

PJM Interconnection, L.L.C. 2750 Monroe Blvd. Audubon, PA 19403

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January 8, 2021

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

Re: PJM Interconnection, L.L.C., Docket No. ER21-___-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 14 baseline upgrades in the recent update to the Regional Transmission Expansion Plan ("RTEP") approved by the PJM Board of Managers ("PJM Board") on December 9, 2020. PJM requests that the revised Tariff sections become effective on April 8, 2021, 90 days after the date of this filing.

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

² 16 U.S.C. § 824d.

I. DESCRIPTION OF FILING

A. Description of the Board Approved Updated RTEP Upgrades

On December 9, 2020, the PJM Board approved changes to the RTEP, which included approximately \$69.7 million³ in new baseline transmission enhancements and expansions. With these approvals, the PJM Board has authorized a total of more than \$38 billion in investments since 2000.

B. Schedule 12 Requirements to Designate Cost Responsibility Assignments

This filing represents PJM's fifty-fifth filing of cost responsibility assignments for new RTEP baseline upgrades since the Federal Energy Regulatory Commission ("Commission") directed such filings under Tariff, Schedule 12. Pursuant to Schedule 12, PJM is required to designate in Tariff, Schedule 12-Appendix A, cost responsibility assignments for all transmission enhancements and expansions included in the RTEP after February 1, 2013. Similarly, Schedule 12 requires that within 30 days of the PJM Board's approval of each RTEP, or addition to the RTEP, PJM shall designate in 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.⁴

³ The 14 baseline upgrades approved by the PJM Board on December 9, 2020 with estimated costs totaling \$69.7 million include: (i) 12 new baseline upgrades were new transmission system enhancements and expansions with an estimated cost of \$44.08 million; (ii) one baseline upgrade b3110.3 was a scope change to existing baseline project b3110 with an estimated cost of \$0.93 million; and (iii) baseline upgrade b3142 is an Interregional Market Efficiency Project under the MISO-PJM Joint Operating Agreement located in Northern Indiana Public Service Company (NIPSCO) with an estimated cost of \$24.69 million.

⁴ Tariff, Schedule 12, section (b)(viii); see also Operating Agreement, Schedule 6, section 1.6.

Schedule 12 further provides that customers designated to be responsible for assignments of costs that PJM files with the Commission shall have 30 days from the date of such filing to submit comments regarding the proposed cost responsibility assignments.⁵

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, effective February 1, 2013.⁶ 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 February 1, 2013 are segregated in a separate appendix from the previously-approved cost responsibility assignments for RTEP upgrades. Thus, cost responsibility assignments for all new RTEP projects are located in Schedule 12-Appendix A.⁷

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 9, 2020.⁸ The revised Tariff sections containing new language,

⁵ See Tariff, Schedule 12, section (b)(viii).

⁶ PJM Interconnection, L.L.C., 142 FERC ¶ 61,214 at PP 411, 448 (2013) ("March 22 Order").

⁷ See Tariff, Schedule 12, section (a)(v).

⁸ See id., section (b)(viii).

including new cost responsibility assignments, are reflected in redline and clean format in Attachments B and C, respectively, to this filing.⁹

1. Assignment of Cost Responsibility for Regional Facilities

PJM amends Schedule 12-Appendix A to include the cost responsibility for one (1) new transmission enhancement or expansion that will operate at or above 500 kV ("Regional Facility") included in the most recent update to the RTEP approved by the PJM Board on December 9, 2020.¹⁰

The cost responsibility assignment for the one Regional Facility is based on the hybrid cost allocation methodology approved by the Commission in the March 22 Order. Pursuant to this hybrid methodology, 50 percent of the costs of the Regional Facilities are allocated on a region-wide postage stamp basis while the other 50 percent is allocated to specifically-identified beneficiaries.¹¹

The region-wide, postage stamp allocations for each Transmission Owner zone are based on its annual load-ratio share using the applicable zonal loads at the time of each Transmission Owner's annual peak load from the 12-month period ending October 31 of the year preceding the year for which the annual cost responsibility allocation is determined. Similarly, the cost responsibility assignments for the new Regional Facility to the owners of merchant transmission

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 The Regional Facility included in the RTEP upgrades is b3247.

¹¹ Schedule 12 provides different methodologies to identify and allocate costs to specific beneficiaries depending on whether the project is designed to address one or more reliability or operational adequacy and performance issues ("Reliability Projects") or to relieve one or more economic constraints (i.e., "economic" projects). PJM Tariff, Schedule 12(b)(i)(A)(2).

¹² See PJM Tariff, Schedule 12, section (b)(i)(A).

facilities with Firm Transmission Withdrawal Rights are based on the merchant transmission facilities' annual peak load (not to exceed actual Firm Transmission Withdrawal Rights set forth in their respective Interconnection Service Agreements) from the 12-month period ending October 31 of the year preceding the year for which the annual cost responsibility allocation is determined.¹³ The annual peak loads used to determine the new annual cost responsibility assignments for the Regional Facilities included in this filing are the 2020 peak loads.¹⁴

The Regional Facility is a reliability project addressing a transmission owner's Form No. 715 criteria. The second 50 percent of the costs of the facility are allocated using the "solution-based" distribution factor, or DFAX, methodology set forth in Tariff, Schedule 12, section (b)(iii). This DFAX methodology evaluates the projected relative use on the new facility by the load of each transmission zone or merchant transmission facility and allocates costs based on such usage. More specifically, to determine cost responsibility under the DFAX methodology, PJM, based on a computer model of the electric network and using power flow modeling software, calculates distribution factors, represented as decimal values or percentages, which express the portions of a transfer of energy from a defined source to a defined sink that will flow across a particular transmission facility or group of transmission facilities. These distribution factors represent a measure of the relative use of the specific transmission facility by the load of each transmission zone or merchant transmission facility, as determined by a power flow analysis. 15

¹³ Currently, Neptune Regional Transmission is the owner of merchant transmission facilities in PJM with Firm Transmission Withdrawal Rights.

¹⁴ See PJM Interconnection, L.L.C., 2021 Annual RTEP Cost Allocation Update, Docket No. ER21-726-000 (Dec. 23, 2020) (requesting an effective date of January 1, 2021).

¹⁵ See PJM Tariff, Schedule 12, section (b)(iii).

- 2. Assignments of Cost Responsibility for Lower Voltage Facilities Needed for Reliability
 - a. Cost Responsibility Assignments that Address Transmission Enhancements Costing More than \$5 Million and Require DFAX Analysis

Consistent with the Tariff, Schedule 12, PJM submits amendments to the Tariff, Schedule 12-Appendix A to include the cost responsibility assignments for transmission enhancements or expansions that are not Regional Facilities ("Lower Voltage Facilities"). ¹⁶ Five (5) enhancements or expansions ¹⁷ included in this filing, approved by the PJM Board on December 9, 2020, are Lower Voltage Facilities required to address reliability needs for which PJM applied the solution-based DFAX analysis described in Tariff, Schedule 12, section (b)(iii).

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

Tariff, Schedule 12, section (b)(vi) provides that, notwithstanding Schedule 12, sections (b)(i), (b)(ii), (b)(iv) and (b)(v), cost responsibility for an enhancement or expansion for which the good faith estimate of the cost of such enhancement or expansion included for the first time in the RTEP does not equal or exceed \$5 million shall be assigned to the zone where the enhancement or expansion is to be located. Consistent with Schedule 12, section (b)(vi), PJM proposes revisions to Schedule 12-Appendix A to include cost responsibility assignments for four (4) enhancements or expansions needed for reliability. Therefore, consistent with Schedule 12, section (b)(vi), cost responsibility for such enhancements or expansions shall be

¹⁶ See Tariff, Schedule 12, section (b)(ii)(A) ("If the Lower Voltage Facility is a Reliability Project, [PJM] shall use the DFAX analysis described in section (b)(iii) of this Schedule 12....").

¹⁷ The Lower Voltage Facilities include: b3223.1, b3223.2, b3223.3, b3270 and b3270.1.

¹⁸ The following enhancements and expansions allocated pursuant to Schedule 12, section (b)(vi) include: b3220, b3221, b3271 and b3272.

allocated 100 percent to the zone of the Transmission Owner where the enhancements or expansions are to be located.

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

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

PJM proposes revisions to Schedule 12-Appendix A to include cost responsibility assignment for three (3) enhancements needed to address spare parts, replacement equipment and circuit breakers. Therefore, consistent with Tariff, Schedule 12, section (b)(iv)(C), cost responsibility for such enhancement shall be allocated 100 percent to the zone of the Transmission Owner of the spare parts.

3. PJM's Assignment of Cost Responsibility for a Lower Voltage Facility Interregional Market Efficiency Project is Allocated Under PJM's Tariff, Schedule 12 as an Economic Project

This filing includes one lower voltage Interregional Market Efficiency Project as defined under the Joint Operating Agreement between Midcontinent Independent System Operator, Inc. ("MISO") and PJM ("MISO-PJM JOA") and approved by the PJM Board and the MISO Board of Directors.²⁰

¹⁹ The following enhancements and expansions allocated pursuant to Schedule 12, section (b)(iv) include: b3110.3, b3261 and b3269.

²⁰ See MISO-PJM JOA, section 9.4.4.1.3

The cost allocation method proposed for an Interregional Market Efficiency Project that satisfies all of the qualifications in the MISO-PJM JOA, section 9.4.4.1.3, allocates costs to the respective RTOs in proportion to the net present value of the total benefits calculated for each RTO pursuant to each RTO's respective tariff. The costs allocated to each RTO region are then further allocated within each region pursuant to the cost allocation methodology contained in each region's respective Tariff.

Under the PJM Tariff, Schedule 12, section (b)(v)(C), cost responsibility is assigned for Economic Projects that are new enhancements or expansions to relieve one or more economic constraint to zones that show a decrease in the net present value of the Changes in Load Energy Payments determined for the 15-year period starting with the applicable RTEP Year (which is the current year plus five). 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 Payments only of the zones in which the net present value of the Changes in Load Energy Payments shows a decrease.

Consistent with Schedule 12 section (b)(v), which details the cost allocation methodology for Economic Projects to the zones and merchant transmission facilities in the PJM region that are shown to have experienced a decrease in the net present value of the Changes in Load Energy Payments, PJM proposes revisions to Schedule 12-Appendix A to include the cost responsibility assignments for one (1) Interregional Market Efficiency Project.²³

²¹ See Amended and Restated Operating Agreement of PJM Interconnection, L.L.C., Schedule 6, section 1.5.7(d).

²² Tariff, Schedule 12, section (b)(v)(C).

²³ The Economic Project b3142.

D. Cost Responsibility Assignment Summary

For informational purposes, PJM also includes as Attachment A to this filing a Cost Responsibility Assignment Summary for the enhancements or expansions approved by the PJM Board on December 9, 2020. In addition to specifying the cost responsibility assignments for the enhancements or expansions, the summary sheets provide the criteria violation and test, a description of the upgrade, in-service date, estimated upgrade costs, and the entity designated with construction responsibility for each enhancement or expansion.

II. COMMENT PERIOD

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 seek review regarding the proposed cost responsibility assignments. Consistent with this provision, PJM requests that the comment date for this filing be set 30 days from the date of this filing, February 8, 2021.²⁴ To accommodate such a comment date, PJM requests an effective date of April 8, 2021 (90 days from the date of this filing) for all revised Tariff sections submitted in this docket.²⁵

III. DOCUMENTS ENCLOSED

PJM encloses the following:

1. This transmittal letter;

 24 Since February 7, 2021 falls on a Sunday, comments would be due on Monday, February 8, 2020. See 18 C.F.R. \S 385.2007 (a)(2) (2020).

²⁵ 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).

- 2. Attachment A Cost Responsibility Assignment Summary sheets;
- 3. Attachment B Revised Tariff, Schedule 12-Appendix A (in redlined form); and
- 4. Attachment C Revised Tariff, Schedule 12-Appendix A (in clean form).

IV. CORRESPONDENCE AND COMMUNICATIONS

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

Craig Glazer Vice President – Federal Government Policy PJM Interconnection, L.L.C. 1200 G Street, N.W., Suite 600 Washington, D.C. 20005

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V. SERVICE

PJM has served a copy of this filing on all PJM Members on all state utility regulatory commissions in the PJM Region by posting this filing electronically. In accordance with the Commission's regulations, ²⁶ PJM will post a copy of this filing to the FERC filings section of its internet site, located at the following link: http://www.pjm.com/documents/ferc-manuals/fercfilings.aspx with a specific link to the newly-filed document, and will send an e-mail on the same date as this filing to all PJM Members and all state utility regulatory commissions in the PJM Region²⁷ 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

²⁶ See 18 C.F.R. §§ 35.2(e) and 385.2010(f)(3) (2020).

²⁷ PJM already maintains, updates and regularly uses e-mail lists for all PJM Members and affected state commissions.

Kimberly D. Bose, Secretary January 8, 2021 Page 11

will be available through the referenced link within 24 hours of the filing. Also, a copy of this filing will be available on the FERC's eLibrary website located at the following link: http://www.ferc.gov/docs-filing/elibrary.asp in accordance with the Commission's regulations and Order No. 714.

Respectfully submitted,

By:

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Attachment A

Cost Responsibility Assignment Summary Sheets

Baseline Upgrade b3110.3

- Overview of Reliability Problem
 - Criteria Violation: FERC Form 715 Criteria Violation Overstress of the Clifton 230 kV "201182" and "XT2011" breakers
 - o Contingency: Fault at Clifton 230 kV
 - Criteria test: Short Circuit
- Overview of Reliability Solution
 - Description of Upgrade: Replace the Clifton 230 kV breakers "201182" and "XT2011" with 63 kA breakers
 - o Required Upgrade In-Service Date: December 31, 2021
 - o Estimated Upgrade Cost: \$ 0.93 M
 - o Construction Responsibility: Dominion
- Cost Allocation
 - o The cost for this baseline upgrade is allocated 100% to Dominion

- Overview of Reliability Problem
 - o Criteria Violation: Congestion Relief Economic
 - o Contingency: NA
 - Criteria test: Market Efficiency
- Overview of Reliability Solution
 - Description of Upgrade: Rebuild the Michigan City Trail Creek Bosserman 138 kV line (10.7 miles)
 - o Required Upgrade In-Service Date: January 01, 2023
 - Estimated Upgrade Cost: \$ 24.69 M
 - Construction Responsibility: NIPSCO
- Cost Allocation
 - The cost for this Interregional Economic Project is allocated between PJM and MISO in proportion to share of benefits calculated by each region's benefit calculation method. The resulting allocation is 10.90% to MISO and 89.10% to PJM. Within PJM, cost responsibility is assigned 100.00% to ComEd based on consideration of each zone's and Merchant Transmission Facility's market efficiency benefits from the project

- Overview of Reliability Problem
 - Criteria Violation: Richland, Whitewood, Shack Mills, Grassy Creek, Buchanan, Keen Mountain 138 kV buses became radial line connection. These radial connected 138 kV buses and 69 kV buses through Richland 138 kV bus have voltage magnitude and drop violations.
 - Contingency: Loss of Broadford Claypool Hill and Claypool Hill Richland 138 kV; loss of Hales Branch - Garden Creek and Hales Branch - Shack Mills 138 kV along with loss of Hales Branch 69 kV bus
 - Criteria test: FERC 715 AEP criteria (N-1-1 Voltage)
- Overview of Reliability Solution
 - Description of Upgrade: Install 14.4 MVAR capacitor bank at Whitewood 138 kV
 - o Required Upgrade In-Service Date: June 01, 2023
 - o Estimated Upgrade Cost: \$ 1.20 M
 - Construction Responsibility: AEP
- Cost Allocation
 - The cost for this baseline upgrade is allocated 100% to AEP

- Overview of Reliability Problem
 - o Criteria Violation: Overload of Steel City 500/230 kV Transformer #1
 - o Contingency: loss of the Hosensack Steel City 500 kV circuit
 - o Criteria test: Generator Deliverability
- Overview of Reliability Solution
 - Description of Upgrade: Replace terminal equipment (bus conductor) on the 230 kV side of the Steel City 500/230 kV Transformer #1
 - o Required Upgrade In-Service Date: June 01, 2025
 - Estimated Upgrade Cost: \$ 0.09 M
 - Construction Responsibility: PPL
- Cost Allocation
 - o The cost for this baseline upgrade is allocated 100% to PPL

Baseline Upgrade b3223.1

- Overview of Reliability Problem
 - Criteria Violation: N-1-1 voltage magnitude and voltage drop violations, N-1-1 thermal violations and more than 300 MW Load Loss in the Northern Neck area
 - o Contingency: Loss of 230 kV Line #224 and 230 kV Line #2145
 - Criteria test: N-1-1 Thermal and Voltage and 300 MW Load Loss
- Overview of Reliability Solution
 - Description of Upgrade: Install a second 230 kV circuit with a minimum summer emergency rating of 1047 MVA between Lanexa and Northern Neck substations. The second circuit will utilize the vacant arms on the double-circuit structures that are being installed on Line #224 (Lanexa – Northern Neck) as part of the End-of-Life rebuild project (b3089)
 - Required Upgrade In-Service Date: June 01, 2023
 - Estimated Upgrade Cost: \$ 14.00 M
 - Construction Responsibility: Dominion
- Cost Allocation
 - Baseline upgrades b3223.1, b3223.2 and b3223.3 constitutes a single reliability project. No transmission zone has greater than 1% distribution factor. The cost for this baseline upgrade is allocated 100% to Dominion

Baseline Upgrade b3223.2

- Overview of Reliability Problem
 - Criteria Violation: N-1-1 voltage magnitude and voltage drop violations, N-1-1 thermal violations and more than 300 MW Load Loss in the Northern Neck area
 - o Contingency: Loss of 230 kV Line #224 and 230 kV Line #2145
 - Criteria test: N-1-1 Thermal and Voltage, 300 MW Load Loss
- Overview of Reliability Solution
 - Description of Upgrade: Expand the Northern Neck terminal from a 230 kV, 4-breaker ring bus to a 6-breaker ring bus
 - Required Upgrade In-Service Date: June 01, 2023
 - Estimated Upgrade Cost: \$ 5.00 M
 - Construction Responsibility: Dominion
- Cost Allocation
 - Baseline upgrades b3223.1, b3223.2 and b3223.3 constitutes a single reliability project. No transmission zone has greater than 1% distribution factor. The cost for this baseline upgrade is allocated 100% to Dominion

Baseline Upgrade b3223.3

- Overview of Reliability Problem
 - Criteria Violation: N-1-1 voltage magnitude and voltage drop violations, N-1-1 thermal violations and more than 300 MW Load Loss in the Northern Neck area
 - o Contingency: Loss of 230 kV Line #224 and 230 kV Line #2145
 - Criteria test: N-1-1 Thermal and Voltage, 300 MW Load Loss
- Overview of Reliability Solution
 - Description of Upgrade: Expand the Lanexa terminal from a 6-breaker ring bus to a breaker-and-a-half arrangement
 - o Required Upgrade In-Service Date: June 01, 2023
 - Estimated Upgrade Cost: \$ 4.00 M
 - Construction Responsibility: Dominion
- Cost Allocation
 - Baseline upgrades b3223.1, b3223.2 and b3223.3 constitutes a single reliability project. No transmission zone has greater than 1% distribution factor. The cost for this baseline upgrade is allocated 100% to Dominion

- Overview of Reliability Problem
 - Criteria Violation: FERC Form 715 Criteria Violation Loss of 500 kV Line #514 from Doubs to Goose Creek
 - Contingency: Loss of 500 kV Line #514 from Doubs to Goose Creek
 - Criteria test: End of Life Criteria
- Overview of Reliability Solution
 - Description of Upgrade: Replace 13 towers with galvanized steel towers on Doubs -Goose Creek 500 kV. Reconductor 3 mile section with three (3) 1351.5 ACSR 45/7.
 Upgrade line terminal equipment at Goose Creek substation to support the 500 kV line rebuild
 - Required Upgrade In-Service Date: June 01, 2025
 - Estimated Upgrade Cost: \$ 7.60 M
 - Construction Responsibility: Dominion
- Cost Allocation
 - 50% of the cost for this baseline upgrade is allocated based on load ratio and 50% of the cost for this baseline upgrade is allocated to Dominion based on DFAX:

Transmission Zone	Planned Load (MW)	DFAX	%Flow	DFAX Allocation
APS	9,185	-1.64%	0.00%	0.00%
DPL	4,144	-1.04%	0.00%	0.00%
Dominion	21,397	4.14%	100.00%	100.00%
ME	3,156	-1.14%	0.00%	0.00%

Transmission Zone	2020 Peak Load (MW)	2021 Load Ratio Allocation (%)
AEC	2634.5	1.71%
AEP	21614.9	14.04%
APS	8637.6	5.61%
ATSI	12465.2	8.10%
BGE	6700.3	4.36%
ComEd	20220.0	13.14%
Dayton	3308.8	2.15%
DEOK	4975.0	3.23%
DL	2667.5	1.73%
Dominion	20060.6	13.03%
DPL	4085.6	2.65%
EKPC	2719.7	1.77%
JCPL	5903.2	3.84%
ME	2976.3	1.93%
NEPTUNE*	674.6	0.45%
OVEC	108.0	0.07%
PECO	8147.9	5.29%
PENELEC	2911.3	1.89%
PEPCO	5886.6	3.82%
PPL	7260.0	4.72%
PSEG	9557.3	6.21%
RE	397.5	0.26%

- Overview of Reliability Problem
 - o Criteria Violation: Overstress of the Tanners creek 345 kV "R1" breaker
 - o Contingency: NA
 - o Criteria test: Short Circuit
- Overview of Reliability Solution
 - Description of Upgrade: Upgrade circuit breaker "R1" at Tanners Creek 345 kV. Install Transient Recovery Voltage capacitor to increase the rating from 50 kA to 63 kA
 - o Required Upgrade In-Service Date: December 31, 2020
 - o Estimated Upgrade Cost: \$ 0.05 M
 - Construction Responsibility: AEP
- Cost Allocation
 - o The cost for this baseline upgrade is allocated 100% to AEP

- Overview of Reliability Problem
 - Criteria Violation: FERC Form 715 Criteria Violation Overload of the GEN TIRE Newcomerstown 34.5 kV line, the GREENR – MILL ST SS 34.5 kV line, the New Philadelphia – New PHILA 34.5 kV and the GREERZ – GREER 69 kV line
 - Contingency: Loss of the West New Philadelphia Newcomerstown 138 kV line with West New Philadelphia 139/69 kV transformer and the South Canton – Bolivar – North Intertie 138 kV line.
 - Criteria test: AEP FERC 715 Criteria
- Overview of Reliability Solution
 - Description of Upgrade: At West New Philadelphia station, add a high side 138 kV breaker on the 138/69 kV Transformer #2 along with a 138 kV breaker on the line towards Newcomerstown
 - Required Upgrade In-Service Date: June 01, 2025
 - Estimated Upgrade Cost: \$ 2.02 M
 - o Construction Responsibility: AEP
- Cost Allocation
 - The cost for this baseline upgrade is allocated 100% to AEP

- Overview of Reliability Problem
 - Criteria Violation: FERC Form 715 Criteria Violation Overload of the AM General #2 AM General #1, AM General #2 Twin Branch2, Beiger Virgil S, BEIGER Kline, CAP AV AM General #1, Dodge SS –12th St, 12th St Virgil, Dragoon Railroad, Grape Rd South Bend 34.5kV lines and Kline and South Bend 138/69/34.5 kV transformers
 - Contingency: Multiple N-1-1 contingency pairs
 - Criteria test: AEP FERC 715 Criteria
- Overview of Reliability Solution
 - Description of Upgrade: Install 1.7 miles of 795 ACSR 138 kV conductor along the other side of Dragoon Tap 138 kV line, which is currently double circuit tower with one position open. Additionally, install a second 138/34.5 kV transformer at Dragoon, install a high side circuit switcher on the current transformer at Dragoon Station, and install two (2) 138 kV line breakers on the Dragoon Jackson 138 kV and Dragoon Twin Branch 138 kV lines
 - o Required Upgrade In-Service Date: June 01, 2025
 - Estimated Upgrade Cost: \$ 4.89 M
 - Construction Responsibility: AEP
- Cost Allocation
 - Baseline upgrades b3270 and b3270.1 constitutes a single reliability project. No transmission zone has greater than 1% distribution factor. The cost for this baseline upgrade is allocated 100% to AEP

Baseline Upgrade b3270.1

- Overview of Reliability Problem
 - Criteria Violation: FERC Form 715 Criteria Violation Overstress of Dragoon 34.5 kV
 "B", "C" and "D" breakers
 - o Contingency: Fault at Dragoon 34.5 kV
 - Criteria test: Short Circuit
- Overview of Reliability Solution
 - Description of Upgrade: Replace Dragoon 34.5 kV breakers "B", "C", and "D" with 40 kA breakers
 - o Required Upgrade In-Service Date: June 01, 2025
 - o Estimated Upgrade Cost: \$ 2.00 M
 - Construction Responsibility: AEP
- Cost Allocation
 - Baseline upgrades b3270 and b3270.1 constitutes a single reliability project. No transmission zone has greater than 1% distribution factor. The cost for this baseline upgrade is allocated 100% to AEP

- Overview of Reliability Problem
 - Criteria Violation: FERC Form 715 Criteria Violation Overload of the Fremont Center
 Holran Maple GR Riverview 69 kV line
 - Contingency: AEP_P4_#7728_05FREMCT 138_C (loss of Fremont Center Tiffin 138 kV line, West Fremont Fremont Fremont Center 138kV line, Fremont 138/69/12 kV transformer, Fremont Center 138/69 kV transformer and Fremont Center 138 kV switching shunt).
 - Criteria test: AEP FERC 715 Criteria
- Overview of Reliability Solution
 - Description of Upgrade: Install a 138 kV circuit breaker at Fremont station on the line towards Fremont Center and install a 9.6 MVAR 69 kV capacitor bank at Bloom Road station
 - o Required Upgrade In-Service Date: June 01, 2025
 - Estimated Upgrade Cost: \$ 1.76 M
 - Construction Responsibility: AEP
- Cost Allocation
 - The cost for this baseline upgrade is allocated 100% to AEP

- Overview of Reliability Problem
 - Criteria Violation: FERC Form 715 Criteria Violation Overload of the Days Inn Rockhill, Days Inn – South Side, Exc&L PM – South Side, Exc&L PM – Sterling1 34.5 kV lines
 - Contingency: AEP_P1- 3_#12222_05ROCKHILL2 138_1-2 (the loss of East Lima Rockhill – Eastow 138 kV line and Rockhill 138/34.5 kV Transformers #1 and #2) and AEP_P1-2_#5226_2061 (The loss of East Lima – Ford Lima2 13 kV line)
 - Criteria test: AEP FERC 715 Criteria
- Overview of Reliability Solution
 - Description of Upgrade: Install two 138 kV circuit switchers on the high side of 138/34.5 kV Transformers #1 and #2 at Rockhill station
 - Required Upgrade In-Service Date: June 01, 2025
 - Estimated Upgrade Cost: \$ 1.47 M
 - Construction Responsibility: AEP
- Cost Allocation
 - o The cost for this baseline upgrade is allocated 100% to AEP

Attachment B

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

(Marked / Redline Format)

SCHEDULE 12 – APPENDIX A

(9) PPL Electric Utilities Corporation

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

^{*} Neptune Regional Transmission System, LLC

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

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

Required	Transmission Enhancements	Annual Revenue Requirement Responsible Customer(s)
		Load-Ratio Share Allocation:
		AEC (1.71%) / AEP (14.04%) /
		APS (5.61%) / ATSI (8.10%) /
		BGE (4.36%) / ComEd (13.14%)
		/ Dayton (2.15%) / DEOK
		(3.23%) / DL (1.73%) / DPL
	Add a 200 MVAR shunt	(2.65%) / Dominion (13.03%) /
b2716	reactor at Lackawanna	EKPC (1.77%) / JCPL (3.84%) /
02/10	500 kV substation	ME (1.93%) / NEPTUNE*
	300 K V Substation	(0.45%) / OVEC (0.07%) /
		PECO (5.29%) / PENELEC
		(1.89%) / PEPCO (3.82%) / PPL
		(4.72%) / PSEG (6.21%) / RE
		(0.26%)
		DFAX Allocation:
		PPL (100%)
	Install 7 miles of optical	
	ground wire (OPGW)	
b2754.1	between Gilbert and	PPL (100%)
	Springfield 230 kV	
	substations	
	Use ~ 40 route miles of	
	existing fibers on PPL	
b2754.4	230 kV system to	PPL (100%)
	establish direct fiber	
	circuits	
b2754.5	Upgrade relaying at	PPL (100%)
0270	Martins Creek 230 kV	112 (10070)
b2756	Install 2% reactors at	PPL (100%)
	Martins Creek 230 kV	112(100/0)
b2813	Expand existing	
	Lycoming 69 kV yard to	PPL (100%)
	double bus double	112 (100/0)
	breaker arrangement	

^{*} Neptune Regional Transmission System, LLC

Required	Transmission Ennancements	Annual Revenue Requirement Responsible Customer(s)
		Load-Ratio Share Allocation:
		AEC (1.71%) / AEP (14.04%) /
		APS (5.61%) / ATSI (8.10%) /
		BGE (4.36%) / ComEd (13.14%)
		/ Dayton (2.15%) / DEOK
	Reconfigure/Expand the	(3.23%) / DL (1.73%) / DPL
	Lackawanna 500 kV	(2.65%) / Dominion (13.03%) /
b2824	substation by adding a	EKPC (1.77%) / JCPL (3.84%) /
02024	third bay with three	ME (1.93%) / NEPTUNE*
	breakers	(0.45%) / OVEC (0.07%) /
	orcarcis	PECO (5.29%) / PENELEC
		(1.89%) / PEPCO (3.82%) / PPL
		(4.72%) / PSEG (6.21%) / RE
		(0.26%)
		DFAX Allocation:
		PPL (100%)
	Build a new 230/69 kV	
	substation by tapping the	
	Montour – Susquehanna	
b2838	230 kV double circuits	PPL (100%)
	and Berwick – Hunlock	
	& Berwick – Colombia	
	69 kV circuits	
	Replace Martins Creek	
b2979	230 kV circuit breakers	PPL (100%)
	with 80 kA rating	
	Replace terminal	
<u>b3221</u>	equipment (bus	
	conductor) on the 230 kV	PPL (100%)
	side of the Steel City	11L(100/0)
	500/230 kV Transformer	
	<u>#1</u>	

