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AGREEMENT ON OPERATING AND BUSINESS PRACTICES TO IMPLEMENT GENERATION TRANSFER PATHWAY

This Agreement on Operating and Business Practices to Implement Generation Transfer Pathway (“Agreement”) is entered into this __day of __, 2003, between American Electric Power Service Corporation, as agent for, and on behalf of, the operating companies of the American Electric Power System (“AEP”), and PJM Interconnection, L.L.C. (“PJM”), each referred to herein as a “Party” and collectively as the Parties.

WHEREAS, AEP is a multistate electric utility holding company system which, among other things, owns and operates electric transmission facilities, and provides open-access transmission service pursuant to a tariff filed with the Federal Energy Regulatory Commission; (“FERC”) and

WHEREAS, PJM is a regional transmission organization (“RTO”) approved by the FERC to exercise functional control over other entities’ transmission systems and to administer electric markets through the security constrained economic dispatch of the electric power supply resources of its members to serve the loads of its members; and

WHEREAS, Commonwealth Edison Company (“ComEd”) is a public utility which owns transmission facilities, and intends, during the term hereof, to be a transmission-owning member of PJM, which entails the transfer of functional control of those facilities to PJM and integration of the loads and resources in ComEd’s service territory into PJM’s economic dispatch; and

WHEREAS, to facilitate the integration of ComEd loads and resources into PJM’s economic dispatch, PJM has proposed a generation transfer pathway across AEP’s transmission facilities using Firm Transmission Service allocated to PJM’s exclusive use by Transmission Customers that have reserved such service with AEP; and

WHEREAS, AEP’s open access transmission tariff permits an AEP Transmission Customer to assign all or a portion of its rights under its Transmission Service agreement to another entity; and

WHEREAS, the Parties have agreed to certain operating and business practices to facilitate implementation of the transfer of Transmission Service rights to PJM and PJM’s use of such service, as more fully described in this Agreement

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NOW, THEREFORE, in consideration of the mutual promises herein and other good and valuable consideration, the Parties agree as follows:

ARTICLE ONE – DEFINITIONS

- 1.1 AEPSC – American Electric Power Service Corporation, as agent for the AEP Operating Companies.
- 1.2 AEP Control Area – The Control Area operated by AEP in ECAR.
- 1.3 AEP Loss Rate – The rate at which real power losses are charged to Transmission Customers under the AEP OATT. The current rate is 3.3%.
- 1.4 AEP’s OATT -- AEP’s open access transmission tariff, Operating Companies of the American Electric Power System FERC Electric Tariff, Third Revised Volume No. 6, as it currently exists or is hereafter amended.
- 1.5 AEP Operating Companies – Appalachian Power Company, Columbus Southern Power Company, Indiana Michigan Power Company, Kentucky Power Company, Kingsport Power Company, Ohio Power Company, Public Service Company of Oklahoma, Southwestern Electric Power Company, Texas Central Company, Texas North Company, and Wheeling Power Company.
- 1.6 ComEd – as defined in the Recitals. The registered NERC e-tag acronym for ComEd is CE.
- 1.7 ComEd Control Area– The Control Area presently operated by ComEd, and to be operated by PJM, as Northern Illinois Control Area, following the integration of ComEd's loads and resources into PJM's economic dispatch, located to the west of the AEP Control Area.
- 1.8 Confirmed Reservation – A confirmed transmission service reservation under AEP’s OATT.
- 1.9 Control Area – An electric power system or combination of electric power systems to which a common automatic generation control scheme is applied
- 1.10 Dynamic Scheduling – A form of scheduling in increments of less than one hour. For purposes of this Agreement, unless the context otherwise requires, Dynamic Scheduling shall refer to the dynamic scheduling of transmission transactions on the AEP System through the monitoring of a real time value to modify the scheduled interchange..
- 1.11 ECAR – The East Central Area Reliability Council, or successor.
- 1.12 EMS – Energy Management System.
- 1.13 E-tags-- Electronic tags used to identify transactions.
- 1.14 FERC – as defined in the Recitals.
- 1.15 Firm Service - Firm Transmission Service under AEP’s OATT.
- 1.16 HE – Hour Ending.

