projects, Docket No. ER17-1406-000 (accepted by letter order issued Oct. 3, 2017).

[29] The following Targeted Market Efficiency Projects include: b2971, b2972, b2973, b2974 and b2975.

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

The 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 submit comments 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, *i.e.*, February 4, 2018.[30] To accommodate such a comment date, PJM requests an effective date of April 5, 2018 (90 days from the date of this filing) for all revised Tariff sections submitted in this docket.[31]

III. DOCUMENTS ENCLOSED

PJM encloses the following:

a. This transmittal letter;

b. Attachment A – Cost Responsibility Assignment Summary sheets;

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

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

[30] Since February 4, 2018 falls on a Sunday, comments are due on Monday, February 5, 2018. *See* 18 C.F.R. § 385.2007(a)(2) (2017).

[31] *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 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).

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 and on the affected state utility regulatory commissions in the PJM Region by posting this filing electronically. In accordance with the Commission's regulations,[32] 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/ferc-filings.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 the PJM Region[33] 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 twenty-four hours of the filing. Also, a copy of this filing will be available on the Commission's eLibrary

[32] *See* 18 C.F.R. §§ 35.2(e) and 385.201(f)(3) (2017).

[33] PJM already maintains, updates, and regularly uses electronic mailing lists for all PJM Members and affected state commissions.

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,

By: _____

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Attachment A

Cost Responsibility Assignment Summary Sheets

Baseline Upgrade b2752.8

- Overview of Reliability Problem
  - Criteria Violation: Overstress of the Conastone 230kV '2322 B5' breaker
  - Contingency: Fault at Conastone
  - Criteria test: Short Circuit
- Overview of Reliability Solution
  - Description of Upgrade: Replace the Conastone 230 kV '2322 B5' breaker with a 63kA breaker
  - Upgrade In-Service Date: June 01, 2020
  - Estimated Upgrade Cost: $0.54 M
  - Construction Responsibility: BGE
- Cost Allocation
  - The cost for this network upgrade is allocated 100% to BGE

Baseline Upgrade b2752.9

- Overview of Reliability Problem
  - Criteria Violation: Overstress of the Conastone 230kV '2322 B6' breaker
  - Contingency: Fault at Conastone
  - Criteria test: Short Circuit
- Overview of Reliability Solution
  - Description of Upgrade: Replace the Conastone 230 kV '2322 B6' breaker with a 63kA breaker
  - Upgrade In-Service Date: June 01, 2020
  - Estimated Upgrade Cost: $0.54 M
  - Construction Responsibility: BGE
- Cost Allocation
  - The cost for this network upgrade is allocated 100% to BGE

Baseline Upgrade b2761.3

- Overview of Reliability Problem
  - Criteria Violation: Overload of Hazard 161/138 kV transformer and Hazard - Wooten 138 kV circuit
  - Contingency: Multiple
  - Criteria test: Summer and Winter Generation Deliverability
- Overview of Reliability Solution
  - Description of Upgrade: Rebuild the Hazard – Wooton 161 kV line utilizing 795 26/7 ACSR conductor (300 MVA rating)
  - Upgrade In-Service Date: June 01, 2021
  - Estimated Upgrade Cost: $16.48 M
  - Construction Responsibility: AEP
- Cost Allocation
  - The cost for this network upgrade is allocated 100% to AEP. No zones had greater than a 0.01 DFAX.

Transmission Zone	Planned Load (MW)	DFAX	DFAX Allocation
AEP	23267	< 0.01	100.00%

Baseline Upgrade b2945.1

- Overview of Reliability Problem
  - Criteria Violation: < 200 kV Violation - N-1-1 and Common Mode outage
  - Contingency: Multiple contingencies
  - Criteria test: N-1-1 and Common Mode outage
- Overview of Reliability Solution
  - Description of Upgrade: Rebuild the BL England – Middle Tap 138 kV line to 2000A on double circuited steel poles and new foundations
  - Upgrade In-Service Date: June 01, 2022
  - Estimated Upgrade Cost: $22.64 M
  - Construction Responsibility: AEC
- Cost Allocation
  - The cost for this network upgrade is allocated 100% to AEC

Baseline Upgrade b2945.2

- Overview of Reliability Problem
  - Criteria Violation: N-1-1 and Common Mode outage
  - Contingency: Few contingencies
  - Criteria test: N-1-1 and Common Mode outage
- Overview of Reliability Solution
  - Description of Upgrade: Reconductor BL England – Merion 138 kV (1.9 miles) line
  - Upgrade In-Service Date: June 01, 2022
  - Estimated Upgrade Cost: $3.92 M
  - Construction Responsibility: AEC
- Cost Allocation
  - The cost for this network upgrade is allocated 100% to AEC

Baseline Upgrade b2945.3

- Overview of Reliability Problem
  - Criteria Violation: < 200 kV Violation - N-1-1 and Common Mode outage
  - Contingency: Few contingencies
  - Criteria test: N-1-1 and Common Mode outage
- Overview of Reliability Solution
  - Description of Upgrade: Reconductor Merion – Corson 138 kV (8 miles) line
  - Upgrade In-Service Date: June 01, 2022
  - Estimated Upgrade Cost: $9.85 M
  - Construction Responsibility: AEC
- Cost Allocation
  - The cost for this network upgrade is allocated 100% to AEC

Baseline Upgrade b2946

- Overview of Reliability Problem
  - Criteria Violation: Common mode outage
  - Contingency: loss of the Milford to Steele and Steele to Vienna 230 kV circuits
  - Criteria test: Winter Generation Deliverability
- Overview of Reliability Solution
  - Description of Upgrade: Convert existing Preston 69 kV substation to DPL's current design standard of a 3-breaker ring bus
  - Upgrade In-Service Date: June 01, 2022
  - Estimated Upgrade Cost: $2.64 M
  - Construction Responsibility: DPL
- Cost Allocation
  - The cost for this network upgrade is allocated 100% to DPL

Baseline Upgrade b2947.1

- Overview of Reliability Problem
  - Criteria Violation: Common mode outage
  - Contingency: loss of the Edge Moor to Claymont and Edge Moor to Linwood 230 kV circuits
  - Criteria test: Summer Generation Deliverability
- Overview of Reliability Solution
  - Description of Upgrade: Upgrade terminal equipment at DPL's Naamans substation (Darley - Naamans 69 kV)
  - Upgrade In-Service Date: June 01, 2022
  - Estimated Upgrade Cost: $0.15 M
  - Construction Responsibility: DPL
- Cost Allocation
  - The cost for this network upgrade is allocated 100% to DPL

Baseline Upgrade b2947.2

- Overview of Reliability Problem
  - Criteria Violation: Common mode outage
  - Contingency: loss of the Edge Moor to Claymont and Edge Moor to Linwood 230 kV circuits
  - Criteria test: Summer Generation Deliverability
- Overview of Reliability Solution
  - Description of Upgrade: Reconductor 0.11 mile section of Darley - Naamans 69 kV circuit
  - Upgrade In-Service Date: June 01, 2022
  - Estimated Upgrade Cost: $0.20 M
  - Construction Responsibility: DPL
- Cost Allocation
  - The cost for this network upgrade is allocated 100% to DPL

Baseline Upgrade b2948

- Overview of Reliability Problem
  - Criteria Violation: Common mode outage
  - Contingency: loss of the Edge Moor to Claymont and Edge Moor to Linwood 230 kV circuits
  - Criteria test: Summer generation Deliverability
- Overview of Reliability Solution
  - Description of Upgrade: Upgrade terminal equipment at DPL's Silverside Road substation (Dupont Edge Moor – Silver R. 69 kV)
  - Upgrade In-Service Date: June 01, 2022
  - Estimated Upgrade Cost: $0.15 M
  - Construction Responsibility: DPL
- Cost Allocation
  - The cost for this network upgrade is allocated 100% to DPL

Baseline Upgrade b2950

- Overview of Reliability Problem
  - Criteria Violation: N-1
  - Contingency: loss of the Hosensack to Steel City 500 kV circuit
  - Criteria test: Summer generation Deliverability
- Overview of Reliability Solution
  - Description of Upgrade: Upgrade limiting 115 kV switches on the 115 kV side of the 230/115 kV Northwood substation and adjust setting on limiting ZR relay
  - Upgrade In-Service Date: June 01, 2022
  - Estimated Upgrade Cost: $0.10 M
  - Construction Responsibility: ME
- Cost Allocation
  - The cost for this network upgrade is allocated 100% to ME

Baseline Upgrade b2951, b2951.1, b2951.2, b2951.3

- Overview of Reliability Problem
  - Criteria Violation: Common mode outage
  - Contingency: multiple contingencies
  - Criteria test: Summer generation Deliverability
- Overview of Reliability Solution
  - Description of Upgrade:
    - Seward, Blairsville East, Shelocta work
    - Upgrade Florence 115 kV line terminal equipment at Seward SS
    - Replace Blairsville East / Seward 115 kV line tuner, coax, line relaying and carrier set at Shelocta SS
    - Replace Seward / Shelocta 115 kV line CVT, tuner, coax, and line relaying at Blairsville East SS
  - Upgrade In-Service Date: June 01, 2022
  - Estimated Upgrade Cost: $1.49 M
  - Construction Responsibility: PENELEC
- Cost Allocation
  - The cost for this network upgrade is allocated 100% to PENELEC

Baseline Upgrade b2952

- Overview of Reliability Problem
  - Criteria Violation: N-1
  - Contingency: loss of the North Meshoppen – Canyon – E. Towanda 230 kV circuit and the North Meshoppen 230/115 kV transformer #4
  - Criteria test: Winter Generation Deliverability
- Overview of Reliability Solution
  - Description of Upgrade: 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
  - Upgrade In-Service Date: June 01, 2022
  - Estimated Upgrade Cost: $6.80 M
  - Construction Responsibility: PENELEC
- Cost Allocation
  - The cost for this network upgrade is allocated 100% to PENELEC

Transmission Zone	Planned Load (MW)	DFAX	DFAX Allocation
PENELEC	2869	0.01057	100.00%

Baseline Upgrade b2953

- Overview of Reliability Problem
  - Criteria Violation: Overstress of the Keystone 500 kV "NO.14 Cabot" breaker
  - Contingency: Fault at Keystone
  - Criteria test: Short Circuit
- Overview of Reliability Solution
  - Description of Upgrade: Replace the Keystone 500 kV breaker "NO. 14 Cabot" with 50kA breaker
  - Upgrade In-Service Date: June 01, 2020
  - Estimated Upgrade Cost: $1.24 M
  - Construction Responsibility: PENELEC
- Cost Allocation
  - The cost for this network upgrade is allocated 100% to PENELEC

Baseline Upgrade b2954

- Overview of Reliability Problem
  - Criteria Violation: Overstress of the Keystone 500 kV "NO.16 Cabot" breaker
  - Contingency: Fault at Keystone
  - Criteria test: Short Circuit
- Overview of Reliability Solution
  - Description of Upgrade: Replace the Keystone 500 kV breaker "NO. 16 Cabot" with 50kA breaker
  - Upgrade In-Service Date: June 01, 2020
  - Estimated Upgrade Cost: $1.24 M
  - Construction Responsibility: PENELEC
- Cost Allocation
  - The cost for this network upgrade is allocated 100% to PENELEC

Baseline Upgrade b2955

- Overview of Reliability Problem
  - Criteria Violation: Multiple Violations
  - Contingency: FG# GD-S26, GD-S27, GD-S28, GD-S33, GD-S556, GD-W37, GD-W38, GD-W39, GD-W348, GD-W353
  - Criteria test: Generation Deliverability (Summer and Winter)
- Overview of Reliability Solution
  - Description of Upgrade: Wreck and rebuild the VFT – Warinanco – Aldene 230 kV circuit with paired conductor
  - Upgrade In-Service Date: June 01, 2018
  - Estimated Upgrade Cost: $90.40 M
  - Construction Responsibility: PSEG
- Cost Allocation

	%FLOW(+)	%FLOW(-)
Projected Usage	99.12%	0.88%

Transmission Zone	Planned Load (MW)	DFAX	DFAX Allocation
JCPL	6,014	0.01866	93.78%
NEPTUNE*	685	0.01086	6.22%

*Neptune Regional Transmission System, LLC

Baseline Upgrade b2956

- Overview of Reliability Problem
  - Criteria Violation: Gen Deliv: Common Mode and Single
  - Contingency: FG# GD-S601
  - Criteria test: Generation Deliverability (Summer)
- Overview of Reliability Solution
  - Description of Upgrade: Replace existing cable on Cedar Grove - Jackson Rd. with 5000kcmil XLPE cable
  - Upgrade In-Service Date: June 01, 2018
  - Estimated Upgrade Cost: $80.00 M
  - Construction Responsibility: PSEG
- Cost Allocation

	%FLOW(+)	%FLOW(-)
Projected Usage	99.94%	0.06%

Transmission Zone	Planned Load (MW)	DFAX	DFAX Allocation
JCPL	6,014	-0.01778	0.05%
NEPTUNE*	685	-0.0166	0.01%
PSEG	9963	0.01132	96.07%
RE	401	0.01132	3.87%

*Neptune Regional Transmission System, LLC
**East Coast Power, LLC
***Hudson Transmission Partners, LLC

Baseline Upgrade b2958.1

- Overview of Reliability Problem
  - Criteria Violation: FERC Form 715 Criteria Violation - major load increases at MarkWest's Majorsville, WV facilities
  - Contingency: several contingencies
  - Criteria test: TO Criteria
- Overview of Reliability Solution
  - Description of Upgrade: Cut George Washington – Tidd 138 kV circuit into Sand Hill and reconfigure Brues & Warton Hill line entrances
  - Upgrade In-Service Date: July 01, 2017
  - Estimated Upgrade Cost: $2.19 M
  - Construction Responsibility: AEP
- Cost Allocation
  - The cost for this network upgrade is allocated 100% to AEP

Baseline Upgrade b2958.2

- Overview of Reliability Problem
  - Criteria Violation: FERC Form 715 Criteria Violation - major load increases at MarkWest's Majorsville, WV facilities
  - Contingency: several contingencies
  - Criteria test: TO Criteria
- Overview of Reliability Solution
  - Description of Upgrade: Add 2 138 kV 3000 A 40 kA breakers, disconnect switches, and update relaying at Sand Hill station
  - Upgrade In-Service Date: July 01, 2017
  - Estimated Upgrade Cost: $5.06 M
  - Construction Responsibility: AEP
- Cost Allocation
  - The cost for this network upgrade is allocated 100% to AEP

Baseline Upgrade b2959

- Overview of Reliability Problem
  - Criteria Violation: Rock Falls – Nelson 138KV Red line, Schauff Road (O09&O29) – Nelson Tap 138kV Red line and Schauff Road(O9&O29) – Rock Falls 138kV Red line overloads
  - Contingency: multiple single contingencies
  - Criteria test: Light Load
- Overview of Reliability Solution
  - Description of Upgrade: Install a new 138 kV circuit 18702 from Schauff Road to Rock Falls and install a fourth breaker and a half run at Schauff Road
  - Upgrade In-Service Date: November 01, 2019
  - Estimated Upgrade Cost: $20.00 M
  - Construction Responsibility: ComEd
- Cost Allocation
  - The cost for this network upgrade is allocated 100% to ComEd. No zones had greater than a 0.01 DFAX.