^{*} Neptune Regional Transmission System, LLC

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 11	ansimission Emiliarectifents 7 min	au revenue requirement	responsible editioner(s)
b1570.4	Add a 345 kV breaker at Marysville station and a 0.1 mile 345 kV line extension from Marysville to the new 345/69 kV Dayton transformer		AEP (100%)
b1660.1	Cloverdale: install 6-765 kV breakers, incremental work for 2 additional breakers, reconfigure and relocate miscellaneous facilities, establish 500 kV station and 500 kV tie with 765 kV station		Load-Ratio Share Allocation: AEC (1.71%) / AEP (14.04%) / APS (5.61%) / ATSI (8.10%) / BGE (4.36%) / ComEd (13.14%) / Dayton (2.15%) / DEOK (3.23%) / DL (1.73%) / DPL (2.65%) / Dominion (13.03%) / EKPC (1.77%) / JCPL (3.84%) / ME (1.93%) / NEPTUNE* (0.45%) / OVEC (0.07%) / PECO (5.29%) / PENELEC (1.89%) / PEPCO (3.82%) / PPL (4.72%) / PSEG (6.21%) / RE (0.26%) DFAX Allocation: Dayton (8.37%) / DEOK (21.94%) / Dominion (56.40%) / EKPC (13.29%)

^{*}Neptune Regional Transmission System, LLC

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 11a		an revenue requirement	Responsible Customer(s)
			Load-Ratio Share Allocation:
			AEC (1.71%) / AEP (14.04%) /
			APS (5.61%) / ATSI (8.10%) /
			BGE (4.36%) / ComEd
			(13.14%) / Dayton (2.15%) /
			DEOK (3.23%) / DL (1.73%) /
			DPL (2.65%) / Dominion
			(13.03%) / EKPC (1.77%) /
	Reconductor the AEP		JCPL (3.84%) / ME (1.93%) /
b1797.1	portion of the Cloverdale -		NEPTUNE* (0.45%) / OVEC
01/9/.1	Lexington 500 kV line with		(0.07%) / PECO (5.29%) /
	2-1780 ACSS		PENELEC (1.89%) / PEPCO
			(3.82%) / PPL (4.72%) / PSEG
			(6.21%) / RE (0.26%)
			DFAX Allocation:
			AEP (0.79%) / APS (53.70%) /
			Dayton (0.15%) / DEOK
			(0.40%) / Dominion (1.13%) /
			EKPC (0.23%) / PEPCO
			(43.60%)
b2055	Upgrade relay at Brues		AEP (100%)
02033	station		ALF (100%)
	Upgrade terminal		
	equipment at Howard on		
b2122.3	the Howard - Brookside		AEP (100%)
	138 kV line to achieve		
	ratings of 252/291 (SN/SE)		
	Perform a sag study on the		
b2122.4	Howard - Brookside 138		AEP (100%)
	kV line		
h2220	Install a 300 MVAR		AED (1000/)
b2229	reactor at Dequine 345 kV		AEP (100%)

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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 11	ansmission Ennancements Annu	iai Revenue Requirement	Responsible Customer(s)
			Load-Ratio Share Allocation:
			AEC (1.71%) / AEP (14.04%) /
			APS (5.61%) / ATSI (8.10%) /
			BGE (4.36%) / ComEd
			(13.14%) / Dayton (2.15%) /
	Replace existing 150		DEOK (3.23%) / DL (1.73%) /
	MVAR reactor at Amos 765		DPL (2.65%) / Dominion
b2230	kV substation on Amos - N.		(13.03%) / EKPC (1.77%) /
02230	Proctorville - Hanging Rock		JCPL (3.84%) / ME (1.93%) /
	with 300 MVAR reactor		NEPTUNE* (0.45%) / OVEC
	with 500 W VAR reactor		(0.07%) / PECO (5.29%) /
			PENELEC (1.89%) / PEPCO
			(3.82%) / PPL (4.72%) / PSEG
			(6.21%) / RE (0.26%)
			DFAX Allocation:
			AEP (100%)
	Install 765 kV reactor		
b2231	breaker at Dumont 765 kV		AEP (100%)
02231	substation on the Dumont -		71121 (10070)
	Wilton Center line		
	Install 765 kV reactor		
	breaker at Marysville 765		
b2232	kV substation on the		AEP (100%)
	Marysville - Maliszewski		
	line		
	Change transformer tap		. == .// 22. //
b2233	settings for the Baker		AEP (100%)
	765/345 kV transformer		
	Loop the North Muskingum		
b2252	- Crooksville 138 kV line		
	into AEP's Philo 138 kV		AEP (100%)
	station which lies		(100,0)
	approximately 0.4 miles		
	from the line		

^{*}Neptune Regional Transmission System, 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 11	ansimission Emiancements Annu	iai Kevenue Kequitement	Responsible Customer(s)
b2253	Install an 86.4 MVAR capacitor bank at Gorsuch		AEP (100%)
	138 kV station in Ohio		
	Rebuild approximately 4.9		
b2254	miles of Corner - Degussa		AEP (100%)
	138 kV line in Ohio		,
	Rebuild approximately 2.8		
b2255	miles of Maliszewski -		AEP (100%)
	Polaris 138 kV line in Ohio		
	Upgrade approximately 36		
	miles of 138 kV through		
b2256	path facilities between		AEP (100%)
	Harrison 138 kV station and		
	Ross 138 kV station in Ohio		
	Rebuild the Pokagon -		
	Corey 69 kV line as a		
	double circuit 138 kV line		
b2257	with one side at 69 kV and		AEP (100%)
	the other side as an express		
	circuit between Pokagon		
	and Corey stations		
	Rebuild 1.41 miles of #2		
	CU 46 kV line between		
b2258	Tams Mountain - Slab Fork		AEP (100%)
02236	to 138 kV standards. The		ALI (100%)
	line will be strung with		
	1033 ACSR		
	Install a new 138/69 kV		
	transformer at George		
b2259	Washington 138/69 kV		AEP (100%)
02237	substation to provide		1111 (10070)
	support to the 69 kV system		
	in the area		
	Rebuild 4.7 miles of		
b2286	Muskingum River - Wolf		
	Creek 138 kV line and		AEP (100%)
	remove the 138/138 kV		(100/0)
	transformer at Wolf Creek		
	Station		

required 11	ansimission Emiancements Amin	iai Kevenue Kequirement	Responsible Customer(s)
b2287	Loop in the Meadow Lake - Olive 345 kV circuit into Reynolds 765/345 kV		AEP (100%)
	station		
	Establish a new 138/12 kV		
	station, transfer and		
	consolidate load from its		4 TT (400 t)
b2344.1	Nicholsville and Marcellus		AEP (100%)
	34.5 kV stations at this new		
	station		
	Tap the Hydramatic –		
	Valley 138 kV circuit (~		
b2344.2	structure 415), build a new		AEP (100%)
	138 kV line (~3.75 miles) to		
	this new station		
	From this station, construct		
b2344.3	a new 138 kV line (~1.95		AEP (100%)
b2344.3	miles) to REA's Marcellus station		` ,
	From REA's Marcellus		
	station construct new 138		
	kV line (~2.35 miles) to a		
b2344.4	tap point on Valley –		AEP (100%)
	Hydramatic 138 kV ckt		
	(~structure 434)		
	Retire sections of the 138		
b2344.5	kV line in between structure		AEP (100%)
	415 and 434 (~ 2.65 miles)		
	Retire AEP's Marcellus		
b2344.6	34.5/12 kV and Nicholsville		
	34.5/12 kV stations and also		AEP (100%)
	the Marcellus – Valley 34.5		
	kV line		
100454	Construct a new 69 kV line		A FID (1000())
b2345.1	from Hartford to Keeler (~8		AEP (100%)
	miles)		

required 11		i Kevenue Kequitement	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%)

b2376	Replace the Turner 138 kV	AEP (100%)
b2377	breaker 'D' Replace the North Newark	AEP (100%)
b2378	138 kV breaker 'P' 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%)

b2394	Replace the Sporn 345 kV breaker 'CC1'	•	AEP (100%)
b2409	Install two 56.4 MVAR capacitor banks at the Melmore 138 kV station in Ohio		AEP (100%)
b2410	Convert Hogan Mullin 34.5 kV line to 138 kV, establish 138 kV line between Jones Creek and Strawton, rebuild existing Mullin Elwood 34.5 kV and terminate line into Strawton station, retire Mullin station		AEP (100%)
b2411	Rebuild the 3/0 ACSR portion of the Hadley - Kroemer Tap 69 kV line utilizing 795 ACSR conductor		AEP (100%)
b2423	Install a 300 MVAR shunt reactor at AEP's Wyoming 765 kV station		Load-Ratio Share Allocation: AEC (1.71%) / AEP (14.04%) / APS (5.61%) / ATSI (8.10%) / BGE (4.36%) / ComEd (13.14%)

Required 1ra	ansmission Enhancements Annu	ial Revenue Requirement	Responsible Customer(s)
	Willow - Eureka 138 kV		
b2444	line: Reconductor 0.26 mile		AEP (100%)
	of 4/0 CU with 336 ACSS		
	Complete a sag study of		
b2445	Tidd - Mahans Lake 138 kV		AEP (100%)
	line		
	Rebuild the 7-mile 345 kV		
b2449	line between Meadow Lake		AEP (100%)
02447	and Reynolds 345 kV		71L1 (10070)
	stations		
	Add two 138 kV circuit		
b2462	breakers at Fremont station		AEP (100%)
02102	to fix tower contingency		1121 (10070)
	'408 <u>2</u> '		
	Construct a new 138/69 kV		
	Yager station by tapping 2-		
b2501	138 kV FE circuits		AEP (100%)
	(Nottingham-Cloverdale,		
	Nottingham-Harmon)		
	Build a new 138 kV line		
b2501.2	from new Yager station to		AEP (100%)
	Azalea station		
	Close the 138 kV loop back		
b2501.3	into Yager 138 kV by		AEP (100%)
02301.3	converting part of local 69		ALI (10070)
	kV facilities to 138 kV		
	Build 2 new 69 kV exits to		
	reinforce 69 kV facilities		
b2501.4	and upgrade conductor		AEP (100%)
02301.4	between Irish Run 69 kV		ALI (10070)
	Switch and Bowerstown 69		
	kV Switch		

required 11		iai Kevenue Kequitemeni	Responsible Cusiomer(s)
	Construct new 138 kV		
	switching station		
	Nottingham tapping 6-138		
	kV FE circuits (Holloway-		
	Brookside, Holloway-		
b2502.1	Harmon #1 and #2,		AEP (100%)
	Holloway-Reeds,		
	Holloway-New Stacy,		
	Holloway-Cloverdale). Exit		
	a 138 kV circuit from new		
	station to Freebyrd station		
1-0500.0	Convert Freebyrd 69 kV to		AED (1000/)
b2502.2	138 kV		AEP (100%)
	Rebuild/convert Freebyrd-		
b2502.3	South Cadiz 69 kV circuit		AEP (100%)
	to 138 kV		
b2502.4	Upgrade South Cadiz to 138		AEP (100%)
02302.4	kV breaker and a half		ALI (100%)
	Replace the Sporn 138 kV		
b2530	breaker 'G1' with 80kA		AEP (100%)
	breaker		
	Replace the Sporn 138 kV		
b2531	breaker 'D' with 80kA		AEP (100%)
	breaker		
	Replace the Sporn 138 kV		
b2532	breaker 'O1' with 80kA		AEP (100%)
	breaker		
	Replace the Sporn 138 kV		
b2533	breaker 'P2' with 80kA		AEP (100%)
	breaker		
	Replace the Sporn 138 kV		
b2534	breaker 'U' with 80kA		AEP (100%)
	breaker		. ,
	Replace the Sporn 138 kV		
b2535	breaker 'O' with 80 kA		AEP (100%)
	breaker		
		'	

Required 113	ansmission Emancements Annu	iai Revenue Requirement	Responsible Customer(s)
	Replace the Sporn 138 kV		
b2536	breaker 'O2' with 80 kA		AEP (100%)
	breaker		
	Replace the Robinson Park		
	138 kV breakers A1, A2,		. ——
b2537	B1, B2, C1, C2, D1, D2,		AEP (100%)
	E1, E2, and F1 with 63 kA		
	breakers		
	Reconductor 0.5 miles		
	Tiltonsville – Windsor 138		
b2555	kV and string the vacant		AEP (100%)
02333	side of the 4.5 mile section		71E1 (10070)
	using 556 ACSR in a six		
	wire configuration		
	Install two 138 kV prop		
	structures to increase the		
b2556	maximum operating		AEP (100%)
02330	temperature of the Clinch		ALI (10070)
	River- Clinch Field 138 kV		
	line		
	Temporary operating		
	procedure for delay of		
	upgrade b1464. Open the		
	Corner 138 kV circuit		
	breaker 86 for an overload		
b2581	of the Corner – Washington		AEP (100%)
02361	MP 138 kV line. The tower		ALI (100%)
	contingency loss of		
	Belmont – Trissler 138 kV		
	and Belmont – Edgelawn		
	138 kV should be added to		
	Operational contingency		

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

required 11.	distribution Limital Contents Aint	au rectae requirement	Responsible Customer(s)
	Rebuild approximately 1		
	mi. section of Dragoon- Virgil Street 34.5 kV line		
	between Dragoon and		
b2597	Dodge Tap switch and		AEP (100%)
02377	replace Dodge switch		1121 (10070)
	MOAB to increase thermal		
	capability of Dragoon-		
	Dodge Tap branch		
	Rebuild approximately 1		
	mile section of the Kline-		
	Virgil Street 34.5 kV line		
1-2500	between Kline and Virgil		AED (1000()
02398	Street tap. Replace MOAB		AEP (100%)
	switches at Beiger, risers at		
	Kline, switches and bus at		
	Virgil Street.		
	Rebuild approximately 0.1		
b2599	miles of 69 kV line between		AEP (100%)
	Albion and Albion tap		
h2600	Rebuild Fremont – Pound		AEP (100%)
02000	line as 138 kV		1111 (10070)
b2601	Fremont Station		AEP (100%)
02001	Improvements		1111 (10070)
	Replace MOAB towards		
b2601.1	Beaver Creek with 138 kV		AEP (100%)
b2598 b2598 b2599 b2600 b2601.1 b2601.2 b2601.3 b2601.4	breaker		
1000	Replace MOAB towards		A FID (40001)
b2601.2	Clinch River with 138 kV		AEP (100%)
b2598 b2599 b2600 b2601 b2601.1 b2601.2 b2601.3	breaker		
b2601.3	Replace 138 kV Breaker A		AEP (100%)
	with new bus-tie breaker		(===,-,
10001	Re-use Breaker A as high		A FID (1999)
b2601.4	side protection on		AEP (100%)
	transformer #1		
	Install two (2) circuit		
b2601.5	switchers on high side of		AEP (100%)
	transformers # 2 and 3 at		` '
	Fremont Station		

required 11	ansmission Enhancements Annu	iai 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%)

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 Convert Bane – Hammondsville from 23 kV to 69 kV operation b2607 Pine Gap Relay Limit Increase AEP (100%) December 1 AEP (100%) December 2 AEP (100%) Decem	1		responsible editioner(s)
Washington 69 kV circuit and George Washington – Moundsville ckt #1, designed for 138kV. Upgrade limiting equipment at remote ends and at tap stations Convert Bane – Hammondsville from 23 kV to 69 kV operation b2607 Pine Gap Relay Limit Increase b2608 Richlands Relay Upgrade AEP (100%) Thorofare – Goff Run – Powell Mountain 138 kV Build b2610 Rebuild Pax Branch – Scaraboro as 138 kV AEP (100%) b2611 Skin Fork Area Improvements New 138/46 kV station near Skin Fork and other components Construct 3.2 miles of 1033 ACSR double circuit from new Station to cut into Sundial-Baileysville 138 kV line 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			
and George Washington — Moundsville ckt #1, designed for 138kV. Upgrade limiting equipment at remote ends and at tap stations Convert Bane — Hammondsville from 23 kV to 69 kV operation b2607 Pine Gap Relay Limit Increase b2608 Richlands Relay Upgrade Thorofare — Goff Run — Powell Mountain 138 kV Build b2610 Rebuild Pax Branch — Scaraboro as 138 kV AEP (100%) Skin Fork Area Improvements New 138/46 kV station near b2611.1 Skin Fork and other components Construct 3.2 miles of 1033 ACSR double circuit from new Station to cut into Sundial-Baileysville 138 kV line 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		_	
b2605			
designed for 138kV. Upgrade limiting equipment at remote ends and at tap stations Convert Bane – b2606 Hammondsville from 23 kV to 69 kV operation b2607 Pine Gap Relay Limit Increase b2608 Richlands Relay Upgrade Thorofare – Goff Run – Powell Mountain 138 kV Build Build Bebuild Pax Branch – Scaraboro as 138 kV Bebuild Pax Branch – Scaraboro as 138 kV Bebuild Pax Branch – Scaraboro as 138 kV AEP (100%) Bebuild Pax Branch – Scaraboro as 138 kV AEP (100%) Skin Fork Area Improvements New 138/46 kV station near Skin Fork and other components Construct 3.2 miles of 1033 ACSR double circuit from new Station to cut into Sundial-Baileysville 138 kV line 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	1.2605		AED (1000/)
Upgrade limiting equipment at remote ends and at tap stations Convert Bane — Hammondsville from 23 kV to 69 kV operation b2607 Pine Gap Relay Limit Increase B2608 Richlands Relay Upgrade Thorofare — Goff Run — Powell Mountain 138 kV Build B2610 Rebuild Pax Branch — Scaraboro as 138 kV B2611 Skin Fork Area Improvements New 138/46 kV station near Skin Fork and other components Construct 3.2 miles of 1033 ACSR double circuit from new Station to cut into Sundial-Baileysville 138 kV line 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	62605	*	AEP (100%)
Stations Convert Bane			
Stations Convert Bane – Hammondsville from 23 kV to 69 kV operation b2607 Pine Gap Relay Limit Increase b2608 Richlands Relay Upgrade Thorofare – Goff Run – Powell Mountain 138 kV Build b2610 Rebuild Pax Branch – Scaraboro as 138 kV b2611 Skin Fork Area Improvements New 138/46 kV station near b2611.1 Skin Fork and other components Construct 3.2 miles of 1033 ACSR double circuit from new Station to cut into Sundial-Baileysville 138 kV line 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		_ = = = = = =	
Convert Bane - Hammondsville from 23 kV to 69 kV operation		=	
b2606 Hammondsville from 23 kV to 69 kV operation b2607 Pine Gap Relay Limit Increase b2608 Richlands Relay Upgrade Thorofare – Goff Run – Powell Mountain 138 kV Build b2610 Rebuild Pax Branch – Scaraboro as 138 kV b2611 Skin Fork Area Improvements New 138/46 kV station near b2611.1 Skin Fork and other components Construct 3.2 miles of 1033 ACSR double circuit from new Station to cut into Sundial-Baileysville 138 kV line Replace metering BCT on Tanners Creek CB T2 with a slip over CT with higher b2634.1 thermal rating in order to remove 1193 MVA limit on			
to 69 kV operation b2607 Pine Gap Relay Limit Increase b2608 Richlands Relay Upgrade Thorofare – Goff Run – Powell Mountain 138 kV Build b2610 Rebuild Pax Branch – Scaraboro as 138 kV b2611 Skin Fork Area Improvements New 138/46 kV station near b2611.1 Skin Fork and other components Construct 3.2 miles of 1033 ACSR double circuit from new Station to cut into Sundial-Baileysville 138 kV line 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	1.000		A F.D. (1000/)
b2607 Pine Gap Relay Limit Increase b2608 Richlands Relay Upgrade Thorofare – Goff Run – Powell Mountain 138 kV Build b2610 Rebuild Pax Branch – Scaraboro as 138 kV b2611 Skin Fork Area Improvements New 138/46 kV station near Skin Fork and other components Construct 3.2 miles of 1033 ACSR double circuit from new Station to cut into Sundial-Baileysville 138 kV line 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	62606		AEP (100%)
b2607 Increase b2608 Richlands Relay Upgrade Thorofare – Goff Run – Powell Mountain 138 kV Build b2610 Rebuild Pax Branch – Scaraboro as 138 kV b2611 Skin Fork Area Improvements New 138/46 kV station near b2611.1 Skin Fork and other components Construct 3.2 miles of 1033 ACSR double circuit from new Station to cut into Sundial-Baileysville 138 kV line Replace metering BCT on Tanners Creek CB T2 with a slip over CT with higher b2634.1 thermal rating in order to remove 1193 MVA limit on			
b2608 Richlands Relay Upgrade Thorofare – Goff Run – Powell Mountain 138 kV Build B2610 Rebuild Pax Branch – Scaraboro as 138 kV B2611 Skin Fork Area Improvements New 138/46 kV station near Skin Fork and other components Construct 3.2 miles of 1033 ACSR double circuit from new Station to cut into Sundial-Baileysville 138 kV 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			AEP (100%)
Thorofare - Goff Run - Powell Mountain 138 kV Build b2610 Rebuild Pax Branch - Scaraboro as 138 kV b2611 Skin Fork Area Improvements b2611.1 Skin Fork and other Components Construct 3.2 miles of 1033 ACSR double circuit from new Station to cut into Sundial-Baileysville 138 kV line 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 Baep (100%) AEP (100%) AEP (100%) AEP (100%) AEP (100%) AEP (100%)		Increase	` ,
b2609 Powell Mountain 138 kV Build B2610 Rebuild Pax Branch — Scaraboro as 138 kV B2611 Skin Fork Area Improvements New 138/46 kV station near b2611.1 Skin Fork and other components Construct 3.2 miles of 1033 ACSR double circuit from new Station to cut into Sundial-Baileysville 138 kV line Replace metering BCT on Tanners Creek CB T2 with a slip over CT with higher b2634.1 thermal rating in order to remove 1193 MVA limit on	b2608	Richlands Relay Upgrade	AEP (100%)
b2609 Powell Mountain 138 kV Build B2610 Rebuild Pax Branch — Scaraboro as 138 kV B2611 Skin Fork Area Improvements New 138/46 kV station near b2611.1 Skin Fork and other components Construct 3.2 miles of 1033 ACSR double circuit from new Station to cut into Sundial-Baileysville 138 kV line Replace metering BCT on Tanners Creek CB T2 with a slip over CT with higher b2634.1 thermal rating in order to remove 1193 MVA limit on		Thorofare – Goff Run	
Build Rebuild Pax Branch — Scaraboro as 138 kV b2611 Skin Fork Area Improvements New 138/46 kV station near b2611.1 Skin Fork and other components Construct 3.2 miles of 1033 ACSR double circuit from b2611.2 new Station to cut into Sundial-Baileysville 138 kV line 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	b2609		ΔFP (100%)
b2610 Rebuild Pax Branch — Scaraboro as 138 kV b2611 Skin Fork Area Improvements New 138/46 kV station near Skin Fork and other components Construct 3.2 miles of 1033 ACSR double circuit from new Station to cut into Sundial-Baileysville 138 kV line 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	02007		ALI (100%)
b2610 Scaraboro as 138 kV b2611 Skin Fork Area Improvements New 138/46 kV station near Skin Fork and other components Construct 3.2 miles of 1033 ACSR double circuit from new Station to cut into Sundial-Baileysville 138 kV line 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	1.2610		AED (1999)
New 138/46 kV station near b2611.1 Skin Fork and other components Construct 3.2 miles of 1033 ACSR double circuit from new Station to cut into Sundial-Baileysville 138 kV line 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	b2610		AEP (100%)
Improvements New 138/46 kV station near Skin Fork and other components Construct 3.2 miles of 1033 ACSR double circuit from new Station to cut into Sundial-Baileysville 138 kV line 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 AEP (100%)	h2611	Skin Fork Area	AED (100%)
b2611.1 Skin Fork and other components Construct 3.2 miles of 1033 ACSR double circuit from new Station to cut into Sundial-Baileysville 138 kV line 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 AEP (100%) AEP (100%)	02011	Improvements	AEF (100%)
components Construct 3.2 miles of 1033 ACSR double circuit from new Station to cut into Sundial-Baileysville 138 kV line 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		New 138/46 kV station near	
Construct 3.2 miles of 1033 ACSR double circuit from new Station to cut into Sundial-Baileysville 138 kV line 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 AEP (100%)	b2611.1	Skin Fork and other	AEP (100%)
ACSR double circuit from new Station to cut into Sundial-Baileysville 138 kV line 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 AEP (100%)		•	
b2611.2 new Station to cut into Sundial-Baileysville 138 kV line 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 AEP (100%)		Construct 3.2 miles of 1033	
Sundial-Baileysville 138 kV line 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 AEP (100%)		ACSR double circuit from	
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 AEP (100%)	b2611.2	new Station to cut into	AEP (100%)
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 Replace metering BCT on Tanners Creek CB T2 with a slip over CT with higher AEP (100%)		Sundial-Baileysville 138 kV	
Tanners Creek CB T2 with a slip over CT with higher thermal rating in order to remove 1193 MVA limit on Tanners Creek CB T2 with AEP (100%)			
b2634.1 a slip over CT with higher thermal rating in order to remove 1193 MVA limit on			
b2634.1 thermal rating in order to remove 1193 MVA limit on AEP (100%)			
remove 1193 MVA limit on		1	
	b2634.1		AEP (100%)
1 0 10 10 10 10 10 10 10 10 10 10 10 10			
		facility (Miami Fort-	
Tanners Creek 345 kV line)		Tanners Creek 345 kV line)	

Required 11	ansmission Enhancements Annu	ial 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%)

rtequired III	distribution Linear Contents Tain	uai revenue requirement	Responsible Customer(s)
			Load-Ratio Share Allocation:
			AEC (1.71%) / AEP (14.04%) /
			APS (5.61%) / ATSI (8.10%) /
			BGE (4.36%) / ComEd
			(13.14%) / Dayton (2.15%) /
			DEOK (3.23%) / DL (1.73%) /
	Install a +/- 450 MVAR SVC at Jacksons Ferry 765 kV substation		DPL (2.65%) / Dominion (13.03%) / EKPC (1.77%) / JCPL (3.84%) / ME (1.93%) /
1.2607.1			
b2687.1			
			NEPTUNE* (0.45%) / OVEC
		(0.07%) / PECO (5.29%) / PENELEC (1.89%) / PEPCO (3.82%) / PPL (4.72%) / PSEC (6.21%) / RE (0.26%)	(0.07%) / PECO (5.29%) /
			PENELEC (1.89%) / PEPCO
			(3.82%) / PPL (4.72%) / PSEG
			(6.21%) / RE (0.26%)
			DFAX Allocation:
			AEP (100%)

^{*}Neptune Regional Transmission System, LLC

Required Tr	ansmission Enhancements Annu	al Revenue Requirement	Responsible Customer(s)
			Load-Ratio Share Allocation:
			AEC (1.71%) / AEP (14.04%) /
			APS (5.61%) / ATSI (8.10%) /
			BGE (4.36%) / ComEd
			(13.14%) / Dayton (2.15%) /
	Install a 300 MVAR shunt		DEOK (3.23%) / DL (1.73%) /
	line reactor on the		DPL (2.65%) / Dominion
b2687.2	Broadford end of the		(13.03%) / EKPC (1.77%) /
02087.2	Broadford – Jacksons Ferry		JCPL (3.84%) / ME (1.93%) /
	765 kV line		NEPTUNE* (0.45%) / OVEC
	703 K V IIIIE		(0.07%) / PECO (5.29%) /
			PENELEC (1.89%) / PEPCO
			(3.82%) / PPL (4.72%) / PSEG
			(6.21%) / RE (0.26%)
			DFAX Allocation:
			AEP (100%)
	Mitigate violations		
	identified by sag study to		
	operate Fieldale-Thornton-		
b2697.1	Franklin 138 kV overhead		AEP (100%)
02077.1	line conductor at its max.		ALI (100%)
	operating temperature. 6		
	potential line crossings to		
	be addressed.		
b2697.2	Replace terminal equipment		
	at AEP's Danville and East		
	Danville substations to		AEP (100%)
	improve thermal capacity of		ALI (100/0)
	Danville – East Danville		
	138 kV circuit		

^{*}Neptune Regional Transmission System, LLC

Required 11	ansmission Ennancements Annua	a Revenue Requirement	Responsible Customer(s)
	Replace relays at AEP's		
	Cloverdale and Jackson's		
b2698	Ferry substations to improve		AEP (100%)
02070	the thermal capacity of		71L1 (10070)
	Cloverdale – Jackson's Ferry		
	765 kV line		
	Construct Herlan station as		
	breaker and a half		
b2701.1	configuration with 9-138 kV		AEP (100%)
	CB's on 4 strings and with 2-		
	28.8 MVAR capacitor banks		
	Construct new 138 kV line		
	from Herlan station to Blue		
b2701.2	Racer station. Estimated		AEP (100%)
02701.2	approx. 3.2 miles of 1234		ALI (100%)
	ACSS/TW Yukon and		
	OPGW		
	Install 1-138 kV CB at Blue		
2701.3	Racer to terminate new		AEP (100%)
	Herlan circuit		
	Rebuild/upgrade line		
b2714	between Glencoe and		AEP (100%)
	Willow Grove Switch 69 kV		
	Build approximately 11.5		
	miles of 34.5 kV line with		
b2715	556.5 ACSR 26/7 Dove		AEP (100%)
02/13	conductor on wood poles		1111 (10070)
	from Flushing station to		
	Smyrna station		
	Replace the South Canton		
b2727	138 kV breakers 'K', 'J',		AEP (100%)
	'J1', and 'J2' with 80kA		71L1 (100/0)
	breakers		

Required 11	ansmission Ennancements Annua	a Revenue Requirement	Responsible Customer(s)
	Convert the Sunnyside – East Sparta – Malvern 23 kV		
b2731	sub-transmission network to		AEP (100%)
02731	69 kV. The lines are already		AEI (100%)
	built to 69 kV standards		
	Replace South Canton 138		
b2733	kV breakers 'L' and 'L2'		AEP (100%)
02733	with 80 kA rated breakers		71E1 (10070)
	Retire Betsy Layne		
	138/69/43 kV station and		
1.0000	replace it with the greenfield		177 (100a))
b2750.1	Stanville station about a half		AEP (100%)
	mile north of the existing		
	Betsy Layne station		
	Relocate the Betsy Layne		
	capacitor bank to the		
b2750.2	Stanville 69 kV bus and		AEP (100%)
	increase the size to 14.4		
	MVAR		
	Replace existing George		
	Washington station 138 kV		
	yard with GIS 138 kV		
b2753.1	breaker and a half yard in		AEP (100%)
	existing station footprint.		()
	Install 138 kV revenue		
	metering for new IPP		
	connection		
	Replace Dilles Bottom 69/4		
b2753.2	kV Distribution station as		
	breaker and a half 138 kV		
	yard design including AEP Distribution facilities but		AEP (100%)
	initial configuration will		
	constitute a 3 breaker ring		
	bus		
	ous		

