

Revised ~~October 15, 2014~~

**Joint Reliability Coordination Agreement
Among ~~and~~**And** Between
PJM Interconnection, L.L.C., ~~And~~
Tennessee Valley Authority, and Louisville
Gas and Electric Company and Kentucky
Utilities Company**

Date: [INSERT DATE], 2022 ~~October 15, 2014~~

~~JOINT RELIABILITY COORDINATION AGREEMENT CHANGE SUMMARY~~

~~Revision 1.1 (August 8, 2014)~~

~~Following revisions were made to this Joint Reliability Coordination Agreement:~~

- ~~a) Deleted references to Midcontinent Independent System Operator (“MISO”) as the MISO no longer has signatory obligations to the JRCA;~~
- ~~b) Deleted Section 6.4, which pertains to contract paths,;~~
- ~~c) Included version 1.9 of the Congestion Management Process as attachment 1 to the JRCA; and~~
- ~~d) Deleted Appendix E (*TLR Avoidance*).~~

TABLE OF CONTENTS

ARTICLE ONE:	—RECITALS	1
ARTICLE TWO:	—ABBREVIATIONS, ACRONYMS, AND DEFINITIONS	2
2.1	Abbreviations and Acronyms	2
2.2	Definitions	4
2.3	Rules of Construction	9
ARTICLE THREE:	—OVERVIEW, ADMINISTRATION, AND ADMINSTRATION RELATIONSHIP WITH OTHER AGREEMENTS	10
3.1	Overview and Scope of this Agreement	10
3.2	Relationship Between This Agreement And The Joint Operating Agreement	11
3.3	Establishment and Functions of Operating Committee	11
3.4	Ongoing Review and Revisions	12
ARTICLE FOUR:	—EXCHANGE OF INFORMATION AND DATA	12
4.1	Exchange of Operating Data	12
4.2	Cost of Data and Information Exchange	18
ARTICLE FIVE:	—AVAILABLE <u>TRANSFERFLOWGATE</u> CAPABILITY CALCULATIONS AND	18
5.1	Available Flowgate Capability Protocols	18
ARTICLE SIX	—RECIPROCAL COORDINATION OF FLOWGATES	21
6.1	Reciprocal Coordination of Flowgates Operating Protocols	21
6.2	Costs Arising From Reciprocal Coordination of Flowgates	22
6.3	Maintaining Current Flowgate Models	22

ARTICLE ~~SIX~~: ~~SEVEN~~—COORDINATION OF SCHEDULED OUTAGES
..... 22

~~ARTICLE SEVEN: 7.1—Operating Protocols for Coordinating Scheduled Outages~~
~~..... 22~~ ~~ARTICLE EIGHT~~—PRINCIPLES CONCERNING JOINT
OPERATIONS IN
EMERGENCIES..... 23