Transmission Zone	Planned Load (MW)	DFAX	DFAX Allocation
ComEd	22406	< 0.01	100.00%

Baseline Upgrade b2960

- Overview of Reliability Problem
  - Criteria Violation: FERC Form 715 Criteria Violation - Angular stability
  - Contingency: Loss of fixed series capacitors on Line #547 & Line #548
  - Criteria test: "End of Life" Criteria
- Overview of Reliability Solution
  - Description of Upgrade: Replace fixed series capacitors on 500 kV Line #547 at Lexington and on 500 kV Line #548 at Valley
  - Upgrade In-Service Date: April 01, 2020
  - Estimated Upgrade Cost: $28.90 M
  - Construction Responsibility: Dominion
- Cost Allocation
  - The cost for this network upgrade is allocated 100% to Dominion

Baseline Upgrade b2961

- Overview of Reliability Problem
  - Criteria Violation: FERC Form 715 Criteria Violation - Loss of load (140 MW)
  - Contingency: Loss of Line #205 and Line #2003 from Chesterfield to Locks and Poe respectively
  - Criteria test: "End of Life" Criteria
- Overview of Reliability Solution
  - Description of Upgrade: Rebuild approximately 3 miles of Line #205 & Line #2003 from Chesterfield to Locks & Poe respectively
  - Upgrade In-Service Date: December 31, 2022
  - Estimated Upgrade Cost: $9.50 M
  - Construction Responsibility: Dominion
- Cost Allocation
  - The cost for this network upgrade is allocated 100% to Dominion

Baseline Upgrade b2962

- Overview of Reliability Problem
  - Criteria Violation: Common mode outage, Thermal - Pleasant View – Ashburn 230 kV
  - Contingency: Multiple contingencies
  - Criteria test: Summer generation deliverability
- Overview of Reliability Solution
  - Description of Upgrade: Split Line #227 (Brambleton – Beaumeade 230 kV) and terminate into existing Belmont substation
  - Upgrade In-Service Date: June 01, 2022
  - Estimated Upgrade Cost: $3.05 M
  - Construction Responsibility: Dominion
- Cost Allocation
  - The cost for this network upgrade is allocated 100% to Dominion

Baseline Upgrade b2963

- Overview of Reliability Problem
  - Criteria Violation: N-1, Thermal - Possum Point – Woodbridge – Occoquan 230 kV
  - Contingency: loss of the Possum Point – Possum Creek - Woodbridge – E.P.G. – Hayfield 230 kV circuit
  - Criteria test: Summer generation deliverability
- Overview of Reliability Solution
  - Description of Upgrade: 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
  - Upgrade In-Service Date: June 01, 2022
  - Estimated Upgrade Cost: $4.49 M
  - Construction Responsibility: Dominion
- Cost Allocation
  - The cost for this network upgrade is allocated 100% to Dominion

Baseline Upgrade b2964.1

- Overview of Reliability Problem
  - Criteria Violation: Common mode outage, Thermal - Pruntytown – White Hall Junction – McAlpin – Glen Falls 138
  - Contingency: loss of the Pruntytown – Maple Lake and Pruntytown – Shinns Run 138 kV circuits.
  - Criteria test: Summer generation deliverability
- Overview of Reliability Solution
  - Description of Upgrade: Replace terminal equipment at Pruntytown and Glen Falls 138 kV station
  - Upgrade In-Service Date: June 01, 2022
  - Estimated Upgrade Cost: $0.26 M
  - Construction Responsibility: APS
- Cost Allocation
  - The cost for this network upgrade is allocated 100% to APS

Baseline Upgrade b2964.2

- Overview of Reliability Problem
  - Criteria Violation: Common mode outage, Thermal - Pruntytown – White Hall Junction – McAlpin – Glen Falls 138
  - Contingency: loss of the Pruntytown – Maple Lake and Pruntytown – Shinns Run 138 kV circuits.
  - Criteria test: Summer generation deliverability
- Overview of Reliability Solution
  - Description of Upgrade: Reconductor approximately 8.3 miles of the McAlpin - White Hall Junction 138 kV circuit
  - Upgrade In-Service Date: June 01, 2022
  - Estimated Upgrade Cost: $3.79 M
  - Construction Responsibility: APS
- Cost Allocation
  - The cost for this network upgrade is allocated 100% to APS

Baseline Upgrade b2965

- Overview of Reliability Problem
  - Criteria Violation: N-1 and Common Mode Outage, Thermal - Allenport – Charleroi 138 kV
  - Contingency: multiple contingencies
  - Criteria test: Summer generation deliverability
- Overview of Reliability Solution
  - Description of Upgrade: Reconductor the Charleroi –Allenport 138 kV line with 954 ACSR conductor. Replace breaker risers at Charleroi and Allenport
  - Upgrade In-Service Date: June 01, 2022
  - Estimated Upgrade Cost: $7.08 M
  - Construction Responsibility: APS
- Cost Allocation
  - The cost for this network upgrade is allocated 100% to DL

Transmission Zone	Planned Load (MW)	DFAX	DFAX Allocation
DL	2879	0.01549	100.00%

Baseline Upgrade b2966

- Overview of Reliability Problem
  - Criteria Violation: N-1 and Common Mode Outage, Thermal - Yukon – Smithon - Shepler Hill Jct Tap 138 kV
  - Contingency: multiple contingencies
  - Criteria test: Summer generation deliverability
- Overview of Reliability Solution
  - Description of Upgrade: Reconductor the Yukon - Smithton - Shepler Hill Jct 138 kV line with 795 ACSS conductor. Replace Line Disconnect Switch at Yukon
  - Upgrade In-Service Date: June 01, 2022
  - Estimated Upgrade Cost: $3.19 M
  - Construction Responsibility: APS
- Cost Allocation
  - The cost for this network upgrade is allocated 100% to APS

Baseline Upgrade b2967

- Overview of Reliability Problem
  - Criteria Violation: N-1 and Common Mode Outage, Thermal - Butler – Shanor Manor –Krendale 138 kV
  - Contingency: Several Contingencies
  - Criteria test: Summer generation deliverability
- Overview of Reliability Solution
  - Description of Upgrade: 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
  - Upgrade In-Service Date: June 01, 2022
  - Estimated Upgrade Cost: $6.96 M
  - Construction Responsibility: APS
- Cost Allocation
  - The cost for this network upgrade is allocated 100% to APS. No zones had greater than a 0.01 DFAX

Transmission Zone	Planned Load (MW)	DFAX	DFAX Allocation
APS	9004	< 0.01	100.00%

Baseline Upgrade b2968

- Overview of Reliability Problem
  - Criteria Violation: N-1, Thermal - Tanner – Miami Fort 345 kV
  - Contingency: multiple contingencies
  - Criteria test: Winter Generation Deliverability
- Overview of Reliability Solution
  - Description of Upgrade: Upgrade existing 345 kV terminal equipment at Tanner Creek station
  - Upgrade In-Service Date: June 01, 2022
  - Estimated Upgrade Cost: $1.20 M
  - Construction Responsibility: AEP
- Cost Allocation
  - The cost for this network upgrade is allocated 100% to AEP

Baseline Upgrade b2969

- Overview of Reliability Problem
  - Criteria Violation: N-1, Thermal - Maddox – East Lima 345 kV
  - Contingency: loss of the Marysville – Sorenson 765KV line
  - Criteria test: Winter Generation Deliverability
- Overview of Reliability Solution
  - Description of Upgrade: Replace terminal equipment on Maddox Creek - East Lima 345 kV circuit
  - Upgrade In-Service Date: June 01, 2022
  - Estimated Upgrade Cost: $1.48 M
  - Construction Responsibility: AEP
- Cost Allocation
  - The cost for this network upgrade is allocated 100% to AEP

Baseline Upgrade b2970, b2970.1, b2970.2, b2970.3, b2970.4

- Overview of Reliability Problem
  - Criteria Violation: The Ringgold 230/138kV transformers #3 and #4 are overloaded for multiple contingencies
  - Contingency: multiple contingencies
  - Criteria test: Winter and Summer Generation Deliverability, Baseline and N-1-1.
- Overview of Reliability Solution
  - Description of Upgrade:
    - Ringgold - Catoctin Solution
    - Install two new 230 kV positions at Ringgold for 230/138 kV transformers
    - Install new 230 kV position for Ringgold – Catoctin 230 kV line
    - Install one new 230 kV breaker at Catoctin substation
    - Install new 230/138 kV transformer at Catoctin substation. Convert Ringgold - Catoctin 138 kV line to 230 kV operation
  - Upgrade In-Service Date: June 01, 2020
  - Estimated Upgrade Cost: $13.33 M
  - Construction Responsibility: APS
- Cost Allocation
  - The cost for this network upgrade is allocated 100% to APS. No zones had greater than a 0.01 DFAX

Transmission Zone	Planned Load (MW)	DFAX	DFAX Allocation
APS	9004	< 0.01	100.00%

Baseline Upgrade b2971

- Overview of Reliability Problem
  - Criteria Violation: Congestion Relief
  - Criteria test: Market Efficiency
- Overview of Reliability Solution
  - Description of Upgrade: Reconfigure Munster 345 kV as ring bus
  - Upgrade In-Service Date: June 01, 2020
  - Estimated Upgrade Cost: $7.00 M
  - Construction Responsibility: NIPSCO
- Cost Allocation
  - The cost of this TMEP is allocated between PJM and MISO in proportion to the congestion relief benefits received by each region. Within PJM, cost responsibility is assigned based on each Zone's and Merchant Transmission Facility's pro rata share of the sum of the net Transmission Congestion Charges paid by Market Buyers only of the Zones and Merchant Transmission Facilities in which Market Buyers experienced net Transmission Congestion Charges.

Transmission Zone	Congestion Benefits ($M)	Allocation (%)
MISO	N/A	12.00%
AEC	$311,227	0.97%
AEP	$5,333,988	16.66%
APS	$1,580,841	4.94%
ATSI	$2,488,917	7.78%
BGE	$1,666,336	5.21%
ComEd	($27,764,843)	0.00%
Dayton	$593,037	1.85%
DEOK	$734,830	2.30%
Dominion	$4,869,399	15.21%
DPL	$561,477	1.75%
DL	$458,794	1.43%
EKPC	$192,546	0.60%
JCPL	$692,003	2.16%
ME	$552,184	1.73%
PECO	$1,384,183	4.32%
PENELEC	$1,595,240	4.98%
PEPCO	$1,857,298	5.80%
PPL	$1,517,201	4.74%
PSEG	$1,627,997	5.09%
RE	$46,877	0.15%
NEPTUNE*	$104,902	0.33%
ECP**	$0	0.00%
HTP***	$0	0.00%

*Neptune Regional Transmission System, LLC
**East Coast Power, LLC
***Hudson Transmission Partners, LLC

Baseline Upgrade b2972

- Overview of Reliability Problem
  - Criteria Violation: Congestion Relief
  - Criteria test: Market Efficiency
- Overview of Reliability Solution
  - Description of Upgrade: Reconductor limiting span of Lallendorf - Monroe 345 kV
  - Upgrade In-Service Date: November 01, 2019
  - Estimated Upgrade Cost: $1.00 M
  - Construction Responsibility: ATSI

- Cost Allocation
  - The cost of this TMEP is allocated between PJM and MISO in proportion to the congestion relief benefits received by each region. Within PJM, cost responsibility is assigned based on each Zone's and Merchant Transmission Facility's pro rata share of the sum of the net Transmission Congestion Charges paid by Market Buyers only of the
    Zones and Merchant Transmission Facilities in which Market Buyers experienced net Transmission Congestion Charges.

Transmission Zone	Congestion Benefits ($M)	Allocation (%)
MISO	N/A	11.00%
AEC	($106,449)	0.00%
AEP	$418,227	5.38%
APS	$331,974	4.27%
ATSI	$5,167,349	66.48%
BGE	($62,232)	0.00%
ComEd	($5,168,366)	0.00%
Dayton	$210,219	2.71%
DEOK	($47,218)	0.00%
Dominion	$413,030	5.31%
DPL	($162,080)	0.00%
DL	$376,550	4.85%
EKPC	($58,877)	0.00%
JCPL	($314,795)	0.00%
ME	($145,024)	0.00%
PECO	($442,602)	0.00%
PENELEC	($421,590)	0.00%
PEPCO	($3,493)	0.00%
PPL	($445,155)	0.00%
PSEG	($883,536)	0.00%
RE	($44,342)	0.00%
NEPTUNE*	($22,974)	0.00%
ECP**	$0	0.00%
HTP***	$0	0.00%

*Neptune Regional Transmission System, LLC
**East Coast Power, LLC
***Hudson Transmission Partners, LLC

Baseline Upgrade b2973

- Overview of Reliability Problem
  - Criteria Violation: Congestion Relief
  - Criteria test: Market Efficiency
- Overview of Reliability Solution
  - Description of Upgrade: Reconductor Michigan City - Bosserman 138 kV
  - Upgrade In-Service Date: December 01, 2019
  - Estimated Upgrade Cost: $4.60 M
  - Construction Responsibility: NIPSCO
- Cost Allocation
  - The cost of this TMEP is allocated between PJM and MISO in proportion to the congestion relief benefits received by each region. Within PJM, cost responsibility is assigned based on each Zone's and Merchant Transmission Facility's pro rata share of the sum of the net Transmission Congestion Charges paid by Market Buyers only of the Zones and Merchant Transmission Facilities in which Market Buyers experienced net Transmission Congestion Charges.

Transmission Zone	Congestion Benefits ($M)	Allocation (%)
MISO	N/A	10.00%
AEC	$397,316	0.93%
AEP	$11,136,907	26.05%
APS	$1,791,147	4.19%
ATSI	$2,544,987	5.95%
BGE	$1,876,027	4.39%
ComEd	($37,707,354)	0.00%
Dayton	$678,349	1.59%
DEOK	$983,516	2.30%
Dominion	$6,292,407	14.72%
DPL	$655,833	1.53%
DL	$537,741	1.26%
EKPC	$417,857	0.98%
JCPL	$820,140	1.92%
ME	$593,334	1.39%
PECO	$1,792,346	4.19%
PENELEC	$1,857,917	4.35%
PEPCO	$2,161,331	5.06%
PPL	$1,725,036	4.03%
PSEG	$1,918,110	4.49%
RE	$52,350	0.12%
NEPTUNE*	$238,136	0.56%
ECP**	$0	0.00%
HTP***	$0	0.00%

*Neptune Regional Transmission System, LLC
**East Coast Power, LLC
***Hudson Transmission Partners, LLC

Baseline Upgrade b2974

- Overview of Reliability Problem
  - Criteria Violation: Congestion Relief
  - Criteria test: Market Efficiency
- Overview of Reliability Solution
  - Description of Upgrade: Replace terminal equipment at Reynolds on the Reynolds - Magnetation 138 kV
  - Upgrade In-Service Date: June 01, 2019
  - Estimated Upgrade Cost: $0.15 M
  - Construction Responsibility: NIPSCO
- Cost Allocation
  - The cost of this TMEP is allocated between PJM and MISO in proportion to the congestion relief benefits received by each region. Within PJM, cost responsibility is assigned based on each Zone's and Merchant Transmission Facility's pro rata share of the sum of the net Transmission Congestion Charges paid by Market Buyers only of the Zones and Merchant Transmission Facilities in which Market Buyers experienced net Transmission Congestion Charges.