1104011100 111		110,011000 1100[0110110110	responsible customer(s)
	Connect two 138 kV 6-wired circuits from "Point A"		
	(currently de-energized and		
	owned by FirstEnergy) in		
	circuit positions previously		
b2753.3	designated Burger #1 &		AEP (100%)
	Burger #2 138 kV. Install		
	interconnection settlement		
	metering on both circuits		
	exiting Holloway		
	Build double circuit 138 kV		
	line from Dilles Bottom to		
	"Point A". Tie each new		
	AEP circuit in with a 6-wired		
b2753.6	line at Point A. This will		AEP (100%)
	create a Dilles Bottom –		
	Holloway 138 kV circuit and		
	a George Washington –		
	Holloway 138 kV circuit		
	Retire line sections (Dilles		
	Bottom – Bellaire and		
	Moundsville – Dilles Bottom		
	69 kV lines) south of		
b2753.7	FirstEnergy 138 kV line		AEP (100%)
02,000.7	corridor, near "Point A". Tie		122 (100,0)
	George Washington –		
	Moundsville 69 kV circuit to		
	George Washington – West		
	Bellaire 69 kV circuit		
	Rebuild existing 69 kV line as double circuit from		
b2753.8			
	George Washington – Dilles Bottom 138 kV. One circuit		
	will cut into Dilles Bottom		AEP (100%)
	138 kV initially and the other		
	will go past with future plans		
	to cut in		
	lo cut iii		

Required 11	ansmission Enhancements Annual	Revenue Requirement	Responsible Customer(s)
b2760	Perform a Sag Study of the Saltville – Tazewell 138 kV line to increase the thermal rating of the line		AEP (100%)
b2761.1	Replace the Hazard 161/138 kV transformer		AEP (100%)
b2761.2	Perform a Sag Study of the Hazard – Wooten 161 kV line to increase the thermal rating of the line		AEP (100%)
b2761.3	Rebuild the Hazard – Wooton 161 kV line utilizing 795 26/7 ACSR conductor (300 MVA rating)		AEP (100%)
b2762	Perform a Sag Study of Nagel - West Kingsport 138 kV line to increase the thermal rating of the line		AEP (100%)
b2776	Reconductor the entire Dequine – Meadow Lake 345 kV circuit #2		AEP (100%)
b2777	Reconductor the entire Dequine – Eugene 345 kV circuit #1		EKPC (100%)
b2779.1	Construct a new 138 kV station, Campbell Road, tapping into the Grabill – South Hicksville138 kV line		AEP (100%)
b2779.2	Reconstruct sections of the Butler-N.Hicksville and Auburn-Butler 69 kV circuits as 138 kV double circuit and extend 138 kV from Campbell Road station		AEP (100%)

required 11	ansmission 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%)

		1 1111101011 1 10 1 011010 1 10 0 011	rement responsible editionic(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%)

rtequired III	distinssion Lindicentents 1	minaar revenue reequire	ment 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%)

Required 113	ansmission Enhancements	Annuai Revenue Require	ement Responsible Customer(s)
	Rebuild 12 miles of Valley –		
	Almena 69 kV line as a		
	double circuit 138/69 kV line		
b2799.1	using 795 ACSR conductor		AEP (100%)
02/99.1	(360 MVA rating) to		ALF (100%)
	introduce a new 138 kV		
	source into the 69 kV load		
	pocket around Almena station		
	Rebuild 3.2 miles of Almena		
b2799.2	to Hartford 69 kV line using		AEP (100%)
02199.2	795 ACSR conductor (90		ALF (100%)
	MVA rating)		
	Rebuild 3.8 miles of		
b2799.3	Riverside – South Haven 69		AEP (100%)
02177.3	kV line using 795 ACSR		ALI (100%)
	conductor (90 MVA rating)		
	At Valley station, add new		
	138 kV line exit with a 3000		
b2799.4	A 40 kA breaker for the new		AEP (100%)
02/99.4	138 kV line to Almena and		ALF (100%)
	replace CB D with a 3000 A		
	40 kA breaker		
	At Almena station, install a		
	90 MVA 138/69 kV		
b2799.5	transformer with low side		AEP (100%)
02177.3	3000 A 40 kA breaker and		ALI (100%)
	establish a new 138 kV line		
	exit towards Valley		
	At Hartford station, install a		
b2799.6	second 90 MVA 138/69 kV		
	transformer with a circuit		AEP (100%)
	switcher and 3000 A 40 kA		
	low side breaker		

Required Transmission Editarections		Annual Revenue Requirement Responsible Customer(s)	
b2817	Replace Delaware 138 kV breaker 'P' with a 40 kA		AEP (100%)
02017	breaker		1111 (100/0)
	Replace West Huntington 138		
b2818	kV breaker 'F' with a 40 kA		AEP (100%)
	breaker		
1.010	Replace Madison 138 kV		177 (100s)
b2819	breaker 'V' with a 63 kA		AEP (100%)
	breaker		
1 2020	Replace Sterling 138 kV		A ED (1000/)
b2820	breaker 'G' with a 40 kA		AEP (100%)
	breaker		
	Replace Morse 138 kV		
b2821	breakers '103', '104', '105',		AEP (100%)
	and '106' with 63 kA		
	breakers Parlage Clinton 128 kW		
b2822	Replace Clinton 138 kV breakers '105' and '107' with		AEP (100%)
02822	63 kA breakers		AEF (100%)
	Install 300 MVAR reactor at		
b2826.1	Ohio Central 345 kV		AEP (100%)
02020.1	substation		ALI (100/0)
	Substation		

required 11	ansmission Ennancements Annual	Revenue Requirement	Responsible Customer(s)
h2026.2	Install 300 MVAR reactor at		AED (1000/)
b2826.2	West Bellaire 345 kV substation		AEP (100%)
	Upgrade the Tanner Creek –		DFAX Allocation:
b2831.1	Miami Fort 345 kV circuit		Dayton (61.71%) / DEOK
	(AEP portion)		(37.68%) / OVEC (0.61%)
	Six wire the Kyger Creek –		
b2832	Sporn 345 kV circuits #1 and		AEP (100%)
02032	#2 and convert them to one		ALI (100%)
	circuit		
	Reconductor the Maddox		DFAX Allocation:
b2833	Creek – East Lima 345 kV		AEP (80.83%) / Dayton (18.73%)
	circuit with 2-954 ACSS		/ OVEC (0.44%)
	Cardinal conductor		
	Reconductor and string open		
b2834	position and sixwire 6.2 miles of the Chemical – Capitol Hill		AEP (100%)
	138 kV circuit		
	Replace the South Canton 138		
b2872	kV breaker 'K2' with a 80 kA		AEP (100%)
	breaker		(/
	Replace the South Canton 138		
b2873	kV breaker "M" with a 80 kA		AEP (100%)
	breaker		
	Replace the South Canton 138		
b2874	kV breaker "M2" with a 80		AEP (100%)
	kA breaker		
b2878	Upgrade the Clifty Creek		AEP (100%)
	345 kV risers		(100,0)
	Rebuild approximately 4.77		
b2880	miles of the Cannonsburg –		AED (1000()
	South Neal 69 kV line section		AEP (100%)
	utilizing 795 ACSR		
	conductor (90 MVA rating)		

Required 11	ansmission Ennancements	Alliuai Kevenue Requiren	nent Responsible Customer(s)
	Rebuild ~1.7 miles of the		
	Dunn Hollow – London 46		
b2881	kV line section utilizing 795		AEP (100%)
02001	26/7 ACSR conductor (58		ALF (100%)
	MVA rating, non-conductor		
	limited)		
	Rebuild Reusens - Peakland		
b2882	Switch 69 kV line. Replace		AEP (100%)
	Peakland Switch		
	Rebuild the Reusens -		
	Peakland Switch 69 kV line		
1-2002 1	(approximately 0.8 miles)		AED (1000/)
b2882.1	utilizing 795 ACSR		AEP (100%)
	conductor (86 MVA rating,		
	non-conductor limited)		
	Replace existing Peakland S.S		
b2882.2	with new 3 way switch phase		AEP (100%)
	over phase structure		
	Rebuild the Craneco – Pardee		
	– Three Forks – Skin Fork 46		
b2883	kV line section		AED (1000/)
02883	(approximately 7.2 miles)		AEP (100%)
	utilizing 795 26/7 ACSR		
	conductor (108 MVA rating)		
	Install a second transformer at		
	Nagel station, comprised of 3		
	single phase 250 MVA		
	500/138 kV transformers.		
b2884	Presently, TVA operates their		AED (1000/)
02884	end of the Boone Dam –		AEP (100%)
	Holston 138 kV		
	interconnection as normally		
	open preemptively for the loss		
	of the existing Nagel		
1-0005	New delivery point for City		AED (1000/)
b2885	of Jackson		AEP (100%)

Required Transmission Eminancements Annual Revenue Requirement Responsible Customer(s			
	Install a new Ironman Switch		
	to serve a new delivery point		
b2885.1	requested by the City of		AEP (100%)
	Jackson for a load increase		
	request		
	Install a new 138/69 kV		
	station (Rhodes) to serve as a		
b2885.2	third source to the area to help		AEP (100%)
	relieve overloads caused by		
	the customer load increase		
	Replace Coalton Switch with		
b2885.3	a new three breaker ring bus		AEP (100%)
	(Heppner)		
	Install 90 MVA 138/69 kV		
	transformer, new transformer		
b2886	high and low side 3000 A 40		AEP (100%)
02000	kA CBs, and a 138 kV 40 kA		ALF (100%)
	bus tie breaker at West End		
	Fostoria		
	Add 2-138 kV CB's and		
	relocate 2-138 kV circuit exits		
b2887	to different bays at Morse		AEP (100%)
02007	Road. Eliminate 3 terminal		AEF (100%)
	line by terminating Genoa -		
	Morse circuit at Morse Road		
	Retire Poston substation.		
b2888	Install new Lemaster		AEP (100%)
	substation		
b2888.1	Remove and retire the Poston		AED (1000/)
	138 kV station		AEP (100%)
	Install a new greenfield		
b2888.2	station, Lemaster 138 kV		AEP (100%)
	Station, in the clear		

1	D 1 4 41 T : 11 60 1 W		
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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	Rebuild 23.55 miles of the East Cambridge – Smyrna		
b2890.1	34.5 kV circuit with 795		AEP (100%)
	ACSR conductor (128 MVA		
	rating) and convert to 69 kV		
	East Cambridge: Install a		
	2000 A 69 kV 40 kA circuit		
b2890.2	breaker for the East		AEP (100%)
	Cambridge – Smyrna 69 kV		
	circuit		
	Old Washington: Install 69		
b2890.3	kV 2000 A two way phase		AEP (100%)
	over phase switch		
b2890.4	Install 69 kV 2000 A two way		AEP (100%)
02070. F	phase over phase switch		1121 (10070)
	Rebuild the Midland Switch		
	to East Findlay 34.5 kV line		,
b2891	(3.31 miles) with 795 ACSR		AEP (100%)
	(63 MVA rating) to match		
	other conductor in the area		
	Install new 138/12 kV		
	transformer with high side		
	circuit switcher at Leon and a		
	new 138 kV line exit towards		
b2892	Ripley. Establish 138 kV at		AEP (100%)
	the Ripley station with a new		, , ,
	138/69 kV 130 MVA		
	transformer and move the		
	distribution load to 138 kV		
	Service Pobuild approximately 6.7		
b2936.1	Rebuild approximately 6.7 miles of 69 kV line between		
	Mottville and Pigeon River		
	using 795 ACSR conductor		
	(129 MVA rating). New		AEP (100%)
	construction will be designed		
	to 138 kV standards but		
	operated at 69 kV		
L	operated at 07 K v	l	

Required 11	ansimission Emiancements	Annual Revenue Require	ement Responsible Customer(s)
b2936.2	Pigeon River Station: Replace existing MOAB Sw. 'W' with a new 69 kV 3000 A 40 kA breaker, and upgrade existing relays towards HMD station. Replace CB H with a 3000 A 40 kA breaker		AEP (100%)
b2937	Replace the existing 636 ACSR 138 kV bus at Fletchers Ridge with a larger 954 ACSR conductor		AEP (100%)
b2938	Perform a sag mitigations on the Broadford – Wolf Hills 138 kV circuit to allow the line to operate to a higher maximum temperature		AEP (100%)
b2958.1	Cut George Washington – Tidd 138 kV circuit into Sand Hill and reconfigure Brues & Warton Hill line entrances		AEP (100%)
b2958.2	Add 2 138 kV 3000 A 40 kA breakers, disconnect switches, and update relaying at Sand Hill station		AEP (100%)
b2968	Upgrade existing 345 kV terminal equipment at Tanner Creek station		AEP (100%)
b2969	Replace terminal equipment on Maddox Creek - East Lima 345 kV circuit		AEP (100%)
b2976	Upgrade terminal equipment at Tanners Creek 345 kV station. Upgrade 345 kV bus and risers at Tanners Creek for the Dearborn circuit		AEP (100%)

1100/001100 111		1 1111101011 1 10 7 011010 1 10 0 011	ement Responsible Customer(s)
b2988	Replace the Twin Branch 345 kV breaker "JM" with 63 kA breaker and associated substation works including switches, bus leads, control cable and new DICM		AEP (100%)
b2993	Rebuild the Torrey – South Gambrinus Switch – Gambrinus Road 69 kV line section (1.3 miles) with 1033 ACSR 'Curlew' conductor and steel poles		AEP (100%)
b3000	Replace South Canton 138 kV breaker 'N' with an 80kA breaker		AEP (100%)
b3001	Replace South Canton 138 kV breaker 'N1' with an 80kA breaker		AEP (100%)
b3002	Replace South Canton 138 kV breaker 'N2' with an 80kA breaker		AEP (100%)
b3036	Rebuild 15.6 miles of Haviland - North Delphos 138 kV line		AEP (100%)
b3037	Upgrades at the Natrium substation		AEP (100%)
b3038	Reconductor the Capitol Hill - Coco 138 kV line section		AEP (100%)
b3039	Line swaps at Muskingum 138 kV station		AEP (100%)
b3040.1	Rebuild Ravenswood – Racine tap 69 kV line section (~15 miles) to 69 kV standards, utilizing 795 26/7 ACSR conductor		AEP (100%)

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

required 11	ansinission Emancements	Ainuai Revenue Requiren	hent Responsible Customer(s)
b3086.3	Rebuild West Melrose – Whirlpool 34 kV line Str's 55–80 (1 mile), utilizing 795 26/7 ACSR conductor		AEP (100%)
b3086.4	North Findlay station: Install a 138 kV 3000A 63kA line breaker and low side 34.5 kV 2000A 40kA breaker, high side 138 kV circuit switcher on T1		AEP (100%)
b3086.5	Ebersole station: Install second 90 MVA 138/69/34 kV transformer. Install two low side (69 kV) 2000A 40kA breakers for T1 and T2		AEP (100%)
b3087.1	Construct a new greenfield station to the west (approx. 1.5 miles) of the existing Fords Branch Station in the new Kentucky Enterprise Industrial Park. This station will consist of six 3000A 40kA 138 kV breakers laid out in a ring arrangement, two 30 MVA 138/34.5 kV transformers, and two 30 MVA 138/12 kV transformers. The existing Fords Branch Station will be retired		AEP (100%)
b3087.2	Construct approximately 5 miles of new double circuit 138 kV line in order to loop the new Kewanee station into the existing Beaver Creek – Cedar Creek 138 kV circuit		AEP (100%)

required 11	ansinission Emancements	Ailiuai Revenue Requi	rement Responsible Customer(s)
h2007.2	Remote end work will be		AED (1000/)
b3087.3	required at Cedar Creek		AEP (100%)
	Station		
	Install 28.8 MVar switching		. ==
b3087.4	shunt at the new Fords		AEP (100%)
	Branch substation		
	Rebuild Lakin – Racine Tap		
b3095	69 kV line section (9.2 miles)		AEP (100%)
03093	to 69 kV standards, utilizing		AEI (100%)
	795 26/7 ACSR conductor		
	Install a 138 kV 3000A 40 kA		
	circuit switcher on the high		
b3099	side of the existing 138/34.5		AEP (100%)
	kV transformer No.5 at		` ,
	Holston station		
	Replace the 138 kV MOAB		
	switcher "YY" with a new		
b3100	138 kV circuit switcher on the		AEP (100%)
	high side of Chemical		(/
	transformer No.6		
	Rebuild the 1/0 Cu. conductor		
	sections (approx. 1.5 miles) of		
	the Fort Robinson – Moccasin		
	Gap 69 kV line section		
	(approx. 5 miles) utilizing		
b3101	556 ACSR conductor and		AEP (100%)
	upgrade existing relay trip		
	limit (WN/WE: 63 MVA, line		
	limited by remaining		
	conductor sections)		
	Replace existing 50 MVA		
	138/69 kV transformers #1		
b3102			A ED (100%)
	and #2 (both 1957 vintage) at Fremont station with new 130		AEP (100%)
	MVA 138/69 kV transformers		

11040111001111	distinssion Emidicements	1 1111101011 1 10 1 011010 1 10 0 011	rement responsible editioner(s)
	Install a 138/69 kV		
	transformer at Royerton		
	station. Install a 69 kV bus		
	with one 69 kV breaker		
b3103.1	toward Bosman station.		AEP (100%)
03103.1	Rebuild the 138 kV portion		ALI (100%)
	into a ring bus configuration		
	built for future breaker and a		
	half with four 138 kV		
	breakers		
	Rebuild the		
	Bosman/Strawboard station in		
h2102.2	the clear across the road to		AED (1000/)
b3103.2	move it out of the flood plain		AEP (100%)
	and bring it up to 69 kV		
	standards		
	Retire 138 kV breaker L at		
1 2102 2	Delaware station and re-		AED (1000/)
b3103.3	purpose 138 kV breaker M		AEP (100%)
	for the Jay line		
	Retire all 34.5 kV equipment		
b3103.4	at Hartford City station. Re-		AED (1000/)
03103.4	purpose breaker M for the		AEP (100%)
	Bosman line 69 kV exit		
	Rebuild the 138 kV portion of		
	Jay station as a 6 breaker,		
	breaker and a half station re-		
b3103.5	using the existing breakers		
	"A", "B", and "G." Rebuild		AED (1000/)
	the 69 kV portion of this		AEP (100%)
	station as a 6 breaker ring bus		
	re-using the 2 existing 69 kV		
	breakers. Install a new 138/69		
	kV transformer		

required 11	ansinission Emiancements	Annual Revenue Require	ment Responsible Customer(s)
	Rebuild the 69 kV Hartford		
	City – Armstrong Cork line		
b3103.6	but instead of terminating it		AEP (100%)
	into Armstrong Cork,		
	terminate it into Jay station		
b3103.7	Build a new 69 kV line from		AEP (100%)
03103.7	Armstrong Cork – Jay station		ALI (100%)
	Rebuild the 34.5 kV		
	Delaware – Bosman line as		
b3103.8	the 69 kV Royerton –		AEP (100%)
03103.8	Strawboard line. Retire the		ALI (100%)
	line section from Royerton to		
	Delaware stations		
	Perform a sag study on the		
	Polaris – Westerville 138 kV		
b3104	line (approx. 3.6 miles) to		AEP (100%)
03104	increase the summer		ALI (100%)
	emergency rating to 310		
	MVA		
	Rebuild the Delaware – Hyatt		
	138 kV line (approx. 4.3		
b3105	miles) along with replacing		AEP (100%)
	conductors at both Hyatt and		
	Delaware substations		
	Perform a sag study (6.8		
	miles of line) to increase the		
	SE rating to 310 MVA. Note		
b3106	that results from the sag study		AEP (100%)
	could cover a wide range of		
	outcomes, from no work		
	required to a complete rebuild		
	Rebuild 5.2 miles Bethel –		
b3109	Sawmill 138 kV line		AEP (100%)
	including ADSS		

210402200 221	distinssion Lindicentents	Thiniad Tto Fonde Ttoqui	efficit Responsible Customer(s)
b3112	Construct a single circuit 138 kV line (approx. 3.5 miles) from Amlin to Dublin using 1033 ACSR Curlew (296 MVA SN), convert Dublin station into a ring configuration, and reterminating the Britton UG cable to Dublin station		AEP (100%)
b3116	Replace existing Mullens 138/46 kV 30 MVA transformer No.4 and associated protective equipment with a new 138/46 kV 90 MVA transformer and associated protective equipment		AEP (100%)
b3118.1	Expand existing Chadwick station and install a second 138/69 kV transformer at a new 138 kV bus tied into the Bellefonte – Grangston 138 kV circuit. The 69 kV bus will be reconfigured into a ring bus arrangement to tie the new transformer into the existing 69 kV via installation of four 3000A 63 kA 69 kV circuit breakers		AEP (100%)
b3118.2	Perform 138 kV remote end work at Grangston station		AEP (100%)
b3118.3	Perform 138 kV remote end work at Bellefonte station		AEP (100%)
b3118.4	Relocate the Chadwick – Leach 69 kV circuit within Chadwick station		AEP (100%)

required in	ansimission Linuncements	Timudi Revenue Requirement Responsible Customer(s)
	Terminate the Bellefonte –	
b3118.5	Grangston 138 kV circuit to	AEP (100%)
	the Chadwick 138 kV bus	
	Chadwick – Tri-State #2 138	
	kV circuit will be	
	reconfigured within the	
b3118.6	station to terminate into the	AEP (100%)
	newly established 138 kV bus	
	#2 at Chadwick due to	
	construability aspects	
	Reconductor Chadwick –	
	Leach and Chadwick —	
	England Hill 69 kV lines with	
	795 ACSS conductor.	
b3118.7	Perform a LiDAR survey and	AEP (100%)
	a sag study to confirm that the	
	reconductored circuits would	
	maintain acceptable	
	clearances	
	Replace the 20 kA 69 kV	
	circuit breaker 'F' at South	
b3118.8	Neal station with a new	AEP (100%)
03110.0	3000A 40 kA 69 kV circuit	ALI (100%)
	breaker. Replace line risers	
	towards Leach station	
	Rebuild 336 ACSR portion of	
b3118.9	Leach – Miller S.S 69 kV line	AEP (100%)
03110.7	section (approx. 0.3 mile)	7111 (10070)
	with 795 ACSS conductor	
	Replace 69 kV line risers	
b3118.10	(towards Chadwick) at Leach	AEP (100%)
	station	
	Rebuild the Jay – Pennville	
	138 kV line as double circuit	
b3119.1	138/69 kV. Build a new 9.8	AEP (100%)
03117.1	mile single circuit 69 kV line	ALI (10070)
	from near Pennville station to	
	North Portland station	

required 11	ansinission Emiancements	Tilliaal Revenue Requir	ement Responsible Customer(s)
	Install three (3) 69 kV		
	breakers to create the "U"		
b3119.2	string and add a low side		AEP (100%)
	breaker on the Jay		
	transformer 2		
	Install two (2) 69 kV breakers		
b3119.3	at North Portland station to		AED (1000/)
03119.3	complete the ring and allow		AEP (100%)
	for the new line		
	At Conesville 138 kV station:		
	Remove line leads to		
	generating units, transfer		
b3129	plant AC service to existing		AED (1000/)
03129	station service feeds in		AEP (100%)
	Conesville 345/138 kV yard,		
	and separate and reconfigure		
	protection schemes		
	At East Lima and Haviland		
	138 kV stations, replace line		
b3131	relays and wavetrap on the		AEP (100%)
	East Lima – Haviland 138 kV		
	facility		
	Rebuild 3.11 miles of the		
b3132	LaPorte Junction – New		AEP (100%)
03132	Buffalo 69 kV line with 795		ALI (100%)
	ACSR		
	Rebuild the Garden Creek –		
b3139	Whetstone 69 kV line		AEP (100%)
	(approx. 4 miles)		
	Rebuild the Whetstone –		
b3140	Knox Creek 69 kV line		AEP (100%)
	(approx. 3.1 miles)		
	Rebuild the Knox Creek –		
b3141	Coal Creek 69 kV line		AEP (100%)
	(approx. 2.9 miles)		

Required 11	ansmission Ennancements	Annuai Revenue Requii	rement Responsible Customer(s)
	Rebuild the 46 kV Bradley –		
	Scarbro line to 96 kV		
	standards using 795 ACSR to		
	achieve a minimum rate of		
b3148.1	120 MVA. Rebuild the new		AEP (100%)
	line adjacent to the existing		
	one leaving the old line in		
	service until the work is		
	completed		
	Bradley remote end station		
b3148.2	work, replace 46 kV bus,		AED (1000/)
03148.2	install new 12 MVAR		AEP (100%)
	capacitor bank		
	Replace the existing switch at		
b3148.3	Sun substation with a 2-way		AEP (100%)
03140.3	SCADA-controlled motor-		ALI (100%)
	operated air-breaker switch		
	Remote end work and		
b3148.4	associated equipment at		AEP (100%)
	Scarbro station		
	Retire Mt. Hope station and		
b3148.5	transfer load to existing Sun		AEP (100%)
	station		
	Rebuild the 2.3 mile Decatur		
b3149	 South Decatur 69 kV line 		AEP (100%)
	using 556 ACSR		
	Rebuild Ferguson 69/12 kV		
	station in the clear as the		
	138/12 kV Bear station and		
	connect it to an approx. 1		
b3150	mile double circuit 138 kV		AEP (100%)
	extension from the Aviation –		
	Ellison Road 138 kV line to		
	remove the load from the 69		
	kV line		

required III	distinssion Lindicements	7 Hilliadi Tte vellae Ttequi	rement responsible edistorner(s)
b3151.1	Rebuild the 30 mile Gateway - Wallen 34.5 kV circuit as		AEP (100%)
	the 27 mile Gateway –		, ,
	Wallen 69 kV line		
1-2151-2	Retire approx. 3 miles of the		AED (1000/)
b3151.2	Columbia – Whitley 34.5 kV line		AEP (100%)
	At Gateway station, remove		
	all 34.5 kV equipment and		
b3151.3	install one (1) 69 kV circuit		AEP (100%)
03131.3	breaker for the new Whitley		AEF (100%)
	line entrance		
	Rebuild Whitley as a 69 kV		
b3151.4	station with two (2) lines and		AEP (100%)
	one (1) bus tie circuit breaker		(100,0)
	Replace the Union 34.5 kV		
b3151.5	switch with a 69 kV switch		AEP (100%)
	structure		, ,
	Replace the Eel River 34.5		
b3151.6	kV switch with a 69 kV		AEP (100%)
	switch structure		
b3151.7	Install a 69 kV Bobay switch		AEP (100%)
03131.7	at Woodland station		ALI (100%)
	Replace the Carroll and		
	Churubusco 34.5 kV stations		
	with the 69 kV Snapper		
b3151.8	station. Snapper station will		AEP (100%)
03131.0	have two (2) line circuit		1121 (10070)
	breakers, one (1) bus tie		
	circuit breaker and a 14.4		
	MVAR cap bank		
101510	Remove 34.5 kV circuit		A TD (4000())
b3151.9	breaker "AD" at Wallen		AEP (100%)
	station		
1-2151 10	Rebuild the 2.5 miles of the		AED (1000()
b3151.10	Columbia – Gateway 69 kV		AEP (100%)
	line		

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

Required 11	ansinission Enhancements	Ailliuai Keveliue Kequile	ement Responsible Customer(s)
	Build new 138/69 kV drop		
	down station to feed		
	Lakehead with a 138 kV		
b3160.4	breaker, 138 kV switcher,		AEP (100%)
	138/69 kV transformer and a		
	138 kV Motor-Operated Air		
	Break		
	Rebuild the approx. 1.2 miles		
	Buchanan South 69 kV		
b3160.5	Radial Tap using 795 ACSR		AEP (100%)
	(Aluminum Conductor Steel		
	Reinforced)		
	Rebuild the approx.8.4 miles		
	69 kV Pletcher – Buchanan		
	Hydro line as the approx. 9		
b3160.6	miles Pletcher – Buchanan		AEP (100%)
	South 69 kV line using 795		
	ACSR (Aluminum Conductor		
	Steel Reinforced)		
	Install a PoP (Point-of-		
	Presence) switch at Buchanan		
b3160.7	South station with 2 line		AEP (100%)
	MOABs (Motor-Operated Air		
	Break)		

required 11	ansimission Emiancements	Timudi Nevende Nequit	ement Responsible Customer(s)
	Retire approximately 38		
	miles of the 44 mile Clifford		
	 Scottsville 46 kV circuit. 		
	Build new 138 kV "in and		
	out" to two new distribution		
	stations to serve the load		
	formerly served by Phoenix,		
	Shipman, Schuyler (AEP),		
	and Rockfish stations.		
	Construct new 138 kV lines		
b3208	from Joshua Falls – Riverville		AEP (100%)
	(approx. 10 miles) and		
	Riverville – Gladstone		
	(approx. 5 miles). Install		
	required station upgrades at		
	Joshua Falls, Riverville and		
	Gladstone stations to		
	accommodate the new 138		
	kV circuits. Rebuild Reusen –		
	Monroe 69 kV (approx. 4		
	miles)		
	Rebuild the 10.5 mile Berne –		
b3209	South Decatur 69 kV line		AEP (100%)
	using 556 ACSR		
	Replace approx. 0.7 mile		
b3210	Beatty – Galloway 69 kV line		AEP (100%)
	with 4000 kcmil XLPE cable		
b3220	Install 14.4 MVAR capacitor		
03220	bank at Whitewood 138 kV		<u>AEP (100%)</u>
	Upgrade circuit breaker "R1"		
	at Tanners Creek 345 kV.		
<u>b3261</u>	Install Transient Recovery		
03201	Voltage capacitor to increase		
	the rating from 50 kA to 63		
	<u>kA</u>		<u>AEP (100%)</u>

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

SCHEDULE 12 – APPENDIX A

(19) Northern Indiana Public Service Company

Required Tra	nsmission Enhancements A	Annual Revenue Requirement Responsible Customer(s)
		MISO (12.00%) / AEC (0.97%) /
		AEP (16.65%) / APS (4.94%) /
		ATSI (7.77%) / BGE (5.20%) /
		Dayton (1.85%) / DEOK (2.29%) /
		Dominion (15.20%) / DPL (1.75%)
b2971	Reconfigure Munster 345	/ DL (1.43%) / EKPC (0.60%) /
02771	kV as ring bus	JCPL (2.16%) / ME (1.72%) /
		PECO (4.32%) / PENELEC
		(4.98%)/PEPCO(5.80%)/PPL
		(4.74%)/PSEG (5.08%)/RE
		(0.15%)/NEPTUNE*(0.33%)/
		ECP** (0.05%) / HTP*** (0.02%)
		MISO (10.00%) / AEC (0.93%) /
		AEP (26.02%) / APS (4.19%) /
		ATSI (5.95%) / BGE (4.38%) /
		Dayton (1.58%) / DEOK (2.30%) /
		Dominion (14.70%) / DPL (1.53%)
b2973	Reconductor Michigan	/ DL (1.26%) / EKPC (0.98%) /
02713	City - Bosserman 138 kV	JCPL (1.92%)/ME (1.39%)/
		PECO (4.19%) / PENELEC
		(4.34%)/PEPCO(5.05%)/PPL
		(4.03%)/PSEG (4.48%)/RE
		(0.12%)/NEPTUNE* (0.56%)/
		ECP** (0.08%) / HTP*** (0.02%)
		MISO (59.00%) / AEC (0.01%) /
		AEP (40.28%) / APS (0.13%) /
	Replace terminal	ATSI (0.05%) / BGE (0.08%) /
b2974	equipment at Reynolds on	Dayton (0.03%) / DPL (0.01%) /
02717	the Reynolds -	ME (0.04%) / PENELEC (0.06%) /
	Magnetation 138 kV	PPL (0.20%) / PSEG (0.03%) /
		NEPTUNE* (0.04%) / HTP***
		(0.04%)

Northern Indiana Public Service Company (cont.)