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- 1.17 Good Utility Practice – Any of the practices, methods and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method or act to the exclusion of all others, but rather to be acceptable practices, methods, or acts generally accepted in the region.
- 1.18 MAIN – The Mid-American Interconnected Network, or its successor.
- 1.19 NERC -- The North American Electric Reliability Council, or successor..
- 1.20 Non-Firm Service – Non-Firm Transmission Service Under AEP’s OATT
- 1.21 OASIS -- An Open Access Same-Time Information System as defined in FERC’s regulations at 18 C.F.R. Part 37. Currently, PJM, AEP and ComEd each operate an OASIS.
- 1.22 Pathway – A Firm Service Reservation or a combination of Firm Service Reservations held by Transmission Customers on AEP’s transmission system and used, under the procedures specified in this Agreement, to allow ComEd’s electric facilities to be included in PJM’s centralized economic dispatch. Reservations used for the pathway must have a POR / POD combination of CE-PJM or PJM-CE. The source and sink reserved on the pathway must be within the PJM footprint.
- 1.23 PJM OATT – PJM’s open access transmission tariff, PJM Interconnection L.L.C., FERC Electric Tariff Sixth Revised Volume No. 1. As it exists or is hereafter amended.
- 1.24 POD - Point of Delivery, as defined in AEP’s OATT.
- 1.25 Reliability Coordinator – An entity responsible, among other things, for implementation of TLRs.
- 1.26 POR – Point of Receipt, as defined in AEP’s OATT.
- 1.27 Reservation – A transmission service reservation under AEP’s OATT.
- 1.28 RTO – as defined in the Recitals.
- 1.29 Scheduling – The practice of arranging interchange transactions as used in the electric utility industry and governed by various standards, practices and protocols of reliability councils and other entities, including, but not limited to, the Policies and Appendices in NERC’s Operating Manual.
- 1.30 Scheduling Agent – An entity which has been designated by a Transmission Customer as agent for the purposes of scheduling interchange transactions
- 1.31 Transmission Customer – A Transmission Customer as defined in AEP’s OATT who has purchased transmission Service under AEP’s OATT
- 1.32 TLR – Transmission Loading Relief, pursuant to the procedures specified in Appendix 9C1 to NERC’s Operating Manual.
- 1.33 UDS - Unit Dispatch System operated by PJM.

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ARTICLE TWO – TERM AND TERMINATION

- 2.1 This Agreement shall become effective when PJM notifies AEP at least 30 days prior to the date that the integration of ComEd into PJM’s economic dispatch will commence, and shall end when transmission service on AEP’s transmission system is provided by PJM under the PJM OATT or when this Agreement is terminated pursuant to Sections 2.2 or 2.3 subject to approval by FERC.
- 2.2 Either Party shall have the right to terminate this Agreement if the other Party commits a material breach of this Agreement, and the non-performing Party fails to cure such breach within thirty (30) days after being given notice by the non-breaching Party of the nature of the breach, unless such termination is waived by the non-breaching Party, subject to approval of such termination by FERC.
- 2.3 This Agreement may be terminated by mutual agreement, subject to approval of such termination by FERC.