Transmission Zone	Congestion Benefits ($M)	Allocation (%)
MISO	N/A	59.00%
AEC	$128	0.01%
AEP	$614,466	40.32%
APS	$1,986	0.13%
ATSI	$696	0.05%
BGE	$1,177	0.08%
ComEd	($674,733)	0.00%
Dayton	$479	0.03%
DEOK	($600)	0.00%
Dominion	($1,508)	0.00%
DPL	$174	0.01%
DL	$2	0.00%
EKPC	($18,448)	0.00%
JCPL	($131)	0.00%
ME	$677	0.04%
PECO	($283)	0.00%
PENELEC	$898	0.06%
PEPCO	($733)	0.00%
PPL	$3,136	0.20%
PSEG	$417	0.03%
RE	($29)	0.00%
NEPTUNE*	$588	0.04%
ECP**	$0	0.00%
HTP***	$0	0.00%

*Neptune Regional Transmission System, LLC
**East Coast Power, LLC
***Hudson Transmission Partners, LLC

Baseline Upgrade b2975

- Overview of Reliability Problem
  - Criteria Violation: Congestion Relief
  - Criteria test: Market Efficiency
- Overview of Reliability Solution
  - Description of Upgrade: Reconductor Roxana - Praxair 138 kV
  - Upgrade In-Service Date: June 01, 2020
  - Estimated Upgrade Cost: $4.50 M
  - Construction Responsibility: NIPSCO
- Cost Allocation
  - The cost of this TMEP is allocated between PJM and MISO in proportion to the congestion relief benefits received by each region. Within PJM, cost responsibility is assigned based on each Zone's and Merchant Transmission Facility's pro rata share of the sum of the net Transmission Congestion Charges paid by Market Buyers only of the Zones and Merchant Transmission Facilities in which Market Buyers experienced net Transmission Congestion Charges.

Transmission Zone	Congestion Benefits ($M)	Allocation (%)
MISO	N/A	76.00%
AEC	$96,402	0.28%
AEP	$1,537,072	4.51%
APS	$445,251	1.31%
ATSI	$651,529	1.91%
BGE	$475,562	1.40%
ComEd	($7,787,949)	0.00%
Dayton	$166,858	0.49%
DEOK	$236,794	0.70%
Dominion	$1,481,872	4.35%
DPL	$155,172	0.46%
DL	$130,513	0.38%
EKPC	$93,509	0.27%
JCPL	$194,660	0.57%
ME	$146,755	0.43%
PECO	$425,264	1.25%
PENELEC	$455,783	1.34%
PEPCO	$522,218	1.53%
PPL	$418,542	1.23%
PSEG	$479,339	1.41%
RE	$12,712	0.04%
NEPTUNE*	$46,429	0.14%
ECP**	$0	0.00%
HTP***	$0	0.00%

*Neptune Regional Transmission System, LLC
**East Coast Power, LLC
***Hudson Transmission Partners, LLC

Baseline Upgrade b2976

- Overview of Reliability Problem
  - Criteria Violation: Congestion Relief
  - Criteria test: Market Efficiency

- Overview of Reliability Solution
  - Description of Upgrade: Upgrade terminal equipment at Tanners Creek 345 kV station. Upgrade 345 kV bus and risers at Tanners Creek for the Dearborn circuit
  - Upgrade In-Service Date: June 01, 2021
  - Estimated Upgrade Cost: $0.60 M
  - Construction Responsibility: AEP
- Cost Allocation
  - The cost for this network upgrade is allocated 100% to DEOK. The cost allocation for this network upgrade was determined through a cost/benefit analysis that considered the present value of 15 year projected Net Load Energy and Capacity benefits by transmission zone for zones with a decrease in Net Load Energy and Capacity Payments. DEOK was the only zone with a net positive cumulative present value of Load Benefit Metric.

Transmission Zone	Cumulative Present Value of Load Benefit Metric by Zone ($M)	Allocation (%)
DEOK	$124	100.00%

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 (68.57%) / JCPL (31.43%)
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%)

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 (*1.66*%) / AEP (*14.16*%) / APS (*5.73*%) / ATSI (*7.88*%) / BGE (*4.22*%) / ComEd (*13.31*%) / Dayton (*2.11*%) / DEOK (*3.29*%) / DL (*1.75*%) / DPL (*2.50*%) / Dominion (*12.86*%) / EKPC (*1.87*%) / JCPL (*3.74*%) / ME (*1.90*%) / NEPTUNE* (*0.44*%) / PECO (*5.34*%) / PENELEC (*1.89*%) / PEPCO (*3.99*%) / PPL (*4.84*%) / PSEG (*6.26*%) / RE (*0.26*%)
		DFAX Allocation: AEC (0.05%) / APS (11.16%) / BGE (22.34%) / Dayton (2.18%) / DEOK (4.19%) / DPL (0.20%) / ECP** (1.03%) / EKPC (1.94%) / JCPL (10.82%) / NEPTUNE* (1.14%) / HTP*** (1.10%) / POSEIDON**** (0.63%) / PENELEC (0.06%) / PEPECO (18.97%) / PSEG (23.26%) / RECO (0.93%)

*Neptune Regional Transmission System, LLC
** East Coast Power, LLC
***Hudson Transmission Partners, LLC
****Poseidon Transmission 1, LLC

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 (*1.66*%) / AEP (*14.16*%) / APS (*5.73*%) / ATSI (*7.88*%) / BGE (*4.22*%) / ComEd (*13.31*%) / Dayton (*2.11*%) / DEOK (*3.29*%) / DL (*1.75*%) / DPL (*2.50*%) / Dominion (*12.86*%) / EKPC (*1.87*%) / JCPL (*3.74*%) / ME (*1.90*%) / NEPTUNE* (*0.44*%) / PECO (*5.34*%) / PENELEC (*1.89*%) / PEPCO (*3.99*%) / PPL (*4.84*%) / PSEG (*6.26*%) / 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 (0.01%) / DPL (99.98%) / JCPL (0.01%)

*Neptune Regional Transmission System, LLC
**East Coast Power, LLC
***Hudson Transmission Partners, 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%)

SCHEDULE 12 – APPENDIX A

(5) Mid-Atlantic Interstate Transmission, LLC for the Metropolitan Edison Company Zone

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2006.1.1	Loop the 2026 (TMI – Hosensack 500 kV) line in to the Lauschtown		**Load-Ratio Share Allocation:** AEC (*1.66*%) / AEP (*14.16*%) / APS (*5.73*%) / ATSI (*7.88*%) / BGE (*4.22*%) / ComEd (*13.31*%) / Dayton (*2.11*%) / DEOK (*3.29*%) / DL (*1.75*%) / DPL (*2.50*%) / Dominion (*12.86*%) / EKPC (*1.87*%) / JCPL (*3.74*%) / ME (*1.90*%) / NEPTUNE* (*0.44*%) / PECO (*5.34*%) / PENELEC (*1.89*%) / PEPCO (*3.99*%) / PPL (*4.84*%) / PSEG (*6.26*%) / RE (*0.26*%) **DFAX Allocation:** PPL (*100*%)
b2006.2.1	Upgrade relay at South Reading on the 1072 230 V line		ME (100%)
b2006.4	Replace the South Reading 69 kV ‘81342’ breaker with 40kA breaker		ME (100%)
b2006.5	Replace the South Reading 69 kV ‘82842’ breaker with 40kA breaker		ME (100%)
b2452	Install 2nd Hunterstown 230/115 kV transformer		APS (8.30%) / BGE (14.70%) / DEOK (0.48%) / Dominion (36.92%) / ME (23.85%) / PEPCO (15.75%)

Mid-Atlantic Interstate Transmission, LLC for the Metropolitan Edison Company Zone (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2452.1	Reconductor Hunterstown - Oxford 115 kV line		APS (8.30%) / BGE (14.70%) / DEOK (0.48%) / Dominion (36.92%) / ME (23.85%) / PEPCO (15.75%)
b2452.3	Replace the Hunterstown 115 kV breaker '96192' with 40 kA		ME (100%)
b2588	Install a 36.6 MVAR 115 kV capacitor at North Bangor substation		ME (100%)
b2637	Convert Middletown Junction 230 kV substation to nine bay double breaker configuration.		ME (100%)
b2644	Install a 28.8 MVAR 115 kV capacitor at the Mountain substation		ME (100%)
b2688.1	Lincoln Substation: Upgrade the bus conductor and replace CTs.		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%)
b2688.2	Germantown Substation: Replace 138/115 kV transformer with a 135/180/224 MVA bank. Replace Lincoln 115 kV breaker, install new 138 kV breaker, upgrade bus conductor and adjust/replace CTs.		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%)

Mid-Atlantic Interstate Transmission, LLC for the Metropolitan Edison Company Zone (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2743.4	Upgrade terminal equipment at Hunterstown 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%)
b2752.4	Upgrade terminal equipment and required relay communication at TMI 500 kV: on the Beach Bottom – TMI 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%)
b2749	Replace relay at West Boyertown 69 kV station on the West Boyertown – North Boyertown 69 kV circuit		ME (100%)
b2765	Upgrade bus conductor at Gardners 115 kv substation; Upgrade bus conductor and adjust CT ratios at Carlisle Pike 115 kV		ME (100%)
b2950	Upgrade limiting 115 kV switches on the 115 kV side of the 230/115 kV Northwood substation and adjust setting on limiting ZR relay		ME (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 (100%)
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%)

SCHEDULE 12 – APPENDIX A

(12) Public Service Electric and Gas Company

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2218	Rebuild 4 miles of overhead line from Edison - Meadow Rd - Metuchen (Q 1317)		HTP (36.49%) / ECP** (63.51%)
b2239	50 MVAR reactor at Saddlebrook 230 kV		PSEG (100%)
b2240	50 MVAR reactor at Athenia 230 kV		PSEG (100%)
b2241	50 MVAR reactor at Bergen 230 kV		PSEG (100%)
b2242	50 MVAR reactor at Hudson 230 kV		PSEG (100%)
b2243	Two 50 MVAR reactors at Stanley Terrace 230 kV		PSEG (100%)
b2244	50 MVAR reactor at West Orange 230 kV		PSEG (100%)
b2245	50 MVAR reactor at Aldene 230 kV		PSEG (100%)
b2246	150 MVAR reactor at Camden 230 kV		PSEG (100%)
b2247	150 MVAR reactor at Gloucester 230 kV		PSEG (100%)
b2248	50 MVAR reactor at Clarksville 230 kV		PSEG (100%)
b2249	50 MVAR reactor at Hinchmans 230 kV		PSEG (100%)
b2250	50 MVAR reactor at Beaverbrook 230 kV		PSEG (100%)
b2251	50 MVAR reactor at Cox's Corner 230 kV		PSEG (100%)

*Neptune Regional Transmission System, LLC
**East Coast Power, L.L.C.

The Annual Revenue Requirement for all Public Service Electric and Gas Company Projects (Required Transmission Enhancements) in this Section 12 shall be as specified in Attachment 7 of Attachment H-10A and under the procedures detailed in Attachment H-10B.

Public Service Electric and Gas Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2276	Eliminate the Sewaren 138 kV bus by installing a new 230 kV bay at Sewaren 230 kV		PSEG (100%)
b2276.1	Convert the two 138 kV circuits from Sewaren – Metuchen to 230 kV circuits including Lafayette and Woodbridge substation		PSEG (100%)
b2276.2	Reconfigure the Metuchen 230 kV station to accommodate the two converted circuits		PSEG (100%)
b2290	Replace disconnect switches at Kilmer, Lake Nilson and Greenbrook 230 kV substations on the Raritian River - Middlesex (I-1023) circuit		PSEG (100%)
b2291	Replace circuit switcher at Lake Nelson 230 kV substation on the Raritian River - Middlesex (W-1037) circuit		PSEG (100%)
b2295	Replace the Salem 500 kV breaker 10X with 63kA breaker		PSEG (100%)
b2421	Install all 69kV lines to interconnect Plainfield, Greenbrook, and Bridgewater stations and establish the 69kV network		PSEG (100%)
b2421.1	Install two 18MVAR capacitors at Plainfield and S. Second St substation		PSEG (100%)

*Neptune Regional Transmission System, LLC
**East Coast Power, L.L.C.

Public Service Electric and Gas Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2421.2	Install a second four (4) breaker 69kV ring bus at Bridgewater Switching Station		PSEG (100%)
b2436.10	Convert the Bergen – Marion 138 kV path to double circuit 345 kV and associated substation upgrades		**Load-Ratio Share Allocation:** AEC (*1.66*%) / AEP (*14.16*%) / APS (*5.73*%) / ATSI (*7.88*%) / BGE (*4.22*%) / ComEd (*13.31*%) / Dayton (*2.11*%) / DEOK (*3.29*%) / DL (*1.75*%) / DPL (*2.50*%) / Dominion (*12.86*%) / EKPC (*1.87*%) / JCPL (*3.74*%) / ME (*1.90*%) / NEPTUNE* (*0.44*%) / PECO (*5.34*%) / PENELEC (*1.89*%) / PEPCO (*3.99*%) / PPL (*4.84*%) / PSEG (*6.26*%) / RE (*0.26*%) **DFAX Allocation:** PSEG (*100*%)
b2436.21	Convert the Marion - Bayonne "L" 138 kV circuit to 345 kV and any associated substation upgrades		**Load-Ratio Share Allocation:** AEC (*1.66*%) / AEP (*14.16*%) / APS (*5.73*%) / ATSI (*7.88*%) / BGE (*4.22*%) / ComEd (*13.31*%) / Dayton (*2.11*%) / DEOK (*3.29*%) / DL (*1.75*%) / DPL (*2.50*%) / Dominion (*12.86*%) / EKPC (*1.87*%) / JCPL (*3.74*%) / ME (*1.90*%) / NEPTUNE* (*0.44*%) / PECO (*5.34*%) / PENELEC (*1.89*%) / PEPCO (*3.99*%) / PPL (*4.84*%) / PSEG (*6.26*%) / RE (*0.26*%) **DFAX Allocation:** *PSEG (100%)*

*Neptune Regional Transmission System, LLC
**East Coast Power, L.L.C.
***Hudson Transmission Partners, LLC

Public Service Electric and Gas Company (cont.)

Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b2436.22	Convert the Marion - Bayonne "C" 138 kV circuit to 345 kV and any associated substation upgrades	**Load-Ratio Share Allocation:** AEC (*1.66*%) / AEP (*14.16*%) / APS (*5.73*%) / ATSI (*7.88*%) / BGE (*4.22*%) / ComEd (*13.31*%) / Dayton (*2.11*%) / DEOK (*3.29*%) / DL (*1.75*%) / DPL (*2.50*%) / Dominion (*12.86*%) / EKPC (*1.87*%) / JCPL (*3.74*%) / ME (*1.90*%) / NEPTUNE* (*0.44*%) / PECO (*5.34*%) / PENELEC (*1.89*%) / PEPCO (*3.99*%) / PPL (*4.84*%) / PSEG (*6.26*%) / RE (*0.26*%) **DFAX Allocation:** *PSEG (100%)*
b2436.33	Construct a new Bayway – Bayonne 345 kV circuit and any associated substation upgrades	*PSEG (100%)*
b2436.34	Construct a new North Ave – Bayonne 345 kV circuit and any associated substation upgrades	*PSEG (100%)*

*Neptune Regional Transmission System, LLC
**East Coast Power, L.L.C.
***Hudson Transmission Partners, LLC

Public Service Electric and Gas Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2436.50	Construct a new North Ave - Airport 345 kV circuit and any associated substation upgrades		*PSEG (100%)*
b2436.60	Relocate the underground portion of North Ave - Linden "T" 138 kV circuit to Bayway, convert it to 345 kV, and any associated substation upgrades		*PSEG (96.13%) / RE (3.87%)*
b2436.70	Construct a new Airport - Bayway 345 kV circuit and any associated substation upgrades		*PSEG (100%)*
b2436.81	Relocate the overhead portion of Linden - North Ave "T" 138 kV circuit to Bayway, convert it to 345 kV, and any associated substation upgrades		**Load-Ratio Share Allocation:** AEC (*1.66*%) / AEP (*14.16*%) / APS (*5.73*%) / ATSI (*7.88*%) / BGE (*4.22*%) / ComEd (*13.31*%) / Dayton (*2.11*%) / DEOK (*3.29*%) / DL (*1.75*%) / DPL (*2.50*%) / Dominion (*12.86*%) / EKPC (*1.87*%) / JCPL (*3.74*%) / ME (*1.90*%) / NEPTUNE* (*0.44*%) / PECO (*5.34*%) / PENELEC (*1.89*%) / PEPCO (*3.99*%) / PPL (*4.84*%) / PSEG (*6.26*%) / RE (*0.26*%)
			DFAX Allocation: PSEG (*96.13*%) / RE (*3.87*%)

*Neptune Regional Transmission System, LLC
**East Coast Power, L.L.C.
***Hudson Transmission Partners, LLC

Public Service Electric and Gas Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2436.83	Convert the Bayway - Linden "Z" 138 kV circuit to 345 kV and any associated substation upgrades		**Load-Ratio Share Allocation:** AEC (*1.66*%) / AEP (*14.16*%) / APS (*5.73*%) / ATSI (*7.88*%) / BGE (*4.22*%) / ComEd (*13.31*%) / Dayton (*2.11*%) / DEOK (*3.29*%) / DL (*1.75*%) / DPL (*2.50*%) / Dominion (*12.86*%) / EKPC (*1.87*%) / JCPL (*3.74*%) / ME (*1.90*%) / NEPTUNE* (*0.44*%) / PECO (*5.34*%) / PENELEC (*1.89*%) / PEPCO (*3.99*%) / PPL (*4.84*%) / PSEG (*6.26*%) / RE (*0.26*%)
			DFAX Allocation: PSEG (*96.13*%) / RE (*3.87*%)
b2436.84	Convert the Bayway – Linden "W" 138 kV circuit to 345 kV and any associated substation upgrades		**Load-Ratio Share Allocation:** AEC (*1.66*%) / AEP (*14.16*%) / APS (*5.73*%) / ATSI (*7.88*%) / BGE (*4.22*%) / ComEd (*13.31*%) / Dayton (*2.11*%) / DEOK (*3.29*%) / DL (*1.75*%) / DPL (*2.50*%) / Dominion (*12.86*%) / EKPC (*1.87*%) / JCPL (*3.74*%) / ME (*1.90*%) / NEPTUNE* (*0.44*%) / PECO (*5.34*%) / PENELEC (*1.89*%) / PEPCO (*3.99*%) / PPL (*4.84*%) / PSEG (*6.26*%) / RE (*0.26*%)
			DFAX Allocation: *PSEG (96.13%) / RE (3.87%)*

*Neptune Regional Transmission System, LLC
**East Coast Power, L.L.C.
***Hudson Transmission Partners, LLC

Public Service Electric and Gas Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2436.85	Convert the Bayway – Linden "M" 138 kV circuit to 345 kV and any associated substation upgrades		**Load-Ratio Share Allocation:** AEC (*1.66*%) / AEP (*14.16*%) / APS (*5.73*%) / ATSI (*7.88*%) / BGE (*4.22*%) / ComEd (*13.31*%) / Dayton (*2.11*%) / DEOK (*3.29*%) / DL (*1.75*%) / DPL (*2.50*%) / Dominion (*12.86*%) / EKPC (*1.87*%) / JCPL (*3.74*%) / ME (*1.90*%) / NEPTUNE* (*0.44*%) / PECO (*5.34*%) / PENELEC (*1.89*%) / PEPCO (*3.99*%) / PPL (*4.84*%) / PSEG (*6.26*%) / RE (*0.26*%)
			DFAX Allocation: *PSEG (96.13%) / RE (3.87%)*
b2436.90	Relocate Farragut - Hudson "B" and "C" 345 kV circuits to Marion 345 kV and any associated substation upgrades		**Load-Ratio Share Allocation:** AEC (*1.66*%) / AEP (*14.16*%) / APS (*5.73*%) / ATSI (*7.88*%) / BGE (*4.22*%) / ComEd (*13.31*%) / Dayton (*2.11*%) / DEOK (*3.29*%) / DL (*1.75*%) / DPL (*2.50*%) / Dominion (*12.86*%) / EKPC (*1.87*%) / JCPL (*3.74*%) / ME (*1.90*%) / NEPTUNE* (*0.44*%) / PECO (*5.34*%) / PENELEC (*1.89*%) / PEPCO (*3.99*%) / PPL (*4.84*%) / PSEG (*6.26*%) / RE (*0.26*%)
			DFAX Allocation: PSEG (*96.13*%) / RE (*3.87*%)
b2436.91	Relocate the Hudson 2 generation to inject into the 345 kV at Marion and any associated upgrades		PSEG (100%)

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Public Service Electric and Gas Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2437.10	New Bergen 345/230 kV transformer and any associated substation upgrades		PSEG (*96.13*%) / RE (*3.87*%)
b2437.11	New Bergen 345/138 kV transformer #1 and any associated substation upgrades		*PSEG (100%)*
b2437.20	New Bayway 345/138 kV transformer #1 and any associated substation upgrades		PSEG (*96.13*%) / RE (*3.87*%)
b2437.21	New Bayway 345/138 kV transformer #2 and any associated substation upgrades		PSEG (96.13%) / RE (3.87%)
b2437.30	New Linden 345/230 kV transformer and any associated substation upgrades		PSEG (*96.13*%) / RE (*3.87*%)
b2437.33	New Bayonne 345/69 kV transformer and any associated substation upgrades		PSEG (100%)
b2438	Install two reactors at Tosco 230 kV		PSEG (100.00%)
b2439	Replace the Tosco 138kV breaker 'CB1/2 (CBT)' with 63kA		PSEG (100.00%)
b2474	Rebuild Athenia 138 kV to 80kA		PSEG (100%)
b2589	Install a 100 MVAR 230 kV shunt reactor at Mercer station		PSEG (100%)
b2590	Install two 75 MVAR 230 kV capacitors at Sewaren station		PSEG (100%)

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Public Service Electric and Gas Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2633.3	Install an SVC at New Freedom 500 kV substation		**Load-Ratio Share Allocation:** AEC (*1.66*%) / AEP (*14.16*%) / APS (*5.73*%) / ATSI (*7.88*%) / BGE (*4.22*%) / ComEd (*13.31*%) / Dayton (*2.11*%) / DEOK (*3.29*%) / DL (*1.75*%) / DPL (*2.50*%) / Dominion (*12.86*%) / EKPC (*1.87*%) / JCPL (*3.74*%) / ME (*1.90*%) / NEPTUNE* (*0.44*%) / PECO (*5.34*%) / PENELEC (*1.89*%) / PEPCO (*3.99*%) / PPL (*4.84*%) / PSEG (*6.26*%) / RE (*0.26*%)
			DFAX Allocation: AEC (0.01%) / DPL (99.98%) / JCPL (0.01%)
b2633.4	Add a new 500 kV bay at Hope Creek (Expansion of Hope Creek substation)		**Load-Ratio Share Allocation:** AEC (*1.66*%) / AEP (*14.16*%) / APS (*5.73*%) / ATSI (*7.88*%) / BGE (*4.22*%) / ComEd (*13.31*%) / Dayton (*2.11*%) / DEOK (*3.29*%) / DL (*1.75*%) / DPL (*2.50*%) / Dominion (*12.86*%) / EKPC (*1.87*%) / JCPL (*3.74*%) / ME (*1.90*%) / NEPTUNE* (*0.44*%) / PECO (*5.34*%) / PENELEC (*1.89*%) / PEPCO (*3.99*%) / PPL (*4.84*%) / PSEG (*6.26*%) / RE (*0.26*%)
			DFAX Allocation: AEC (0.01%) / DPL (99.98%) / JCPL (0.01%)

Public Service Electric and Gas Company (cont.)

Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b2633.5	Add a new 500/230 kV autotransformer at Hope Creek and a new Hope Creek 230 kV substation		AEC (0.01%) / DPL (99.98%) / JCPL (0.01%)
b2633.8	Implement high speed relaying utilizing OPGW on Salem – Orchard 500 kV, Hope Creek – New Freedom 500 kV, New Freedom - Salem 500 kV, Hope Creek – Salem 500 kV, and New Freedom – Orchard 500 kV lines		**Load-Ratio Share Allocation:** AEC (*1.66*%) / AEP (*14.16*%) / APS (*5.73*%) / ATSI (*7.88*%) / BGE (*4.22*%) / ComEd (*13.31*%) / Dayton (*2.11*%) / DEOK (*3.29*%) / DL (*1.75*%) / DPL (*2.50*%) / Dominion (*12.86*%) / EKPC (*1.87*%) / JCPL (*3.74*%) / ME (*1.90*%) / NEPTUNE* (*0.44*%) / PECO (*5.34*%) / PENELEC (*1.89*%) / PEPCO (*3.99*%) / PPL (*4.84*%) / PSEG (*6.26*%) / RE (*0.26*%)
			DFAX Allocation: AEC (0.01%) / DPL (99.98%) / JCPL (0.01%)

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Public Service Electric and Gas Company (cont.)

Required Transmission Enhancements	Annual Revenue Requirement		Responsible Customer(s)
b2633.91	Implement changes to the tap settings for the two Salem units' step up transformers		AEC (0.01%) / DPL (99.98%) / JCPL (0.01%)
b2633.92	Implement changes to the tap settings for the Hope Creek unit's step up transformers		AEC (0.01%) / DPL (99.98%) / JCPL (0.01%)
b2702	Install a 350 MVAR reactor at Roseland 500 kV		**Load-Ratio Share Allocation:** AEC (*1.66*%) / AEP (*14.16*%) / APS (*5.73*%) / ATSI (*7.88*%) / BGE (*4.22*%) / ComEd (*13.31*%) / Dayton (*2.11*%) / DEOK (*3.29*%) / DL (*1.75*%) / DPL (*2.50*%) / Dominion (*12.86*%) / EKPC (*1.87*%) / JCPL (*3.74*%) / ME (*1.90*%) / NEPTUNE* (*0.44*%) / PECO (*5.34*%) / PENELEC (*1.89*%) / PEPCO (*3.99*%) / PPL (*4.84*%) / PSEG (*6.26*%) / RE (*0.26*%) **DFAX Allocation:** PSEG (100%)
b2703	Install a 100 MVAR reactor at Bergen 230 kV		PSEG (100%)
b2704	Install a 150 MVAR reactor at Essex 230 kV		PSEG (100%)
b2705	Install a 200 MVAR reactor (variable) at Bergen 345 kV		PSEG (100%)
b2706	Install a 200 MVAR reactor (variable) at Bayway 345 kV		PSEG (100%)
b2707	Install a 100 MVAR reactor at Bayonne 345 kV		PSEG (100%)

*Neptune Regional Transmission System, LLC
**East Coast Power, L.L.C.
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Public Service Electric and Gas Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2712	Replace the Bergen 138 kV '40P'breaker with 80kA breaker		PSEG (100%)
b2713	Replace the Bergen 138 kV '90P' breaker with 80kA breaker		PSEG (100%)
b2722	Reconductor the 1 mile Bergen – Bergen GT 138 kV circuit (B-1302)		PSEG (100%)
b2755	Build a third 345 kV source into Newark Airport		PSEG (100%)
b2810.1	Install second 230/69 kV transformer at Cedar Grove		PSEG (100%)
b2810.2	Build a new 69 kV circuit from Cedar Grove to Great Notch		PSEG (100%)
b2811	Build 69 kV circuit from Locust Street to Delair		PSEG (100%)
b2812	Construct River Road to Tonnelle Avenue 69kV Circuit		PSEG (100%)
b2825.1	Install 2X50 MVAR shunt reactors at Kearny 230 kV substation		PSEG (100%)
b2825.2	Increase the size of the Hudson 230 kV, 2X50 MVAR shunt reactors to 2X100 MVAR		PSEG (100%)
b2825.3	Install 2X100 MVAR shunt reactors at Bayway 345 kV substation		PSEG (100%)
b2825.4	Install 2X100 MVAR shunt reactors at Linden 345 kV substation		PSEG (100%)
b2835	Convert the R-1318 and Q1317 (Edison – Metuchen) 138 kV circuits to one 230 kV circuit		PSEG (100%)

Public Service Electric and Gas Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2836	Convert the N-1340 and T-1372/D-1330 (Brunswick – Trenton) 138 kV circuits to 230 kV circuits		PSEG (100%)
b2837	Convert the F-1358/Z1326 and K1363/Y-1325 (Trenton – Burlington) 138 kV circuits to 230 kV circuits		PSEG (100%)
b2870	Build new 138/26 kV Newark GIS station in a building (layout #1A) located adjacent to the existing Newark Switch and demolish the existing Newark Switch		PSEG (100%)
b2933	*Third Source for Springfield Rd. and Stanley Terrace Stations*		*PSEG (100%)*
b2933.1	*Construct a 230/69 kV station at Springfield*		*PSEG (100%)*
b2933.2	*Construct a 230/69 kV station at Stanley Terrace*		*PSEG (100%)*
b2933.3	*Construct a 69 kV network between Front Street, Springfield and Stanley Terrace*		*PSEG (100%)*
b2934	*Build a new 69 kV line between Hasbrouck Heights and Carlstadt*		*PSEG (100%)*
b2935	*Third Supply for Runnemede 69 kV and Woodbury 69 kV*		*PSEG (100%)*
b2935.1	*Build a new 230/69 kV switching substation at Hilltop utilizing the PSE&G property and the K-2237 230 kV line*		*PSEG (100%)*
b2935.2	*Build a new line between Hilltop and Woodbury 69 kV providing the 3rd supply*		*PSEG (100%)*

Public Service Electric and Gas Company (cont.)

Required Transmission Enhancements	*Annual Revenue Requirement*	*Responsible Customer(s)*
b2935.3	*Convert Runnemede's straight bus to a ring bus and construct a 69 kV line from Hilltop to Runnemede 69 kV*		*PSEG (100%)*
b2955	Wreck and rebuild the VFT – Warinanco – Aldene 230 kV circuit with paired conductor		JCPL (93.78%) / NEPTUNE* (6.22%)
b2956	Replace existing cable on Cedar Grove - Jackson Rd. with 5000kcmil XLPE cable		JCPL (0.05%) / NEPTUNE* (0.01%) / PSEG (96.07%) / RE (3.87%)

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) 138kV 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%)
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%)
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%)

SCHEDULE 12 – APPENDIX A

(15) Commonwealth Edison Company and Commonwealth Edison Company of Indiana, Inc.