Ttequired 11d	IISIIIISSIOII EIIIIGIICOIIICIIG	rumaar te venae teedahement - teesponsiele easterner(s)
		MISO (76.00%) / AEC (0.28%) /
		AEP (4.51%) / APS (1.31%) /
		ATSI (1.91%) / BGE (1.40%) /
		Dayton (0.49%) / DEOK (0.69%) /
		Dominion (4.35%) / DPL (0.46%) /
b2975	Reconductor Roxana -	DL (0.38%) / EKPC (0.27%) /
02973	Praxair 138 kV	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%)/
		HTP*** (0.01%)
	Rebuild the Michigan	
b3142	<u>City – Trail Creek –</u>	MISO (10.90%) / ComEd
<u>03142</u>	Bosserman 138 kV line	<u>(89.10%)</u>
	(10.7 miles)	

SCHEDULE 12 – APPENDIX A

(20) Virginia Electric and Power Company

required 1	Tarishiission Elihancements Annua	ai 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%)

Required Transmission Enhancements Annual Revenue Requirement Responsible Customer(s)

Required 1	ransmission Enhancements Annuar	Revenue Requirement	Responsible Customer(s)
b2368	Replace the Brambleton 230 kV breaker '209502' with 63kA breaker		Dominion (100%)
b2369	Replace the Brambleton 230 kV breaker '213702' with 63kA breaker		Dominion (100%)
b2370	Replace the Brambleton 230 kV breaker 'H302' with 63kA breaker		Dominion (100%)
b2373	Build a 2nd Loudoun - Brambleton 500 kV line within the existing ROW. The Loudoun - Brambleton 230 kV line will be relocated as an underbuild on the new 500 kV line		Load-Ratio Share Allocation: AEC (1.71%) / AEP (14.04%) / APS (5.61%) / ATSI (8.10%) / BGE (4.36%) / ComEd (13.14%) / Dayton (2.15%) / DEOK (3.23%) / DL (1.73%) / DPL (2.65%) / Dominion (13.03%) / EKPC (1.77%) / JCPL (3.84%) / ME (1.93%) / NEPTUNE* (0.45%) / OVEC (0.07%) / PECO (5.29%) / PENELEC (1.89%) / PEPCO (3.82%) / PPL (4.72%) / PSEG (6.21%) / RE (0.26%) DFAX Allocation: APS (25.51%) / Dominion (74.49%)
b2397	Replace the Beaumeade 230 kV breaker '2079T2116' with 63kA		Dominion (100%)
b2398	Replace the Beaumeade 230 kV breaker '2079T2130' with 63kA		Dominion (100%)
b2399	Replace the Beaumeade 230 kV breaker '208192' with 63kA		Dominion (100%)
b2400	Replace the Beaumeade 230 kV breaker '209592' with 63kA		Dominion (100%)
b2401	Replace the Beaumeade 230 kV breaker '211692' with 63kA		Dominion (100%)
b2402	Replace the Beaumeade 230 kV breaker '227T2130' with 63kA		Dominion (100%)

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

^{*}Neptune Regional Transmission System, LLC

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

Required T	ransmission Enhancements A	Annual Revenue Requirement	Responsible Customer(s)
	Upgrade all line switches		
	and substation		
b2458.2	components at Carolina		
02430.2	115 kV to meet or exceed		Dominion (100%)
	new conductor rating of		
	174 MVA		
124502	Replace 14 wood H-frame		
b2458.3	structures on Carolina –		Dominion (100%)
	Woodland 115 kV		2 0111111011 (10070)
L2459 4	Replace 2.5 miles of static		
b2458.4	wire on Carolina – Woodland 115 kV		Dominion (100%)
			, ,
	Replace 4.5 miles of conductor between		
	Carolina 115 kV and		
	Jackson DP 115 kV with		
	min. 300 MVA summer		
b2458.5	STE rating; Replace 8		Dominion (100%)
	wood H-frame structures		Dominion (10070)
	located between Carolina		
	and Jackson DP with steel		
	H-frames		
	Replace Hanover 230 kV		
b2460.1	substation line switches		Dominion (100%)
	with 3000A switches		Dominion (100%)
	Replace wave traps at		
	Four River 230 kV and		
b2460.2	Elmont 230 kV		Dominion (100%)
	substations with 3000A		20111111011 (10070)
	wave traps		
	Wreck and rebuild		
b2461	existing Remington CT – Warrenton 230 kV		
02401	(approx. 12 miles) as a		Dominion (100%)
	double-circuit 230 kV line		
	Construct a new 230 kV		
	line approximately 6 miles		
104611	from NOVEC's Wheeler		
b2461.1	Substation a new 230 kV		Dominion (100%)
	switching station in Vint		- (/
	Hill area		
	Convert NOVEC's		
b2461.2	Gainesville – Wheeler line		
	(approximately 6 miles) to		Dominion (100%)
	230 kV		
104513	Complete a Vint Hill –		
b2461.3	Wheeler – Loudoun 230		Dominion (100%)
	kV networked line		2 3 (10070)

Required 1	ransmission Enhancements Annua	al Revenue Requirement	Responsible Customer(s)
			Load-Ratio Share Allocation:
			AEC (1.71%) / AEP (14.04%)
			/ APS (5.61%) / ATSI (8.10%)
			/ BGE (4.36%) / ComEd
			(13.14%) / Dayton (2.15%) /
	Replace Midlothian 500 kV		DEOK (3.23%) / DL (1.73%) /
	breaker 563T576 and motor operated switches with 3		DPL (2.65%) / Dominion
1.0471	breaker 500 kV ring bus.		(13.03%) / EKPC (1.77%) /
b2471	Terminate Lines # 563 Carson		JCPL (3.84%) / ME (1.93%) /
	– Midlothian, #576		NEPTUNE* (0.45%) / OVEC
	Midlothian –North Anna, Transformer #2 in new ring		(0.07%) / PECO (5.29%) /
	Transformer #2 in new ring		PENELEC (1.89%) / PEPCO
			(3.82%) / PPL (4.72%) / PSEG
			(6.21%) / RE (0.26%)
			DFAX Allocation:
			Dominion (100%)
	Rebuild 115 kV Line #32		
	from Halifax-South Boston (6		
b2504	miles) for min. of 240 MVA and transfer Welco tap to Line		
02304	#32. Moving Welco to Line		Dominion (100%)
	#32 requires disabling auto-		
	sectionalizing scheme		
	Install structures in river to		
b2505	remove the 115 kV #65 line (Whitestone-Harmony Village		
02303	115 kV) from bridge and		Dominion (100%)
	improve reliability of the line		
	Replace the Loudoun 500 kV		
b2542	'H2T502' breaker with a		Dominion (100%)
	50kA breaker Replace the Loudoun 500 kV		
b2543	'H2T584' breaker with a		
023 13	50kA breaker		Dominion (100%)
	Reconductor wave trap at		
b2565	Carver Substation with a		Dominion (100%)
	2000A wave trap Reconductor 1.14 miles of		(200,0)
	existing line between ACCA		
b2566	and Hermitage and upgrade		Dominion (100%)
	associated terminal equipment		(/

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

Required 1		inual 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%)

Required T	ransmission Enhancements Annu	ual 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%)

Required 1	ransmission Enhancements Annu	uai 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%)

Required 11		uai Revenue Requirement	Responsible Customer(s)
b2651	Rebuild Buggs Island – Plywood 115 kV Line #127 (25.8 miles) to current standards with summer emergency rating of 353 MVA at 115 kV. The line should be rebuilt for 230 kV and operated at 115 kV.		Dominion (100%)
b2652	Rebuild Greatbridge – Hickory 115 kV Line #16 and Greatbridge – Chesapeake E.C. to current standard with summer emergency rating of 353 MVA at 115 kV.		Dominion (100%)
b2653.1	Build 20 mile 115 kV line from Pantego to Trowbridge with summer emergency rating of 353 MVA.		Dominion (100%)
b2653.2	Install 115 kV four-breaker ring bus at Pantego		Dominion (100%)
b2653.3	Install 115 kV breaker at Trowbridge		Dominion (100%)
b2654.1	Build 15 mile 115 kV line from Scotland Neck to S Justice Branch with summer emergency rating of 353 MVA. New line will be routed to allow HEMC to convert Dawson's Crossroads RP from 34.5 kV to 115 kV.		Dominion (100%)
b2654.2	Install 115 kV three-breaker ring bus at S Justice Branch		Dominion (100%)
b2654.3	Install 115 kV breaker at Scotland Neck		Dominion (100%)
b2654.3	Install a 2nd 224 MVA 230/115 kV transformer at Hathaway		Dominion (100%)

Required 11	ansmission Ennancements Annu	dai Revenue Requirement	Responsible Customer(s)
			Load-Ratio Share Allocation:
			AEC (1.71%) / AEP (14.04%)
			/ APS (5.61%) / ATSI (8.10%)
			/ BGE (4.36%) / ComEd
			(13.14%) / Dayton (2.15%) /
			DEOK (3.23%) / DL (1.73%) /
			DPL (2.65%) / Dominion
	Rebuild the Cunningham –		(13.03%) / EKPC (1.77%) /
b2665	Dooms 500 kV line		JCPL (3.84%) / ME (1.93%) /
	Booms 500 K v mie		NEPTUNE* (0.45%) / OVEC
			(0.07%) / PECO (5.29%) /
			PENELEC (1.89%) / PEPCO
			(3.82%) / PPL (4.72%) / PSEG
			(6.21%) / RE $(0.26%)$
			DFAX Allocation:
			Dominion (100%)
b2686	Drotts Area Improvement		Dominion (100%)
02000	Pratts Area Improvement		Dominion (100%)
	Build a 230 kV line from		
b2686.1	Remington Substation to		Dominion (100%)
02000.1	Gordonsville Substation		Bommon (10070)
	utilizing existing ROW Install a 3rd 230/115 kV		
b2686.2	transformer at Gordonsville		Dominion (100%)
0200012	Substation		2 3 (100,0)
	Upgrade Line 2088		
b2686.3	between Gordonsville		Dominion (100%)
020000	Substation and Louisa CT		2 3 (100,0)
	Station Replace the Remington CT		
1.00004	230 kV breaker		D :: (1000/)
b2686.4	"2114T2155" with a 63 kA		Dominion (100%)
	breaker		
1.0000 11	Upgrading sections of the		D :: (1000()
b2686.11	Gordonsville – Somerset 115 kV circuit		Dominion (100%)
	Upgrading sections of the		
b2686.12	Somerset – Doubleday 115		Dominion (100%)
	kV circuit		(100,0)
	Upgrading sections of the		
b2686.13	Orange – Somerset 115 kV		Dominion (100%)
	circuit		
b2686.14	Upgrading sections of the Mitchell – Mt. Run 115 kV		Dominion (100%)
02000.14	circuit		Dominion (100%)
do T	Pagional Transmission System	11.0	

^{*}Neptune Regional Transmission System, LLC

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

Required Tra	ansmission Enhancements Annual	Revenue Requirement	Responsible Customer(s)
			Load-Ratio Share Allocation:
			AEC (1.71%) / AEP (14.04%)
			/ APS (5.61%) / ATSI (8.10%)
			/ BGE (4.36%) / ComEd
			(13.14%) / Dayton (2.15%) /
			DEOK (3.23%) / DL (1.73%) /
			DPL (2.65%) / Dominion
1-2744	Rebuild the Carson – Rogers		(13.03%) / EKPC (1.77%) /
b2744	Rd 500 kV circuit		JCPL (3.84%) / ME (1.93%) /
			NEPTUNE* (0.45%) / OVEC
			(0.07%) / PECO (5.29%) /
			PENELEC (1.89%) / PEPCO
			(3.82%) / PPL (4.72%) / PSEG
			(6.21%) / RE (0.26%)
			DFAX Allocation:
			Dominion (100%)
	Rebuild 21.32 miles of		,
b2745	existing line between		Dominion (100%)
027.10	Chesterfield – Lakeside 230 kV		2 011111011 (10070)
	Rebuild Line #137 Ridge Rd		
b2746.1	– Kerr Dam 115 kV, 8.0		Dominion (1000/)
02/40.1	miles, for 346 MVA summer		Dominion (100%)
	emergency rating		
	Rebuild Line #1009 Ridge Rd – Chase City 115 kV, 9.5		
b2746.2	miles, for 346 MVA summer		Dominion (100%)
	emergency rating		
	Install a second 4.8 MVAR		
b2746.3	capacitor bank on the 13.8 kV		Dominion (100%)
	bus of each transformer at Ridge Rd		(,
	Install a Motor Operated		
	Switch and SCADA control		
b2747	between Dominion's		Dominion (100%)
	Gordonsville 115 kV bus and		
	FirstEnergy's 115 kV line		

Required Ir	ansmission Enhancements Annua	Revenue Requirement	Responsible Customer(s)
b2757	Install a +/-125 MVAr Statcom at Colington 230 kV		Dominion (100%)
b2758	Rebuild Line #549 Dooms – Valley 500kV		Load-Ratio Share Allocation: AEC (1.71%) / AEP (14.04%) / APS (5.61%) / ATSI (8.10%)
			DFAX Allocation: Dominion (100%)
b2759	Rebuild Line #550 Mt. Storm – Valley 500kV		Load-Ratio Share Allocation: AEC (1.71%) / AEP (14.04%) / APS (5.61%) / ATSI (8.10%)
			/ DL (0.19%) / Dominion

Required Tra	ansmission Enhancements Annual	Revenue Requirement	Responsible Customer(s)
b2800	The 7 mile section from Dozier to Thompsons Corner of line #120 will be rebuilt to current standards using 768.2 ACSS conductor with a summer emergency rating of 346 MVA at 115 kV. Line is proposed to be rebuilt on single circuit steel monopole	·	Dominion (100%)
b2801	structure 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%)

Required Tra	ansmission Enhancements Annual	l 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%)

Required Tr		Revenue Requirement	Responsible Customer(s)
b2922	Rebuild 8 of 11 miles of 230 kV lines #211 and #228 to current standard with a summer emergency rating of 1046 MVA for rebuilt section. Proposed conductor is 2-636 ACSR		Dominion (100%)
b2928	Rebuild four structures of 500 kV line #567 from Chickahominy to Surry using galvanized steel and replace the river crossing conductor with 3-1534 ACSR. This will increase the line #567 line rating from 1954 MVA to 2600 MVA		Load-Ratio Share Allocation: AEC (1.71%) / AEP (14.04%) / APS (5.61%) / ATSI (8.10%)
			DFAX Allocation: Dominion (100%)
b2929	Rebuild 230 kV line #2144 from Winfall to Swamp (4.3 miles) to current standards with a standard conductor (bundled 636 ACSR) having a summer emergency rating of 1047 MVA at 230 kV		Dominion (100%)
b2960	Replace fixed series capacitors on 500 kV Line #547 at Lexington and on 500 kV Line #548 at Valley		See sub-IDs for cost allocations

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

Required Tra	nsmission Enhancements Annua	Revenue Requirement	Responsible Customer(s)
			Load-Ratio Share Allocation:
			AEC (1.71%) / AEP (14.04%)
			/ APS (5.61%) / ATSI (8.10%)
			/ BGE (4.36%) / ComEd
			(13.14%) / Dayton (2.15%) /
			DEOK (3.23%) / DL (1.73%) /
			DPL (2.65%) / Dominion
	Replace fixed series		(13.03%) / EKPC (1.77%) /
b2960.2	capacitors on 500 kV Line		JCPL (3.84%) / ME (1.93%) /
	#548 at Valley		NEPTUNE* (0.45%) / OVEC
			(0.07%) / PECO (5.29%) /
			PENELEC (1.89%) / PEPCO
			(3.82%) / PPL (4.72%) / PSEG
			(6.21%) / RE (0.26%)
			DFAX Allocation:
			DEOK (17.57%) / Dominion
			(74.24%) / EKPC (8.19%)
	Rebuild approximately 3		
b2961	miles of Line #205 & Line #2003 from Chesterfield to		Dominion (100%)
02901	Locks & Poe respectively		` ,
	Split Line #227 (Brambleton		
b2962	– Beaumeade 230 kV) and		Dominion (1000/)
02902	terminate into existing		Dominion (100%)
	Belmont substation		
b2962.1	Replace the Beaumeade 230 kV breaker "274T2081" with		Daminian (1000/)
02902.1	63kA breaker		Dominion (100%)
	Replace the NIVO 230 kV		
b2962.2	breaker "2116T2130" with		Dominion (100%)
	63kA breaker		
	Reconductor the Woodbridge		
	to Occoquan 230 kV line segment of Line #2001 with		
b2963	1047 MVA conductor and		Dominion (100%)
	replace line terminal		,
	equipment at Possum Point,		
	Woodbridge, and Occoquan		

Required 11	ransmission Ennancements Ann	iuai Revenue Requirement	Responsible Customer(s)
			Load-Ratio Share Allocation:
			AEC (1.71%) / AEP (14.04%) /
			APS (5.61%) / ATSI (8.10%) /
			BGE (4.36%) / ComEd
			(13.14%) / Dayton (2.15%) /
	Install 2-125 MVAR		DEOK (3.23%) / DL (1.73%) /
	STATCOMs at Rawlings		DPL (2.65%) / Dominion
b2978	and 1-125 MVAR		(13.03%) / EKPC (1.77%) /
02776	STATCOM at Clover 500		JCPL (3.84%) / ME (1.93%) /
	kV substations		NEPTUNE* (0.45%) / OVEC
	K v Substations		(0.07%) / PECO (5.29%) /
			PENELEC (1.89%) / PEPCO
			(3.82%) / PPL (4.72%) / PSEG
			(6.21%) / RE (0.26%)
			DFAX Allocation:
			Dominion (100%)
	Rebuild 115 kV Line #43		
b2980	between Staunton and		
	Harrisonburg (22.8 miles)		Dominion (100%)
	to current standards with a		Dominion (10070)
	summer emergency rating		
	of 261 MVA at 115 kV		
	Rebuild 115 kV Line #29		
ļ	segment between		
	Fredericksburg and Aquia		
b2981	Harbor to current 230 kV		
	standards (operating at 115		
	kV) utilizing steel H-frame		Dominion (100%)
	structures with 2-636		
	ACSR to provide a normal		
	continuous summer rating		
	of 524 MVA at 115 kV		
	(1047 MVA at 230 kV)		

^{*}Neptune Regional Transmission System, LLC

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

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

Kequileu 11a	insmission Enhancements Annual	Revenue Requirement	Responsible Customer(s)
			Load-Ratio Share Allocation:
			AEC (1.71%) / AEP (14.04%)
			/ APS (5.61%) / ATSI (8.10%)
			/ BGE (4.36%) / ComEd
			(13.14%) / Dayton (2.15%) /
			DEOK (3.23%) / DL (1.73%) /
			DPL (2.65%) / Dominion
			(13.03%) / EKPC (1.77%) /
	Rebuild 500 kV Line #574		JCPL (3.84%) / ME (1.93%) /
b3020	Ladysmith to Elmont – 26.2		NEPTUNE* (0.45%) / OVEC
	miles long		(0.07%) / PECO (5.29%) /
			PENELEC (1.89%) / PEPCO
			(3.82%) / PPL (4.72%) / PSEG
			(6.21%) / RE (0.26%)
			DFAX Allocation:
			APS (16.36%) / DEOK
			(11.61%) / Dominion (51.27%)
			/ EKPC (5.30%) / PEPCO
			(15.46%)
			Load-Ratio Share Allocation:
	Rebuild 500 kV Line #581 Ladysmith to Chancellor – 15.2 miles long		AEC (1.71%) / AEP (14.04%)
			/ APS (5.61%) / ATSI (8.10%)
			/ BGE (4.36%) / ComEd
			(13.14%) / Dayton (2.15%) /
			DEOK (3.23%) / DL (1.73%) /
			DPL (2.65%) / Dominion
1.0001			(13.03%) / EKPC (1.77%) /
b3021			JCPL (3.84%) / ME (1.93%) /
			NEPTUNE* (0.45%) / OVEC
			(0.07%) / PECO (5.29%) /
			PENELEC (1.89%) / PEPCO
			(3.82%) / PPL (4.72%) / PSEG
			(6.21%) / RE (0.26%)
			DFAX Allocation:
			Dominion (100%)
	Reconductor Line #274		2011111011 (10070)
	(Pleasant View – Ashburn –		
b3026	Beaumeade 230 kV) with a		Dominion (100%)
03020	minimum rating of 1200		Dominion (10070)
	MVA. Also upgrade terminal		
	equipment		

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

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

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

Virginia Electric and Power Company (cont.)

Required 11		Revenue Requirement	Responsible Customer(s)
b3122	Rebuild Hathaway – Rocky Mount (Duke Energy Progress) 230 kV Line #2181 and Line #2058 with double circuit steel structures using double circuit conductor at current 230 kV standards with a minimum rating of 1047 MVA		Dominion (100%)
b3161.1	Split Chesterfield-Plaza 115 kV Line No. 72 by rebuilding the Brown Boveri tap line as double circuit loop in-and-out of the Brown Boveri Breaker station		Dominion (100%)
b3161.2	Install a 115 kV breaker at the Brown Boveri Breaker station. Site expansion is required to accommodate the new layout		Dominion (100%)
b3162	Acquire land and build a new 230 kV switching station (Stevensburg) with a 224 MVA, 230/115 kV transformer. Gordonsville-Remington 230 kV Line No. 2199 will be cut and connected to the new station. Remington-Mt. Run 115 kV Line No.70 and Mt. Run-Oak Green 115 kV Line No. 2 will also be cut and connected to the new station		Dominion (100%)
b3211	Rebuild the 1.3 mile section of 500 kV Line No. 569 (Loudoun – Morrisville) with single-circuit 500 kV structures at the current 500 kV standard. This will increase the rating of the line to 3424 MVA		Dominion (100%)
b3213	Install 2nd Chickahominy 500/230 kV transformer		Dominion (100%)

Virginia Electric and Power Company (cont.)

Install a second 230 kV		
circuit with a minimum summer emergency rating of 1047 MVA between Lanexa and Northern Next substations. The second circuit will utilize the vacant arms on the double-circuit structures that are being installed on Line #224 (Lanexa – Northern Next) as part of the End-of-Life rebuild project (b3089)		Dominion (100%)
Expand the Northern Neck terminal from a 230 kV, 4- breaker ring bus to a 6- breaker ring bus		Dominion (100%)
Expand the Lanexa terminal from a 6-breaker ring bus to a breaker-and-a-half arrangement		<u>Dominion (100%)</u>
Replace 13 towers with galvanized steel towers on Doubs – Goose Creek 500 kV. Reconductor 3 mile section with three (3) 1351.5 ACSR 45/7. Upgrade line terminal equipment at Goose Creek substation to support the 500 kV line rebuild		Load-Ratio Share Allocation: AEC (1.71%) / AEP (14.04%) / APS (5.61%) / ATSI (8.10%) / BGE (4.36%) / ComEd (13.14%) / Dayton (2.15%) / DEOK (3.23%) / DL (1.73%) / DPL (2.65%) / Dominion (13.03%) / EKPC (1.77%) / JCPL (3.84%) / ME (1.93%) / NEPTUNE* (0.45%) / OVEC (0.07%) / PECO (5.29%) / PENELEC (1.89%) / PEPCO (3.82%) / PPL (4.72%) / PSEG (6.21%) / RE (0.26%) DFAX Allocation: Dominion (100%)
	and Northern Next substations. The second circuit will utilize the vacant arms on the double-circuit structures that are being installed on Line #224 (Lanexa – Northern Next) as part of the End-of-Life rebuild project (b3089) Expand the Northern Neck terminal from a 230 kV, 4- breaker ring bus to a 6- breaker ring bus to a 6- breaker ring bus to a 6- breaker ring bus to a breaker-and-a-half arrangement Replace 13 towers with galvanized steel towers on Doubs – Goose Creek 500 kV. Reconductor 3 mile section with three (3) 1351.5 ACSR 45/7. Upgrade line terminal equipment at Goose Creek substation to support	1047 MVA between Lanexa and Northern Next substations. The second circuit will utilize the vacant arms on the double-circuit structures that are being installed on Line #224 (Lanexa – Northern Next) as part of the End-of-Life rebuild project (b3089) Expand the Northern Neck terminal from a 230 kV, 4- breaker ring bus to a 6- breaker ring bus Expand the Lanexa terminal from a 6-breaker ring bus to a breaker-and-a-half arrangement Replace 13 towers with galvanized steel towers on Doubs – Goose Creek 500 kV. Reconductor 3 mile section with three (3) 1351.5 ACSR 45/7. Upgrade line terminal equipment at Goose Creek substation to support

Attachment C

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

(Clean Format)

SCHEDULE 12 – APPENDIX A

(9) PPL Electric Utilities Corporation

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

^{*} Neptune Regional Transmission System, LLC

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

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

Required	Transmission Enhancements	Annual Revenue Requirement Responsible Customer(s)
		Load-Ratio Share Allocation:
		AEC (1.71%) / AEP (14.04%) /
		APS (5.61%) / ATSI (8.10%) /
		BGE (4.36%) / ComEd (13.14%)
		/ Dayton (2.15%) / DEOK
		(3.23%) / DL (1.73%) / DPL
	Add a 200 MVAR shunt	(2.65%) / Dominion (13.03%) /
b2716	reactor at Lackawanna EKPC (1.//	EKPC (1.77%) / JCPL (3.84%) /
02/10	500 kV substation	ME (1.93%) / NEPTUNE*
	300 K v substation	(0.45%) / OVEC (0.07%) /
		PECO (5.29%) / PENELEC
		(1.89%) / PEPCO (3.82%) / PPL
		(4.72%) / PSEG (6.21%) / RE
		(0.26%)
		DFAX Allocation:
		PPL (100%)
	Install 7 miles of optical	
	ground wire (OPGW)	
b2754.1	between Gilbert and	PPL (100%)
	Springfield 230 kV	
	substations	
	Use ~ 40 route miles of	
	existing fibers on PPL	
b2754.4	230 kV system to	PPL (100%)
	establish direct fiber	
	circuits	
b2754.5	Upgrade relaying at	PPL (100%)
0270	Martins Creek 230 kV	112 (20070)
b2756	Install 2% reactors at	PPL (100%)
	Martins Creek 230 kV	112 (20070)
	Expand existing	
b2813	Lycoming 69 kV yard to	PPL (100%)
02013	double bus double	112(100/0)
	breaker arrangement	

^{*} Neptune Regional Transmission System, LLC

Required	Transmission Ennancements	Annual Revenue Requirement Responsible Customer(s)
		Load-Ratio Share Allocation:
		AEC (1.71%) / AEP (14.04%) /
		APS (5.61%) / ATSI (8.10%) /
		BGE (4.36%) / ComEd (13.14%)
		/ Dayton (2.15%) / DEOK
	Reconfigure/Expand the	(3.23%) / DL (1.73%) / DPL
	Lackawanna 500 kV	(2.65%) / Dominion (13.03%) /
b2824	substation by adding a	EKPC (1.77%) / JCPL (3.84%) /
02024	third bay with three	ME (1.93%) / NEPTUNE*
	breakers	(0.45%) / OVEC (0.07%) /
	bleakers	PECO (5.29%) / PENELEC
		(1.89%) / PEPCO (3.82%) / PPL
		(4.72%) / PSEG (6.21%) / RE
		(0.26%)
		DFAX Allocation:
		PPL (100%)
	Build a new 230/69 kV	
	substation by tapping the	
	Montour – Susquehanna	
b2838	230 kV double circuits	PPL (100%)
	and Berwick – Hunlock	
	& Berwick – Colombia	
	69 kV circuits	
	Replace Martins Creek	
b2979	230 kV circuit breakers	PPL (100%)
	with 80 kA rating	
	Replace terminal	
	equipment (bus	
b3221	conductor) on the 230 kV	PPL (100%)
03221	side of the Steel City	11 L (10070)
	500/230 kV Transformer	
	#1	

^{*} Neptune Regional Transmission System, LLC

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

^{*}Neptune Regional Transmission System, LLC

required 11a		an revenue requirement	Responsible Customer(s)
			Load-Ratio Share Allocation:
			AEC (1.71%) / AEP (14.04%) /
			APS (5.61%) / ATSI (8.10%) /
			BGE (4.36%) / ComEd
			(13.14%) / Dayton (2.15%) /
			DEOK (3.23%) / DL (1.73%) /
			DPL (2.65%) / Dominion
		(13.03%) / EKPC (1.77%) /	
	Reconductor the AEP		JCPL (3.84%) / ME (1.93%) /
b1797.1	portion of the Cloverdale -		NEPTUNE* (0.45%) / OVEC
01/9/.1	Lexington 500 kV line with		(0.07%) / PECO (5.29%) /
	2-1780 ACSS		PENELEC (1.89%) / PEPCO
			(3.82%) / PPL (4.72%) / PSEG
			(6.21%) / RE (0.26%)
			DFAX Allocation:
			AEP (0.79%) / APS (53.70%) /
			Dayton (0.15%) / DEOK
			(0.40%) / Dominion (1.13%) /
			EKPC (0.23%) / PEPCO
			(43.60%)
b2055	Upgrade relay at Brues		AEP (100%)
02033	station		71L1 (10070)
	Upgrade terminal		
	equipment at Howard on		
b2122.3	the Howard - Brookside		AEP (100%)
	138 kV line to achieve		
	ratings of 252/291 (SN/SE)		
	Perform a sag study on the		
b2122.4	Howard - Brookside 138		AEP (100%)
	kV line		
b2229	Install a 300 MVAR		AEP (100%)
02227	reactor at Dequine 345 kV		1121 (10070)