ARTICLE THREE – ASSIGNMENT OF RIGHTS TO SERVICE TO PJM

- 3.1 In accordance with section 23 of AEP’s OATT and AEP’s existing practices and procedures thereunder, Transmission Customers may assign to PJM all or part of their rights to Firm Transmission Service for PJM’s use in connection with the Pathway. To be assigned to the Pathway, a Reservation must be for Firm Service in an increment of one month or greater, and must be a Confirmed Reservation with a POR/POD pair of CE-PJM or PJM-CE. Confirmation of the Reservation must have been made on AEP’s OASIS, or an OASIS site as authorized and designated by AEP. A Transmission Customer may assign all or a part of the capacity of a Reservation qualifying under this section for scheduling on Pathway by PJM, as Scheduling Agent. As provided in the AEP OATT, the assigning Transmission Customer shall remain liable for all financial and other Transmission Customer obligations under the OATT with respect to such Reservation.
- 3.2 A Transmission Customer shall assign Transmission Service to the Pathway on the AEP OASIS by selecting Resale Type under the “Submit Request” option, referencing the assigning customer’s OASIS assignment reference number, the amount of transmission capacity to be allocated to the Pathway, the duration of the assignment, and an indication that the service is being assigned to PJM’s use for the Pathway consistent with this Agreement and the approved provisions of the PJM OATT. The Transmission Customer must submit the required information on the AEP OASIS, at least 24 hours prior to the first day of the beginning of the month that scheduling is to commence. AEP shall post notice on its OASIS of the specific procedures, consistent with the procedures set forth in this Agreement, to be used by Transmission Customers to assign all or part of their rights to Transmission service to the Pathway. Once a Reservation has been assigned to the Pathway, the assigning Transmission Customer may not resell the service to any other party or redirect the service to any other POR or POD. Transmission service allocated to the Pathway may only be scheduled by PJM as detailed in Article Four.

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ARTICLE FOUR—USE OF THE PATHWAY

- 4.1 PJM may, during the term of this Agreement, and pursuant to the provisions hereof, use the Pathway Dynamic Schedule to integrate ComEd into PJM's centralized economic dispatch process using the scheduling arrangements described in this Agreement.
- 4.2 PJM shall use Good Utility Practices to insure that Pathway Dynamic Schedule energy transfers that it schedules using the Pathway do not exceed the sum of the capacity Reservations included in the Pathway. If the instantaneous value exceeds the confirmed reserved capacity, PJM will take immediate action to reduce energy transfers to the assigned capacity. If such action is not taken, AEP may assess a charge for unauthorized use of Transmission Service equal to twice the Daily rate for firm transmission service multiplied by the maximum excess energy flow in any hour of any day. The total of any and all charges for unauthorized use of transmission resulting from excess flows on the Pathway will be limited in any month to a charge of twice the rate for monthly transmission service multiplied by the highest of all such excess flows determined on an hourly integrated basis.
- 4.3 PJM, acting as AEP's Reliability Coordinator, will appropriately constrain or reduce energy transfers on the Pathway as directed by the NERC interchange distribution calculator (IDC) in the event that PJM determines that a TLR is needed on AEP or other transmission system flowgates consistent with the AEP OATT and NERC Policy, as outlined in Appendix A. In the event PJM does not serve as AEP's Reliability Coordinator at any time during the term of this Agreement, AEP will cause its Reliability Coordinator to coordinate with PJM as necessary to implement the requirements of this Section and PJM will coordinate with such Reliability Coordinator.
- 4.4 Only PJM will be authorized to schedule interchange transactions and issue e-tags for transfers over the Pathway. In real-time, interchange transactions over the Pathway Dynamic Schedule will be accomplished through the scheduling procedures described in this Agreement. PJM will submit e-tags in accordance with NERC policy to provide forecasted schedules for purposes of operational planning and for use in the NERC IDC. PJM will provide every 5 seconds the instantaneous MW values for PJM to AEP transfers and the instantaneous MW values for CE to AEP transfers. All communication should use an agreed upon real time communication protocol. It is PJM's responsibility to assure the validity of the data. PJM and AEP will develop a method for determining any communication loss or interruption. In the event of a communication loss or interruption, the parties will revert to the current forecasted schedule. In accordance with NERC policy, PJM shall issue an updated tag in the forecasted schedule if the instantaneous value differs by more than 25%, subject to existing confirmed Pathway reservation amounts and NERC IDC directives; provided, however, that nothing herein shall prevent PJM from issuing an updated tag on a more frequent basis.
- 4.5 PJM will provide AEP with four signals for the Dynamic Scheduling process: two ComEd to PJM signals via AEP, and two PJM to ComEd signals via AEP. Two signals are required for each path to account for the schedule and the in-kind transmission loss replacement quantities. The Dynamic Schedule will be unidirectional on an instantaneous