—— 8.1—Emergency Operating Principles 23

—— 8.2—Costs of Compliance with Emergency Principles and Procedures 25

ARTICLE ~~EIGHT~~: ~~NINE~~—COORDINATED REGIONAL TRANSMISSION EXPANSION
PLANNING..... 26

—— 9.1—JPC 26

—— 9.2—Data and Information Exchange 27

—— 9.3—Coordinated System Planning 28

ARTICLE ~~NINE~~: ~~TEN~~—JOINT CHECKOUT PROCEDURES
..... 33

~~ARTICLE TEN: ADDITIONAL COORDINATION PROVISIONS~~

—— 10.1—Scheduling Checkout Protocols 33

ARTICLE ~~ELEVEN~~: ~~—VOLTAGE CONTROL AND REACTIVE POWER~~
~~COORDINATION~~
34

—— 11.1—Coordination Objectives 34

—— 11.2—Specific Voltage and Reactive Power Coordination Procedures 35

~~ARTICLE TWELVE~~—DISPUTE RESOLUTION PROCEDURES.....
38

—— 12.1—Dispute Resolution Procedures 38

ARTICLE ~~TWELVE~~: ~~THIRTEEN~~—RETAINED RIGHTS OF PARTIES
..... 39

—— 13.1—Parties Entitled to Act Separately 39

ARTICLE ~~THIRTEEN~~: ~~FOURTEEN~~—EFFECTIVE DATE, IMPLEMENTATION, TERM
AND
TERMINATION..... 40

—— 14.1—Effective Date; Implementation 40

—— 14.2—Term 40

—— 14.3—Right of a Party to Terminate..... 40

—— 14.4—Termination Due to Regulatory Action 40

—— 14.5—Termination Due To FERC Modification 40

~~14.6 Change in~~

~~NERC~~

~~40~~

~~14.7 Survival 40~~

~~14.8 Post-Termination Cooperation 41~~

~~ARTICLE FOURTEEN: FIFTEEN CONFIDENTIAL INFORMATION~~
~~41~~

~~15.1 Definition 41~~

~~15.2 Protection 42~~

~~15.3 Scope 42~~

~~15.4 Standard of Care 42~~

~~15.5 Required Disclosure 42~~

~~15.6 Return of Confidential Information 43~~

~~15.7 Equitable Relief 43~~

~~ARTICLE FIFTEEN: SIXTEEN ADDITIONAL PROVISIONS~~
~~43~~

~~16.1 Unauthorized Transfer of Third Party Intellectual Property 43~~

~~16.2 Intellectual Property Developed Under This Agreement 43~~

~~16.3 Indemnification 43~~

~~16.4 Limitation of Liability 44~~

~~16.5 Permitted Assignments 44~~

~~16.6 Liability to Non-Parties 44~~

~~16.7 Force Majeure 44~~

~~16.8 Amendment 45~~

~~16.9 Headings 45~~

~~16.10 Counterparts 45~~

~~16.11 Notices 45~~

~~16.12 Governing Law 45~~

~~16.13 Prior Agreements; Entire Agreement 46~~

~~ATTACHMENT 1: CONGESTION MANAGEMENT PROCESS (CMP) MASTER~~
~~47~~

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Joint Reliability Coordination Agreement
Among ~~and~~ And Between
PJM Interconnection, L.L.C.,
~~And~~ Tennessee Valley Authority, and
Louisville Gas & Electric Company –
Kentucky Utilities Company

_____ This ~~revised~~ Joint Reliability Coordination Agreement (“Agreement”) dated this [INSERT DAY] day of [INSERT MONTH] ~~2020~~October ~~2014~~, among and between ~~the following parties:~~

PJM Interconnection, L.L.C. (“PJM”) a Delaware limited liability company having a place of business at 2750 Monroe Boulevard, Audubon~~955 Jefferson Avenue, Valley Forge Corporate Center, Norristown~~, Pennsylvania 19403;

Tennessee Valley Authority (“TVA”), a corporate entity existing under the Tennessee Valley Authority Act, 16 U.S.C. §§ 831-~~831ee~~831ee; and Louisville Gas and Electric Company, a Kentucky corporation (“LG&E”) and Kentucky Utilities Company, a Kentucky corporation (“KU” and, collectively with LG&E, “LG&E/KU”).~~831ee.~~

ARTICLE ONE
—RECITALS

WHEREAS,

~~1.~~ PJM is the regional transmission organization that provides operating and reliability functions in portions of the mid-Atlantic and Midwest States. PJM also administers an open access tariff for transmission and related services on its grid, and independently operates markets for day-ahead and real-time energy, and financially firm transmission rights;

~~2.~~ WHEREAS, TVA is a transmission provider that provides operating and reliability functions in the TVA Reliability Coordinator ~~Area~~area, and administers Transmission Service Guidelines for open access transmission and related services on its system. TVA is not subject to regulation by the Federal Energy Regulatory Commission (“FERC”) as a “public utility” under the Federal Power Act;