^{*}Neptune Regional Transmission System, LLC

required 11	ansinission Emancements Ami	iai Revenue Requirement	Responsible Cusiomer(s)
			Load-Ratio Share Allocation:
			AEC (1.71%) / AEP (14.04%) /
			APS (5.61%) / ATSI (8.10%) /
			BGE (4.36%) / ComEd
			(13.14%) / Dayton (2.15%) /
	Replace existing 150		DEOK (3.23%) / DL (1.73%) /
	MVAR reactor at Amos 765		DPL (2.65%) / Dominion
b2230	kV substation on Amos - N.		(13.03%) / EKPC (1.77%) /
02230	Proctorville - Hanging Rock		JCPL (3.84%) / ME (1.93%) /
	with 300 MVAR reactor		NEPTUNE* (0.45%) / OVEC
	with 500 W VAR reactor		(0.07%) / PECO (5.29%) /
			PENELEC (1.89%) / PEPCO
			(3.82%) / PPL (4.72%) / PSEG
			(6.21%) / RE (0.26%)
			DFAX Allocation:
			AEP (100%)
	Install 765 kV reactor		
b2231	breaker at Dumont 765 kV		AEP (100%)
02231	substation on the Dumont -		7121 (10070)
	Wilton Center line		
	Install 765 kV reactor		
	breaker at Marysville 765		
b2232	kV substation on the		AEP (100%)
	Marysville - Maliszewski		
	line		
	Change transformer tap		,
b2233	settings for the Baker		AEP (100%)
	765/345 kV transformer		
	Loop the North Muskingum		
	- Crooksville 138 kV line		
b2252	into AEP's Philo 138 kV		AEP (100%)
02232	station which lies		(10070)
	approximately 0.4 miles		
	from the line		

^{*}Neptune Regional Transmission System, LLC

raquiru III	ansinission Emiancements Ami	iai Kevenue Kequirement	Responsible Customer(s)
b2253	Install an 86.4 MVAR		AED (10004)
02233	capacitor bank at Gorsuch 138 kV station in Ohio		AEP (100%)
	Rebuild approximately 4.9		
b2254	miles of Corner - Degussa		AEP (100%)
	138 kV line in Ohio		
	Rebuild approximately 2.8		
b2255	miles of Maliszewski -		AEP (100%)
	Polaris 138 kV line in Ohio		
	Upgrade approximately 36		
1.0056	miles of 138 kV through		AED (1000()
b2256	path facilities between		AEP (100%)
	Harrison 138 kV station and		
	Ross 138 kV station in Ohio Rebuild the Pokagon -		
	Corey 69 kV line as a		
	double circuit 138 kV line		
b2257	with one side at 69 kV and		AEP (100%)
	the other side as an express		(100/0)
	circuit between Pokagon		
	and Corey stations		
	Rebuild 1.41 miles of #2		
	CU 46 kV line between		
b2258	Tams Mountain - Slab Fork		AEP (100%)
02230	to 138 kV standards. The		ALF (100%)
	line will be strung with		
	1033 ACSR		
	Install a new 138/69 kV		
	transformer at George		
b2259	Washington 138/69 kV		AEP (100%)
	substation to provide		
	support to the 69 kV system		
	in the area Rebuild 4.7 miles of		
	Muskingum River - Wolf		
	Creek 138 kV line and		
b2286	remove the 138/138 kV		AEP (100%)
	transformer at Wolf Creek		
	Station		
	Station		

required 11	ansimission Emiancements Amin	iai Kevenue Kequirement	Responsible Customer(s)
b2287	Loop in the Meadow Lake - Olive 345 kV circuit into Reynolds 765/345 kV		AEP (100%)
	station		
	Establish a new 138/12 kV		
	station, transfer and		
	consolidate load from its		4 TT (400 t)
b2344.1	Nicholsville and Marcellus		AEP (100%)
	34.5 kV stations at this new		
	station		
	Tap the Hydramatic –		
	Valley 138 kV circuit (~		
b2344.2	structure 415), build a new		AEP (100%)
	138 kV line (~3.75 miles) to		
	this new station		
	From this station, construct		
b2344.3	a new 138 kV line (~1.95		AEP (100%)
62344.3	miles) to REA's Marcellus		,
	station		
	From REA's Marcellus		
	station construct new 138 kV line (~2.35 miles) to a		
b2344.4	tap point on Valley –		AEP (100%)
	Hydramatic 138 kV ckt		
	(~structure 434)		
	Retire sections of the 138		
b2344.5	kV line in between structure		AEP (100%)
	415 and 434 (~ 2.65 miles)		(,
	Retire AEP's Marcellus		
	34.5/12 kV and Nicholsville		
b2344.6	34.5/12 kV stations and also		AEP (100%)
	the Marcellus – Valley 34.5		
	kV line		
	Construct a new 69 kV line		
b2345.1	from Hartford to Keeler (~8		AEP (100%)
	miles)		

210402200 221	distinssion Emancements Annu	au revenue requirement	responsible editioner(s)
b2345.2	Rebuild the 34.5 kV lines between Keeler - Sister		AEP (100%)
	Lakes and Glenwood tap		
	switch to 69 kV (~12 miles)		
b2345.3	Implement in - out at Keeler and Sister Lakes 34.5 kV		AEP (100%)
02343.3	stations		AEF (100%)
	Retire Glenwood tap switch		
	and construct a new		
b2345.4	Rothadew station. These		AEP (100%)
02313.1	new lines will continue to		71E1 (10070)
	operate at 34.5 kV		
	Perform a sag study for		
	Howard - North Bellville -		
b2346	Millwood 138 kV line		AEP (100%)
	including terminal		,
	equipment upgrades		
	Replace the North Delphos		
	600A switch. Rebuild		
	approximately 18.7 miles of		
b2347	138 kV line North Delphos		AEP (100%)
	- S073. Reconductor the		
	line and replace the existing		
	tower structures		
	Construct a new 138 kV		
	line from Richlands Station		. ==
b2348	to intersect with the Hales		AEP (100%)
	Branch - Grassy Creek 138		
	kV circuit		
	Change the existing CT		
L2274	ratios of the existing		AED (1000/)
b2374	equipment along Bearskin - Smith Mountain 138kV		AEP (100%)
	circuit		
	Change the existing CT		
	ratios of the existing		
b2375	equipment along East		AEP (100%)
02373	Danville-Banister 138kV		11L1 (10070)
	circuit		
<u> </u>	Circuit		

b2376	Replace the Turner 138 kV	AEP (100%)
b2377	breaker 'D' 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%)

required 11		iai Kevenue Kequirement	Responsible Customer(s)
b2394	Replace the Sporn 345 kV breaker 'CC1'		AEP (100%)
b2409	Install two 56.4 MVAR capacitor banks at the Melmore 138 kV station in Ohio		AEP (100%)
b2410	Convert Hogan Mullin 34.5 kV line to 138 kV, establish 138 kV line between Jones Creek and Strawton, rebuild existing Mullin Elwood 34.5 kV and terminate line into Strawton station, retire Mullin station		AEP (100%)
b2411	Rebuild the 3/0 ACSR portion of the Hadley - Kroemer Tap 69 kV line utilizing 795 ACSR conductor		AEP (100%)
b2423	Install a 300 MVAR shunt reactor at AEP's Wyoming 765 kV station		Load-Ratio Share Allocation: AEC (1.71%) / AEP (14.04%) / APS (5.61%) / ATSI (8.10%) / BGE (4.36%) / ComEd (13.14%)

Required 1ra	ansmission Enhancements Annu	ial Revenue Requirement	Responsible Customer(s)
	Willow - Eureka 138 kV		
b2444	line: Reconductor 0.26 mile		AEP (100%)
	of 4/0 CU with 336 ACSS		
	Complete a sag study of		
b2445	Tidd - Mahans Lake 138 kV		AEP (100%)
	line		
	Rebuild the 7-mile 345 kV		
b2449	line between Meadow Lake		AEP (100%)
02447	and Reynolds 345 kV		71L1 (10070)
	stations		
	Add two 138 kV circuit		
b2462	breakers at Fremont station		AEP (100%)
02102	to fix tower contingency		1121 (10070)
	'408 <u>2</u> '		
	Construct a new 138/69 kV		
	Yager station by tapping 2-		
b2501	138 kV FE circuits		AEP (100%)
	(Nottingham-Cloverdale,		
	Nottingham-Harmon)		
	Build a new 138 kV line		
b2501.2	from new Yager station to		AEP (100%)
	Azalea station		
	Close the 138 kV loop back		
b2501.3	into Yager 138 kV by		AEP (100%)
02301.3	converting part of local 69		ALI (10070)
	kV facilities to 138 kV		
b2501.4	Build 2 new 69 kV exits to		
	reinforce 69 kV facilities		
	and upgrade conductor		AEP (100%)
	between Irish Run 69 kV		ALI (10070)
	Switch and Bowerstown 69		
	kV Switch		

		 1
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	AEP (100%)
	a 138 kV circuit from new station to Freebyrd station Convert Freebyrd 69 kV to	
b2502.2	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%)

Required Ira	ansmission Enhancements Ann	ual Revenue Requirement	Responsible Customer(s)
1.2526	Replace the Sporn 138 kV		A F.D. (1000())
b2536	breaker 'O2' with 80 kA breaker		AEP (100%)
	Replace the Robinson Park		
	138 kV breakers A1, A2,		
b2537	B1, B2, C1, C2, D1, D2,		AEP (100%)
02007	E1, E2, and F1 with 63 kA		(100,0)
	breakers		
	Reconductor 0.5 miles		
	Tiltonsville – Windsor 138		
b2555	kV and string the vacant		AEP (100%)
02333	side of the 4.5 mile section		AEF (100%)
	using 556 ACSR in a six		
	wire configuration		
	Install two 138 kV prop		
	structures to increase the		
b2556	maximum operating		AEP (100%)
02000	temperature of the Clinch		1121 (10070)
	River- Clinch Field 138 kV		
	line		
	Temporary operating		
	procedure for delay of		
	upgrade b1464. Open the		
	Corner 138 kV circuit breaker 86 for an overload		
b2581	of the Corner – Washington		
	MP 138 kV line. The tower		AEP (100%)
	contingency loss of		
	Belmont – Trissler 138 kV		
	and Belmont – Edgelawn		
	138 kV should be added to		
	Operational contingency		

			1 100 F 1 1 100 C 1
	Construct a new 69 kV line		
1.0501	approximately 2.5 miles		
	from Colfax to Drewry's.		AED (1000/)
b2591	Construct a new Drewry's		AEP (100%)
	station and install a new		
	circuit breaker at Colfax		
	station.		
	Rebuild existing East		
	Coshocton – North		
	Coshocton double circuit		
b2592	line which contains		AEP (100%)
	Newcomerstown – N.		` ,
	Coshocton 34.5 kV Circuit		
	and Coshocton – North		
	Coshocton 69 kV circuit		
	Rebuild existing West		
	Bellaire – Glencoe 69 kV		
b2593	line with 138 kV & 69 kV		AEP (100%)
	circuits and install 138/69		, ,
	kV transformer at Glencoe		
	Switch		
	Rebuild 1.0 mile of		
b2594	Brantley – Bridge Street 69		AEP (100%)
	kV Line with 1033 ACSR		, ,
	overhead conductor		
	Rebuild 7.82 mile Elkhorn		
b2595.1	City – Haysi S.S 69 kV line		AEP (100%)
	utilizing 1033 ACSR built		· · /
	to 138 kV standards		
	Rebuild 5.18 mile Moss –		
b2595.2	Haysi SS 69 kV line		AEP (100%)
02070.2	utilizing 1033 ACSR built		(/
	to 138 kV standards		
	Move load from the 34.5		
	kV bus to the 138 kV bus		,,
b2596	by installing a new 138/12		AEP (100%)
	kV XF at New Carlisle		
	station in Indiana		

required 11.	distribution Limital Contents Aint	au rectae requirement	Responsible Customer(s)
	Rebuild approximately 1		
	mi. section of Dragoon- Virgil Street 34.5 kV line		
	between Dragoon and		
b2597	Dodge Tap switch and		AEP (100%)
02377	replace Dodge switch		1121 (10070)
	MOAB to increase thermal		
	capability of Dragoon-		
	Dodge Tap branch		
	Rebuild approximately 1		
	mile section of the Kline-		
	Virgil Street 34.5 kV line		
1-2500	between Kline and Virgil		AED (1000()
b2598	Street tap. Replace MOAB		AEP (100%)
	switches at Beiger, risers at		
	Kline, switches and bus at		
	Virgil Street.		
	Rebuild approximately 0.1		
b2599	miles of 69 kV line between		AEP (100%)
	Albion and Albion tap		
b2600	Rebuild Fremont – Pound		AEP (100%)
02000	line as 138 kV		1111 (10070)
b2601	Fremont Station		AEP (100%)
02001	Improvements		1111 (10070)
	Replace MOAB towards		
b2601.1	Beaver Creek with 138 kV		AEP (100%)
	breaker		
1000	Replace MOAB towards		A FID (40001)
b2601.2	Clinch River with 138 kV		AEP (100%)
	breaker		
b2601.3	Replace 138 kV Breaker A		AEP (100%)
	with new bus-tie breaker		(===,-,
b2601.4	Re-use Breaker A as high		A FID (1999)
	side protection on		AEP (100%)
	transformer #1		
	Install two (2) circuit		
b2601.5	switchers on high side of		AEP (100%)
	transformers # 2 and 3 at		` '
	Fremont Station		

required 11	ansmission Enhancements Annu	iai 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%)

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	1		responsible editioner(s)
Washington 69 kV circuit and George Washington – Moundsville ckt #1, designed for 138kV. Upgrade limiting equipment at remote ends and at tap stations Convert Bane – Hammondsville from 23 kV to 69 kV operation b2607 Pine Gap Relay Limit Increase b2608 Richlands Relay Upgrade AEP (100%) Thorofare – Goff Run – Powell Mountain 138 kV Build b2610 Rebuild Pax Branch – Scaraboro as 138 kV AEP (100%) b2611 Skin Fork Area Improvements New 138/46 kV station near Skin Fork and other components Construct 3.2 miles of 1033 ACSR double circuit from new Station to cut into Sundial-Baileysville 138 kV line 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			
and George Washington — Moundsville ckt #1, designed for 138kV. Upgrade limiting equipment at remote ends and at tap stations Convert Bane — Hammondsville from 23 kV to 69 kV operation b2607 Pine Gap Relay Limit Increase b2608 Richlands Relay Upgrade Thorofare — Goff Run — Powell Mountain 138 kV Build b2610 Rebuild Pax Branch — Scaraboro as 138 kV AEP (100%) Skin Fork Area Improvements New 138/46 kV station near b2611.1 Skin Fork and other components Construct 3.2 miles of 1033 ACSR double circuit from new Station to cut into Sundial-Baileysville 138 kV line 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		_	
b2605			
designed for 138kV. Upgrade limiting equipment at remote ends and at tap stations Convert Bane – b2606 Hammondsville from 23 kV to 69 kV operation b2607 Pine Gap Relay Limit Increase b2608 Richlands Relay Upgrade Thorofare – Goff Run – Powell Mountain 138 kV Build Build Bebuild Pax Branch – Scaraboro as 138 kV Bebuild Pax Branch – Scaraboro as 138 kV Bebuild Pax Branch – Scaraboro as 138 kV AEP (100%) Bebuild Pax Branch – Scaraboro as 138 kV AEP (100%) Skin Fork Area Improvements New 138/46 kV station near Skin Fork and other components Construct 3.2 miles of 1033 ACSR double circuit from new Station to cut into Sundial-Baileysville 138 kV line 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	1.2605		AED (1000/)
Upgrade limiting equipment at remote ends and at tap stations Convert Bane — Hammondsville from 23 kV to 69 kV operation b2607 Pine Gap Relay Limit Increase B2608 Richlands Relay Upgrade Thorofare — Goff Run — Powell Mountain 138 kV Build B2610 Rebuild Pax Branch — Scaraboro as 138 kV B2611 Skin Fork Area Improvements New 138/46 kV station near Skin Fork and other components Construct 3.2 miles of 1033 ACSR double circuit from new Station to cut into Sundial-Baileysville 138 kV line 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	62605	*	AEP (100%)
Stations Convert Bane			
Stations Convert Bane – Hammondsville from 23 kV to 69 kV operation b2607 Pine Gap Relay Limit Increase b2608 Richlands Relay Upgrade Thorofare – Goff Run – Powell Mountain 138 kV Build b2610 Rebuild Pax Branch – Scaraboro as 138 kV b2611 Skin Fork Area Improvements New 138/46 kV station near b2611.1 Skin Fork and other components Construct 3.2 miles of 1033 ACSR double circuit from new Station to cut into Sundial-Baileysville 138 kV line 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		_ = = = = = =	
Convert Bane - Hammondsville from 23 kV to 69 kV operation		_	
b2606 Hammondsville from 23 kV to 69 kV operation b2607 Pine Gap Relay Limit Increase b2608 Richlands Relay Upgrade Thorofare – Goff Run – Powell Mountain 138 kV Build b2610 Rebuild Pax Branch – Scaraboro as 138 kV b2611 Skin Fork Area Improvements New 138/46 kV station near b2611.1 Skin Fork and other components Construct 3.2 miles of 1033 ACSR double circuit from new Station to cut into Sundial-Baileysville 138 kV line Replace metering BCT on Tanners Creek CB T2 with a slip over CT with higher b2634.1 thermal rating in order to remove 1193 MVA limit on			
to 69 kV operation b2607 Pine Gap Relay Limit Increase b2608 Richlands Relay Upgrade Thorofare – Goff Run – Powell Mountain 138 kV Build b2610 Rebuild Pax Branch – Scaraboro as 138 kV b2611 Skin Fork Area Improvements New 138/46 kV station near b2611.1 Skin Fork and other components Construct 3.2 miles of 1033 ACSR double circuit from new Station to cut into Sundial-Baileysville 138 kV line 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	1.000		AED (1000/)
b2607 Pine Gap Relay Limit Increase b2608 Richlands Relay Upgrade Thorofare – Goff Run – Powell Mountain 138 kV Build b2610 Rebuild Pax Branch – Scaraboro as 138 kV b2611 Skin Fork Area Improvements New 138/46 kV station near Skin Fork and other components Construct 3.2 miles of 1033 ACSR double circuit from new Station to cut into Sundial-Baileysville 138 kV line 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	62606		AEP (100%)
b2607 Increase b2608 Richlands Relay Upgrade Thorofare – Goff Run – Powell Mountain 138 kV Build b2610 Rebuild Pax Branch – Scaraboro as 138 kV b2611 Skin Fork Area Improvements New 138/46 kV station near b2611.1 Skin Fork and other components Construct 3.2 miles of 1033 ACSR double circuit from new Station to cut into Sundial-Baileysville 138 kV line Replace metering BCT on Tanners Creek CB T2 with a slip over CT with higher b2634.1 thermal rating in order to remove 1193 MVA limit on			
b2608 Richlands Relay Upgrade Thorofare – Goff Run – Powell Mountain 138 kV Build B2610 Rebuild Pax Branch – Scaraboro as 138 kV B2611 Skin Fork Area Improvements New 138/46 kV station near Skin Fork and other components Construct 3.2 miles of 1033 ACSR double circuit from new Station to cut into Sundial-Baileysville 138 kV 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	b2607		AEP (100%)
Thorofare - Goff Run - Powell Mountain 138 kV Build b2610 Rebuild Pax Branch - Scaraboro as 138 kV b2611 Skin Fork Area Improvements b2611.1 Skin Fork and other Components Construct 3.2 miles of 1033 ACSR double circuit from new Station to cut into Sundial-Baileysville 138 kV line 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 Baep (100%) AEP (100%) AEP (100%) AEP (100%) AEP (100%) AEP (100%)		Increase	` ,
b2609 Powell Mountain 138 kV Build B2610 Rebuild Pax Branch — Scaraboro as 138 kV B2611 Skin Fork Area Improvements New 138/46 kV station near b2611.1 Skin Fork and other components Construct 3.2 miles of 1033 ACSR double circuit from new Station to cut into Sundial-Baileysville 138 kV line Replace metering BCT on Tanners Creek CB T2 with a slip over CT with higher b2634.1 thermal rating in order to remove 1193 MVA limit on	b2608	Richlands Relay Upgrade	AEP (100%)
b2609 Powell Mountain 138 kV Build B2610 Rebuild Pax Branch — Scaraboro as 138 kV B2611 Skin Fork Area Improvements New 138/46 kV station near b2611.1 Skin Fork and other components Construct 3.2 miles of 1033 ACSR double circuit from new Station to cut into Sundial-Baileysville 138 kV line Replace metering BCT on Tanners Creek CB T2 with a slip over CT with higher b2634.1 thermal rating in order to remove 1193 MVA limit on		Thorofare – Goff Run	
Build Rebuild Pax Branch — Scaraboro as 138 kV b2611 Skin Fork Area Improvements New 138/46 kV station near b2611.1 Skin Fork and other components Construct 3.2 miles of 1033 ACSR double circuit from b2611.2 new Station to cut into Sundial-Baileysville 138 kV line 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	b2609		ΔEP (100%)
b2610 Rebuild Pax Branch — Scaraboro as 138 kV b2611 Skin Fork Area Improvements New 138/46 kV station near Skin Fork and other components Construct 3.2 miles of 1033 ACSR double circuit from new Station to cut into Sundial-Baileysville 138 kV line 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	02007		ALI (100%)
b2610 Scaraboro as 138 kV b2611 Skin Fork Area Improvements New 138/46 kV station near Skin Fork and other components Construct 3.2 miles of 1033 ACSR double circuit from new Station to cut into Sundial-Baileysville 138 kV line 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	1.2610		AED (1999)
New 138/46 kV station near b2611.1 Skin Fork and other components Construct 3.2 miles of 1033 ACSR double circuit from new Station to cut into Sundial-Baileysville 138 kV line 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	b2610		AEP (100%)
Improvements New 138/46 kV station near Skin Fork and other components Construct 3.2 miles of 1033 ACSR double circuit from new Station to cut into Sundial-Baileysville 138 kV line 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 AEP (100%)	h2611	Skin Fork Area	AED (100%)
b2611.1 Skin Fork and other components Construct 3.2 miles of 1033 ACSR double circuit from new Station to cut into Sundial-Baileysville 138 kV line 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 AEP (100%) AEP (100%)	02011	Improvements	AEF (100%)
components Construct 3.2 miles of 1033 ACSR double circuit from new Station to cut into Sundial-Baileysville 138 kV line 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		New 138/46 kV station near	
Construct 3.2 miles of 1033 ACSR double circuit from new Station to cut into Sundial-Baileysville 138 kV line 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 AEP (100%)	b2611.1	Skin Fork and other	AEP (100%)
ACSR double circuit from new Station to cut into Sundial-Baileysville 138 kV line 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 AEP (100%)		•	
b2611.2 new Station to cut into Sundial-Baileysville 138 kV line 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 AEP (100%)		Construct 3.2 miles of 1033	
Sundial-Baileysville 138 kV line 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 AEP (100%)		ACSR double circuit from	
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 AEP (100%)	b2611.2	new Station to cut into	AEP (100%)
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 Replace metering BCT on Tanners Creek CB T2 with a slip over CT with higher AEP (100%)		Sundial-Baileysville 138 kV	
Tanners Creek CB T2 with a slip over CT with higher thermal rating in order to remove 1193 MVA limit on AEP (100%)			
b2634.1 a slip over CT with higher thermal rating in order to remove 1193 MVA limit on			
b2634.1 thermal rating in order to remove 1193 MVA limit on AEP (100%)	b2634.1		
remove 1193 MVA limit on		1	
			AEP (100%)
1 0 10 10 10 10 10 10 10 10 10 10 10 10			
		facility (Miami Fort-	
Tanners Creek 345 kV line)		Tanners Creek 345 kV line)	

Required 11	ansmission Enhancements Annu	ial 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%)

Required 11	ansimission Emancements Ami	uai Kevenue Kequirement	Responsible Customer(s)
			Load-Ratio Share Allocation:
			AEC (1.71%) / AEP (14.04%) /
			APS (5.61%) / ATSI (8.10%) /
			BGE (4.36%) / ComEd
			(13.14%) / Dayton (2.15%) /
			DEOK (3.23%) / DL (1.73%) /
	Install a +/- 450 MVAR SVC at Jacksons Ferry 765 kV substation		DPL (2.65%) / Dominion
1.2697.1			(13.03%) / EKPC (1.77%) /
b2687.1			JCPL (3.84%) / ME (1.93%) /
			NEPTUNE* (0.45%) / OVEC
			(0.07%) / PECO (5.29%) /
			PENELEC (1.89%) / PEPCO
			(3.82%) / PPL (4.72%) / PSEG
			(6.21%) / RE (0.26%)
			DFAX Allocation:
			AEP (100%)

^{*}Neptune Regional Transmission System, LLC

required 11	ansmission Enhancements Annu	iai Revenue Requirement	Responsible Customer(s)
			Load-Ratio Share Allocation:
			AEC (1.71%) / AEP (14.04%) /
			APS (5.61%) / ATSI (8.10%) /
			BGE (4.36%) / ComEd
			(13.14%) / Dayton (2.15%) /
	Install a 300 MVAR shunt		DEOK (3.23%) / DL (1.73%) /
	line reactor on the		DPL (2.65%) / Dominion
b2687.2	Broadford end of the		(13.03%) / EKPC (1.77%) /
02087.2	Broadford – Jacksons Ferry		JCPL (3.84%) / ME (1.93%) /
	765 kV line		NEPTUNE* (0.45%) / OVEC
	703 KV IIIIe		(0.07%) / PECO (5.29%) /
			PENELEC (1.89%) / PEPCO
			(3.82%) / PPL (4.72%) / PSEG
			(6.21%) / RE (0.26%)
			DFAX Allocation:
			AEP (100%)
	Mitigate violations		
	identified by sag study to		
	operate Fieldale-Thornton-		
b2697.1	Franklin 138 kV overhead		AEP (100%)
02097.1	line conductor at its max.		ALF (100%)
	operating temperature. 6		
	potential line crossings to		
	be addressed.		
b2697.2	Replace terminal equipment		
	at AEP's Danville and East		
	Danville substations to		AEP (100%)
	improve thermal capacity of		AEF (100%)
	Danville – East Danville		
	138 kV circuit		

^{*}Neptune Regional Transmission System, LLC

required 11	ansimission Emiancements Aminu	a Revenue Requirement	Responsible Customer(s)
1.2600	Replace relays at AEP's Cloverdale and Jackson's Ferry substations to improve		A F.D. (1000())
b2698	the thermal capacity of Cloverdale – Jackson's Ferry		AEP (100%)
	765 kV line		
	Construct Herlan station as		
1.0501.1	breaker and a half		A FID (1000())
b2701.1	configuration with 9-138 kV		AEP (100%)
	CB's on 4 strings and with 2-		
	28.8 MVAR capacitor banks		
	Construct new 138 kV line		
	from Herlan station to Blue		
b2701.2	Racer station. Estimated		AEP (100%)
	approx. 3.2 miles of 1234		` ,
	ACSS/TW Yukon and OPGW		
2701.2	Install 1-138 kV CB at Blue		AED (1000/)
2701.3	Racer to terminate new		AEP (100%)
	Herlan circuit		
b2714	Rebuild/upgrade line between Glencoe and		AED (1000/)
02/14	Willow Grove Switch 69 kV		AEP (100%)
	Build approximately 11.5 miles of 34.5 kV line with		
	556.5 ACSR 26/7 Dove		
b2715	conductor on wood poles		AEP (100%)
	from Flushing station to		
	Smyrna station		
	Replace the South Canton		
b2727	138 kV breakers 'K', 'J',		
	'J1', and 'J2' with 80kA		AEP (100%)
	breakers		
	orcarcis		

required 11	ansimission Emiancements Amida	i Kevenue Kequirement	Responsible Customer(s)
	Convert the Sunnyside –		
b2731	East Sparta – Malvern 23 kV sub-transmission network to		AEP (100%)
02/31	69 kV. The lines are already		ALI (100%)
	built to 69 kV standards		
	Replace South Canton 138		
b2733	kV breakers 'L' and 'L2'		AEP (100%)
02,00	with 80 kA rated breakers		1121 (10070)
	Retire Betsy Layne		
	138/69/43 kV station and		
b2750.1	replace it with the greenfield		AED (1000/)
02/50.1	Stanville station about a half		AEP (100%)
	mile north of the existing		
	Betsy Layne station		
	Relocate the Betsy Layne		
	capacitor bank to the		
b2750.2	Stanville 69 kV bus and		AEP (100%)
	increase the size to 14.4		
	MVAR		
	Replace existing George		
	Washington station 138 kV		
	yard with GIS 138 kV		
b2753.1	breaker and a half yard in existing station footprint.		AEP (100%)
	Install 138 kV revenue		
	metering for new IPP		
	connection		
	Replace Dilles Bottom 69/4		
b2753.2	kV Distribution station as		
	breaker and a half 138 kV		
	yard design including AEP		AED (1000()
	Distribution facilities but		AEP (100%)
	initial configuration will		
	constitute a 3 breaker ring		
	bus		

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 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 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 — Moundsville 69 kV circuit to George Washington — West Bellaire 69 kV circuit to George Washington — West Bellaire 69 kV circuit to 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	required 11	ansimission Emiancements Amitu	a revenue requirement	Responsible Cusiomer(s)
(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 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 Retire line sections (Dilles Bottom — Set V lines) south of FirstEnergy 138 kV line corridor, near "Point A". Tie George Washington — 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 to George Washington — Dilles Bottom 138 kV one circuit will cut into Dilles Bottom 138 kV. One circuit will cut into Dilles Bottom 138 kV. One circuit will cut into Dilles Bottom 138 kV. One circuit will go past with future plans				
owned by FirstEnergy) in circuit positions previously designated Burger #1 & Burger #2 138 kV. Install interconnection settlement metering on both circuits exiting Holloway 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 Retire line sections (Dilles Bottom — Bellaire and Moundsville — Dilles Bottom — Bellaire and Moundsville — Dilles Bottom — George Washington — Moundsville 69 kV circuit to George Washington — Woundsville 69 kV circuit to George Washington — Woundsville 69 kV circuit to George Washington — Woundsville 69 kV circuit to George Washington — Dilles Bottom 138 kV inc as double circuit from George Washington — Dilles Bottom 138 kV. One circuit will cut into Dilles Bottom 138 kV intitally and the other will go past with future plans				
b2753.3 circuit positions previously designated Burger #1 & Burger #2 138 kV. Install interconnection settlement metering on both circuits exiting Holloway 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 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 to George Washington — West Bellaire 69 kV circuit (Rebuild existing 69 kV line as double circuit from George Washington — Dilles Bottom 138 kV. One circuit will cut into Dilles Bottom 138 kV. One circuit will cut into Dilles Bottom 138 kV. initially and the other will go past with future plans				
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b2753.6 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 Retire line sections (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 to George Washington – West Bellaire 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				
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b2753.7 FirstEnergy 138 kV line corridor, near "Point A". Tie George Washington — Moundsville 69 kV circuit to George Washington — West Bellaire 69 kV circuit 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 AEP (100%)		Moundsville – Dilles Bottom		
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Corridor, near "Point A". Tie George Washington – Moundsville 69 kV circuit to George Washington – West Bellaire 69 kV circuit 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	h2752.7	FirstEnergy 138 kV line		AED (1000/)
Moundsville 69 kV circuit to George Washington – West Bellaire 69 kV circuit 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	02/33.7	corridor, near "Point A". Tie		AEF (100%)
George Washington – West Bellaire 69 kV circuit 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		George Washington –		
Bellaire 69 kV circuit 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		Moundsville 69 kV circuit to		
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		George Washington – West		
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		Bellaire 69 kV circuit		
b2753.8 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 AEP (100%)		Rebuild existing 69 kV line		
b2753.8 Bottom 138 kV. One circuit will cut into Dilles Bottom 138 kV initially and the other will go past with future plans	b2753.8	as double circuit from		
will cut into Dilles Bottom 138 kV initially and the other will go past with future plans		George Washington – Dilles		
will cut into Dilles Bottom 138 kV initially and the other will go past with future plans		Bottom 138 kV. One circuit		AED (1000/)
will go past with future plans		will cut into Dilles Bottom		AEF (100%)
		138 kV initially and the other		
		will go past with future plans		
		to cut in		