Required Transmission Enhancements	Annual Revenue Requirement		Responsible Customer(s)
b2141.1	Remove Byron SPS upon completion of Byron - Wayne 345 kV		ComEd (100%)
b2365	Replace 138 kV bus tie 1-2 circuit breaker, station conductor, relays, and a wave trap at TSS 55 Hegewisch substation		ComEd (100%)
b2366	Reconductor 1.4 miles of 138 kV line 0112, Kickapoo Creek - LaSalle County 138kV line		ComEd (100%)
b2415	Install a 138 kV Red Blue bus tie with underground cable and a line 15913 CB at Highland Park		ComEd (100%)
b2416	Reconductor 0.125 miles of the East Frankfort - Mokena 138 kV line L6604		ComEd (100%)
b2417	Replace Ridgeland 138 kV bus tie CB and underground cable at TSS 192 Ridgeland 138 kV substation		ComEd (100%)
b2418	Reconductor 7.5 miles of Waukegan - Gurnee 138 kV line L1607		ComEd (100%)
b2419	Reconductor 0.33 miles of 138 kV underground cable on the Sawyer - Crawford 138 kV Blue line (L1324)		ComEd (100%)
b2465	Replace the Skokie 138 kV breaker ’88 L8809’ with a 63 kA breaker		ComEd (100%)
b2466	Replace the Skokie 138 kV breaker ’88 L8810’ with 63kA breaker		ComEd (100%)
b2467	Replace the Skokie 138 kV breaker ’88 L11416’ with 63 kA breaker		ComEd (100%)

Commonwealth Edison Company and Commonwealth Edison Company of Indiana, Inc. (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2468	Replace the Skokie 138 kV breaker ’88 L8803’ with 63kA breaker		ComEd (100%)
b2469	Replace the Des Plaines 138 kV breaker ’46 11702’ with 63 kA breaker		ComEd (100%)
b2561	Install a new 345 kV circuit breaker 5-7 at Elwood substation		ComEd (100%)
b2562	Remove 2.0 miles of wood poles on 138 kV line 17105, erect new steel structures, and install new 1113 kcmil ACSR conductor from Roscoe Bert to Harlem		ComEd (100%)
b2613	Replace relays at Mazon substation		ComEd (100%)
b2692.1	Replace station equipment at Nelson, ESS H-471 and Quad Cities		AEC (0.18%) / AEP (18.68%) / APS (5.86%) / ATSI (7.85%) / BGE (3.32%) / ComEd (38.21%) / Dayton (2.76%) / DEOK (4.13%) / DL (2.23%) / Dominion (5.15%) / DPL (1.97%) / EKPC (1.36%) / HTP (0.05%) / JCPL (0.52%) / MetED (0.04%) / Neptune (0.04%) / PECO (1.08%) / PENELEC (1.25%) / PEPCO (3.56%) / PPL (0.45%) / PSEG (1.17%) / RECO (0.14%)

Commonwealth Edison Company and Commonwealth Edison Company of Indiana, Inc. (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2692.2	Upgrade conductor ratings of Cordova – Nelson, Quad Cities – ESS H-471 and ESS H-471 – Nelson 345 kV lines and mitigating sag limitations		AEC (0.18%) / AEP (18.68%) / APS (5.86%) / ATSI (7.85%) / BGE (3.32%) / ComEd (38.21%) / Dayton (2.76%) / DEOK (4.13%) / DL (2.23%) / Dominion (5.15%) / DPL (1.97%) / EKPC (1.36%) / HTP (0.05%) / JCPL (0.52%) / MetED (0.04%) / Neptune (0.04%) / PECO (1.08%) / PENELEC (1.25%) / PEPCO (3.56%) / PPL (0.45%) / PSEG (1.17%) / RECO (0.14%)
b2693	Replace L7815 B phase line trap at Wayne substation		ComEd (100%)
b2699.1	Replace 5 Powerton 345 kV CB's with 2 cycle IPO breakers, install one new 345 kV CB; swap line 0302 and line 0303 bus positions; reconfigure Powerton 345 kV bus as single ring configuration		ComEd (100%)
b2699.2	Remove SPS logic at Powerton that trips generators or sectionalizes bus under normal conditions; minimal SPS logic will remain		ComEd (100%)
b2721	Goodings Grove – Balance Station Load (swap bus positions for 345 kV lines 1312 & 11620 and 345 kV lines 11604 & 11622) and replace 138 kV bus tie 2-3		ComEd (100%)

Commonwealth Edison Company and Commonwealth Edison Company of Indiana, Inc. (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2728	Mitigate sag limitations on Loretto – Wilton Center 345 kV Line and replace station conductor at Wilton Center		ATSI (3.43%) / AEP (3.34%) / ComEd (92.02%) / DLCO (1.21%)
b2732.1	Cut-in of line 93505 Tazewell – Kendall 345 kV line into Dresden		ComEd (100%)
b2732.2	Raise towers to remove the sag limitations on Pontiac – Loretto 345 kV line		ComEd (100%)
b2930	*Upgrade capacity on E. Frankfort – University Park 345 kV*		*ComEd (100%)*
b2931	*Upgrade substation equipment at Pontiac Midpoint station to increase capacity on Pontiac – Brokaw 345 kV line*		*ComEd (100%)*
b2941	*Build an indoor new Elk Grove 138 kV GIS substation at the point where Rolling Meadows & Schaumburg tap off from the main lines, between Landmeier and Busse. The four 345 kV circuits in the ROW will be diverted into Gas Insulated Bus (GIB) and go through the basement of the building to provide clearance for the above ground portion of the building*		*ComEd (100%)*
b2959	Install a new 138 kV circuit 18702 from Schauff Road to Rock Falls and install a fourth breaker and a half run at Schauff Road		ComEd (100%)

SCHEDULE 12 – APPENDIX A

(17) AEP Service Corporation on behalf of its Affiliate Companies (AEP Indiana Michigan Transmission Company, AEP Kentucky Transmission Company, AEP Ohio Transmission Company, AEP West Virginia Transmission Company, 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)
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 (*1.66*%) / AEP (*14.16*%) / APS (*5.73*%) / ATSI (*7.88*%) / BGE (*4.22*%) / ComEd (*13.31*%) / Dayton (*2.11*%) / DEOK (*3.29*%) / DL (*1.75*%) / DPL (*2.50*%) / Dominion (*12.86*%) / EKPC (*1.87*%) / JCPL (*3.74*%) / ME (*1.90*%) / NEPTUNE* (*0.44*%) / PECO (*5.34*%) / PENELEC (*1.89*%) / PEPCO (*3.99*%) / PPL (*4.84*%) / PSEG (*6.26*%) / RE (*0.26*%)
		DFAX Allocation: APS (*97.94*%) / DEOK (*0.54*%) / Dominion (*1.33*%) / EKPC (*0.19*%)

*Neptune Regional Transmission System, LLC
**East Coast Power, L.L.C.

AEP Service Corporation on behalf of its Affiliate Companies (AEP Indiana Michigan Transmission Company, AEP Kentucky Transmission Company, AEP Ohio Transmission Company, AEP West Virginia Transmission Company, 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)
b1797.1	Reconductor the AEP portion of the Cloverdale - Lexington 500 kV line with 2-1780 ACSS	**Load-Ratio Share Allocation:** AEC (*1.66*%) / AEP (*14.16*%) / APS (*5.73*%) / ATSI (*7.88*%) / BGE (*4.22*%) / ComEd (*13.31*%) / Dayton (*2.11*%) / DEOK (*3.29*%) / DL (*1.75*%) / DPL (*2.50*%) / Dominion (*12.86*%) / EKPC (*1.87*%) / JCPL (*3.74*%) / ME (*1.90*%) / NEPTUNE* (*0.44*%) / PECO (*5.34*%) / PENELEC (*1.89*%) / PEPCO (*3.99*%) / PPL (*4.84*%) / PSEG (*6.26*%) / RE (*0.26*%)
		DFAX Allocation: APS (*55.05*%) / ATSI (*2.77*%) / Dayton (*0.84*%) / DEOK (*2.06*%) / Dominion (*5.76*%) / EKPC (*0.72*%) / PEPCO (*32.80*%)
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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**East Coast Power, L.L.C.

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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 (*1.66*%) / AEP (*14.16*%) / APS (*5.73*%) / ATSI (*7.88*%) / BGE (*4.22*%) / ComEd (*13.31*%) / Dayton (*2.11*%) / DEOK (*3.29*%) / DL (*1.75*%) / DPL (*2.50*%) / Dominion (*12.86*%) / EKPC (*1.87*%) / JCPL (*3.74*%) / ME (*1.90*%) / NEPTUNE* (*0.44*%) / PECO (*5.34*%) / PENELEC (*1.89*%) / PEPCO (*3.99*%) / PPL (*4.84*%) / PSEG (*6.26*%) / 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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**East Coast Power, L.L.C.

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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%)
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%)

AEP Service Corporation on behalf of its Affiliate Companies (AEP Indiana Michigan Transmission Company, AEP Kentucky Transmission Company, AEP Ohio Transmission Company, AEP West Virginia Transmission Company, 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)
b2287	Loop in the Meadow Lake - Olive 345 kV circuit into Reynolds 765/345 kV station		AEP (100%)
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%)

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Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b2345.2	Rebuild the 34.5 kV lines between Keeler - Sister Lakes and Glenwood tap switch to 69 kV (~12 miles)		AEP (100%)
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 (*1.66*%) / AEP (*14.16*%) / APS (*5.73*%) / ATSI (*7.88*%) / BGE (*4.22*%) / ComEd (*13.31*%) / Dayton (*2.11*%) / DEOK (*3.29*%) / DL (*1.75*%) / DPL (*2.50*%) / Dominion (*12.86*%) / EKPC (*1.87*%) / JCPL (*3.74*%) / ME (*1.90*%) / NEPTUNE* (*0.44*%) / PECO (*5.34*%) / PENELEC (*1.89*%) / PEPCO (*3.99*%) / PPL (*4.84*%) / PSEG (*6.26*%) / 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%)
b2601.5	Install two (2) circuit switchers on high side of transformers # 2 and 3 at Fremont Station	AEP (100%)

AEP Service Corporation on behalf of its Affiliate Companies (AEP Indiana Michigan Transmission Company, AEP Kentucky Transmission Company, AEP Ohio Transmission Company, AEP West Virginia Transmission Company, 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)
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%)

AEP Service Corporation on behalf of its Affiliate Companies (AEP Indiana Michigan Transmission Company, AEP Kentucky Transmission Company, AEP Ohio Transmission Company, AEP West Virginia Transmission Company, 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)
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%)

AEP Service Corporation on behalf of its Affiliate Companies (AEP Indiana Michigan Transmission Company, AEP Kentucky Transmission Company, AEP Ohio Transmission Company, AEP West Virginia Transmission Company, 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)
b2687.1	Install a +/- 450 MVAR SVC at Jacksons Ferry 765 kV substation		**Load-Ratio Share Allocation:** AEC (*1.66*%) / AEP (*14.16*%) / APS (*5.73*%) / ATSI (*7.88*%) / BGE (*4.22*%) / ComEd (*13.31*%) / Dayton (*2.11*%) / DEOK (*3.29*%) / DL (*1.75*%) / DPL (*2.50*%) / Dominion (*12.86*%) / EKPC (*1.87*%) / JCPL (*3.74*%) / ME (*1.90*%) / NEPTUNE* (*0.44*%) / PECO (*5.34*%) / PENELEC (*1.89*%) / PEPCO (*3.99*%) / PPL (*4.84*%) / PSEG (*6.26*%) / RE (*0.26*%)
			DFAX Allocation: AEP (100%)

*Neptune Regional Transmission System, LLC
**East Coast Power, L.L.C.
*** Hudson Transmission Partners, LLC

AEP Service Corporation on behalf of its Affiliate Companies (AEP Indiana Michigan Transmission Company, AEP Kentucky Transmission Company, AEP Ohio Transmission Company, AEP West Virginia Transmission Company, 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)
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 (*1.66*%) / AEP (*14.16*%) / APS (*5.73*%) / ATSI (*7.88*%) / BGE (*4.22*%) / ComEd (*13.31*%) / Dayton (*2.11*%) / DEOK (*3.29*%) / DL (*1.75*%) / DPL (*2.50*%) / Dominion (*12.86*%) / EKPC (*1.87*%) / JCPL (*3.74*%) / ME (*1.90*%) / NEPTUNE* (*0.44*%) / PECO (*5.34*%) / PENELEC (*1.89*%) / PEPCO (*3.99*%) / PPL (*4.84*%) / PSEG (*6.26*%) / 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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**East Coast Power, L.L.C.
*** Hudson Transmission Partners, LLC

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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		AEP (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%)
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%)*
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%)*

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Required Transmission Enhancements		*Annual Revenue Requirement*	*Responsible Customer(s)*
b2789	*Rebuild the Brues - Glendale Heights 69 kV line section (5 miles) with 795 ACSR (128 MVA rating, 43% loading)*		*AEP (100%)*
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%)

AEP Service Corporation on behalf of its Affiliate Companies (AEP Indiana Michigan Transmission Company, AEP Kentucky Transmission Company, AEP Ohio Transmission Company, AEP West Virginia Transmission Company, 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)
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 (34.34%) / DEOK (56.45%) / EKPC (9.21%)
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:** Dayton (100%)
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		DEOK (100%)

SCHEDULE 12 – APPENDIX A

(19) Northern Indiana Public Service Company

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2971	Reconfigure Munster 345 kV as ring bus		MISO (12.00%) / AEC (0.97%) / AEP (16.66%) / APS (4.94%) / ATSI (7.78%) / BGE (5.21%) / Dayton (1.85%) / DEOK (2.30%) / Dominion (15.21%) / DPL (1.75%) / DL (1.43%) / EKPC (0.60%) / JCPL (2.16%) / ME (1.73%) / PECO (4.32%) / PENELEC (4.98%) / PEPCO (5.80%) / PPL (4.74%) / PSEG (5.09%) / RE (0.15%) / NEPTUNE* (0.33%)
b2973	Reconductor Michigan City - Bosserman 138 kV		MISO (10.00%) / AEC (0.93%) / AEP (26.05%) / APS (4.19%) / ATSI (5.95%) / BGE (4.39%) / Dayton (1.59%) / DEOK (2.30%) / Dominion (14.72%) / DPL (1.53%) / DL (1.26%) / EKPC (0.98%) / JCPL (1.92%) / ME (1.39%) / PECO (4.19%) / PENELEC (4.35%) / PEPCO (5.06%) / PPL (4.03%) / PSEG (4.49%) / RE (0.12%) / NEPTUNE* (0.56%)
b2974	Replace terminal equipment at Reynolds on the Reynolds - Magnetation 138 kV		MISO (59.00%) / AEC (0.01%) / AEP (40.32%) / APS (0.13%) / ATSI (0.05%) / BGE (0.08%) / Dayton (0.03%) / DPL (0.01%) / ME (0.04%) / PENELEC (0.06%) / PPL (0.20%) / PSEG (0.03%) / NEPTUNE* (0.04%)
b2975	Reconductor Roxana - Praxair 138 kV		MISO (76.00%) / AEC (0.28%) / AEP (4.51%) / APS (1.31%) / ATSI (1.91%) / BGE (1.40%) / Dayton (0.49%) / DEOK (0.70%) / Dominion (4.35%) / DPL (0.46%) / DL (0.38%) / EKPC (0.27%) / JCPL (0.57%) / ME (0.43%) / PECO (1.25%) / PENELEC (1.34%) / PEPCO (1.53%) / PPL (1.23%) / PSEG (1.41%) / RE (0.04%) / NEPTUNE* (0.14%)

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		Dominion (100%)
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%)
b2403	Replace the Beaumeade 230 kV breaker '274T2130' 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
**East Coast Power, L.L.C.
***Hudson Transmission Partners, LLC

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
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%)
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%)
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%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
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 (*1.66*%) / AEP (*14.16*%) / APS (*5.73*%) / ATSI (*7.88*%) / BGE (*4.22*%) / ComEd (*13.31*%) / Dayton (*2.11*%) / DEOK (*3.29*%) / DL (*1.75*%) / DPL (*2.50*%) / Dominion (*12.86*%) / EKPC (*1.87*%) / JCPL (*3.74*%) / ME (*1.90*%) / NEPTUNE* (*0.44*%) / PECO (*5.34*%) / PENELEC (*1.89*%) / PEPCO (*3.99*%) / PPL (*4.84*%) / PSEG (*6.26*%) / 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		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		**DFAX Allocation:** 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%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2665	Rebuild the Cunningham – Dooms 500 kV line		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%)
b2686.11	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%)
b2686.2	Install a 3rd 230/115 kV transformer at Gordonsville Substation		Dominion (100%)

*Neptune Regional Transmission System, LLC
** East Coast Power, LLC
***Hudson Transmission Partners, LLC