WHEREAS, LG&E/KU owns, among other things, an integrated electric transmission system, over which they currently provide open access transmission service to customers in the LG&E/KU Balancing Authority Area (as defined in Section 1.5 of the LG&E and KU Joint Pro Forma Open Access Transmission Tariff, as on file with the FERC and as may be changed from time to time located within the TVA Reliability Coordinator area;

WHEREAS, the FERC~~Federal Energy Regulatory Commission~~ as a “public utility” under the Federal Power Act;

3. ~~The Federal Energy Regulatory Commission~~ has ordered each regional transmission organization to develop mechanisms to address inter-regional coordination;

WHEREAS, PJM and TVA are parties to the Revised Joint Reliability Coordination Agreement dated October 15, 2014;

WHEREAS, the Parties have decided to revise and expand the Revised Joint Reliability Coordination Agreement dated October 15, 2014 to include LG&E/KU and address coordinated Balancing Authority and Transmission Operator operations;

4. ~~WHEREAS, in~~ On May 20, 2004, the Parties entered into a Data Exchange Agreement Among and Between Tennessee Valley Authority, the Midwest Independent Transmission System Operator, Inc., and PJM Interconnection, L.L.C., providing for exchanges of certain data and information in furtherance of inter-regional coordination, the reliability of their systems, and in the case of the regional transmission organizations, efficient market operations;

5. ~~In accordance with section 3.1.1.4 of the Agreement Midwest ISO, PJM, and TVA undertook an effort to review the Agreement between the period of December 2009 and April 2009, and have incorporated a number of changes in this Revised Joint Reliability Coordination Agreement to reflect current operations;~~

6. ~~In~~ accordance with Good Utility Practice, the Parties seek to establish or confirm other arrangements and protocols in furtherance of the reliability of their systems and efficient market operations, as provided under the terms and conditions of this Agreement, and to incorporate into this Agreement the data and information exchange to which they previously agreed as revised herein;

NOW, THEREFORE, for good and valuable consideration including the Parties' mutual reliance upon the covenants contained herein, the Parties agree to amend and revise the Agreement to read as follows:

ARTICLE TWO —ABBREVIATIONS, ACRONYMS, AND DEFINITIONS

2.1- Abbreviations and Acronyms.

~~2.1.1-~~ “ATC” shall mean Available Transfer Capability.

~~2.1.2-~~ “AFC” shall mean Available Flowgate Capability.

~~2.1.3-~~ “BA” shall mean Balancing Authority.

~~2.1.4-~~ “BAA” shall mean Balancing Authority Area.

~~2.1.5-~~ “BES” shall mean Bulk Electric System.

2.1.6- “CBM” shall mean Capacity Benefit Margin.

[KC1]N

~~2.1.8~~ ~~“CTPS6”~~ ~~“CRTPS”~~ shall mean ~~the~~ Coordinated ~~Regional~~ Transmission Planning Study.

2.1.9 “EInet” shall mean the Electric Information network deployed by Eastern Interconnect Data Sharing Network, Inc.

~~2.1.10~~ ~~2.1.7~~ ~~“DC”~~ shall mean Direct Current.

~~2.1.8~~ ~~“EHV”~~ shall mean Extra High Voltage.

~~2.1.9~~ ~~“EMS”~~ shall mean the respective Energy Management Systems utilized by the Parties to manage the flow of energy within their Regions.

~~2.1.10~~ ~~“ERAG”~~ shall mean the Eastern Interconnection Reliability Assessment Group that is charged with multi-regional modeling.

~~2.1.11~~ ~~“FERC”~~ shall mean the Federal Energy Regulatory Commission or any successor agency thereto.

[KC2]

[KC3]

~~2.1.14~~ ~~2.1.12~~ ~~“FTP”~~ shall mean the standardized file transfer protocol for data exchange.

~~2.1.13~~ ~~“ICCP”, “ISN,”~~ ~~EInet~~, and ~~“ICCP/ISN”~~ ~~EInet~~ shall mean those common communication protocols adopted to standardize information exchange.