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

Required 11	ansmission Ennancements 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%)

required 11	ansmission Emiancements	Ainuai Revenue Requirei	ment Responsible Customer(s)
b2789	Rebuild the Brues - Glendale Heights 69 kV line section (5 miles) with 795 ACSR (128		AEP (100%)
	MVA rating, 43% loading)		
	Install a 3 MVAR, 34.5 kV		
b2790	cap bank at Caldwell		AEP (100%)
02/90	substation		AEF (100%)
b2791	Rebuild Tiffin – Howard, new		AEP (100%)
	transformer at Chatfield		
	Rebuild portions of the East		
	Tiffin - Howard 69 kV line		
1.0701.1	from East Tiffin to West		A ED (1000()
b2791.1	Rockaway Switch (0.8 miles)		AEP (100%)
	using 795 ACSR Drake		
	conductor (129 MVA rating,		
	50% loading)		
	Rebuild Tiffin - Howard 69		
	kV line from St. Stephen's		
1.0701.0	Switch to Hinesville (14.7		A FID (1000()
b2791.2	miles) using 795 ACSR		AEP (100%)
	Drake conductor (90 MVA		
	rating, non-conductor limited,		
	38% loading)		
1.0501.0	New 138/69 kV transformer		A FID (1000)
b2791.3	with 138/69 kV protection at		AEP (100%)
	Chatfield		
b2791.4	New 138/69 kV protection at		AEP (100%)
0277111	existing Chatfield transformer		122 (100,0)
	Replace the Elliott		
b2792	transformer with a 130 MVA		
	unit, reconductor 0.42 miles		
	of the Elliott – Ohio		
	University 69 kV line with		AEP (100%)
	556 ACSR to match the rest		(10070)
	of the line conductor (102		
	MVA rating, 73% loading)		
	and rebuild 4 miles of the		
	Clark Street – Strouds R		

Energize the spare Fremont Center 138/69 kV 130 MVA transformer #3. Reduces overloaded facilities to 46% loading	Required 11	ansmission Ennancements	Annual Revenue Requirement	Responsible Customer(s)
b2793		1		
overloaded facilities to 46% loading 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) Install a 34.5 kV 4.8 MVAR capacitor bank at Killbuck 34.5 kV station Rebuild the Malvern - Oneida Switch 69 kV line section with 795 ACSR (1.8 miles, 125 MVA rating, 55% loading) 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 Install a 14.4 MVAR capacitor bank at West Hicksville station. Replace ground switch/MOAB at West Hicksville with a circuit switcher Rebuild Valley - Almena, Almena - Hartford, Riverside - South Haven 69 kV lines. New line exit at Valley Station. New transformers at				
Loading	b2793	transformer #3. Reduces		AEP (100%)
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) Install a 34.5 kV 4.8 MVAR capacitor bank at Killbuck 34.5 kV station Rebuild the Malvern - Oneida Switch 69 kV line section with 795 ACSR (1.8 miles, 125 MVA rating, 55% loading) 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 Install a 14.4 MVAR capacitor bank at West Hicksville station. Replace ground switch/MOAB at West Hicksville with a circuit switcher Rebuild Valley - Almena, Almena - Hartford, Riverside - South Haven 69 kV lines. New line exit at Valley Station. New transformers at		overloaded facilities to 46%		
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b2794 station to Decliff station, approximately 4 miles, with 556 ACSR conductor (51 MVA rating)		Construct new 138/69/34 kV		
b2794 station to Decliff station, approximately 4 miles, with 556 ACSR conductor (51 MVA rating) Install a 34.5 kV 4.8 MVAR capacitor bank at Killbuck 34.5 kV station Rebuild the Malvern - Oneida Switch 69 kV line section with 795 ACSR (1.8 miles, 125 MVA rating, 55% loading) 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 Install a 14.4 MVAR capacitor bank at West Hicksville station. Replace ground switch/MOAB at West Hicksville with a circuit switcher Rebuild Valley - Almena, Almena - Hartford, Riverside - South Haven 69 kV lines. New line exit at Valley Station. New transformers at		station and 1-34 kV circuit		
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MVA rating		approximately 4 miles, with		
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b2795 capacitor bank at Killbuck		MVA rating)		
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b2796 Switch 69 kV line section with 795 ACSR (1.8 miles, 125 MVA rating, 55% loading) 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 Install a 14.4 MVAR capacitor bank at West Hicksville station. Replace ground switch/MOAB at West Hicksville with a circuit switcher Rebuild Valley - Almena, Almena - Hartford, Riverside - South Haven 69 kV lines. New line exit at Valley Station. New transformers at				
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b2798 b2798 b2798 b2798 b2799 b2799 b2799 b2799 South Haven 69 kV lines. New transformers at		(11.8 miles) with 795 ACSR		
MVA Ohio Central 138/69 kV XFMR with a 90 MVA unit Install a 14.4 MVAR capacitor bank at West Hicksville station. Replace ground switch/MOAB at West Hicksville with a circuit switcher Rebuild Valley - Almena, Almena - Hartford, Riverside - South Haven 69 kV lines. New line exit at Valley Station. New transformers at	b2797	conductor (128 MVA rating,		AEP (100%)
XFMR with a 90 MVA unit Install a 14.4 MVAR capacitor bank at West Hicksville station. Replace ground switch/MOAB at West Hicksville with a circuit switcher Rebuild Valley - Almena, Almena - Hartford, Riverside - South Haven 69 kV lines. New line exit at Valley Station. New transformers at		57% loading). Replace the 50		
Install a 14.4 MVAR capacitor bank at West Hicksville station. Replace ground switch/MOAB at West Hicksville with a circuit switcher Rebuild Valley - Almena, Almena - Hartford, Riverside - South Haven 69 kV lines. New line exit at Valley Station. New transformers at		MVA Ohio Central 138/69 kV		
bank at West Hicksville station. Replace ground switch/MOAB at West Hicksville with a circuit switcher Rebuild Valley - Almena, Almena - Hartford, Riverside - South Haven 69 kV lines. New line exit at Valley Station. New transformers at		XFMR with a 90 MVA unit		
b2798 station. Replace ground switch/MOAB at West Hicksville with a circuit switcher Rebuild Valley - Almena, Almena - Hartford, Riverside - South Haven 69 kV lines. New line exit at Valley Station. New transformers at		Install a 14.4 MVAR capacitor		
switch/MOAB at West Hicksville with a circuit switcher Rebuild Valley - Almena, Almena - Hartford, Riverside - South Haven 69 kV lines. New line exit at Valley Station. New transformers at		bank at West Hicksville		
switch/MOAB at West Hicksville with a circuit switcher Rebuild Valley - Almena, Almena - Hartford, Riverside - South Haven 69 kV lines. New line exit at Valley Station. New transformers at	h2709	station. Replace ground		AED (1000/)
switcher Rebuild Valley - Almena, Almena - Hartford, Riverside - South Haven 69 kV lines. New line exit at Valley Station. New transformers at	02/98	switch/MOAB at West		AEP (100%)
Rebuild Valley - Almena, Almena - Hartford, Riverside - South Haven 69 kV lines. New line exit at Valley Station. New transformers at		Hicksville with a circuit		
Almena - Hartford, Riverside - South Haven 69 kV lines. New line exit at Valley Station. New transformers at AEP (100%)		switcher		
b2799 South Haven 69 kV lines. New line exit at Valley Station. New transformers at		Rebuild Valley - Almena,		
New line exit at Valley Station. New transformers at		Almena - Hartford, Riverside -		
Station. New transformers at	b2799	South Haven 69 kV lines.		AED (1000/)
Station. New transformers at		New line exit at Valley		AEP (100%)
Almena and Hartford		_		
		Almena and Hartford		

Required 11	ansmission Enhancements	Allitual Revenue Require	ement Responsible Customer(s)
	Rebuild 12 miles of Valley –		
	Almena 69 kV line as a		
	double circuit 138/69 kV line		
b2799.1	using 795 ACSR conductor		AEP (100%)
02/99.1	(360 MVA rating) to		ALI (100%)
	introduce a new 138 kV		
	source into the 69 kV load		
	pocket around Almena station		
	Rebuild 3.2 miles of Almena		
b2799.2	to Hartford 69 kV line using		AEP (100%)
02199.2	795 ACSR conductor (90		ALF (100%)
	MVA rating)		
	Rebuild 3.8 miles of		
b2799.3	Riverside – South Haven 69		AEP (100%)
02177.3	kV line using 795 ACSR		ALI (100%)
	conductor (90 MVA rating)		
	At Valley station, add new		
	138 kV line exit with a 3000		
b2799.4	A 40 kA breaker for the new		AEP (100%)
02177.4	138 kV line to Almena and		ALI (10070)
	replace CB D with a 3000 A		
	40 kA breaker		
	At Almena station, install a		
	90 MVA 138/69 kV		
b2799.5	transformer with low side		AEP (100%)
02799.5	3000 A 40 kA breaker and		1121 (10070)
	establish a new 138 kV line		
	exit towards Valley		
b2799.6	At Hartford station, install a		
	second 90 MVA 138/69 kV		
	transformer with a circuit		AEP (100%)
	switcher and 3000 A 40 kA		
	low side breaker		

Required Transmission Emancements		Affilial Revenue Requirement Responsible Customer(s)	
	Replace Delaware 138 kV		
b2817	breaker 'P' with a 40 kA		AEP (100%)
	breaker		
	Replace West Huntington 138		
b2818	kV breaker 'F' with a 40 kA		AEP (100%)
	breaker		
	Replace Madison 138 kV		
b2819	breaker 'V' with a 63 kA		AEP (100%)
	breaker		
	Replace Sterling 138 kV		
b2820	breaker 'G' with a 40 kA		AEP (100%)
	breaker		
	Replace Morse 138 kV		
b2821	breakers '103', '104', '105',		AED (1000/)
02821	and '106' with 63 kA		AEP (100%)
	breakers		
	Replace Clinton 138 kV		
b2822	breakers '105' and '107' with		AEP (100%)
	63 kA breakers		
	Install 300 MVAR reactor at		
b2826.1	Ohio Central 345 kV		AEP (100%)
	substation		

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

required 11	ansmission Ennancements	Annual Revenue Requireme	nt Responsible Customer(s)
	Rebuild ~1.7 miles of the		
	Dunn Hollow – London 46		
b2881	kV line section utilizing 795		AEP (100%)
02001	26/7 ACSR conductor (58		ALI (10070)
	MVA rating, non-conductor		
	limited)		
	Rebuild Reusens - Peakland		
b2882	Switch 69 kV line. Replace		AEP (100%)
	Peakland Switch		
	Rebuild the Reusens -		
	Peakland Switch 69 kV line		
b2882.1	(approximately 0.8 miles)		AED (1000/)
02882.1	utilizing 795 ACSR		AEP (100%)
	conductor (86 MVA rating,		
	non-conductor limited)		
	Replace existing Peakland S.S		
b2882.2	with new 3 way switch phase		AEP (100%)
	over phase structure		
	Rebuild the Craneco – Pardee		
	– Three Forks – Skin Fork 46		
b2883	kV line section		AED (1000/)
02003	(approximately 7.2 miles)		AEP (100%)
	utilizing 795 26/7 ACSR		
	conductor (108 MVA rating)		
	Install a second transformer at		
b2884	Nagel station, comprised of 3		
	single phase 250 MVA		
	500/138 kV transformers.		
	Presently, TVA operates their		AED (1000()
	end of the Boone Dam –		AEP (100%)
	Holston 138 kV		
	interconnection as normally		
	open preemptively for the loss		
	of the existing Nagel		
L2005	New delivery point for City		AED (1000/)
b2885	of Jackson		AEP (100%)

Required 11	ansmission Enhancements	Allitual Revenue Require	ement Responsible Customer(s)
	Install a new Ironman Switch		
	to serve a new delivery point		
b2885.1	requested by the City of		AEP (100%)
	Jackson for a load increase		
	request		
	Install a new 138/69 kV		
	station (Rhodes) to serve as a		
b2885.2	third source to the area to help		AEP (100%)
	relieve overloads caused by		
	the customer load increase		
	Replace Coalton Switch with		
b2885.3	a new three breaker ring bus		AEP (100%)
	(Heppner)		
	Install 90 MVA 138/69 kV		
	transformer, new transformer		
b2886	high and low side 3000 A 40		AED (1000/)
02000	kA CBs, and a 138 kV 40 kA		AEP (100%)
	bus tie breaker at West End		
	Fostoria		
	Add 2-138 kV CB's and		
	relocate 2-138 kV circuit exits		
b2887	to different bays at Morse		AEP (100%)
02007	Road. Eliminate 3 terminal		AEF (100%)
	line by terminating Genoa -		
	Morse circuit at Morse Road		
b2888	Retire Poston substation.		
	Install new Lemaster		AEP (100%)
	substation		
b2888.1	Remove and retire the Poston		AED (1000/)
	138 kV station		AEP (100%)
	Install a new greenfield		
b2888.2	station, Lemaster 138 kV		AEP (100%)
	Station, in the clear		

	D 1 4 4 T 11 60 1 W		rement 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%)

Required 113	ansmission Ennancements	Annual Revenue Requirer	ment Responsible Customer(s)
	Rebuild 23.55 miles of the		
	East Cambridge – Smyrna		
b2890.1	34.5 kV circuit with 795		AEP (100%)
	ACSR conductor (128 MVA		
	rating) and convert to 69 kV		
	East Cambridge: Install a		
	2000 A 69 kV 40 kA circuit		
b2890.2	breaker for the East		AEP (100%)
	Cambridge – Smyrna 69 kV		
	circuit		
	Old Washington: Install 69		
b2890.3	kV 2000 A two way phase		AEP (100%)
	over phase switch		,
L2000 4	Install 69 kV 2000 A two way		AED (1000/)
b2890.4	phase over phase switch		AEP (100%)
	Rebuild the Midland Switch		
	to East Findlay 34.5 kV line		
b2891	(3.31 miles) with 795 ACSR		AEP (100%)
	(63 MVA rating) to match		
	other conductor in the area		
	Install new 138/12 kV		
	transformer with high side		
	circuit switcher at Leon and a		
	new 138 kV line exit towards		
1-2002	Ripley. Establish 138 kV at		AED (1000/)
b2892	the Ripley station with a new		AEP (100%)
	138/69 kV 130 MVA		
	transformer and move the		
	distribution load to 138 kV		
	service		
b2936.1	Rebuild approximately 6.7		
	miles of 69 kV line between		
	Mottville and Pigeon River		
	using 795 ACSR conductor		AED (1000/)
	(129 MVA rating). New		AEP (100%)
	construction will be designed		
	to 138 kV standards but		
	operated at 69 kV		

mission Enhancements	Annual Revenue Requir	rement Responsible Customer(s)
igeon River Station: Replace		
•		
		AEP (100%)
10		1121 (100/0)
· ·		
40 kA breaker		
Replace the existing 636		
ACSR 138 kV bus at		AED (1000/)
Fletchers Ridge with a larger		AEP (100%)
954 ACSR conductor		
Perform a sag mitigations on		
		AEP (100%)
-		
		AEP (100%)
		1221 (10070)
	AEP (100%)	AEP (100%)
		,
10		AED (1000/)
* *		AEP (100%)
		AEP (100%)
		ALI (100%)
		AEP (100%)
and risers at Tanners Creek		(100/0)
for the Dearborn circuit		
	Replace the existing 636 ACSR 138 kV bus at Eletchers Ridge with a larger 954 ACSR conductor Perform a sag mitigations on the Broadford – Wolf Hills 138 kV circuit to allow the line to operate to a higher maximum temperature Cut George Washington – Edd 138 kV circuit into Sand Hill sand reconfigure Brues & Warton Hill line entrances Add 2 138 kV 3000 A 40 kA reakers, disconnect switches, and update relaying at Sand Hill station Upgrade existing 345 kV erminal equipment at Tanner Creek station Replace terminal equipment on Maddox Creek - East Lima 345 kV circuit Upgrade terminal equipment at Tanners Creek 345 kV tation. Upgrade 345 kV bus and risers at Tanners Creek station.	igeon River Station: Replace kisting MOAB Sw. 'W' with a new 69 kV 3000 A 40 kA reaker, and upgrade existing elays towards HMD station. Replace CB H with a 3000 A 40 kA breaker Replace the existing 636 ACSR 138 kV bus at Fletchers Ridge with a larger 954 ACSR conductor Perform a sag mitigations on the Broadford – Wolf Hills 138 kV circuit to allow the line to operate to a higher maximum temperature Cut George Washington – idd 138 kV circuit into Sand Hill and reconfigure Brues & Warton Hill line entrances Add 2 138 kV 3000 A 40 kA reakers, disconnect switches, and update relaying at Sand Hill station Upgrade existing 345 kV erminal equipment at Tanner Creek station Replace terminal equipment on Maddox Creek - East Lima 345 kV circuit Upgrade terminal equipment at Tanners Creek 345 kV tation. Upgrade 345 kV bus and risers at Tanners Creek

Required 113	ansmission Ennancements	Annual Revenue Requireme	nt Responsible Customer(s)
	Replace the Twin Branch 345 kV breaker "JM" with 63 kA		
b2988	breaker and associated		AEP (100%)
02700	substation works including		71121 (10070)
	switches, bus leads, control		
	cable and new DICM		
	Rebuild the Torrey – South		
	Gambrinus Switch –		
b2993	Gambrinus Road 69 kV line		AEP (100%)
02//3	section (1.3 miles) with 1033		(100/0)
	ACSR 'Curlew' conductor		
	and steel poles		
	Replace South Canton 138 kV		
b3000	breaker 'N' with an 80kA		AEP (100%)
	breaker		
1.0004	Replace South Canton 138 kV		177 (100-1)
b3001	breaker 'N1' with an 80kA		AEP (100%)
	breaker		
1.2002	Replace South Canton 138 kV		A ED (1000()
b3002	breaker 'N2' with an 80kA		AEP (100%)
	breaker		
1 2026	Rebuild 15.6 miles of		AED (1000()
b3036	Haviland - North Delphos 138		AEP (100%)
	kV line		
b3037	Upgrades at the Natrium		AEP (100%)
	substation		` ′
b3038	Reconductor the Capitol Hill		AEP (100%)
	– Coco 138 kV line section		· · · · · ·
b3039	Line swaps at Muskingum		AEP (100%)
	138 kV station		(,
	Rebuild Ravenswood –		
b3040.1	Racine tap 69 kV line section		
	(~15 miles) to 69 kV		AEP (100%)
	standards, utilizing 795 26/7		
	ACSR conductor		

Rebuild existing Ripley — Ravenswood 69 kV circuit b3040.2 (~9 miles) to 69 kV standards, utilizing 795 26/7 ACSR conductor Install new 3-way phase over phase switch at Sarah Lane station to replace the retired switch at Cottageville Install new 138/12 kV 20 MVA transformer at Polymer station to transfer load from Mill Run station to help address overload on the 69 kV network b3040.5 Retire Mill Run station b3040.6 Install 28.8 MVAR cap bank at South Buffalo station b3051.2 Reconductor Kammer — George Washington 138 kV b3085 line (approx. 0.08 mile). Replace the wave trap at Kammer 138 kV Parabuld New Liberty	Required Tra	ansmission Enhancements	Annual Revenue Require	ement Responsible Customer(s)
b3040.2 (-9 miles) to 69 kV standards, utilizing 795 26/7 ACSR conductor Install new 3-way phase over phase switch at Sarah Lane station to replace the retired switch at Cottageville Install new 138/12 kV 20		0 1		
utilizing 795 26/7 ACSR conductor Install new 3-way phase over phase switch at Sarah Lane station to replace the retired switch at Cottageville Install new 138/12 kV 20 MVA transformer at Polymer station to transfer load from Mill Run station to help address overload on the 69 kV network b3040.5 Retire Mill Run station AEP (100%) Install 28.8 MVAR cap bank at South Buffalo station b3040.6 Adjust CT tap ratio at Ronceverte 138 kV Reconductor Kammer — George Washington 138 kV line (approx. 0.08 mile). Replace the wave trap at Kammer 138 kV				
conductor Install new 3-way phase over phase switch at Sarah Lane station to replace the retired switch at Cottageville Install new 138/12 kV 20 MVA transformer at Polymer station to transfer load from Mill Run station to help address overload on the 69 kV network b3040.5 Retire Mill Run station B3040.6 Install 28.8 MVAR cap bank at South Buffalo station b3051.2 Adjust CT tap ratio at Ronceverte 138 kV Reconductor Kammer — George Washington 138 kV b3085 line (approx. 0.08 mile). Replace the wave trap at Kammer 138 kV	b3040.2	,		AEP (100%)
Install new 3-way phase over phase switch at Sarah Lane station to replace the retired switch at Cottageville Install new 138/12 kV 20 MVA transformer at Polymer station to transfer load from Mill Run station to help address overload on the 69 kV network b3040.5 Retire Mill Run station b3040.6 Install 28.8 MVAR cap bank at South Buffalo station b3051.2 Adjust CT tap ratio at Ronceverte 138 kV Reconductor Kammer – George Washington 138 kV line (approx. 0.08 mile). Replace the wave trap at Kammer 138 kV		•		
b3040.3 phase switch at Sarah Lane station to replace the retired switch at Cottageville Install new 138/12 kV 20 MVA transformer at Polymer station to transfer load from Mill Run station to help address overload on the 69 kV network b3040.5 Retire Mill Run station b3040.6 Install 28.8 MVAR cap bank at South Buffalo station b3051.2 Adjust CT tap ratio at Ronceverte 138 kV Reconductor Kammer – George Washington 138 kV line (approx. 0.08 mile). Replace the wave trap at Kammer 138 kV				
b3040.3 station to replace the retired switch at Cottageville Install new 138/12 kV 20 MVA transformer at Polymer station to transfer load from Mill Run station to help address overload on the 69 kV network b3040.5 Retire Mill Run station AEP (100%) b3040.6 Install 28.8 MVAR cap bank at South Buffalo station b3051.2 Adjust CT tap ratio at Ronceverte 138 kV Reconductor Kammer — George Washington 138 kV line (approx. 0.08 mile). Replace the wave trap at Kammer 138 kV		• •		
station to replace the retired switch at Cottageville Install new 138/12 kV 20 MVA transformer at Polymer station to transfer load from Mill Run station to help address overload on the 69 kV network b3040.5 Retire Mill Run station b3040.6 Install 28.8 MVAR cap bank at South Buffalo station b3051.2 Adjust CT tap ratio at Ronceverte 138 kV Reconductor Kammer – George Washington 138 kV line (approx. 0.08 mile). Replace the wave trap at Kammer 138 kV	b3040 3	±		AFP (100%)
Install new 138/12 kV 20 MVA transformer at Polymer station to transfer load from Mill Run station to help address overload on the 69 kV network b3040.5 Retire Mill Run station AEP (100%) b3040.6 Install 28.8 MVAR cap bank at South Buffalo station b3051.2 Adjust CT tap ratio at Ronceverte 138 kV Reconductor Kammer – George Washington 138 kV line (approx. 0.08 mile). Replace the wave trap at Kammer 138 kV	03010.3	*		1121 (10070)
b3040.4 MVA transformer at Polymer station to transfer load from Mill Run station to help address overload on the 69 kV network b3040.5 Retire Mill Run station AEP (100%) Install 28.8 MVAR cap bank at South Buffalo station b3040.6 Adjust CT tap ratio at Ronceverte 138 kV Reconductor Kammer – George Washington 138 kV line (approx. 0.08 mile). Replace the wave trap at Kammer 138 kV				
b3040.4 station to transfer load from Mill Run station to help address overload on the 69 kV network b3040.5 Retire Mill Run station b3040.6 Install 28.8 MVAR cap bank at South Buffalo station b3051.2 Adjust CT tap ratio at Ronceverte 138 kV Reconductor Kammer – George Washington 138 kV line (approx. 0.08 mile). Replace the wave trap at Kammer 138 kV				
Mill Run station to help address overload on the 69 kV network b3040.5 Retire Mill Run station b3040.6 Install 28.8 MVAR cap bank at South Buffalo station b3051.2 Adjust CT tap ratio at Ronceverte 138 kV Reconductor Kammer — George Washington 138 kV b3085 line (approx. 0.08 mile). Replace the wave trap at Kammer 138 kV		•		
Mill Run station to help address overload on the 69 kV network b3040.5 Retire Mill Run station B3040.6 Install 28.8 MVAR cap bank at South Buffalo station AEP (100%) Adjust CT tap ratio at Ronceverte 138 kV Reconductor Kammer — George Washington 138 kV line (approx. 0.08 mile). Replace the wave trap at Kammer 138 kV	b3040.4			AFP (100%)
kV network b3040.5 Retire Mill Run station AEP (100%) b3040.6 Install 28.8 MVAR cap bank at South Buffalo station b3051.2 Adjust CT tap ratio at Ronceverte 138 kV Reconductor Kammer – George Washington 138 kV line (approx. 0.08 mile). Replace the wave trap at Kammer 138 kV	03010.1	*		71E1 (10070)
b3040.5 Retire Mill Run station b3040.6 Install 28.8 MVAR cap bank at South Buffalo station b3051.2 Adjust CT tap ratio at Ronceverte 138 kV Reconductor Kammer – George Washington 138 kV line (approx. 0.08 mile). Replace the wave trap at Kammer 138 kV				
b3040.6 Install 28.8 MVAR cap bank at South Buffalo station b3051.2 Adjust CT tap ratio at Ronceverte 138 kV Reconductor Kammer – George Washington 138 kV b3085 line (approx. 0.08 mile). Replace the wave trap at Kammer 138 kV		kV network		
at South Buffalo station b3051.2 Adjust CT tap ratio at Ronceverte 138 kV Reconductor Kammer – George Washington 138 kV b3085 line (approx. 0.08 mile). Replace the wave trap at Kammer 138 kV	b3040.5	Retire Mill Run station		AEP (100%)
at South Buffalo station b3051.2 Adjust CT tap ratio at Ronceverte 138 kV Reconductor Kammer – George Washington 138 kV b3085 line (approx. 0.08 mile). Replace the wave trap at Kammer 138 kV		Install 28 8 MVAP can bank		
b3051.2 Adjust CT tap ratio at Ronceverte 138 kV Reconductor Kammer – George Washington 138 kV line (approx. 0.08 mile). Replace the wave trap at Kammer 138 kV AEP (100%) AEP (100%)	b3040.6			AEP (100%)
Ronceverte 138 kV Reconductor Kammer – George Washington 138 kV b3085 line (approx. 0.08 mile). Replace the wave trap at Kammer 138 kV				
Reconductor Kammer – George Washington 138 kV b3085 line (approx. 0.08 mile). Replace the wave trap at Kammer 138 kV Reconductor Kammer – AEP (100%)	b3051.2	•		AEP (100%)
George Washington 138 kV line (approx. 0.08 mile). Replace the wave trap at Kammer 138 kV AEP (100%)				
b3085 line (approx. 0.08 mile). Replace the wave trap at Kammer 138 kV AEP (100%)				
Replace the wave trap at Kammer 138 kV	h3085			ΔFP (100%)
Kammer 138 kV	03003			ALI (10070)
		•		
Kenilla New Lineary =		Rebuild New Liberty –		
Findlay 34 kV line Str's 1_37	b3086.1			
b3086.1 Thickey 54 kV line 5tt 5 1 57 AEP (100%)		•		AEP (100%)
ACSR conductor				
Rebuild New Liberty – North				
Baltimore 34 kV line Str's 1-	1,200,62			A FID (1000())
b3086.2 Battimore 54 k v line 5d 5 1 2 AEP (100%)	b3086.2			AEP (100%)
26/7 ACSR conductor				

Required 11	ansmission Enhancements	Annual Revenue Require	ement Responsible Customer(s)
b3086.3	Rebuild West Melrose – Whirlpool 34 kV line Str's 55–80 (1 mile), utilizing 795 26/7 ACSR conductor		AEP (100%)
b3086.4	North Findlay station: Install a 138 kV 3000A 63kA line breaker and low side 34.5 kV 2000A 40kA breaker, high side 138 kV circuit switcher on T1		AEP (100%)
b3086.5	Ebersole station: Install second 90 MVA 138/69/34 kV transformer. Install two low side (69 kV) 2000A 40kA breakers for T1 and T2		AEP (100%)
b3087.1	Construct a new greenfield station to the west (approx. 1.5 miles) of the existing Fords Branch Station in the new Kentucky Enterprise Industrial Park. This station will consist of six 3000A 40kA 138 kV breakers laid out in a ring arrangement, two 30 MVA 138/34.5 kV transformers, and two 30 MVA 138/12 kV transformers. The existing Fords Branch Station will be retired		AEP (100%)
b3087.2	Construct approximately 5 miles of new double circuit 138 kV line in order to loop the new Kewanee station into the existing Beaver Creek – Cedar Creek 138 kV circuit		AEP (100%)