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2686.3	Upgrade Line 2088 between Gordonsville Substation and Louisa CT Station		Dominion (100%)
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 (*1.66*%) / AEP (*14.16*%) / APS (*5.73*%) / ATSI (*7.88*%) / BGE (*4.22*%) / ComEd (*13.31*%) / Dayton (*2.11*%) / DEOK (*3.29*%) / DL (*1.75*%) / DPL (*2.50*%) / Dominion (*12.86*%) / EKPC (*1.87*%) / JCPL (*3.74*%) / ME (*1.90*%) / NEPTUNE* (*0.44*%) / PECO (*5.34*%) / PENELEC (*1.89*%) / PEPCO (*3.99*%) / PPL (*4.84*%) / PSEG (*6.26*%) / 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		Dominion (100%)
b2759	Rebuild Line #550 Mt. Storm – Valley 500kV		Dominion (100%)
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*		*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		Dominion (100%)
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%)
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%)

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		ATSI (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%)

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 (68.57%) / JCPL (31.43%)
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%)

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 (*1.66*%) / AEP (*14.16*%) / APS (*5.73*%) / ATSI (*7.88*%) / BGE (*4.22*%) / ComEd (*13.31*%) / Dayton (*2.11*%) / DEOK (*3.29*%) / DL (*1.75*%) / DPL (*2.50*%) / Dominion (*12.86*%) / EKPC (*1.87*%) / JCPL (*3.74*%) / ME (*1.90*%) / NEPTUNE* (*0.44*%) / PECO (*5.34*%) / PENELEC (*1.89*%) / PEPCO (*3.99*%) / PPL (*4.84*%) / PSEG (*6.26*%) / RE (*0.26*%)
			DFAX Allocation: AEC (0.05%) / APS (11.16%) / BGE (22.34%) / Dayton (2.18%) / DEOK (4.19%) / DPL (0.20%) / ECP** (1.03%) / EKPC (1.94%) / JCPL (10.82%) / NEPTUNE* (1.14%) / HTP*** (1.10%) / POSEIDON**** (0.63%) / PENELEC (0.06%) / PEPECO (18.97%) / PSEG (23.26%) / RECO (0.93%)

*Neptune Regional Transmission System, LLC
** East Coast Power, LLC
***Hudson Transmission Partners, LLC
****Poseidon Transmission 1, LLC

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 (*1.66*%) / AEP (*14.16*%) / APS (*5.73*%) / ATSI (*7.88*%) / BGE (*4.22*%) / ComEd (*13.31*%) / Dayton (*2.11*%) / DEOK (*3.29*%) / DL (*1.75*%) / DPL (*2.50*%) / Dominion (*12.86*%) / EKPC (*1.87*%) / JCPL (*3.74*%) / ME (*1.90*%) / NEPTUNE* (*0.44*%) / PECO (*5.34*%) / PENELEC (*1.89*%) / PEPCO (*3.99*%) / PPL (*4.84*%) / PSEG (*6.26*%) / 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 (0.01%) / DPL (99.98%) / JCPL (0.01%)

*Neptune Regional Transmission System, LLC
**East Coast Power, LLC
***Hudson Transmission Partners, 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%)

SCHEDULE 12 – APPENDIX A

(5) Mid-Atlantic Interstate Transmission, LLC for the Metropolitan Edison Company Zone

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2006.1.1	Loop the 2026 (TMI – Hosensack 500 kV) line in to the Lauschtown		**Load-Ratio Share Allocation:** AEC (*1.66*%) / AEP (*14.16*%) / APS (*5.73*%) / ATSI (*7.88*%) / BGE (*4.22*%) / ComEd (*13.31*%) / Dayton (*2.11*%) / DEOK (*3.29*%) / DL (*1.75*%) / DPL (*2.50*%) / Dominion (*12.86*%) / EKPC (*1.87*%) / JCPL (*3.74*%) / ME (*1.90*%) / NEPTUNE* (*0.44*%) / PECO (*5.34*%) / PENELEC (*1.89*%) / PEPCO (*3.99*%) / PPL (*4.84*%) / PSEG (*6.26*%) / RE (*0.26*%) **DFAX Allocation:** PPL (*100*%)
b2006.2.1	Upgrade relay at South Reading on the 1072 230 V line		ME (100%)
b2006.4	Replace the South Reading 69 kV ‘81342’ breaker with 40kA breaker		ME (100%)
b2006.5	Replace the South Reading 69 kV ‘82842’ breaker with 40kA breaker		ME (100%)
b2452	Install 2nd Hunterstown 230/115 kV transformer		APS (8.30%) / BGE (14.70%) / DEOK (0.48%) / Dominion (36.92%) / ME (23.85%) / PEPCO (15.75%)

Mid-Atlantic Interstate Transmission, LLC for the Metropolitan Edison Company Zone (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2452.1	Reconductor Hunterstown - Oxford 115 kV line		APS (8.30%) / BGE (14.70%) / DEOK (0.48%) / Dominion (36.92%) / ME (23.85%) / PEPCO (15.75%)
b2452.3	Replace the Hunterstown 115 kV breaker '96192' with 40 kA		ME (100%)
b2588	Install a 36.6 MVAR 115 kV capacitor at North Bangor substation		ME (100%)
b2637	Convert Middletown Junction 230 kV substation to nine bay double breaker configuration.		ME (100%)
b2644	Install a 28.8 MVAR 115 kV capacitor at the Mountain substation		ME (100%)
b2688.1	Lincoln Substation: Upgrade the bus conductor and replace CTs.		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%)
b2688.2	Germantown Substation: Replace 138/115 kV transformer with a 135/180/224 MVA bank. Replace Lincoln 115 kV breaker, install new 138 kV breaker, upgrade bus conductor and adjust/replace CTs.		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%)

Mid-Atlantic Interstate Transmission, LLC for the Metropolitan Edison Company Zone (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2743.4	Upgrade terminal equipment at Hunterstown 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%)
b2752.4	Upgrade terminal equipment and required relay communication at TMI 500 kV: on the Beach Bottom – TMI 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%)
b2749	Replace relay at West Boyertown 69 kV station on the West Boyertown – North Boyertown 69 kV circuit		ME (100%)
b2765	Upgrade bus conductor at Gardners 115 kv substation; Upgrade bus conductor and adjust CT ratios at Carlisle Pike 115 kV		ME (100%)
b2950	Upgrade limiting 115 kV switches on the 115 kV side of the 230/115 kV Northwood substation and adjust setting on limiting ZR relay		ME (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 (100%)
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%)

SCHEDULE 12 – APPENDIX A

(12) Public Service Electric and Gas Company

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2218	Rebuild 4 miles of overhead line from Edison - Meadow Rd - Metuchen (Q 1317)		HTP (36.49%) / ECP** (63.51%)
b2239	50 MVAR reactor at Saddlebrook 230 kV		PSEG (100%)
b2240	50 MVAR reactor at Athenia 230 kV		PSEG (100%)
b2241	50 MVAR reactor at Bergen 230 kV		PSEG (100%)
b2242	50 MVAR reactor at Hudson 230 kV		PSEG (100%)
b2243	Two 50 MVAR reactors at Stanley Terrace 230 kV		PSEG (100%)
b2244	50 MVAR reactor at West Orange 230 kV		PSEG (100%)
b2245	50 MVAR reactor at Aldene 230 kV		PSEG (100%)
b2246	150 MVAR reactor at Camden 230 kV		PSEG (100%)
b2247	150 MVAR reactor at Gloucester 230 kV		PSEG (100%)
b2248	50 MVAR reactor at Clarksville 230 kV		PSEG (100%)
b2249	50 MVAR reactor at Hinchmans 230 kV		PSEG (100%)
b2250	50 MVAR reactor at Beaverbrook 230 kV		PSEG (100%)
b2251	50 MVAR reactor at Cox's Corner 230 kV		PSEG (100%)

*Neptune Regional Transmission System, LLC
**East Coast Power, L.L.C.

The Annual Revenue Requirement for all Public Service Electric and Gas Company Projects (Required Transmission Enhancements) in this Section 12 shall be as specified in Attachment 7 of Attachment H-10A and under the procedures detailed in Attachment H-10B.

Public Service Electric and Gas Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2276	Eliminate the Sewaren 138 kV bus by installing a new 230 kV bay at Sewaren 230 kV		PSEG (100%)
b2276.1	Convert the two 138 kV circuits from Sewaren – Metuchen to 230 kV circuits including Lafayette and Woodbridge substation		PSEG (100%)
b2276.2	Reconfigure the Metuchen 230 kV station to accommodate the two converted circuits		PSEG (100%)
b2290	Replace disconnect switches at Kilmer, Lake Nilson and Greenbrook 230 kV substations on the Raritian River - Middlesex (I-1023) circuit		PSEG (100%)
b2291	Replace circuit switcher at Lake Nelson 230 kV substation on the Raritian River - Middlesex (W-1037) circuit		PSEG (100%)
b2295	Replace the Salem 500 kV breaker 10X with 63kA breaker		PSEG (100%)
b2421	Install all 69kV lines to interconnect Plainfield, Greenbrook, and Bridgewater stations and establish the 69kV network		PSEG (100%)
b2421.1	Install two 18MVAR capacitors at Plainfield and S. Second St substation		PSEG (100%)

*Neptune Regional Transmission System, LLC
**East Coast Power, L.L.C.

Public Service Electric and Gas Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2421.2	Install a second four (4) breaker 69kV ring bus at Bridgewater Switching Station		PSEG (100%)
b2436.10	Convert the Bergen – Marion 138 kV path to double circuit 345 kV and associated substation upgrades		**Load-Ratio Share Allocation:** AEC (*1.66*%) / AEP (*14.16*%) / APS (*5.73*%) / ATSI (*7.88*%) / BGE (*4.22*%) / ComEd (*13.31*%) / Dayton (*2.11*%) / DEOK (*3.29*%) / DL (*1.75*%) / DPL (*2.50*%) / Dominion (*12.86*%) / EKPC (*1.87*%) / JCPL (*3.74*%) / ME (*1.90*%) / NEPTUNE* (*0.44*%) / PECO (*5.34*%) / PENELEC (*1.89*%) / PEPCO (*3.99*%) / PPL (*4.84*%) / PSEG (*6.26*%) / RE (*0.26*%) **DFAX Allocation:** PSEG (*100*%)
b2436.21	Convert the Marion - Bayonne "L" 138 kV circuit to 345 kV and any associated substation upgrades		**Load-Ratio Share Allocation:** AEC (*1.66*%) / AEP (*14.16*%) / APS (*5.73*%) / ATSI (*7.88*%) / BGE (*4.22*%) / ComEd (*13.31*%) / Dayton (*2.11*%) / DEOK (*3.29*%) / DL (*1.75*%) / DPL (*2.50*%) / Dominion (*12.86*%) / EKPC (*1.87*%) / JCPL (*3.74*%) / ME (*1.90*%) / NEPTUNE* (*0.44*%) / PECO (*5.34*%) / PENELEC (*1.89*%) / PEPCO (*3.99*%) / PPL (*4.84*%) / PSEG (*6.26*%) / RE (*0.26*%) **DFAX Allocation:** *PSEG (100%)*

*Neptune Regional Transmission System, LLC
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Public Service Electric and Gas Company (cont.)

Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
b2436.22	Convert the Marion - Bayonne "C" 138 kV circuit to 345 kV and any associated substation upgrades	**Load-Ratio Share Allocation:** AEC (*1.66*%) / AEP (*14.16*%) / APS (*5.73*%) / ATSI (*7.88*%) / BGE (*4.22*%) / ComEd (*13.31*%) / Dayton (*2.11*%) / DEOK (*3.29*%) / DL (*1.75*%) / DPL (*2.50*%) / Dominion (*12.86*%) / EKPC (*1.87*%) / JCPL (*3.74*%) / ME (*1.90*%) / NEPTUNE* (*0.44*%) / PECO (*5.34*%) / PENELEC (*1.89*%) / PEPCO (*3.99*%) / PPL (*4.84*%) / PSEG (*6.26*%) / RE (*0.26*%) **DFAX Allocation:** *PSEG (100%)*
b2436.33	Construct a new Bayway – Bayonne 345 kV circuit and any associated substation upgrades	*PSEG (100%)*
b2436.34	Construct a new North Ave – Bayonne 345 kV circuit and any associated substation upgrades	*PSEG (100%)*

*Neptune Regional Transmission System, LLC
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Public Service Electric and Gas Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2436.50	Construct a new North Ave - Airport 345 kV circuit and any associated substation upgrades		*PSEG (100%)*
b2436.60	Relocate the underground portion of North Ave - Linden "T" 138 kV circuit to Bayway, convert it to 345 kV, and any associated substation upgrades		*PSEG (96.13%) / RE (3.87%)*
b2436.70	Construct a new Airport - Bayway 345 kV circuit and any associated substation upgrades		*PSEG (100%)*
b2436.81	Relocate the overhead portion of Linden - North Ave "T" 138 kV circuit to Bayway, convert it to 345 kV, and any associated substation upgrades		**Load-Ratio Share Allocation:** AEC (*1.66*%) / AEP (*14.16*%) / APS (*5.73*%) / ATSI (*7.88*%) / BGE (*4.22*%) / ComEd (*13.31*%) / Dayton (*2.11*%) / DEOK (*3.29*%) / DL (*1.75*%) / DPL (*2.50*%) / Dominion (*12.86*%) / EKPC (*1.87*%) / JCPL (*3.74*%) / ME (*1.90*%) / NEPTUNE* (*0.44*%) / PECO (*5.34*%) / PENELEC (*1.89*%) / PEPCO (*3.99*%) / PPL (*4.84*%) / PSEG (*6.26*%) / RE (*0.26*%)
			DFAX Allocation: PSEG (*96.13*%) / RE (*3.87*%)

*Neptune Regional Transmission System, LLC
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Public Service Electric and Gas Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2436.83	Convert the Bayway - Linden "Z" 138 kV circuit to 345 kV and any associated substation upgrades		**Load-Ratio Share Allocation:** AEC (*1.66*%) / AEP (*14.16*%) / APS (*5.73*%) / ATSI (*7.88*%) / BGE (*4.22*%) / ComEd (*13.31*%) / Dayton (*2.11*%) / DEOK (*3.29*%) / DL (*1.75*%) / DPL (*2.50*%) / Dominion (*12.86*%) / EKPC (*1.87*%) / JCPL (*3.74*%) / ME (*1.90*%) / NEPTUNE* (*0.44*%) / PECO (*5.34*%) / PENELEC (*1.89*%) / PEPCO (*3.99*%) / PPL (*4.84*%) / PSEG (*6.26*%) / RE (*0.26*%)
			DFAX Allocation: PSEG (*96.13*%) / RE (*3.87*%)
b2436.84	Convert the Bayway – Linden "W" 138 kV circuit to 345 kV and any associated substation upgrades		**Load-Ratio Share Allocation:** AEC (*1.66*%) / AEP (*14.16*%) / APS (*5.73*%) / ATSI (*7.88*%) / BGE (*4.22*%) / ComEd (*13.31*%) / Dayton (*2.11*%) / DEOK (*3.29*%) / DL (*1.75*%) / DPL (*2.50*%) / Dominion (*12.86*%) / EKPC (*1.87*%) / JCPL (*3.74*%) / ME (*1.90*%) / NEPTUNE* (*0.44*%) / PECO (*5.34*%) / PENELEC (*1.89*%) / PEPCO (*3.99*%) / PPL (*4.84*%) / PSEG (*6.26*%) / RE (*0.26*%)
			DFAX Allocation: *PSEG (96.13%) / RE (3.87%)*