~~2.1.14~~ ~~“IDC”~~ shall mean the NERC Interchange Distribution Calculator used for identifying and requesting congestion management relief.

~~2.1.15~~ ~~“IROL”~~ shall mean Interconnection Reliability Operating Limit.

~~2.1.16~~ ~~“ISN”~~ shall have the meaning referred to in the reference to ICCP.

~~2.1.17~~ ~~“JOA”~~ shall mean the Joint Operating Agreement Between The Midwest Independent Transmission System Operator, Inc. and PJM Interconnection, L.L.C., as it may be amended, supplemented, or restated from time to time.

~~2.1.18~~ ~~“JPC”~~ shall mean ~~the~~ Joint Planning Committee.

~~2.1.17~~ ~~19~~ ~~“kV”~~ shall mean kilovolt of electric potential.

~~2.1.18~~ ~~“LSE”~~ ~~20~~ ~~“MMWG”~~ shall mean Load Serving Entity.~~the NERC working group that is charged with multi-regional modeling.~~

~~2.1.19~~ ~~21~~ ~~“MVAR”~~ shall mean megavolt amp of reactive power.

~~2.1.20~~ ~~22~~ ~~“MW”~~ shall mean megawatt of real power

~~2.1.21~~ ~~23~~ ~~“NAESB”~~ shall mean the North American Energy Standards Board or its successor organization.

~~2.1.22~~ ~~24~~ “NERC” shall mean the North American Electricity Reliability Corporation or successor organization.

~~2.1.23~~ ~~25~~ “NSI” shall mean net scheduled interchange.

~~2.1.24~~ ~~26~~ “OASIS” shall mean the Open Access Same-Time Information System required by FERC for the posting of market and transmission data on the Internet.

~~2.1.25~~ ~~27~~ “OATT” shall mean the applicable open access transmission tariff of PJM or LG&E/KU.

~~2.1.26~~ ~~28~~ “OC” shall refer to the Operating Committee under this Agreement.

~~2.1.27~~ ~~“PSSE”~~ ~~2.1.29~~ ~~“PMAX” shall mean the maximum generator real power output reported in MWs on a seasonal basis.~~

~~2.1.30~~ “PMIN” shall mean the minimum generator real power output reported in MWs on a seasonal basis.

~~2.2.31~~ “PSS/E” shall mean Power System Simulator for Engineering.

~~2.1.28~~ “PTDF” shall mean Power Transfer Distribution Factor.

~~2.1.29~~ ~~2.1.32~~ “QMAX” shall mean the maximum generator reactive power output reported in MVARs at full real power output of the unit.

~~2.1.33~~ “QMIN” shall mean the minimum generator reactive power output reported in MVARs at full real power output of the unit.

~~2.1.34~~ “RC” shall mean Reliability Coordinator.

~~2.1.30~~ ~~35~~ “RCF” shall mean a Reciprocal Coordinated Flowgate.

~~2.1.31~~ ~~2.1.36~~ “RCIS” shall mean the Reliability Coordinator Information System.

~~2.1.37~~ “RTO” refers to Regional Transmission Organization as defined in FERC’s Order No. ~~2000~~2000, or to ~~Midwest ISO and/or PJM~~, as applicable.

~~2.1.32~~ ~~38~~ “SCADA” refers to a supervisory control and data acquisition system.

~~2.1.33~~ ~~39~~ “SDX System” shall mean the system used by NERC to exchange system data.

~~2.1.34~~ ~~40~~ “SOL” shall mean System Operating Limit.

~~2.1.35~~ ~~41~~ “TFC” shall mean Total Flowgate Capability.

~~2.1.36~~ ~~42~~ “TLR” shall mean Transmission Loading Relief.

~~2.1.37~~ ~~43~~ “TOP” shall mean Transmission Operator.

~~2.1.38~~ ~~44~~ “TRM” shall mean Transmission Reliability Margin.