Required 11	ansmission Ennancements	Annuai Revenue Requii	ement Responsible Customer(s)
1 2007 2	Remote end work will be		AED (1000/)
b3087.3	required at Cedar Creek		AEP (100%)
	Station		
	Install 28.8 MVar switching		
b3087.4	shunt at the new Fords		AEP (100%)
	Branch substation		
	Rebuild Lakin – Racine Tap		
b3095	69 kV line section (9.2 miles)		AEP (100%)
03093	to 69 kV standards, utilizing		ALI (100%)
	795 26/7 ACSR conductor		
	Install a 138 kV 3000A 40 kA		
	circuit switcher on the high		
b3099	side of the existing 138/34.5		AEP (100%)
	kV transformer No.5 at		
	Holston station		
	Replace the 138 kV MOAB		
	switcher "YY" with a new		
b3100	138 kV circuit switcher on the		AEP (100%)
	high side of Chemical		
	transformer No.6		
	Rebuild the 1/0 Cu. conductor		
	sections (approx. 1.5 miles) of		
	the Fort Robinson – Moccasin		
	Gap 69 kV line section		
b3101	(approx. 5 miles) utilizing		AED (1000/)
	556 ACSR conductor and		AEP (100%)
	upgrade existing relay trip		
	limit (WN/WE: 63 MVA, line		
	limited by remaining		
	conductor sections)		
	Replace existing 50 MVA		
	138/69 kV transformers #1		
b3102	and #2 (both 1957 vintage) at		AEP (100%)
03102	Fremont station with new 130		`
	MVA 138/69 kV transformers		

Required Tra	ansmission Enhancements	Annual Revenue Require	ement Responsible Customer(s)
	Install a 138/69 kV		
	transformer at Royerton		
	station. Install a 69 kV bus		
	with one 69 kV breaker		
b3103.1	toward Bosman station.		AEP (100%)
03103.1	Rebuild the 138 kV portion		7121 (10070)
	into a ring bus configuration		
	built for future breaker and a		
	half with four 138 kV		
	breakers		
	Rebuild the		
	Bosman/Strawboard station in		
b3103.2	the clear across the road to		AEP (100%)
03103.2	move it out of the flood plain		(100/0)
	and bring it up to 69 kV		
	standards		
	Retire 138 kV breaker L at		
b3103.3	Delaware station and re-		AEP (100%)
	purpose 138 kV breaker M		(
	for the Jay line		
	Retire all 34.5 kV equipment		
b3103.4	at Hartford City station. Re-		AEP (100%)
	purpose breaker M for the		, ,
	Bosman line 69 kV exit		
	Rebuild the 138 kV portion of		
b3103.5	Jay station as a 6 breaker,		
	breaker and a half station re-		
	using the existing breakers		
	"A", "B", and "G." Rebuild		AEP (100%)
	the 69 kV portion of this		
	station as a 6 breaker ring bus		
	re-using the 2 existing 69 kV		
	breakers. Install a new 138/69		
1	kV transformer		

Required 11	ansmission Enhancements	Annual Revenue Requiren	ient Responsible Customer(s)
	Rebuild the 69 kV Hartford		
	City – Armstrong Cork line		
b3103.6	but instead of terminating it		AEP (100%)
	into Armstrong Cork,		
	terminate it into Jay station		
b3103.7	Build a new 69 kV line from		AEP (100%)
03103.7	Armstrong Cork – Jay station		ALI (100%)
	Rebuild the 34.5 kV		
	Delaware – Bosman line as		
b3103.8	the 69 kV Royerton –		AEP (100%)
03103.6	Strawboard line. Retire the		ALI (100%)
	line section from Royerton to		
	Delaware stations		
	Perform a sag study on the		
	Polaris – Westerville 138 kV		
b3104	line (approx. 3.6 miles) to		AEP (100%)
03104	increase the summer		71L1 (10070)
	emergency rating to 310		
	MVA		
	Rebuild the Delaware – Hyatt		
	138 kV line (approx. 4.3		
b3105	miles) along with replacing		AEP (100%)
	conductors at both Hyatt and		
	Delaware substations		
	Perform a sag study (6.8		
b3106	miles of line) to increase the		
	SE rating to 310 MVA. Note		
	that results from the sag study		AEP (100%)
	could cover a wide range of		
	outcomes, from no work		
	required to a complete rebuild		
	Rebuild 5.2 miles Bethel –		
b3109	Sawmill 138 kV line		AEP (100%)
	including ADSS		

required 11	ansimission Emancements	Ailliuai Revellue Require	ement Responsible Customer(s)
	Construct a single circuit 138 kV line (approx. 3.5 miles)		
	from Amlin to Dublin using		
	1033 ACSR Curlew (296		
b3112	MVA SN), convert Dublin		AEP (100%)
	station into a ring		
	configuration, and re-		
	terminating the Britton UG		
	cable to Dublin station		
	Replace existing Mullens		
	138/46 kV 30 MVA		
	transformer No.4 and		
b3116	associated protective equipment with a new 138/46		AEP (100%)
	kV 90 MVA transformer and		
	associated protective		
	equipment		
	Expand existing Chadwick		
	station and install a second		
	138/69 kV transformer at a		
	new 138 kV bus tied into the		
	Bellefonte – Grangston 138		
b3118.1	kV circuit. The 69 kV bus		AEP (100%)
03118.1	will be reconfigured into a		ALI (100%)
	ring bus arrangement to tie		
	the new transformer into the		
	existing 69 kV via installation		
	of four 3000A 63 kA 69 kV		
	circuit breakers		
b3118.2	Perform 138 kV remote end		AEP (100%)
	work at Grangston station		
b3118.3	Perform 138 kV remote end work at Bellefonte station		AEP (100%)
	Relocate the Chadwick –		
b3118.4	Leach 69 kV circuit within		AEP (100%)
03110.4	Chadwick station		AEI (100%)
	Chadwick station		

		Timital Revenue Requirement Responsible Customer(s)
	Terminate the Bellefonte –	.== (100
b3118.5	Grangston 138 kV circuit to	AEP (100%)
	the Chadwick 138 kV bus	
	Chadwick – Tri-State #2 138	
	kV circuit will be	
	reconfigured within the	
b3118.6	station to terminate into the	AEP (100%)
	newly established 138 kV bus	
	#2 at Chadwick due to	
	construability aspects	
	Reconductor Chadwick –	
	Leach and Chadwick —	
	England Hill 69 kV lines with	
	795 ACSS conductor.	
b3118.7	Perform a LiDAR survey and	AEP (100%)
	a sag study to confirm that the	
	reconductored circuits would	
	maintain acceptable	
	clearances	
	Replace the 20 kA 69 kV	
	circuit breaker 'F' at South	
b3118.8	Neal station with a new	AEP (100%)
03110.0	3000A 40 kA 69 kV circuit	1121 (10070)
	breaker. Replace line risers	
	towards Leach station	
	Rebuild 336 ACSR portion of	
b3118.9	Leach – Miller S.S 69 kV line	AEP (100%)
03110.9	section (approx. 0.3 mile)	1121 (10070)
	with 795 ACSS conductor	
	Replace 69 kV line risers	
b3118.10	(towards Chadwick) at Leach	AEP (100%)
	station	
	Rebuild the Jay – Pennville	
	138 kV line as double circuit	
b3119.1	138/69 kV. Build a new 9.8	AEP (100%)
00117.1	mile single circuit 69 kV line	1111 (10070)
	from near Pennville station to	
	North Portland station	

Required Transmission Enhancements		Aimuai Revenue Require	ement Responsible Customer(s)
	Install three (3) 69 kV		
	breakers to create the "U"		
b3119.2	string and add a low side		AEP (100%)
	breaker on the Jay		
	transformer 2		
	Install two (2) 69 kV breakers		
b3119.3	at North Portland station to		AEP (100%)
03119.3	complete the ring and allow		ALF (100%)
	for the new line		
	At Conesville 138 kV station:		
	Remove line leads to		
	generating units, transfer		
b3129	plant AC service to existing		AED (100%)
03129	station service feeds in		AEP (100%)
	Conesville 345/138 kV yard,		
	and separate and reconfigure		
	protection schemes		
	At East Lima and Haviland		
	138 kV stations, replace line		
b3131	relays and wavetrap on the		AEP (100%)
	East Lima – Haviland 138 kV		
	facility		
	Rebuild 3.11 miles of the		
b3132	LaPorte Junction – New		AED (1000/)
03132	Buffalo 69 kV line with 795		AEP (100%)
	ACSR		
	Rebuild the Garden Creek –		
b3139	Whetstone 69 kV line		AEP (100%)
	(approx. 4 miles)		
	Rebuild the Whetstone –		
b3140	Knox Creek 69 kV line		AEP (100%)
	(approx. 3.1 miles)		` '
	Rebuild the Knox Creek –		
b3141	Coal Creek 69 kV line		AEP (100%)
	(approx. 2.9 miles)		` ′
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Required 11	ansmission Ennancements	Annuai Revenue Requii	rement Responsible Customer(s)
	Rebuild the 46 kV Bradley –		
	Scarbro line to 96 kV		
	standards using 795 ACSR to		
	achieve a minimum rate of		
b3148.1	120 MVA. Rebuild the new		AEP (100%)
	line adjacent to the existing		
	one leaving the old line in		
	service until the work is		
	completed		
	Bradley remote end station		
1-2140.2	work, replace 46 kV bus,		AED (1000/)
b3148.2	install new 12 MVAR		AEP (100%)
	capacitor bank		
	Replace the existing switch at		
b3148.3	Sun substation with a 2-way		AEP (100%)
03140.3	SCADA-controlled motor-		ALI (100%)
	operated air-breaker switch		
	Remote end work and		
b3148.4	associated equipment at		AEP (100%)
	Scarbro station		
	Retire Mt. Hope station and		
b3148.5	transfer load to existing Sun		AEP (100%)
	station		
	Rebuild the 2.3 mile Decatur		
b3149	 South Decatur 69 kV line 		AEP (100%)
	using 556 ACSR		
	Rebuild Ferguson 69/12 kV		
	station in the clear as the		
	138/12 kV Bear station and		
	connect it to an approx. 1		
b3150	mile double circuit 138 kV		AEP (100%)
	extension from the Aviation –		
	Ellison Road 138 kV line to		
	remove the load from the 69		
	kV line		

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

Required Tra	ansmission Enhancements	Annual Revenue Require	ement Responsible Customer(s)
	Rebuild Columbia station in the clear as a 138/69 kV		
	station with two (2) 138/69		
	kV transformers and 4-		
b3151.11	breaker ring buses on the high		AEP (100%)
	and low side. Station will		
	reuse 69 kV breakers "J" &		
	"K" and 138 kV breaker "D"		
	Rebuild the 13 miles of the		
b3151.12	Columbia – Richland 69 kV		AEP (100%)
03131.12	line		ALI (100%)
	Rebuild the 0.5 mile Whitley		
b3151.13	- Columbia City No.1 line as		AEP (100%)
03131.13	69 kV		71L1 (10070)
	Rebuild the 0.5 mile Whitley		
b3151.14	- Columbia City No.2 line as		AEP (100%)
0010111	69 kV		(100,0)
	Rebuild the 0.6 mile double		
	circuit section of the Rob		
b3151.15	Park – South Hicksville / Rob		AEP (100%)
	Park – Diebold Road as 69		(/
	kV		
	Construct an approx. 2.4		
	miles double circuit 138 kV		
b3160.1	extension using 1033 ACSR		AED (1000/)
03100.1	(Aluminum Conductor Steel		AEP (100%)
	Reinforced) to connect Lake		
	Head to the 138 kV network		
b3160.2	Retire the approx.2.5 miles		
	34.5 kV Niles – Simplicity		AEP (100%)
	Tap line		
b3160.3	Retire the approx.4.6 miles		AEP (100%)
	Lakehead 69 kV Tap		ALI (10070)

Required 11	ansinission Emiancements	Annual Revenue Require	ement Responsible Customer(s)
	Build new 138/69 kV drop		
	down station to feed		
	Lakehead with a 138 kV		
b3160.4	breaker, 138 kV switcher,		AEP (100%)
	138/69 kV transformer and a		
	138 kV Motor-Operated Air		
	Break		
	Rebuild the approx. 1.2 miles		
	Buchanan South 69 kV		
b3160.5	Radial Tap using 795 ACSR		AEP (100%)
	(Aluminum Conductor Steel		
	Reinforced)		
	Rebuild the approx.8.4 miles		
	69 kV Pletcher – Buchanan		
	Hydro line as the approx. 9		
b3160.6	miles Pletcher – Buchanan		AEP (100%)
	South 69 kV line using 795		
	ACSR (Aluminum Conductor		
	Steel Reinforced)		
	Install a PoP (Point-of-		
	Presence) switch at Buchanan		
b3160.7	South station with 2 line		AEP (100%)
	MOABs (Motor-Operated Air		
	Break)		

Retire approximately 38 miles of the 44 mile Clifford — Scottsville 46 kV circuit. Build new 138 kV "in and out" to two new distribution stations to serve the load formerly served by Phoenix, Shipman, Schuyler (AEP), and Rockfish stations. Construct new 138 kV lines from Joshua Falls — Riverville (approx. 10 miles) and Riverville — Gladstone (approx. 5 miles). Install required station upgrades at Joshua Falls, Riverville and Gladstone stations to accommodate the new 138 kV circuits. Rebuild Reusen — Monroe 69 kV (approx. 4 miles) Rebuild the 10.5 mile Berne — South Decatur 69 kV line using 556 ACSR Replace approx. 0.7 mile Beatty — Galloway 69 kV line with 4000 kcmil XLPE cable b3220 Install 14.4 MVAR capacitor bank at Whitewood 138 kV Upgrade circuit breaker "R1" at Tanners Creek 345 kV. Install Transient Recovery Voltage capacitor to increase the rating from 50 kA to 63 kA AEP (100%)	110 40110 011		7 Hilliaal Revenue Regun	connent res	polisiere editorrier(s)
- Scottsville 46 kV circuit. Build new 138 kV "in and out" to two new distribution stations to serve the load formerly served by Phoenix, Shipman, Schuyler (AEP), and Rockfish stations. Construct new 138 kV lines from Joshua Falls - Riverville (approx. 10 miles) and Riverville - Gladstone (approx. 5 miles). Install required station upgrades at Joshua Falls, Riverville and Gladstone stations to accommodate the new 138 kV circuits. Rebuild Reusen - Monroe 69 kV (approx. 4 miles) Rebuild the 10.5 mile Berne - South Decatur 69 kV line using 556 ACSR Replace approx. 0.7 mile Beatty - Galloway 69 kV line with 4000 kcmil XLPE cable b3220 Install 14.4 MVAR capacitor bank at Whitewood 138 kV Upgrade circuit breaker "R1" at Tanners Creek 345 kV. Install Transient Recovery Voltage capacitor to increase the rating from 50 kA to 63					
Build new 138 kV "in and out" to two new distribution stations to serve the load formerly served by Phoenix, Shipman, Schuyler (AEP), and Rockfish stations. Construct new 138 kV lines from Joshua Falls – Riverville (approx. 10 miles) and Riverville – Gladstone (approx. 5 miles). Install required station upgrades at Joshua Falls, Riverville and Gladstone stations to accommodate the new 138 kV circuits. Rebuild Reusen – Monroe 69 kV (approx. 4 miles) Rebuild the 10.5 mile Berne – South Decatur 69 kV line using 556 ACSR Replace approx. 0.7 mile b3210 Beatty – Galloway 69 kV line with 4000 kcmil XLPE cable lost 14.4 MVAR capacitor bank at Whitewood 138 kV Upgrade circuit breaker "R1" at Tanners Creek 345 kV. Install Transient Recovery Voltage capacitor to increase the rating from 50 kA to 63					
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b3208 from Joshua Falls – Riverville (approx. 10 miles) and Riverville – Gladstone (approx. 5 miles). Install required station upgrades at Joshua Falls, Riverville and Gladstone stations to accommodate the new 138 kV circuits. Rebuild Reusen – Monroe 69 kV (approx. 4 miles) Rebuild the 10.5 mile Berne – South Decatur 69 kV line using 556 ACSR Replace approx. 0.7 mile b3210 Beatty – Galloway 69 kV line with 4000 kcmil XLPE cable Install 14.4 MVAR capacitor bank at Whitewood 138 kV Upgrade circuit breaker "R1" at Tanners Creek 345 kV. Install Transient Recovery Voltage capacitor to increase the rating from 50 kA to 63					
(approx. 10 miles) and Riverville – Gladstone (approx. 5 miles). Install required station upgrades at Joshua Falls, Riverville and Gladstone stations to accommodate the new 138 kV circuits. Rebuild Reusen – Monroe 69 kV (approx. 4 miles) Rebuild the 10.5 mile Berne – South Decatur 69 kV line using 556 ACSR Replace approx. 0.7 mile b3210 Beatty – Galloway 69 kV line with 4000 kcmil XLPE cable Install 14.4 MVAR capacitor bank at Whitewood 138 kV Upgrade circuit breaker "R1" at Tanners Creek 345 kV. Install Transient Recovery Voltage capacitor to increase the rating from 50 kA to 63					
Riverville – Gladstone (approx. 5 miles). Install required station upgrades at Joshua Falls, Riverville and Gladstone stations to accommodate the new 138 kV circuits. Rebuild Reusen – Monroe 69 kV (approx. 4 miles) Rebuild the 10.5 mile Berne – South Decatur 69 kV line using 556 ACSR Replace approx. 0.7 mile b3210 Beatty – Galloway 69 kV line with 4000 kcmil XLPE cable b3220 Install 14.4 MVAR capacitor bank at Whitewood 138 kV Upgrade circuit breaker "R1" at Tanners Creek 345 kV. Install Transient Recovery Voltage capacitor to increase the rating from 50 kA to 63	b3208	from Joshua Falls – Riverville			AEP (100%)
(approx. 5 miles). Install required station upgrades at Joshua Falls, Riverville and Gladstone stations to accommodate the new 138 kV circuits. Rebuild Reusen — Monroe 69 kV (approx. 4 miles) Rebuild the 10.5 mile Berne — South Decatur 69 kV line using 556 ACSR Replace approx. 0.7 mile b3210 Beatty — Galloway 69 kV line with 4000 kcmil XLPE cable b3220 Install 14.4 MVAR capacitor bank at Whitewood 138 kV Upgrade circuit breaker "R1" at Tanners Creek 345 kV. Install Transient Recovery Voltage capacitor to increase the rating from 50 kA to 63		(approx. 10 miles) and			
required station upgrades at Joshua Falls, Riverville and Gladstone stations to accommodate the new 138 kV circuits. Rebuild Reusen – Monroe 69 kV (approx. 4 miles) Rebuild the 10.5 mile Berne – South Decatur 69 kV line using 556 ACSR Replace approx. 0.7 mile b3210 Beatty – Galloway 69 kV line with 4000 kcmil XLPE cable Install 14.4 MVAR capacitor bank at Whitewood 138 kV Upgrade circuit breaker "R1" at Tanners Creek 345 kV. Install Transient Recovery Voltage capacitor to increase the rating from 50 kA to 63		Riverville – Gladstone			
Joshua Falls, Riverville and Gladstone stations to accommodate the new 138 kV circuits. Rebuild Reusen – Monroe 69 kV (approx. 4 miles) Rebuild the 10.5 mile Berne – South Decatur 69 kV line using 556 ACSR Replace approx. 0.7 mile b3210 Beatty – Galloway 69 kV line with 4000 kcmil XLPE cable b3220 Install 14.4 MVAR capacitor bank at Whitewood 138 kV Upgrade circuit breaker "R1" at Tanners Creek 345 kV. Install Transient Recovery Voltage capacitor to increase the rating from 50 kA to 63		(approx. 5 miles). Install			
Gladstone stations to accommodate the new 138 kV circuits. Rebuild Reusen – Monroe 69 kV (approx. 4 miles) Rebuild the 10.5 mile Berne – South Decatur 69 kV line using 556 ACSR Replace approx. 0.7 mile Beatty – Galloway 69 kV line with 4000 kcmil XLPE cable Install 14.4 MVAR capacitor bank at Whitewood 138 kV Upgrade circuit breaker "R1" at Tanners Creek 345 kV. Install Transient Recovery Voltage capacitor to increase the rating from 50 kA to 63		required station upgrades at			
accommodate the new 138 kV circuits. Rebuild Reusen – Monroe 69 kV (approx. 4 miles) Rebuild the 10.5 mile Berne – South Decatur 69 kV line using 556 ACSR Replace approx. 0.7 mile Beatty – Galloway 69 kV line with 4000 kcmil XLPE cable b3220 Branch AEP (100%) Install 14.4 MVAR capacitor bank at Whitewood 138 kV Upgrade circuit breaker "R1" at Tanners Creek 345 kV. Install Transient Recovery Voltage capacitor to increase the rating from 50 kA to 63		Joshua Falls, Riverville and			
kV circuits. Rebuild Reusen – Monroe 69 kV (approx. 4 miles) Rebuild the 10.5 mile Berne – South Decatur 69 kV line using 556 ACSR Replace approx. 0.7 mile Beatty – Galloway 69 kV line with 4000 kcmil XLPE cable b3220 Install 14.4 MVAR capacitor bank at Whitewood 138 kV Upgrade circuit breaker "R1" at Tanners Creek 345 kV. Install Transient Recovery Voltage capacitor to increase the rating from 50 kA to 63		Gladstone stations to			
Monroe 69 kV (approx. 4 miles) Rebuild the 10.5 mile Berne – South Decatur 69 kV line using 556 ACSR Replace approx. 0.7 mile b3210 Beatty – Galloway 69 kV line with 4000 kcmil XLPE cable b3220 Install 14.4 MVAR capacitor bank at Whitewood 138 kV Upgrade circuit breaker "R1" at Tanners Creek 345 kV. Install Transient Recovery Voltage capacitor to increase the rating from 50 kA to 63		accommodate the new 138			
miles) Rebuild the 10.5 mile Berne – South Decatur 69 kV line using 556 ACSR Replace approx. 0.7 mile Beatty – Galloway 69 kV line with 4000 kcmil XLPE cable Install 14.4 MVAR capacitor bank at Whitewood 138 kV Upgrade circuit breaker "R1" at Tanners Creek 345 kV. Install Transient Recovery Voltage capacitor to increase the rating from 50 kA to 63		kV circuits. Rebuild Reusen –			
miles) Rebuild the 10.5 mile Berne – South Decatur 69 kV line using 556 ACSR Replace approx. 0.7 mile Beatty – Galloway 69 kV line with 4000 kcmil XLPE cable Install 14.4 MVAR capacitor bank at Whitewood 138 kV Upgrade circuit breaker "R1" at Tanners Creek 345 kV. Install Transient Recovery Voltage capacitor to increase the rating from 50 kA to 63		Monroe 69 kV (approx. 4			
b3209 South Decatur 69 kV line using 556 ACSR Replace approx. 0.7 mile Beatty – Galloway 69 kV line with 4000 kcmil XLPE cable b3220 Install 14.4 MVAR capacitor bank at Whitewood 138 kV Upgrade circuit breaker "R1" at Tanners Creek 345 kV. Install Transient Recovery Voltage capacitor to increase the rating from 50 kA to 63		miles)			
using 556 ACSR Replace approx. 0.7 mile b3210 Beatty – Galloway 69 kV line with 4000 kcmil XLPE cable b3220 Install 14.4 MVAR capacitor bank at Whitewood 138 kV Upgrade circuit breaker "R1" at Tanners Creek 345 kV. Install Transient Recovery Voltage capacitor to increase the rating from 50 kA to 63		Rebuild the 10.5 mile Berne –			
Replace approx. 0.7 mile Beatty – Galloway 69 kV line with 4000 kcmil XLPE cable Install 14.4 MVAR capacitor bank at Whitewood 138 kV Upgrade circuit breaker "R1" at Tanners Creek 345 kV. Install Transient Recovery Voltage capacitor to increase the rating from 50 kA to 63	b3209	South Decatur 69 kV line			AEP (100%)
b3210 Beatty – Galloway 69 kV line with 4000 kcmil XLPE cable b3220 Install 14.4 MVAR capacitor bank at Whitewood 138 kV Upgrade circuit breaker "R1" at Tanners Creek 345 kV. Install Transient Recovery Voltage capacitor to increase the rating from 50 kA to 63		using 556 ACSR			
with 4000 kcmil XLPE cable Install 14.4 MVAR capacitor bank at Whitewood 138 kV Upgrade circuit breaker "R1" at Tanners Creek 345 kV. Install Transient Recovery Voltage capacitor to increase the rating from 50 kA to 63		Replace approx. 0.7 mile			
b3220 Install 14.4 MVAR capacitor bank at Whitewood 138 kV Upgrade circuit breaker "R1" at Tanners Creek 345 kV. Install Transient Recovery Voltage capacitor to increase the rating from 50 kA to 63	b3210	Beatty – Galloway 69 kV line			AEP (100%)
bank at Whitewood 138 kV Upgrade circuit breaker "R1" at Tanners Creek 345 kV. Install Transient Recovery Voltage capacitor to increase the rating from 50 kA to 63		with 4000 kcmil XLPE cable			
bank at Whitewood 138 kV Upgrade circuit breaker "R1" at Tanners Creek 345 kV. Install Transient Recovery Voltage capacitor to increase the rating from 50 kA to 63	1-2220	Install 14.4 MVAR capacitor			
b3261 at Tanners Creek 345 kV. Install Transient Recovery Voltage capacitor to increase the rating from 50 kA to 63	03220	bank at Whitewood 138 kV			AEP (100%)
b3261 at Tanners Creek 345 kV. Install Transient Recovery Voltage capacitor to increase the rating from 50 kA to 63		Upgrade circuit breaker "R1"			, ,
Voltage capacitor to increase the rating from 50 kA to 63		10			
Voltage capacitor to increase the rating from 50 kA to 63	h2261	Install Transient Recovery			
the rating from 50 kA to 63	b3261	•			
		_			AEP (100%)

Required 11	ansmission Ennancements	Allitual Revenue Require	ment Responsible Customer(s)
	At West New Philadelphia		
	station, add a high side 138		
b3269	kV breaker on the 138/69 kV		
03209	Transformer #2 along with a		
	138 kV breaker on the line		
	towards Newcomerstown		AEP (100%)
	Install 1.7 miles of 795 ACSR		
	138 kV conductor along the		
	other side of Dragoon Tap		
	138 kV line, which is		
	currently double circuit tower		
	with one position open.		
	Additionally, install a second		
b3270	138/34.5 kV transformer at		
03270	Dragoon, install a high side		
	circuit switcher on the current		
	transformer at the Dragoon		
	Station, and install two (2)		
	138 kV line breakers on the		
	Dragoon – Jackson 138 kV		
	and Dragoon – Twin Branch		
	138 kV lines		AEP (100%)
	Replace Dragoon 34.5 kV		
b3270.1	breakers "B", "C", and "D"		
	with 40 kA breakers		AEP (100%)
	Install a 138 kV circuit		
	breaker at Fremont station on		
b3271	the line towards Fremont		
032/1	Center and install a 9.6		
	MVAR 69 kV capacitor bank		
	at Bloom Road station		AEP (100%)
	Install two 138 kV circuit		
h2272	switchers on the high side of		
b3272	138/34.5 kV Transformers #1		
	and #2 at Rockhill station		AEP (100%)

SCHEDULE 12 – APPENDIX A

(19) Northern Indiana Public Service Company

Required Tra	ansmission Enhancements A	Annual Revenue Requirement Responsible Customer(s)
		MISO (12.00%) / AEC (0.97%) /
		AEP (16.65%) / APS (4.94%) /
		ATSI (7.77%) / BGE (5.20%) /
		Dayton (1.85%) / DEOK (2.29%) /
		Dominion (15.20%) / DPL (1.75%)
b2971	Reconfigure Munster 345	/DL(1.43%)/EKPC(0.60%)/
02771	kV as ring bus	JCPL (2.16%) / ME (1.72%) /
		PECO (4.32%) / PENELEC
		(4.98%)/PEPCO(5.80%)/PPL
		(4.74%)/PSEG (5.08%)/RE
		(0.15%)/NEPTUNE*(0.33%)/
		ECP** (0.05%) / HTP*** (0.02%)
		MISO (10.00%) / AEC (0.93%) /
		AEP (26.02%) / APS (4.19%) /
		ATSI (5.95%) / BGE (4.38%) /
		Dayton (1.58%) / DEOK (2.30%) /
		Dominion (14.70%) / DPL (1.53%)
b2973	Reconductor Michigan	/DL(1.26%)/EKPC(0.98%)/
02)13	City - Bosserman 138 kV	JCPL (1.92%) / ME (1.39%) /
		PECO (4.19%) / PENELEC
		(4.34%)/PEPCO(5.05%)/PPL
		(4.03%)/PSEG (4.48%)/RE
		(0.12%)/NEPTUNE*(0.56%)/
		ECP** (0.08%) / HTP*** (0.02%)
		MISO (59.00%) / AEC (0.01%) /
		AEP (40.28%) / APS (0.13%) /
	Replace terminal	ATSI (0.05%) / BGE (0.08%) /
b2974	equipment at Reynolds on	Dayton (0.03%) / DPL (0.01%) /
02717	the Reynolds -	ME (0.04%) / PENELEC (0.06%) /
	Magnetation 138 kV	PPL (0.20%) / PSEG (0.03%) /
		NEPTUNE* (0.04%) / HTP***
		(0.04%)

Northern Indiana Public Service Company (cont.)

required 110		minda ite vende requirement - responsible editioner(s)
		MISO (76.00%) / AEC (0.28%) /
		AEP (4.51%) / APS (1.31%) /
		ATSI (1.91%) / BGE (1.40%) /
		Dayton (0.49%) / DEOK (0.69%) /
		Dominion (4.35%) / DPL (0.46%) /
b2975	Reconductor Roxana -	DL (0.38%)/EKPC (0.27%)/
02973	Praxair 138 kV	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%)/
		HTP*** (0.01%)
	Rebuild the Michigan	
b3142	City – Trail Creek –	MISO (10.90%) / ComEd
	Bosserman 138 kV line	(89.10%)
	(10.7 miles)	

SCHEDULE 12 – APPENDIX A

(20) Virginia Electric and Power Company

required 1	Tarishiission Elihancements Annua	ai 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%)

Required Transmission Enhancements Annual Revenue Requirement Responsible Customer(s)

Required 1	ransmission Enhancements Annual	Revenue Requirement	Responsible Customer(s)
b2368	Replace the Brambleton 230 kV breaker '209502' with 63kA breaker		Dominion (100%)
b2369	Replace the Brambleton 230 kV breaker '213702' with 63kA breaker		Dominion (100%)
b2370	Replace the Brambleton 230 kV breaker 'H302' with 63kA breaker		Dominion (100%)
b2373	Build a 2nd Loudoun - Brambleton 500 kV line within the existing ROW. The Loudoun - Brambleton 230 kV line will be relocated as an underbuild on the new 500 kV line		Load-Ratio Share Allocation: AEC (1.71%) / AEP (14.04%) / APS (5.61%) / ATSI (8.10%)
b2397	Replace the Beaumeade 230 kV breaker '2079T2116' with 63kA		Dominion (100%)
b2398	Replace the Beaumeade 230 kV breaker '2079T2130' with 63kA		Dominion (100%)
b2399	Replace the Beaumeade 230 kV breaker '208192' with 63kA		Dominion (100%)
b2400	Replace the Beaumeade 230 kV breaker '209592' with 63kA		Dominion (100%)
b2401	Replace the Beaumeade 230 kV breaker '211692' with 63kA		Dominion (100%)
b2402	Replace the Beaumeade 230 kV breaker '227T2130' with 63kA		Dominion (100%)