*Neptune Regional Transmission System, LLC
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Public Service Electric and Gas Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2436.85	Convert the Bayway – Linden "M" 138 kV circuit to 345 kV and any associated substation upgrades		**Load-Ratio Share Allocation:** AEC (*1.66*%) / AEP (*14.16*%) / APS (*5.73*%) / ATSI (*7.88*%) / BGE (*4.22*%) / ComEd (*13.31*%) / Dayton (*2.11*%) / DEOK (*3.29*%) / DL (*1.75*%) / DPL (*2.50*%) / Dominion (*12.86*%) / EKPC (*1.87*%) / JCPL (*3.74*%) / ME (*1.90*%) / NEPTUNE* (*0.44*%) / PECO (*5.34*%) / PENELEC (*1.89*%) / PEPCO (*3.99*%) / PPL (*4.84*%) / PSEG (*6.26*%) / RE (*0.26*%)
			DFAX Allocation: *PSEG (96.13%) / RE (3.87%)*
b2436.90	Relocate Farragut - Hudson "B" and "C" 345 kV circuits to Marion 345 kV and any associated substation upgrades		**Load-Ratio Share Allocation:** AEC (*1.66*%) / AEP (*14.16*%) / APS (*5.73*%) / ATSI (*7.88*%) / BGE (*4.22*%) / ComEd (*13.31*%) / Dayton (*2.11*%) / DEOK (*3.29*%) / DL (*1.75*%) / DPL (*2.50*%) / Dominion (*12.86*%) / EKPC (*1.87*%) / JCPL (*3.74*%) / ME (*1.90*%) / NEPTUNE* (*0.44*%) / PECO (*5.34*%) / PENELEC (*1.89*%) / PEPCO (*3.99*%) / PPL (*4.84*%) / PSEG (*6.26*%) / RE (*0.26*%)
			DFAX Allocation: PSEG (*96.13*%) / RE (*3.87*%)
b2436.91	Relocate the Hudson 2 generation to inject into the 345 kV at Marion and any associated upgrades		PSEG (100%)

*Neptune Regional Transmission System, LLC
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Public Service Electric and Gas Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2437.10	New Bergen 345/230 kV transformer and any associated substation upgrades		PSEG (*96.13*%) / RE (*3.87*%)
b2437.11	New Bergen 345/138 kV transformer #1 and any associated substation upgrades		*PSEG (100%)*
b2437.20	New Bayway 345/138 kV transformer #1 and any associated substation upgrades		PSEG (*96.13*%) / RE (*3.87*%)
b2437.21	New Bayway 345/138 kV transformer #2 and any associated substation upgrades		PSEG (96.13%) / RE (3.87%)
b2437.30	New Linden 345/230 kV transformer and any associated substation upgrades		PSEG (*96.13*%) / RE (*3.87*%)
b2437.33	New Bayonne 345/69 kV transformer and any associated substation upgrades		PSEG (100%)
b2438	Install two reactors at Tosco 230 kV		PSEG (100.00%)
b2439	Replace the Tosco 138kV breaker 'CB1/2 (CBT)' with 63kA		PSEG (100.00%)
b2474	Rebuild Athenia 138 kV to 80kA		PSEG (100%)
b2589	Install a 100 MVAR 230 kV shunt reactor at Mercer station		PSEG (100%)
b2590	Install two 75 MVAR 230 kV capacitors at Sewaren station		PSEG (100%)

*Neptune Regional Transmission System, LLC
**East Coast Power, L.L.C.
***Hudson Transmission Partners, LLC

Public Service Electric and Gas Company (cont.)

Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)	
b2633.3	Install an SVC at New Freedom 500 kV substation		**Load-Ratio Share Allocation:** AEC (*1.66*%) / AEP (*14.16*%) / APS (*5.73*%) / ATSI (*7.88*%) / BGE (*4.22*%) / ComEd (*13.31*%) / Dayton (*2.11*%) / DEOK (*3.29*%) / DL (*1.75*%) / DPL (*2.50*%) / Dominion (*12.86*%) / EKPC (*1.87*%) / JCPL (*3.74*%) / ME (*1.90*%) / NEPTUNE* (*0.44*%) / PECO (*5.34*%) / PENELEC (*1.89*%) / PEPCO (*3.99*%) / PPL (*4.84*%) / PSEG (*6.26*%) / RE (*0.26*%)
			DFAX Allocation: AEC (0.01%) / DPL (99.98%) / JCPL (0.01%)
b2633.4	Add a new 500 kV bay at Hope Creek (Expansion of Hope Creek substation)		**Load-Ratio Share Allocation:** AEC (*1.66*%) / AEP (*14.16*%) / APS (*5.73*%) / ATSI (*7.88*%) / BGE (*4.22*%) / ComEd (*13.31*%) / Dayton (*2.11*%) / DEOK (*3.29*%) / DL (*1.75*%) / DPL (*2.50*%) / Dominion (*12.86*%) / EKPC (*1.87*%) / JCPL (*3.74*%) / ME (*1.90*%) / NEPTUNE* (*0.44*%) / PECO (*5.34*%) / PENELEC (*1.89*%) / PEPCO (*3.99*%) / PPL (*4.84*%) / PSEG (*6.26*%) / RE (*0.26*%)
			DFAX Allocation: AEC (0.01%) / DPL (99.98%) / JCPL (0.01%)

Public Service Electric and Gas Company (cont.)

Required Transmission Enhancements	Annual Revenue Requirement		Responsible Customer(s)
b2633.5	Add a new 500/230 kV autotransformer at Hope Creek and a new Hope Creek 230 kV substation		AEC (0.01%) / DPL (99.98%) / JCPL (0.01%)
b2633.8	Implement high speed relaying utilizing OPGW on Salem – Orchard 500 kV, Hope Creek – New Freedom 500 kV, New Freedom - Salem 500 kV, Hope Creek – Salem 500 kV, and New Freedom – Orchard 500 kV lines		**Load-Ratio Share Allocation:** AEC (*1.66*%) / AEP (*14.16*%) / APS (*5.73*%) / ATSI (*7.88*%) / BGE (*4.22*%) / ComEd (*13.31*%) / Dayton (*2.11*%) / DEOK (*3.29*%) / DL (*1.75*%) / DPL (*2.50*%) / Dominion (*12.86*%) / EKPC (*1.87*%) / JCPL (*3.74*%) / ME (*1.90*%) / NEPTUNE* (*0.44*%) / PECO (*5.34*%) / PENELEC (*1.89*%) / PEPCO (*3.99*%) / PPL (*4.84*%) / PSEG (*6.26*%) / RE (*0.26*%)
			DFAX Allocation: AEC (0.01%) / DPL (99.98%) / JCPL (0.01%)

*Neptune Regional Transmission System, LLC
**East Coast Power, L.L.C.
***Hudson Transmission Partners, LLC

Public Service Electric and Gas Company (cont.)

Required Transmission Enhancements	Annual Revenue Requirement		Responsible Customer(s)
b2633.91	Implement changes to the tap settings for the two Salem units' step up transformers		AEC (0.01%) / DPL (99.98%) / JCPL (0.01%)
b2633.92	Implement changes to the tap settings for the Hope Creek unit's step up transformers		AEC (0.01%) / DPL (99.98%) / JCPL (0.01%)
b2702	Install a 350 MVAR reactor at Roseland 500 kV		**Load-Ratio Share Allocation:** AEC (*1.66*%) / AEP (*14.16*%) / APS (*5.73*%) / ATSI (*7.88*%) / BGE (*4.22*%) / ComEd (*13.31*%) / Dayton (*2.11*%) / DEOK (*3.29*%) / DL (*1.75*%) / DPL (*2.50*%) / Dominion (*12.86*%) / EKPC (*1.87*%) / JCPL (*3.74*%) / ME (*1.90*%) / NEPTUNE* (*0.44*%) / PECO (*5.34*%) / PENELEC (*1.89*%) / PEPCO (*3.99*%) / PPL (*4.84*%) / PSEG (*6.26*%) / RE (*0.26*%) **DFAX Allocation:** PSEG (100%)
b2703	Install a 100 MVAR reactor at Bergen 230 kV		PSEG (100%)
b2704	Install a 150 MVAR reactor at Essex 230 kV		PSEG (100%)
b2705	Install a 200 MVAR reactor (variable) at Bergen 345 kV		PSEG (100%)
b2706	Install a 200 MVAR reactor (variable) at Bayway 345 kV		PSEG (100%)
b2707	Install a 100 MVAR reactor at Bayonne 345 kV		PSEG (100%)

*Neptune Regional Transmission System, LLC
**East Coast Power, L.L.C.
***Hudson Transmission Partners, LLC

Public Service Electric and Gas Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2712	Replace the Bergen 138 kV '40P'breaker with 80kA breaker		PSEG (100%)
b2713	Replace the Bergen 138 kV '90P' breaker with 80kA breaker		PSEG (100%)
b2722	Reconductor the 1 mile Bergen – Bergen GT 138 kV circuit (B-1302)		PSEG (100%)
b2755	Build a third 345 kV source into Newark Airport		PSEG (100%)
b2810.1	Install second 230/69 kV transformer at Cedar Grove		PSEG (100%)
b2810.2	Build a new 69 kV circuit from Cedar Grove to Great Notch		PSEG (100%)
b2811	Build 69 kV circuit from Locust Street to Delair		PSEG (100%)
b2812	Construct River Road to Tonnelle Avenue 69kV Circuit		PSEG (100%)
b2825.1	Install 2X50 MVAR shunt reactors at Kearny 230 kV substation		PSEG (100%)
b2825.2	Increase the size of the Hudson 230 kV, 2X50 MVAR shunt reactors to 2X100 MVAR		PSEG (100%)
b2825.3	Install 2X100 MVAR shunt reactors at Bayway 345 kV substation		PSEG (100%)
b2825.4	Install 2X100 MVAR shunt reactors at Linden 345 kV substation		PSEG (100%)
b2835	Convert the R-1318 and Q1317 (Edison – Metuchen) 138 kV circuits to one 230 kV circuit		PSEG (100%)

Public Service Electric and Gas Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2836	Convert the N-1340 and T-1372/D-1330 (Brunswick – Trenton) 138 kV circuits to 230 kV circuits		PSEG (100%)
b2837	Convert the F-1358/Z1326 and K1363/Y-1325 (Trenton – Burlington) 138 kV circuits to 230 kV circuits		PSEG (100%)
b2870	Build new 138/26 kV Newark GIS station in a building (layout #1A) located adjacent to the existing Newark Switch and demolish the existing Newark Switch		PSEG (100%)
b2933	*Third Source for Springfield Rd. and Stanley Terrace Stations*		*PSEG (100%)*
b2933.1	*Construct a 230/69 kV station at Springfield*		*PSEG (100%)*
b2933.2	*Construct a 230/69 kV station at Stanley Terrace*		*PSEG (100%)*
b2933.3	*Construct a 69 kV network between Front Street, Springfield and Stanley Terrace*		*PSEG (100%)*
b2934	*Build a new 69 kV line between Hasbrouck Heights and Carlstadt*		*PSEG (100%)*
b2935	*Third Supply for Runnemede 69 kV and Woodbury 69 kV*		*PSEG (100%)*
b2935.1	*Build a new 230/69 kV switching substation at Hilltop utilizing the PSE&G property and the K-2237 230 kV line*		*PSEG (100%)*
b2935.2	*Build a new line between Hilltop and Woodbury 69 kV providing the 3rd supply*		*PSEG (100%)*

Public Service Electric and Gas Company (cont.)

Required Transmission Enhancements	*Annual Revenue Requirement*		*Responsible Customer(s)*
b2935.3	*Convert Runnemede's straight bus to a ring bus and construct a 69 kV line from Hilltop to Runnemede 69 kV*		*PSEG (100%)*
b2955	Wreck and rebuild the VFT – Warinanco – Aldene 230 kV circuit with paired conductor		JCPL (93.78%) / NEPTUNE* (6.22%)
b2956	Replace existing cable on Cedar Grove - Jackson Rd. with 5000kcmil XLPE cable		JCPL (0.05%) / NEPTUNE* (0.01%) / PSEG (96.07%) / RE (3.87%)

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) 138kV 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%)
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%)
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%)

SCHEDULE 12 – APPENDIX A

(15) Commonwealth Edison Company and Commonwealth Edison Company of Indiana, Inc.

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2141.1	Remove Byron SPS upon completion of Byron - Wayne 345 kV		ComEd (100%)
b2365	Replace 138 kV bus tie 1-2 circuit breaker, station conductor, relays, and a wave trap at TSS 55 Hegewisch substation		ComEd (100%)
b2366	Reconductor 1.4 miles of 138 kV line 0112, Kickapoo Creek - LaSalle County 138kV line		ComEd (100%)
b2415	Install a 138 kV Red Blue bus tie with underground cable and a line 15913 CB at Highland Park		ComEd (100%)
b2416	Reconductor 0.125 miles of the East Frankfort - Mokena 138 kV line L6604		ComEd (100%)
b2417	Replace Ridgeland 138 kV bus tie CB and underground cable at TSS 192 Ridgeland 138 kV substation		ComEd (100%)
b2418	Reconductor 7.5 miles of Waukegan - Gurnee 138 kV line L1607		ComEd (100%)
b2419	Reconductor 0.33 miles of 138 kV underground cable on the Sawyer - Crawford 138 kV Blue line (L1324)		ComEd (100%)
b2465	Replace the Skokie 138 kV breaker ’88 L8809’ with a 63 kA breaker		ComEd (100%)
b2466	Replace the Skokie 138 kV breaker ’88 L8810’ with 63kA breaker		ComEd (100%)
b2467	Replace the Skokie 138 kV breaker ’88 L11416’ with 63 kA breaker		ComEd (100%)

Commonwealth Edison Company and Commonwealth Edison Company of Indiana, Inc. (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2468	Replace the Skokie 138 kV breaker ’88 L8803’ with 63kA breaker		ComEd (100%)
b2469	Replace the Des Plaines 138 kV breaker ’46 11702’ with 63 kA breaker		ComEd (100%)
b2561	Install a new 345 kV circuit breaker 5-7 at Elwood substation		ComEd (100%)
b2562	Remove 2.0 miles of wood poles on 138 kV line 17105, erect new steel structures, and install new 1113 kcmil ACSR conductor from Roscoe Bert to Harlem		ComEd (100%)
b2613	Replace relays at Mazon substation		ComEd (100%)
b2692.1	Replace station equipment at Nelson, ESS H-471 and Quad Cities		AEC (0.18%) / AEP (18.68%) / APS (5.86%) / ATSI (7.85%) / BGE (3.32%) / ComEd (38.21%) / Dayton (2.76%) / DEOK (4.13%) / DL (2.23%) / Dominion (5.15%) / DPL (1.97%) / EKPC (1.36%) / HTP (0.05%) / JCPL (0.52%) / MetED (0.04%) / Neptune (0.04%) / PECO (1.08%) / PENELEC (1.25%) / PEPCO (3.56%) / PPL (0.45%) / PSEG (1.17%) / RECO (0.14%)

Commonwealth Edison Company and Commonwealth Edison Company of Indiana, Inc. (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2692.2	Upgrade conductor ratings of Cordova – Nelson, Quad Cities – ESS H-471 and ESS H-471 – Nelson 345 kV lines and mitigating sag limitations		AEC (0.18%) / AEP (18.68%) / APS (5.86%) / ATSI (7.85%) / BGE (3.32%) / ComEd (38.21%) / Dayton (2.76%) / DEOK (4.13%) / DL (2.23%) / Dominion (5.15%) / DPL (1.97%) / EKPC (1.36%) / HTP (0.05%) / JCPL (0.52%) / MetED (0.04%) / Neptune (0.04%) / PECO (1.08%) / PENELEC (1.25%) / PEPCO (3.56%) / PPL (0.45%) / PSEG (1.17%) / RECO (0.14%)
b2693	Replace L7815 B phase line trap at Wayne substation		ComEd (100%)
b2699.1	Replace 5 Powerton 345 kV CB's with 2 cycle IPO breakers, install one new 345 kV CB; swap line 0302 and line 0303 bus positions; reconfigure Powerton 345 kV bus as single ring configuration		ComEd (100%)
b2699.2	Remove SPS logic at Powerton that trips generators or sectionalizes bus under normal conditions; minimal SPS logic will remain		ComEd (100%)
b2721	Goodings Grove – Balance Station Load (swap bus positions for 345 kV lines 1312 & 11620 and 345 kV lines 11604 & 11622) and replace 138 kV bus tie 2-3		ComEd (100%)