2.2- Definitions. Any undefined, capitalized term used in this Agreement that is not defined in this Section shall have the meaning given in the preamble of this Agreement or the Congestion Management Process, and if not defined in the preamble or Congestion Management Process, shall have the meaning given under industry custom, and where applicable, in accordance with Good Utility Practice. It is the intent of the Parties that any capitalized term used in this Agreement that is not otherwise defined herein and that is defined in the NERC-Glossary of Terms Used in NERC Reliability Standards shall have the same meaning as defined in the NERC-Glossary of Terms Used in NERC Reliability Standards.

2.2.1 “Affected System” shall mean the electric system of the Party other than the Party to which a request for interconnection or long-term firm delivery service is made and that may be affected by the proposed service.

2.2.2 “Agreement” shall mean this document, as amended from time to time, including all attachments, appendices, and schedules.

~~2.2.32.2.1~~ ~~“a & b multipliers” shall mean the multipliers that are applied to TRM in the planning horizon and in the operating horizon to determine non-firm AFC. The “a” multiplier is applied to TRM in the planning horizon to determine non-firm AFC. The “b” multiplier is applied to TRM in the operating horizon to determine non-firm AFC. The “a & b” multipliers can vary between 0 and 1, inclusive. They are determined by individual transmission providers based on network reliability considerations.~~

2.2.2 “Allocation” shall mean a calculated share of capability on a Reciprocal Coordinated Flowgate to be used by Reciprocal Entities when coordinating AFC, transmission sales, and dispatch of generation resources.

2.2.5 “Attaining Balancing Authority Area” of “Attaining BAA” shall mean the Balancing Authority Area of the Attaining Balancing Authority.

2.2.6 “Attaining Reliability Coordinator” or “Attaining RC” shall mean the Reliability Coordinator for the Attaining Balancing Authority.

2.2.7 “Attaining Transmission Operator” or “Attaining TOP” shall mean the entity that operates or directs operations for the reliability of the Attaining BAA transmission system.

- ~~2.2.132.2.3~~ “Available Flowgate Capability” shall mean the measure of the flow capability remaining on a Flowgate for further commercial activity over and above already committed uses. It is defined as TFC less Existing Transmission Commitments (ETC), less a Capacity Benefit Margin, less a Transmission Reliability Margin, plus Postbacks, and plus counterflows.
- ~~2.2.4~~ “Balancing Authority” shall mean the responsible entity that integrates resource plans ahead of time, maintains load interchange generation balance within a Balancing Authority Area, and supports interconnection frequency in real time.
- ~~2.2.5~~ “Balancing Authority Area” shall mean the collection of generation, transmission, and loads within the metered boundaries of the Balancing Authority. The Balancing Authority maintains load resource balance within this area.
- ~~2.2.6~~ “Bulk Electric System” shall mean the electrical generation resources, transmission lines, interconnections with neighboring systems, and associated equipment, generally operated at voltages of 100 kV or higher. Radial transmission facilities serving load with only one transmission source are generally not included in this definition.
- ~~2.2.7~~ “Confidential Information” shall have the meaning stated in Section ~~1415~~.1.
- ~~2.2.148~~ “Congestion Management Process” shall mean the Congestion Management Process document attached hereto as Attachment 1 and incorporated herein, as it may be amended, revised, or restated from time to time.
- ~~2.2.159~~ “Coordinated Flowgate” shall mean a Flowgate impacted by an Operating Entity as determined by one of the ~~five~~~~four~~ studies detailed in Section 3 of the Congestion Management Process. For a Market-Based Operating Entity, these Flowgates shall be subject to the requirements under the Congestion Management portion of the Congestion Management Process (Sections 4 and 5). A Coordinated Flowgate may be under the operational control of a Third Party.
- ~~2.2.16 10~~ “Coordinated Operations” shall mean all activities that will be undertaken by the Parties pursuant to this Agreement.
- ~~2.2.11~~ “Coordinated Regional Transmission Planning Study” shall have the meaning stated in Section ~~89.3.4.5~~.
- ~~2.2.17 12~~ “Designated Network Resource” shall mean a resource that has been identified as a designated network resource pursuant to the PJM or LG&E/KU tariffs or Transmission Service Guidelines.
- ~~2.2.18~~ “Delivery Year” shall have the meaning in the PJM Governing Documents.
- ~~2.2.19 13~~ “Effective Date” shall have the meaning stated in Section ~~1314~~.1.
- ~~2.2.20 14~~ “Extra High Voltage” shall mean voltages of 230 KV and above.