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basis, i.e., if flow is scheduled in the PJM to ComEd direction there will be zero flow scheduled in the ComEd to PJM direction, and vice versa. PJM will determine and send to AEP the corresponding delivered/received values for each direction. The MWs received by AEP will exceed the MWs delivered by AEP by the transmission loss amount determined under section 4.7 of this Agreement.

- 4.6 The PJM Control Area is located to the east of the AEP Control Area, and the ComEd Control Area is located to the west of the AEP Control Area. Energy transfers using the Pathway will be treated as transfers from the ComEd Control Area through the AEP Control Area to the PJM Control Area, or from the PJM Control Area through the AEP Control Area to the ComEd Control Area. All such transfers shall be made in accordance with applicable Reliability Council and NERC guidelines for Control Area operation. Whether or not the Control Area configuration is changed after the effective date of this Agreement, all energy transfers using the Pathway shall involve scheduling the same amount of energy both into and out of the AEP Control Area, adjusted for losses calculated under Section 4.7. The method of operation described in this Section is intended to ensure, and should ensure, that generators in the AEP Control Area will be unaffected by the transfers.
- 4.7 Transmission Service assigned to the Pathway shall remain subject to the requirement in AEP's OATT to replace real power losses. Consistent with the AEP OATT, losses for interchange transactions using the Pathway will be provided in kind in real-time at the AEP Loss Rate. AEP's existing formula to calculate adequate loss supply, to be applied to calculate in-kind loss obligations for the Pathway, is:
- $$[(\text{MW delivered at POD}) / (1 - \text{AEP Loss Rate})] \times (\text{AEP Loss Rate}) = (\text{MW of Loss Supply Required})$$**
- Consistent with AEP's current practice if PJM provides less than the amount of losses required, AEP will bill PJM for the shortage at the highest daily loss rate posted for that day.
- 4.8 This Agreement does not provide for the reservation or sale of Transmission Service on AEP's transmission system. Any such service used in connection with this Agreement shall be arranged and purchased under the terms of AEP OATT.
- 4.9 This Agreement does not provide for the provision by AEP of any Ancillary Service. Since use of the Pathway as provided hereunder is intended to be for transactions in which the POR and POD are outside of AEP's Control Area, such transactions are not expected to need any Ancillary Services other than those provided in Schedules 1 and 2 of AEP's OATT, which shall continue to apply to Transmission Service Reservations assigned to the Pathway, and the costs of which shall continue to be borne by the assigning Transmission Customer.
- 4.10 PJM will respect AEP's flow-gate limits and will hold or decrease the Pathway during a TLR event in accordance with procedures under Policy 9 of the NERC Operating Manual.

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ARTICLE FIVE – COSTS

- 5.1 AEP has provided PJM a binding estimate for the out of pocket costs and fully burdened labor costs associated with this Agreement. PJM shall reimburse AEP for all such costs incurred by AEP to implement the method of operation provided in this Agreement; provided that PJM shall not be required to make any payment to AEP in excess of the binding estimate.
- 5.2 AEP will bill PJM monthly for the implementation costs incurred under Section 5.1. AEP shall submit invoice(s) to PJM in the amount of such costs, in reasonable detail, to the following address, or such other address as PJM may provide from time to time:

PJM Interconnection, L.L.C.