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

^{*}Neptune Regional Transmission System, LLC

Required T	ransmission Enhancements A	Annual Revenue Requirement	Responsible Customer(s)
b2403	Replace the Beaumeade 230 kV breaker '274T2130' with 63kA		Dominion (100%)
b2404	Replace the Beaumeade 230 kV breaker '227T2095' with 63kA		Dominion (100%)
b2405	Replace the Pleasant view 230 kV breaker '203T274' with 63kA		Dominion (100%)
b2443	Construct new underground 230 kV line from Glebe to Station C, rebuild Glebe Substation, construct 230 kV high side bus at Station C with option to install 800 MVA PAR		Dominion (97.11%) / ME (0.18%) / PEPCO (2.71%)
b2443.1	Replace the Idylwood 230 kV breaker '203512' with 50kA		Dominion (100%)
b2443.2	Replace the Ox 230 kV breaker '206342' with 63kA breaker		Dominion (100%)
b2443.3	Glebe – Station C PAR		DFAX Allocation: Dominion (22.57%) / PEPCO (77.43%)
b2443.6	Install a second 500/230 kV transformer at Possum Point substation and replace bus work and associated equipment as needed		Dominion (100%)
b2443.7	Replace 19 63kA 230 kV breakers with 19 80kA 230 kV breakers		Dominion (100%)
b2457	Replace 24 115 kV wood h-frames with 230 kV Dominion pole H-frame structures on the Clubhouse – Purdy 115 kV line		Dominion (100%)
b2458.1	Replace 12 wood H-frame structures with steel H- frame structures and install shunts on all conductor splices on Carolina – Woodland 115 kV		Dominion (100%)

Required T	ransmission Enhancements A	Annual Revenue Requirement	Responsible Customer(s)
b2458.2	Upgrade all line switches and substation components at Carolina 115 kV to meet or exceed new conductor rating of 174 MVA		Dominion (100%)
b2458.3	Replace 14 wood H-frame structures on Carolina – Woodland 115 kV		Dominion (100%)
b2458.4	Replace 2.5 miles of static wire on Carolina – Woodland 115 kV		Dominion (100%)
b2458.5	Replace 4.5 miles of conductor between Carolina 115 kV and Jackson DP 115 kV with min. 300 MVA summer STE rating; Replace 8 wood H-frame structures located between Carolina and Jackson DP with steel H-frames		Dominion (100%)
b2460.1	Replace Hanover 230 kV substation line switches with 3000A switches		Dominion (100%)
b2460.2	Replace wave traps at Four River 230 kV and Elmont 230 kV substations with 3000A wave traps		Dominion (100%)
b2461	Wreck and rebuild existing Remington CT – Warrenton 230 kV (approx. 12 miles) as a double-circuit 230 kV line		Dominion (100%)
b2461.1	Construct a new 230 kV line approximately 6 miles from NOVEC's Wheeler Substation a new 230 kV switching station in Vint Hill area		Dominion (100%)
b2461.2	Convert NOVEC's Gainesville – Wheeler line (approximately 6 miles) to 230 kV		Dominion (100%)
b2461.3	Complete a Vint Hill – Wheeler – Loudoun 230 kV networked line		Dominion (100%)

Required 1	ransmission Enhancements Annua	al Revenue Requirement	Responsible Customer(s)
			Load-Ratio Share Allocation:
			AEC (1.71%) / AEP (14.04%)
			/ APS (5.61%) / ATSI (8.10%)
			/ BGE (4.36%) / ComEd
			(13.14%) / Dayton (2.15%) /
	Replace Midlothian 500 kV		DEOK (3.23%) / DL (1.73%) /
	breaker 563T576 and motor operated switches with 3		DPL (2.65%) / Dominion
1.0.471	breaker 500 kV ring bus.		(13.03%) / EKPC (1.77%) /
b2471	Terminate Lines # 563 Carson		JCPL (3.84%) / ME (1.93%) /
	– Midlothian, #576		NEPTUNE* (0.45%) / OVEC
	Midlothian –North Anna, Transformer #2 in new ring		(0.07%) / PECO (5.29%) /
	Transformer #2 in new ring		PENELEC (1.89%) / PEPCO
			(3.82%) / PPL (4.72%) / PSEG
			(6.21%) / RE (0.26%)
			DFAX Allocation:
			Dominion (100%)
	Rebuild 115 kV Line #32		
	from Halifax-South Boston (6		
b2504	miles) for min. of 240 MVA and transfer Welco tap to Line		
02304	#32. Moving Welco to Line #32 requires disabling auto-		Dominion (100%)
	sectionalizing scheme		
	Install structures in river to		
b2505	remove the 115 kV #65 line (Whitestone-Harmony Village		
02303	115 kV) from bridge and		Dominion (100%)
	improve reliability of the line		
	Replace the Loudoun 500 kV		
b2542	'H2T502' breaker with a		Dominion (100%)
	50kA breaker Replace the Loudoun 500 kV		,
b2543	'H2T584' breaker with a		
023 13	50kA breaker		Dominion (100%)
	Reconductor wave trap at		
b2565	Carver Substation with a		Dominion (100%)
	2000A wave trap Reconductor 1.14 miles of		(200,0)
	existing line between ACCA		
b2566	and Hermitage and upgrade		Dominion (100%)
	associated terminal equipment		(/

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

Required 1		inual 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%)

Required 1		ual Revenue Requirement	Responsible Customer(s)
	Rebuild 115 kV Line #82 Everetts – Voice of America		
b2628	(20.8 miles) to current standards with a summer		Dominion (100%)
	emergency rating of 261		
	MVA at 115 kV Rebuild the 115 kV Lines		
	#27 and #67 lines from		
	Greenwich 115 kV to Burton		
b2629	115 kV Structure 27/280 to current standard with a		Dominion (100%)
	summer emergency rating of		
	262 MVA at 115 kV		
	Install circuit switchers on Gravel Neck Power Station		
1-2620	GSU units #4 and #5. Install		Danisias (1000/)
b2630	two 230 kV CCVT's on		Dominion (100%)
	Lines #2407 and #2408 for loss of source sensing		
	Install three 230 kV bus		
	breakers and 230 kV, 100		
	MVAR Variable Shunt Reactor at Dahlgren to		
b2636	provide line protection		Dominion (100%)
	during maintenance, remove		
	the operational hazard and provide voltage reduction		
	during light load conditions		
	Rebuild Boydton Plank Rd – Kerr Dam 115 kV Line #38		
1.0647	(8.3 miles) to current		D :: (1000/)
b2647	standards with summer		Dominion (100%)
	emergency rating of 353 MVA at 115 kV.		
	Rebuild Carolina – Kerr		
1.0640	Dam 115 kV Line #90 (38.7		D :: (1000()
b2648	miles) to current standards with summer emergency		Dominion (100%)
	rating of 353 MVA 115 kV.		
	Rebuild Clubhouse –		
	Carolina 115 kV Line #130 (17.8 miles) to current		
b2649	standards with summer		Dominion (100%)
	emergency rating of 353		
	MVA at 115 kV.		

Required 1	ransmission Enhancements Annu	iai 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%)

Required 11		iai Revenue Requirement	Responsible Customer(s)
b2651	Rebuild Buggs Island – Plywood 115 kV Line #127 (25.8 miles) to current standards with summer emergency rating of 353 MVA at 115 kV. The line should be rebuilt for 230 kV and operated at 115 kV.		Dominion (100%)
b2652	Rebuild Greatbridge – Hickory 115 kV Line #16 and Greatbridge – Chesapeake E.C. to current standard with summer emergency rating of 353 MVA at 115 kV.		Dominion (100%)
b2653.1	Build 20 mile 115 kV line from Pantego to Trowbridge with summer emergency rating of 353 MVA.		Dominion (100%)
b2653.2	Install 115 kV four-breaker ring bus at Pantego		Dominion (100%)
b2653.3	Install 115 kV breaker at Trowbridge		Dominion (100%)
b2654.1	Build 15 mile 115 kV line from Scotland Neck to S Justice Branch with summer emergency rating of 353 MVA. New line will be routed to allow HEMC to convert Dawson's Crossroads RP from 34.5 kV to 115 kV.		Dominion (100%)
b2654.2	Install 115 kV three-breaker ring bus at S Justice Branch		Dominion (100%)
b2654.3	Install 115 kV breaker at Scotland Neck		Dominion (100%)
b2654.3	Install a 2nd 224 MVA 230/115 kV transformer at Hathaway		Dominion (100%)

Required Tra	ansmission Enhancements Annu	ual Revenue Requirement	Responsible Customer(s)
			Load-Ratio Share Allocation:
			AEC (1.71%) / AEP (14.04%)
			/ APS (5.61%) / ATSI (8.10%)
			/ BGE (4.36%) / ComEd
			(13.14%) / Dayton (2.15%) /
			DEOK (3.23%) / DL (1.73%) /
			DPL (2.65%) / Dominion
			(13.03%) / EKPC (1.77%) /
b2665	Rebuild the Cunningham –		JCPL (3.84%) / ME (1.93%) /
	Dooms 500 kV line		NEPTUNE* (0.45%) / OVEC
			` '
			(0.07%) / PECO (5.29%) /
			PENELEC (1.89%) / PEPCO
			(3.82%) / PPL (4.72%) / PSEG
			(6.21%) / RE (0.26%)
			DFAX Allocation:
			Dominion (100%)
b2686	Pratts Area Improvement		Dominion (100%)
	Build a 230 kV line from		
L2696 1	Remington Substation to		Daminian (1000/)
b2686.1	Gordonsville Substation		Dominion (100%)
	utilizing existing ROW		
1.0000.0	Install a 3rd 230/115 kV		D :: (1000/)
b2686.2	transformer at Gordonsville Substation		Dominion (100%)
	Upgrade Line 2088		
1-2606.2	between Gordonsville		D(1000/)
b2686.3	Substation and Louisa CT		Dominion (100%)
	Station		
	Replace the Remington CT		
b2686.4	230 kV breaker "2114T2155" with a 63 kA		Dominion (100%)
	breaker		` ,
	Upgrading sections of the		
b2686.11	Gordonsville – Somerset		Dominion (100%)
	115 kV circuit		` ,
1000010	Upgrading sections of the		D
b2686.12	Somerset – Doubleday 115		Dominion (100%)
	kV circuit Upgrading sections of the		
b2686.13	Orange – Somerset 115 kV		Dominion (100%)
02000.13	circuit		2011111011 (10070)
	Upgrading sections of the		
b2686.14	Mitchell – Mt. Run 115 kV		Dominion (100%)
	circuit		

^{*}Neptune Regional Transmission System, LLC

Required 11	ansimission Emiancements	Annual Revenue Requirement Responsible Customer(s)	
b2717.1	De-energize Davis – Rosslyn #179 and #180 69 kV lines		Dominion (100%)
b2717.2	Remove splicing and stop joints in manholes		Dominion (100%)
b2717.3	Evacuate and dispose of insulating fluid from various reservoirs and cables		Dominion (100%)
b2717.4	Remove all cable along the approx. 2.5 mile route, swab and cap-off conduits for future use, leave existing communication fiber in place		Dominion (100%)
b2719.1	Expand Perth substation and add a 115 kV four breaker ring		Dominion (100%)
b2719.2	Extend the Hickory Grove DP tap 0.28 miles to Perth and terminate it at Perth		Dominion (100%)
b2719.3	Split Line #31 at Perth and terminate it into the new ring bus with 2 breakers separating each of the line terminals to prevent a breaker failure from taking out both 115 kV lines		Dominion (100%)
b2720	Replace the Loudoun 500 kV 'H1T569' breakers with 50kA breaker		Dominion (100%)
b2729	Optimal Capacitors Configuration: New 175 MVAR capacitor at Brambleton, new 175 MVAR capacitor at Ashburn, new 300 MVAR capacitor at Shelhorm, new 150 MVAR capacitor at Liberty		AEC (1.96%) / BGE (14.37%) / Dominion (35.11%) / DPL (3.76%) / ECP (0.29%) / HTP (0.34%) / JCPL (3.31%) / ME (2.51%) / Neptune (0.63%) / PECO (6.26%) / PEPCO (20.23%) / PPL (3.94%) / PSEG (7.29%)

Required 1ra	ansmission Ennancements Annua	Revenue Requirement	Responsible Customer(s)
			Load-Ratio Share Allocation:
			AEC (1.71%) / AEP (14.04%)
			/ APS (5.61%) / ATSI (8.10%)
			/ BGE (4.36%) / ComEd
			(13.14%) / Dayton (2.15%) /
			DEOK (3.23%) / DL (1.73%) /
			DPL (2.65%) / Dominion
1-2744	Rebuild the Carson – Rogers		(13.03%) / EKPC (1.77%) /
b2744	Rd 500 kV circuit		JCPL (3.84%) / ME (1.93%) /
			NEPTUNE* (0.45%) / OVEC
			(0.07%) / PECO (5.29%) /
			PENELEC (1.89%) / PEPCO
			(3.82%) / PPL (4.72%) / PSEG
			(6.21%) / RE (0.26%)
			DFAX Allocation:
			Dominion (100%)
	Rebuild 21.32 miles of		
b2745	existing line between Chesterfield – Lakeside 230 kV		Dominion (100%)
			(1 1 1)
	Rebuild Line #137 Ridge Rd		
b2746.1	– Kerr Dam 115 kV, 8.0		Dominion (100%)
02/40.1	miles, for 346 MVA summer		Dominion (100%)
	emergency rating Rebuild Line #1009 Ridge Rd		
	- Chase City 115 kV, 9.5		
b2746.2	miles, for 346 MVA summer		Dominion (100%)
	emergency rating		
	Install a second 4.8 MVAR		
b2746.3	capacitor bank on the 13.8 kV bus of each transformer at		Dominion (100%)
	Ridge Rd		` ,
	Install a Motor Operated		
	Switch and SCADA control		
b2747	between Dominion's		Dominion (100%)
	Gordonsville 115 kV bus and		
	FirstEnergy's 115 kV line		

Required Ir	ansmission Enhancements Annua	Revenue Requirement	Responsible Customer(s)
b2757	Install a +/-125 MVAr Statcom at Colington 230 kV		Dominion (100%)
b2758	Rebuild Line #549 Dooms – Valley 500kV		Load-Ratio Share Allocation: AEC (1.71%) / AEP (14.04%) / APS (5.61%) / ATSI (8.10%)
			DFAX Allocation: Dominion (100%)
b2759	Rebuild Line #550 Mt. Storm – Valley 500kV		Load-Ratio Share Allocation: AEC (1.71%) / AEP (14.04%) / APS (5.61%) / ATSI (8.10%)
			(1.04%) / EKPC (10.90%)

Required 11		Revenue Requirement	Responsible Customer(s)
b2800	The 7 mile section from Dozier to Thompsons Corner of line #120 will be rebuilt to current standards using 768.2 ACSS conductor with a summer emergency rating of 346 MVA at 115 kV. Line is proposed to be rebuilt on single circuit steel monopole structure		Dominion (100%)
b2801	Lines #76 and #79 will be rebuilt to current standard using 768.2 ACSS conductor with a summer emergency rating of 346 MVA at 115 kV. Proposed structure for rebuild is double circuit steel monopole structure		Dominion (100%)
b2802	Rebuild Line #171 from Chase City – Boydton Plank Road tap by removing end- of-life facilities and installing 9.4 miles of new conductor. The conductor used will be at current standards with a summer emergency rating of 393 MVA at 115kV		Dominion (100%)
b2815	Build a new Pinewood 115kV switching station at the tap serving North Doswell DP with a 115kV four breaker ring bus		Dominion (100%)
b2842	Update the nameplate for Mount Storm 500 kV "57272" to be 50kA breaker		Dominion (100%)
b2843	Replace the Mount Storm 500 kV "G2TY" with 50kA breaker		Dominion (100%)
b2844	Replace the Mount Storm 500 kV "G2TZ" with 50kA breaker		Dominion (100%)

Required 11	ansmission 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%)

Required 11		Revenue Requirement	Responsible Customer(s)
b2922	Rebuild 8 of 11 miles of 230 kV lines #211 and #228 to current standard with a summer emergency rating of 1046 MVA for rebuilt section. Proposed conductor is 2-636 ACSR		Dominion (100%)
b2928	Rebuild four structures of 500 kV line #567 from Chickahominy to Surry using galvanized steel and replace the river crossing conductor with 3-1534 ACSR. This will increase the line #567 line rating from 1954 MVA to 2600 MVA		Load-Ratio Share Allocation: AEC (1.71%) / AEP (14.04%) / APS (5.61%) / ATSI (8.10%)
	D 1 '11 220 1 X 1'		Dominion (100%)
b2929	Rebuild 230 kV line #2144 from Winfall to Swamp (4.3 miles) to current standards with a standard conductor (bundled 636 ACSR) having a summer emergency rating of 1047 MVA at 230 kV		Dominion (100%)
b2960	Replace fixed series capacitors on 500 kV Line #547 at Lexington and on 500 kV Line #548 at Valley		See sub-IDs for cost allocations

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

DEOK (5.63%) / Dominion (91.06%) / EKPC (3.31%)

Required Tra	ansmission Enhancements Annua	Revenue Requirement	Responsible Customer(s)
			Load-Ratio Share Allocation:
			AEC (1.71%) / AEP (14.04%)
			/ APS (5.61%) / ATSI (8.10%)
			/ BGE (4.36%) / ComEd
			(13.14%) / Dayton (2.15%) /
			DEOK (3.23%) / DL (1.73%) /
			DPL (2.65%) / Dominion
	Replace fixed series		(13.03%) / EKPC (1.77%) /
b2960.2	capacitors on 500 kV Line		JCPL (3.84%) / ME (1.93%) /
	#548 at Valley		NEPTUNE* (0.45%) / OVEC
			(0.07%) / PECO (5.29%) /
			PENELEC (1.89%) / PEPCO
			(3.82%) / PPL (4.72%) / PSEG
			(6.21%) / RE (0.26%)
			DFAX Allocation:
			DEOK (17.57%) / Dominion
			(74.24%) / EKPC (8.19%)
	Rebuild approximately 3		
b2961	miles of Line #205 & Line		Dominion (100%)
02701	#2003 from Chesterfield to Locks & Poe respectively		Dominion (10070)
	Split Line #227 (Brambleton		
1.20.62	- Beaumeade 230 kV) and		D :: (1000()
b2962	terminate into existing		Dominion (100%)
	Belmont substation		
1.20.62.4	Replace the Beaumeade 230		5 (1000()
b2962.1	kV breaker "274T2081" with 63kA breaker		Dominion (100%)
	Replace the NIVO 230 kV		
b2962.2	breaker "2116T2130" with		Dominion (100%)
	63kA breaker		, ,
	Reconductor the Woodbridge		
	to Occoquan 230 kV line segment of Line #2001 with		
b2963	1047 MVA conductor and		Dominion (100%)
	replace line terminal		Dominion (10070)
	equipment at Possum Point,		
	Woodbridge, and Occoquan		

Required 11	ransmission Ennancements Ann	uai Revenue Requirement	Responsible Customer(s)
			Load-Ratio Share Allocation:
			AEC (1.71%) / AEP (14.04%) /
			APS (5.61%) / ATSI (8.10%) /
			BGE (4.36%) / ComEd
			(13.14%) / Dayton (2.15%) /
	Install 2-125 MVAR		DEOK (3.23%) / DL (1.73%) /
	STATCOMs at Rawlings		DPL (2.65%) / Dominion
b2978	and 1-125 MVAR		(13.03%) / EKPC (1.77%) /
02978	STATCOM at Clover 500		JCPL (3.84%) / ME (1.93%) /
	kV substations		NEPTUNE* (0.45%) / OVEC
	K v substations		(0.07%) / PECO (5.29%) /
			PENELEC (1.89%) / PEPCO
			(3.82%) / PPL (4.72%) / PSEG
			(6.21%) / RE (0.26%)
			DFAX Allocation:
			Dominion (100%)
	Rebuild 115 kV Line #43		
	between Staunton and		
b2980	Harrisonburg (22.8 miles)		Dominion (100%)
02700	to current standards with a		Dominion (100%)
	summer emergency rating		
	of 261 MVA at 115 kV		
	Rebuild 115 kV Line #29		
	segment between		
	Fredericksburg and Aquia		
	Harbor to current 230 kV		
	standards (operating at 115		
b2981	kV) utilizing steel H-frame		Dominion (100%)
	structures with 2-636		
	ACSR to provide a normal		
	continuous summer rating		
	of 524 MVA at 115 kV		
	(1047 MVA at 230 kV)		

^{*}Neptune Regional Transmission System, LLC

Required 113		Revenue Requirement	Responsible Customer(s)
b2989	Install a second 230/115 kV Transformer (224 MVA) approximately 1 mile north of Bremo and tie 230 kV Line #2028 (Bremo – Charlottesville) and 115 kV Line #91 (Bremo - Sherwood) together. A three breaker 230 kV ring bus will split Line #2028 into two lines and Line #91 will also be split into two lines with a new three breaker 115 kV ring bus. Install a temporary 230/115 kV transformer at Bremo substation for the interim until the new substation is complete		Dominion (100%)
b2990	Chesterfield to Basin 230 kV line – Replace 0.14 miles of 1109 ACAR with a conductor which will increase the line rating to approximately 706 MVA		Dominion (100%)
b2991	Chaparral to Locks 230 kV line – Replace breaker lead		Dominion (100%)
b2994	Acquire land and build a new switching station (Skippers) at the tap serving Brink DP with a 115 kV four breaker ring to split Line #130 and terminate the end points		Dominion (100%)
b3018	Rebuild Line #49 between New Road and Middleburg substations with single circuit steel structures to current 115 kV standards with a minimum summer emergency rating of 261 MVA		Dominion (100%)

Required 118	ansmission Enhancements Annua	Revenue Requirement	Responsible Customer(s)
			Load-Ratio Share Allocation:
			AEC (1.71%) / AEP (14.04%)
			/ APS (5.61%) / ATSI (8.10%)
			/ BGE (4.36%) / ComEd
			(13.14%) / Dayton (2.15%) /
			DEOK (3.23%) / DL (1.73%) /
			DPL (2.65%) / Dominion
	Rebuild 500 kV Line #552		(13.03%) / EKPC (1.77%) /
b3019	Bristers to Chancellor – 21.6		JCPL (3.84%) / ME (1.93%) /
	miles long		NEPTUNE* (0.45%) / OVEC
			(0.07%) / PECO (5.29%) /
			PENELEC (1.89%) / PEPCO
			(3.82%) / PPL (4.72%) / PSEG
			(6.21%) / RE (0.26%)
			DFAX Allocation:
			Dominion (89.20%) / PEPCO
			(10.80%)
1 2010 1	Update the nameplate for		D :: (1000()
b3019.1	Morrisville 500 kV breaker "H1T594" to be 50kA		Dominion (100%)
	Update the nameplate for		
b3019.2	Morrisville 500 kV breaker		Dominion (100%)
, , , , , , , , , , , , , , , , , , ,	"H1T545" to be 50kA		

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

Required 112	ansmission Ennancements – Annual	Revenue Requirement	Responsible Customer(s)
b3027.1	Add a 2nd 500/230 kV 840 MVA transformer at Dominion's Ladysmith substation		Dominion (100%)
b3027.2	Reconductor 230 kV Line #2089 between Ladysmith and Ladysmith CT substations to increase the line rating from 1047 MVA to 1225 MVA		Dominion (100%)
b3027.3	Replace the Ladysmith 500 kV breaker "H1T581" with 50kA breaker		Dominion (100%)
b3027.4	Update the nameplate for Ladysmith 500 kV breaker "H1T575" to be 50kA breaker		Dominion (100%)
b3027.5	Update the nameplate for Ladysmith 500 kV breaker "568T574" (will be renumbered as "H2T568") to be 50kA breaker		Dominion (100%)
b3055	Install spare 230/69 kV transformer at Davis substation		Dominion (100%)
b3056	Partial rebuild 230 kV Line #2113 Waller to Lightfoot		Dominion (100%)
b3057	Rebuild 230 kV Lines #2154 and #19 Waller to Skiffes Creek		Dominion (100%)
b3058	Partial rebuild of 230 kV Lines #265, #200 and #2051		Dominion (100%)
b3059	Rebuild 230 kV Line #2173 Loudoun to Elklick		Dominion (100%)

Required Tra		l Revenue Requirement	Responsible Customer(s)
	Rebuild 4.6 mile Elklick – Bull Run 230 kV Line #295 and the portion (3.85 miles)		
b3060	of the Clifton – Walney 230 kV Line #265 which shares		Dominion (100%)
	structures with Line #295		
	Rebuild 4.75 mile section of		
1.0000	Line #26 between Lexington		5 (1000)
b3088	and Rockbridge with a		Dominion (100%)
	minimum summer emergency		
	rating of 261 MVA		
	Rebuild 230 kV Line #224 between Lanexa and		
	Northern Neck utilizing		
	double circuit structures to		
	current 230 kV standards.		
b3089	Only one circuit is to be		Dominion (100%)
	installed on the structures		
	with this project with a		
	minimum summer emergency		
	rating of 1047 MVA		
	Convert the overhead portion		
	(approx. 1500 feet) of 230 kV		
b3090	Lines #248 & #2023 to		Dominion (100%)
	underground and convert		(,
	Glebe substation to gas insulated substation		
	Rebuild 230 kV line No.2063		
	(Clifton – Ox) and part of 230		
	kV line No.2164 (Clifton –		
	Keene Mill) with double		
b3096	circuit steel structures using		Dominion (100%)
03070	double circuit conductor at		Dominion (100%)
	current 230 kV northern		
	Virginia standards with a		
	minimum rating of 1200 MVA		
	Rebuild 4 miles of 115 kV		
	Line #86 between		
1-2007	Chesterfield and Centralia to		D(1000/)
b3097	current standards with a		Dominion (100%)
	minimum summer emergency		
	rating of 393 MVA		
	Rebuild 9.8 miles of 115 kV		
	Line #141 between Balcony Falls and Skimmer and 3.8		
b3098	miles of 115 kV Line #28		
	between Balcony Falls and		Dominion (100%)
	Cushaw to current standards		
	with a minimum rating of 261		
	MVA		

Required 11	ansmission Enhancements Annual F	Revenue Requirement	Responsible Customer(s)
b3098.1	Rebuild Balcony Falls 115 kV substation		Dominion (100%)
b3110.1	Rebuild Line #2008 between Loudoun to Dulles Junction using single circuit conductor at current 230 kV northern Virginia standards with minimum summer ratings of 1200 MVA. Cut and loop Line #265 (Clifton – Sully) into Bull Run substation. Add three (3) 230 kV breakers at Bull Run to accommodate the new line and upgrade the substation		Dominion (100%)
b3110.2	Replace the Bull Run 230 kV breakers "200T244" and "200T295" with 50 kA breakers		Dominion (100%)
b3110.3	Replace the Clifton 230 kV breakers "201182" and "XT2011" with 63 kA breakers		Dominion (100%)
b3113	Rebuild approximately 1 mile of 115 kV Lines #72 and #53 to current standards with a minimum summer emergency rating of 393 MVA. The resulting summer emergency rating of Line #72 segment from Brown Boveri to Bellwood is 180 MVA. There is no change to Line #53 ratings		Dominion (100%)
b3114	Rebuild the 18.6 mile section of 115 kV Line #81 which includes 1.7 miles of double circuit Line #81 and 230 kV Line #2056. This segment of Line #81 will be rebuilt to current standards with a minimum rating of 261 MVA. Line #2056 rating will not change		Dominion (100%)
b3121	Rebuild Clubhouse – Lakeview 230 kV Line #254 with single-circuit wood pole equivalent structures at the current 230 kV standard with a minimum rating of 1047 MVA		Dominion (100%)

Required 11		Revenue Requirement	Responsible Customer(s)
b3122	Rebuild Hathaway – Rocky Mount (Duke Energy Progress) 230 kV Line #2181 and Line #2058 with double circuit steel structures using double circuit conductor at current 230 kV standards with a minimum rating of 1047 MVA		Dominion (100%)
b3161.1	Split Chesterfield-Plaza 115 kV Line No. 72 by rebuilding the Brown Boveri tap line as double circuit loop in-and-out of the Brown Boveri Breaker station		Dominion (100%)
b3161.2	Install a 115 kV breaker at the Brown Boveri Breaker station. Site expansion is required to accommodate the new layout		Dominion (100%)
b3162	Acquire land and build a new 230 kV switching station (Stevensburg) with a 224 MVA, 230/115 kV transformer. Gordonsville-Remington 230 kV Line No. 2199 will be cut and connected to the new station. Remington-Mt. Run 115 kV Line No.70 and Mt. Run-Oak Green 115 kV Line No. 2 will also be cut and connected to the new station		Dominion (100%)
b3211	Rebuild the 1.3 mile section of 500 kV Line No. 569 (Loudoun – Morrisville) with single-circuit 500 kV structures at the current 500 kV standard. This will increase the rating of the line to 3424 MVA		Dominion (100%)
b3213	Install 2nd Chickahominy 500/230 kV transformer		Dominion (100%)

Required Tra		Revenue Requirement	Responsible Customer(s)
b3223.1	Install a second 230 kV circuit with a minimum summer emergency rating of 1047 MVA between Lanexa and Northern Next substations. The second circuit will utilize the vacant arms on the double-circuit structures that are being installed on Line #224 (Lanexa – Northern Next) as part of the End-of-Life rebuild project (b3089)		Dominion (100%)
b3223.2	Expand the Northern Neck terminal from a 230 kV, 4- breaker ring bus to a 6- breaker ring bus		Dominion (100%)
b3223.3	Expand the Lanexa terminal from a 6-breaker ring bus to a breaker-and-a-half arrangement		Dominion (100%)
b3247	Replace 13 towers with galvanized steel towers on Doubs – Goose Creek 500 kV. Reconductor 3 mile section with three (3) 1351.5 ACSR 45/7. Upgrade line terminal equipment at Goose Creek substation to support the 500 kV line rebuild		Load-Ratio Share Allocation: AEC (1.71%) / AEP (14.04%) / APS (5.61%) / ATSI (8.10%)
			Dominion (100%)