- ~~2.2.21 15~~ “Facilities Study” shall mean an engineering a study conducted to determine the required modifications to by the Transmission Owner’s Service Provider, or Transmission Provider’s Transmission System, including its agent, either: (1) ~~for the interconnection customer to determine a list of facilities, the cost of those facilities, and~~ scheduled completion date for such modifications that shall be required ~~the time required to interconnect a generating facility with the transmission system; or (2) to~~ provide ~~enable~~ the requested ~~sale of firm~~ transmission service.
- ~~2.2.22 16~~ “Firm Flow” shall mean the estimated impacts of firm transmission service on a particular Coordinated Flowgate.
- ~~2.2.23 17~~ “Firm Flow Limit” shall mean the maximum value of Firm Flows an entity can have on a Coordinated Flowgate based on the procedures defined in Sections 4 and 5 of the Congestion Management Process.
- ~~2.2.24 18~~ “Flowgate” shall mean a representative modeling of facilities or groups of facilities that may act as significant constraint points on the regional system.
- ~~2.2.25 19~~ “Good Utility Practice” shall mean any of the practices, methods, and acts engaged in or approved of 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, and acts generally accepted in the region.
- ~~2.2.26 20~~ “Governing Document” shall mean the PJM Open Access Transmission Tariff, the PJM Operating Agreement, the PJM Consolidated Transmission Owners Agreement, the PJM Reliability Assurance Agreement, or any other applicable agreement approved by the FERC and intended to govern the relationship by and among PJM and any of its members or market participants, or the LG&E/KU OATT and any appendices or attachments thereto, as applicable.†
- ~~2.2.27 21~~ “Governmental Authority” shall mean any federal, state, regional, local, or foreign court, tribunal, government, governmental agency, military, governmental or regulatory body (including any stock exchange, automated quotation system, or self-regulatory body), or authority over the transmission and/or generation facilities of a Party or the Parties, but shall exclude TVA in its capacity as a Party under this Agreement but shall not exclude TVA in any other capacity.
- ~~2.2.28 22~~ “Intellectual Property” shall mean (i) ideas, designs, concepts, techniques, inventions, discoveries, or improvements, regardless of patentability, but including without limitation patents, patent applications, mask works, trade secrets, and know-how; (ii) works of authorship, regardless of copyright ability, including

copyrights, and any moral rights recognized by law; and (iii) any other similar rights, in each case on a worldwide basis.

~~2.2.30 23~~ “~~Interconnection Reliability Operating Limit~~” shall mean a System Operation Limit that, if violated, could lead to instability, uncontrolled separation(s) or Cascading Outages that adversely impact the reliability of the Bulk Electric System.

~~2.2.24~~ “~~Interconnection Service~~” shall mean the service provided by the Transmission Service Provider associated with interconnecting a generating facility to the transmission system and enabling the transmission system to receive electric energy and capacity from the generating facility at the point of interconnection, pursuant to the terms of the generator interconnection agreement and any applicable provisions of a tariff or TVA’s generator interconnection procedures.

~~2.2.25~~ “~~Interconnection Study~~” shall mean any of the following studies: the preliminary interconnection feasibility study; the interconnection System Impact Study; the interconnection Facilities Study; or the restudy of any of the above, as may be described in a Party’s generator interconnection procedures.