Attention: Accounts Receivable

P.O. Box 1525

Southeastern, Pennsylvania 19399-1525

The invoice(s) for the service performed shall be due and payable by PJM within thirty (30) days of the date the invoice is received. Payment should be sent to the following address, or such other address as AEP may provide from time to time:

American Electric Power Service Corporation

1 Riverside Plaza, 4th fl, Transmission Operations

Columbus, OH 43215

- 5.3 If payment is not received within thirty (30) days, PJM shall be subject to a late fee of one and one half percent (1.5%) per month on the amount of the past due balances.

ARTICLE SIX – REGULATORY AUTHORITIES

- 6.1 This Agreement is made subject to the jurisdiction of the FERC. AEP shall file the Agreement with the FERC. In the event that the FERC refuses to accept or approve this Agreement in whole or in part, or imposes any condition upon, or change to, this Agreement adverse to either party, in the sole judgment of that party, then the adversely affected party shall provide written notice to the other party, and the parties shall negotiate in good faith to attempt to arrive at an acceptable substitute Agreement within thirty days from the date of such notice. If the parties, despite such good faith negotiation are unable to arrive at a substitute Agreement within such thirty- day period, or any extension thereof mutually agreed to by the parties, then the Agreement shall terminate upon the expiration of such thirty- day period or mutually agreed-upon extension.

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- 6.2 Nothing in this Agreement shall be construed as affecting, in any way, the right of a Party to unilaterally file with the FERC for a change in the Agreement under Section 205 or 206 of the Federal Power Act and regulations promulgated thereunder.

ARTICLE SEVEN – GENERAL PROVISIONS

- 7.1 In no event shall either Party's aggregate liability to the other (whether in contract, tort, negligence, strict liability, by statute or otherwise) exceed the amounts actually paid to AEP pursuant to this Agreement. In no event shall either Party be liable to the other for the payment of any consequential, indirect or special damages, including lost profits.
- 7.2 Each Party reserves the right to audit records necessary to permit evaluation and verification of claims submitted, and the other Party's compliance with this Agreement. The Parties shall retain for a period of three years following final payment all information and records relating to the performance of this Agreement. Either Party may examine and copy such information and records at the other Party's premises during regular business hours and upon advance notice given no less than 15 calendar days prior to such examination.
- 7.3 If any provision of this Agreement shall be held to be illegal, invalid or unenforceable, such provision shall be enforced to the maximum extent possible so as to affect the intent of the Parties, and the validity, legality and enforceability of the remaining provisions of this Agreement shall not in any way be affected or impaired thereby.
- 7.4 Neither Party may assign this Agreement or its rights hereunder without the prior written consent of the other Party except that no such approval is required as to a successor in the operation of the AEP System's East Zone Transmission Facilities by reason of a merger, consolidation, reorganization, sale, spin-off, or foreclosure, as a result of which substantially all such transmission facilities are acquired by such successor.
- 7.5 This Agreement shall be governed by and construed in accordance with the laws of the State of Ohio.
- 7.6 This Agreement constitutes the entire agreement of the Parties with respect to the subject matter. Amendments to this Agreement must be in writing and signed by both Parties.
- 7.7 Any notice required or authorized by this Agreement to be given by one Party to the other Party shall be in writing. It shall either be personally delivered, transmitted by telecopy or facsimile equipment (with receipt verbally and electronically confirmed), sent by overnight courier or mailed, postage prepaid, to the other Party at the address designated below. A Party may change its designated address upon written notice to the other Party. Any such notice, demand or request so delivered or mailed shall be deemed to be given when so delivered or three (3) days after mailed. Notices shall be addressed to:

American Electric Power Service Corporation

1 Riverside Plaza

Columbus, Ohio 43215

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PJM

955 Jefferson Avenue
Valley Forge Corporate Center
Norristown, Pennsylvania 19403

7.8 This Agreement may be executed in any number of counterparts, each of which shall be deemed to be an original, but all of which together shall constitute one and the same instrument.