Commonwealth Edison Company and Commonwealth Edison Company of Indiana, Inc. (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2728	Mitigate sag limitations on Loretto – Wilton Center 345 kV Line and replace station conductor at Wilton Center		ATSI (3.43%) / AEP (3.34%) / ComEd (92.02%) / DLCO (1.21%)
b2732.1	Cut-in of line 93505 Tazewell – Kendall 345 kV line into Dresden		ComEd (100%)
b2732.2	Raise towers to remove the sag limitations on Pontiac – Loretto 345 kV line		ComEd (100%)
b2930	*Upgrade capacity on E. Frankfort – University Park 345 kV*		*ComEd (100%)*
b2931	*Upgrade substation equipment at Pontiac Midpoint station to increase capacity on Pontiac – Brokaw 345 kV line*		*ComEd (100%)*
b2941	*Build an indoor new Elk Grove 138 kV GIS substation at the point where Rolling Meadows & Schaumburg tap off from the main lines, between Landmeier and Busse. The four 345 kV circuits in the ROW will be diverted into Gas Insulated Bus (GIB) and go through the basement of the building to provide clearance for the above ground portion of the building*		*ComEd (100%)*
b2959	Install a new 138 kV circuit 18702 from Schauff Road to Rock Falls and install a fourth breaker and a half run at Schauff Road		ComEd (100%)

SCHEDULE 12 – APPENDIX A

(17) AEP Service Corporation on behalf of its Affiliate Companies (AEP Indiana Michigan Transmission Company, AEP Kentucky Transmission Company, AEP Ohio Transmission Company, AEP West Virginia Transmission Company, 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)
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 (*1.66*%) / AEP (*14.16*%) / APS (*5.73*%) / ATSI (*7.88*%) / BGE (*4.22*%) / ComEd (*13.31*%) / Dayton (*2.11*%) / DEOK (*3.29*%) / DL (*1.75*%) / DPL (*2.50*%) / Dominion (*12.86*%) / EKPC (*1.87*%) / JCPL (*3.74*%) / ME (*1.90*%) / NEPTUNE* (*0.44*%) / PECO (*5.34*%) / PENELEC (*1.89*%) / PEPCO (*3.99*%) / PPL (*4.84*%) / PSEG (*6.26*%) / RE (*0.26*%)
		DFAX Allocation: APS (*97.94*%) / DEOK (*0.54*%) / Dominion (*1.33*%) / EKPC (*0.19*%)

*Neptune Regional Transmission System, LLC
**East Coast Power, L.L.C.

AEP Service Corporation on behalf of its Affiliate Companies (AEP Indiana Michigan Transmission Company, AEP Kentucky Transmission Company, AEP Ohio Transmission Company, AEP West Virginia Transmission Company, 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)
b1797.1	Reconductor the AEP portion of the Cloverdale - Lexington 500 kV line with 2-1780 ACSS	**Load-Ratio Share Allocation:** AEC (*1.66*%) / AEP (*14.16*%) / APS (*5.73*%) / ATSI (*7.88*%) / BGE (*4.22*%) / ComEd (*13.31*%) / Dayton (*2.11*%) / DEOK (*3.29*%) / DL (*1.75*%) / DPL (*2.50*%) / Dominion (*12.86*%) / EKPC (*1.87*%) / JCPL (*3.74*%) / ME (*1.90*%) / NEPTUNE* (*0.44*%) / PECO (*5.34*%) / PENELEC (*1.89*%) / PEPCO (*3.99*%) / PPL (*4.84*%) / PSEG (*6.26*%) / RE (*0.26*%)
		DFAX Allocation: APS (*55.05*%) / ATSI (*2.77*%) / Dayton (*0.84*%) / DEOK (*2.06*%) / Dominion (*5.76*%) / EKPC (*0.72*%) / PEPCO (*32.80*%)
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%)

*Neptune Regional Transmission System, LLC
**East Coast Power, L.L.C.

AEP Service Corporation on behalf of its Affiliate Companies (AEP Indiana Michigan Transmission Company, AEP Kentucky Transmission Company, AEP Ohio Transmission Company, AEP West Virginia Transmission Company, 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)
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 (*1.66*%) / AEP (*14.16*%) / APS (*5.73*%) / ATSI (*7.88*%) / BGE (*4.22*%) / ComEd (*13.31*%) / Dayton (*2.11*%) / DEOK (*3.29*%) / DL (*1.75*%) / DPL (*2.50*%) / Dominion (*12.86*%) / EKPC (*1.87*%) / JCPL (*3.74*%) / ME (*1.90*%) / NEPTUNE* (*0.44*%) / PECO (*5.34*%) / PENELEC (*1.89*%) / PEPCO (*3.99*%) / PPL (*4.84*%) / PSEG (*6.26*%) / 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%)

*Neptune Regional Transmission System, LLC
**East Coast Power, L.L.C.

AEP Service Corporation on behalf of its Affiliate Companies (AEP Indiana Michigan Transmission Company, AEP Kentucky Transmission Company, AEP Ohio Transmission Company, AEP West Virginia Transmission Company, 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)
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%)
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%)

AEP Service Corporation on behalf of its Affiliate Companies (AEP Indiana Michigan Transmission Company, AEP Kentucky Transmission Company, AEP Ohio Transmission Company, AEP West Virginia Transmission Company, 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)
b2287	Loop in the Meadow Lake - Olive 345 kV circuit into Reynolds 765/345 kV station		AEP (100%)
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%)

AEP Service Corporation on behalf of its Affiliate Companies (AEP Indiana Michigan Transmission Company, AEP Kentucky Transmission Company, AEP Ohio Transmission Company, AEP West Virginia Transmission Company, 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)
b2345.2	Rebuild the 34.5 kV lines between Keeler - Sister Lakes and Glenwood tap switch to 69 kV (~12 miles)		AEP (100%)
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%)

AEP Service Corporation on behalf of its Affiliate Companies (AEP Indiana Michigan Transmission Company, AEP Kentucky Transmission Company, AEP Ohio Transmission Company, AEP West Virginia Transmission Company, 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)	
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%)

AEP Service Corporation on behalf of its Affiliate Companies (AEP Indiana Michigan Transmission Company, AEP Kentucky Transmission Company, AEP Ohio Transmission Company, AEP West Virginia Transmission Company, 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)
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 (*1.66*%) / AEP (*14.16*%) / APS (*5.73*%) / ATSI (*7.88*%) / BGE (*4.22*%) / ComEd (*13.31*%) / Dayton (*2.11*%) / DEOK (*3.29*%) / DL (*1.75*%) / DPL (*2.50*%) / Dominion (*12.86*%) / EKPC (*1.87*%) / JCPL (*3.74*%) / ME (*1.90*%) / NEPTUNE* (*0.44*%) / PECO (*5.34*%) / PENELEC (*1.89*%) / PEPCO (*3.99*%) / PPL (*4.84*%) / PSEG (*6.26*%) / RE (*0.26*%) **DFAX Allocation:** AEP (100%)

AEP Service Corporation on behalf of its Affiliate Companies (AEP Indiana Michigan Transmission Company, AEP Kentucky Transmission Company, AEP Ohio Transmission Company, AEP West Virginia Transmission Company, 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)
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%)
b2601.5	Install two (2) circuit switchers on high side of transformers # 2 and 3 at Fremont Station	AEP (100%)

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Required Transmission Enhancements	Annual Revenue Requirement	Responsible Customer(s)
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 (*1.66*%) / AEP (*14.16*%) / APS (*5.73*%) / ATSI (*7.88*%) / BGE (*4.22*%) / ComEd (*13.31*%) / Dayton (*2.11*%) / DEOK (*3.29*%) / DL (*1.75*%) / DPL (*2.50*%) / Dominion (*12.86*%) / EKPC (*1.87*%) / JCPL (*3.74*%) / ME (*1.90*%) / NEPTUNE* (*0.44*%) / PECO (*5.34*%) / PENELEC (*1.89*%) / PEPCO (*3.99*%) / PPL (*4.84*%) / PSEG (*6.26*%) / RE (*0.26*%)
			DFAX Allocation: AEP (100%)

*Neptune Regional Transmission System, LLC
**East Coast Power, L.L.C.
*** Hudson Transmission Partners, 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 (*1.66*%) / AEP (*14.16*%) / APS (*5.73*%) / ATSI (*7.88*%) / BGE (*4.22*%) / ComEd (*13.31*%) / Dayton (*2.11*%) / DEOK (*3.29*%) / DL (*1.75*%) / DPL (*2.50*%) / Dominion (*12.86*%) / EKPC (*1.87*%) / JCPL (*3.74*%) / ME (*1.90*%) / NEPTUNE* (*0.44*%) / PECO (*5.34*%) / PENELEC (*1.89*%) / PEPCO (*3.99*%) / PPL (*4.84*%) / PSEG (*6.26*%) / 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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**East Coast Power, L.L.C.
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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		AEP (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%)
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%)*
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%)*

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Required Transmission Enhancements		*Annual Revenue Requirement*	*Responsible Customer(s)*
b2789	*Rebuild the Brues - Glendale Heights 69 kV line section (5 miles) with 795 ACSR (128 MVA rating, 43% loading)*		*AEP (100%)*
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 (34.34%) / DEOK (56.45%) / EKPC (9.21%)
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:** Dayton (100%)
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%)*

AEP Service Corporation on behalf of its Affiliate Companies (AEP Indiana Michigan Transmission Company, AEP Kentucky Transmission Company, AEP Ohio Transmission Company, AEP West Virginia Transmission Company, 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)*
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%)*

AEP Service Corporation on behalf of its Affiliate Companies (AEP Indiana Michigan Transmission Company, AEP Kentucky Transmission Company, AEP Ohio Transmission Company, AEP West Virginia Transmission Company, 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)*
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%)*

AEP Service Corporation on behalf of its Affiliate Companies (AEP Indiana Michigan Transmission Company, AEP Kentucky Transmission Company, AEP Ohio Transmission Company, AEP West Virginia Transmission Company, 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)*
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%)*

AEP Service Corporation on behalf of its Affiliate Companies (AEP Indiana Michigan Transmission Company, AEP Kentucky Transmission Company, AEP Ohio Transmission Company, AEP West Virginia Transmission Company, 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)*
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%)*

AEP Service Corporation on behalf of its Affiliate Companies (AEP Indiana Michigan Transmission Company, AEP Kentucky Transmission Company, AEP Ohio Transmission Company, AEP West Virginia Transmission Company, 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)*
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		DEOK (100%)

SCHEDULE 12 – APPENDIX A

(19) Northern Indiana Public Service Company

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2971	Reconfigure Munster 345 kV as ring bus		MISO (12.00%) / AEC (0.97%) / AEP (16.66%) / APS (4.94%) / ATSI (7.78%) / BGE (5.21%) / Dayton (1.85%) / DEOK (2.30%) / Dominion (15.21%) / DPL (1.75%) / DL (1.43%) / EKPC (0.60%) / JCPL (2.16%) / ME (1.73%) / PECO (4.32%) / PENELEC (4.98%) / PEPCO (5.80%) / PPL (4.74%) / PSEG (5.09%) / RE (0.15%) / NEPTUNE* (0.33%)
b2973	Reconductor Michigan City - Bosserman 138 kV		MISO (10.00%) / AEC (0.93%) / AEP (26.05%) / APS (4.19%) / ATSI (5.95%) / BGE (4.39%) / Dayton (1.59%) / DEOK (2.30%) / Dominion (14.72%) / DPL (1.53%) / DL (1.26%) / EKPC (0.98%) / JCPL (1.92%) / ME (1.39%) / PECO (4.19%) / PENELEC (4.35%) / PEPCO (5.06%) / PPL (4.03%) / PSEG (4.49%) / RE (0.12%) / NEPTUNE* (0.56%)
b2974	Replace terminal equipment at Reynolds on the Reynolds - Magnetation 138 kV		MISO (59.00%) / AEC (0.01%) / AEP (40.32%) / APS (0.13%) / ATSI (0.05%) / BGE (0.08%) / Dayton (0.03%) / DPL (0.01%) / ME (0.04%) / PENELEC (0.06%) / PPL (0.20%) / PSEG (0.03%) / NEPTUNE* (0.04%)
b2975	Reconductor Roxana - Praxair 138 kV		MISO (76.00%) / AEC (0.28%) / AEP (4.51%) / APS (1.31%) / ATSI (1.91%) / BGE (1.40%) / Dayton (0.49%) / DEOK (0.70%) / Dominion (4.35%) / DPL (0.46%) / DL (0.38%) / EKPC (0.27%) / JCPL (0.57%) / ME (0.43%) / PECO (1.25%) / PENELEC (1.34%) / PEPCO (1.53%) / PPL (1.23%) / PSEG (1.41%) / RE (0.04%) / NEPTUNE* (0.14%)

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		Dominion (100%)
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%)
b2403	Replace the Beaumeade 230 kV breaker '274T2130' 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
**East Coast Power, L.L.C.
***Hudson Transmission Partners, LLC

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
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%)
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%)
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%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
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 (*1.66*%) / AEP (*14.16*%) / APS (*5.73*%) / ATSI (*7.88*%) / BGE (*4.22*%) / ComEd (*13.31*%) / Dayton (*2.11*%) / DEOK (*3.29*%) / DL (*1.75*%) / DPL (*2.50*%) / Dominion (*12.86*%) / EKPC (*1.87*%) / JCPL (*3.74*%) / ME (*1.90*%) / NEPTUNE* (*0.44*%) / PECO (*5.34*%) / PENELEC (*1.89*%) / PEPCO (*3.99*%) / PPL (*4.84*%) / PSEG (*6.26*%) / 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		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		**DFAX Allocation:** 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%)

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2665	Rebuild the Cunningham – Dooms 500 kV line		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%)
b2686.11	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%)
b2686.2	Install a 3rd 230/115 kV transformer at Gordonsville Substation		Dominion (100%)

*Neptune Regional Transmission System, LLC
** East Coast Power, LLC
***Hudson Transmission Partners, LLC

Virginia Electric and Power Company (cont.)

Required Transmission Enhancements		Annual Revenue Requirement	Responsible Customer(s)
b2686.3	Upgrade Line 2088 between Gordonsville Substation and Louisa CT Station		Dominion (100%)
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 (*1.66*%) / AEP (*14.16*%) / APS (*5.73*%) / ATSI (*7.88*%) / BGE (*4.22*%) / ComEd (*13.31*%) / Dayton (*2.11*%) / DEOK (*3.29*%) / DL (*1.75*%) / DPL (*2.50*%) / Dominion (*12.86*%) / EKPC (*1.87*%) / JCPL (*3.74*%) / ME (*1.90*%) / NEPTUNE* (*0.44*%) / PECO (*5.34*%) / PENELEC (*1.89*%) / PEPCO (*3.99*%) / PPL (*4.84*%) / PSEG (*6.26*%) / 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		Dominion (100%)
b2759	Rebuild Line #550 Mt. Storm – Valley 500kV		Dominion (100%)
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*	*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	Dominion (100%)
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%)
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%)

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		ATSI (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%)