~~2.2.26~~ “~~Joint Planning Committee~~” shall have the meaning referred to in Section ~~8.29.1~~.

~~2.2.32~~~~2.2.28~~ “~~Market-Based Operating Entity~~” shall mean an Operating Entity that operates a security constrained, bid-based economic dispatch bounded by a clearly defined market area.

2.2.33

~~2.2.29~~ “~~Market Flows~~” shall mean the calculated energy flows on a specified Flowgate as a result of dispatch of generating resources serving market load within a Market-Based Operating Entity’s market (excluding tagged transactions).

~~2.2.34~~ ~~30~~ “~~NAESB Business Practices~~” shall mean the NAESB business practice standards approved by FERC as mandatory for each electric public utility.

~~2.2.36~~ “~~Native Balancing Authority Area~~” or “~~Native BAA~~” shall mean the Balancing Authority Area of the Native Balancing Authority.

~~2.2.37~~ “~~Native Reliability Coordinator~~” or “~~Native RC~~” shall mean the Reliability Coordinator for the transmission system where the Pseudo-Tied unit is physically located.

~~2.2.38~~ “~~Native Transmission Operator~~” or “~~Native TOP~~” shall mean the entity that operates or directs operations for the reliability of the local transmission system where the pseudo-tied unit is physically located.

~~2.2.39~~ ~~2.2.31~~ “~~NERC Compliance Registry~~” shall mean the official list maintained by NERC of all organizations required to comply with the Reliability Standards~~reliability standards~~ approved by FERC.

~~2.2.40~~ ~~32~~ “Network Upgrades” shall have the meanings as defined in the PJM and LG&E/KU tariffs ~~or~~; the TVA Transmission Service Guidelines, ~~and TVA’s generator interconnection procedures.~~

~~2.2.41~~ ~~33~~ “Notice” shall have the meaning stated in Section ~~151~~6.11.

~~2.2.42~~ ~~34~~ “Operating Committee” shall have the meaning stated in Section 3.~~3~~.

2

~~2.2.43~~ ~~35~~ “Operating Entity” shall mean an entity that operates and controls a portion of the Bulk Electric System with the goal of ensuring reliable energy interchange between generators, loads, and other operating entities.

~~2.2.44~~ “Outages” shall mean the planned or unplanned unavailability of transmission and/or generation facilities.

~~2.2.45~~ ~~36~~ “Party” or “Parties” refers to each party to this Agreement or all, as applicable.

~~2.2.46~~ “Pseudo-Tied Unit” shall mean a generating unit for which a Pseudo-Tie is implemented.

~~2.2.37~~ ~~“Purchasing Selling Entity” shall mean the entity that purchases or sells, and takes title to, energy, capacity, and services (exclusive of basic energy and transmission services) that are required to support the reliable operation of interconnected Bulk Electric Systems.~~

~~2.2.47~~ ~~38~~ “Reciprocal Coordinated Flowgate” shall mean a Flowgate that is subject to reciprocal coordination by Operating Entities, under either this Agreement (with respect to the Parties only) or a Reciprocal Coordination Agreement between one or more Parties and one or more Third Party Operating Entities. An RCF is:

- ~~—~~ A Coordinated Flowgate that is (a) (i) within the operational control of a
- Reciprocal Entity or (ii) may be subject to the supervision of a Reciprocal Entity as a RC, and (b) affected by the transmission of energy by the Parties or by one of the Parties and one or more Reciprocal Entities; or
- — A Coordinated Flowgate that is (a) affected by the transmission of energy by one or both Parties and one or more Third Party Operating Entities, and (b) expressly made subject to Congestion Management Process reciprocal coordination procedures under a Reciprocal Coordination Agreement between or among such Parties and Third Party Operating Entities; or
- — A Coordinated Flowgate that is designated by agreement of the Parties as an RCF.

~~2.2.48~~ ~~39~~ “Reciprocal Coordination Agreement” shall mean an agreement between Operating Entities to implement the reciprocal coordination procedures defined in the Congestion Management Process.