IN WITNESS WHEREOF, the Parties have executed this Agreement as of the latter day and year written below.

ACCEPTED AND AGREED TO

THIS ____ DAY OF [Month], 2003

American Electric Power Service Corporation

BY:

NAME: _____

TITLE: _____

ACCEPTED AND AGREED TO

THIS ____ DAY OF [Month], 2003

PJM Interconnection, L.L.C.

BY:

NAME: _____

TITLE: _____

Appendix A

Pathway Operations During a TLR

The business rules for how the differing TLR levels will impact the Pathway are listed below.

1. All TLR Levels

At TLR level 1 or higher, PJM will limit increases of the Pathway Tag on each quarter hour to:

- 200 MW or 25% of the Pathway limit (the total capacity of service allocated to the Pathway), whichever is less.

if and only if:

- The Pathway schedule is in the direction of the constrained flow gate (it “harms” the constraint.)
- The Pathway schedule harms the constraint by five percent (5%) or more.

At TLR level 1 or higher, PJM will limit decreases of the Pathway Tag on each quarter hour to:

- 200 MW or 25% of the Pathway limit (the total capacity of service allocated to the Pathway), whichever is less.

if and only if:

- The Pathway schedule is in the opposite direction of the constrained flow gate (it provides relief to the constraint.)
- The Pathway schedule impacts the constrained flow gate by five percent (5%) or more.

2. TLR Level 1 – TLR Level 2 (Levels 1, 2)

At TLR level 1 or higher, PJM will limit increases of the Pathway Tag on each quarter hour to:

- 200 MW or 25% of the Pathway limit (the total capacity of service allocated to the Pathway), whichever is less.

if and only if:

- The Pathway schedule is in the direction of the constrained flow gate (it “harms” the constraint.)

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- The Pathway schedule harms the constraint by five percent (5%) or more.

At TLR level 1 or higher, PJM will limit decreases of the Pathway Tag on each quarter hour to:

- 200 MW or 25% of the Pathway limit (the total capacity of service allocated to the Pathway), whichever is less.

if and only if:

- The Pathway schedule is in the opposite direction of the constrained flow gate (it provides relief to the constraint.)
- The Pathway schedule impacts the constrained flow gate by five percent (5%) or more.

For TLR levels 1 and 2, Pathway change limits will be updated on the NERC Tag the first quarter hour starting 25 minutes after the TLR notification. This is due to the existing NERC Tag timing requirements for a PSE adjust (this is not technically a TLR curtailment but a voluntary schedule change).

25% of the Pathway limit is 25% of the capacity allocated to the Pathway, not 25% of the energy currently scheduled on the Pathway. If the Pathway allocation is 500 MW and the Pathway is currently dispatched to 100 MW, the 25% change limit is 125 (25% of 500), not 25 (25% of 100).

3. TLR Level 3a - Reallocation

For TLR 3a, changes to the Pathway Tag submitted after 35 minutes to the hour for which the TLR is called will be considered “Late and on Hold” and will be handled just as is done today with a late FIRM tag on hold.

TLR 1 and 2 rules apply and are augmented by the TLR 3a rules. For TLR level 3a, tag updates submitted after the NERC deadline (35 minutes to the hour) will be “Late and on Hold” per NERC Policy 9.

All requested increases are subject to the TLR 1 change limit (25% of allocated service or 200 MW).

4. TLR Level 3b – TLR Level 5b (Levels 3b, 4, 5a, 5b)

During TLR 3b or higher, the value of the Pathway Tag is capped at the currently approved value (from the last approved tag update).

5. Tag Curtailment

The Pathway tag may be curtailed in part at TLR 5a as part of a pro-rata reallocation for new firm tags. The Pathway tag may be curtailed in whole or in part at TLR 5b to mitigate an Operating Security Limit Violation.

Curtailments at TLR 5 follow NERC Policy 9.

6. TLR 0 – TLR Concluded

Schedules are restored.