~~2.2.49~~ **40** “Reciprocal Entity” shall mean an Operating Entity that coordinates the future-looking management of Flowgate capability in accordance with a Reciprocal Coordination Agreement.

2.2.52

~~2.2.41~~ “Reliability Coordinator” shall mean the entity approved by NERC as the highest level of authority who is be responsible for the reliable operation of the Bulk Electric System, has the Wide Area View of the Bulk Electric System, and has the operating tools, processes and procedures, including the authority to prevent or mitigate emergency operating situations in both next-day analysis and real-time operations within an RC Area.

~~2.2.53~~ **42** “Reliability Coordinator Area” (“RC Area”) shall mean the collection of generation, transmission, and loads within the boundaries of the Reliability Coordinator. Its boundary coincides with one or more Balancing Authority Areas.

~~2.2.43~~ “Reliability Standards” shall mean the NERC reliability standards approved by FERC as mandatory and enforceable against those organizations listed on the NERC Compliance Registry.

~~2.2.44~~ “SCADA Data” shall mean the electric system ~~security~~ data that is used to monitor the electrical state of facilities, as specified in NERC policies and procedures.

~~2.2.54~~ **45** “Scheduled Outages” shall mean the planned unavailability of transmission and/or generation facilities dispatched by a Party, as described in Article ~~Six~~**Seven** of this Agreement, and do not include forced or other unplanned outages.

~~2.2.55~~ **46** “System Impact Study” shall mean an engineering study that evaluates the impact of a proposed interconnection or transmission service request on the safety and reliability of a transmission system and, if applicable, an Affected System. The study shall identify and detail the system impacts that would result if the generating facility were interconnected or transmission service commenced without project modifications or system modifications.

~~2.2.57~~ **47** “System Operating Limit” shall mean the value (such as MW, MVAR, amperes, frequency, or volts) that satisfies the most limiting of the prescribed operating criteria for a specified system configuration to ensure operation within acceptable reliability criteria.

~~2.2.48~~ “Third Party” shall mean~~refers to~~ any entity other than a Party to this Agreement.

~~2.2.58~~ **49** “Third Party Operating Entity” shall refer to a Third Party entity that operates and controls a portion of the Bulk Electric System with the goal of ensuring reliable energy interchange between generators, loads, and other operating entities.

~~2.2.60~~ **50** “Total Flowgate Capability” shall mean the maximum amount of power in MW that can flow across the Flowgate without overloading (either on an actual or contingency basis) any element of the Flowgate. If the Flowgate is voltage or

~~stability limited, a MW proxy is determined to ensure adequate voltages and stability conditions.~~

~~2.1.51~~ “Transmission Loading ~~Relief~~” shall mean the procedures used in the Eastern Interconnection as specified in NERC ~~Reliability Standard~~ IRO-006 and the NAESB Business ~~Practice~~ WEQ-008.

~~2.2.64~~ ~~2.2.52~~ “Transmission Operator” shall mean the entity responsible for the reliability of its “local” transmission system, and that operates or directs the operations of the transmission facilities.

~~2.2.53~~ “Transmission Owner” shall mean an entity that owns and maintains transmission facilities.

~~2.2.54~~ “Transmission Reliability Margin” shall mean that amount of transmission transfer capability necessary to ensure that the interconnected transmission network is secure under a reasonable range of uncertainties in system conditions.

~~2.2.55~~ “Transmission Service Guidelines” shall mean the TVA Transmission Service Guidelines, as amended, revised, or restated from time to time. For the purposes of this Agreement, Transmission Service Guidelines also includes TVA Large and Small Generator Interconnection Procedures as applicable.

~~2.2.65~~ ~~56~~ “Transmission Service Provider” shall mean the entity that administers the applicable transmission tariff or Transmission Service Guidelines of the Parties and provides transmission service to transmission customers under applicable transmission service agreements ~~CKA4~~.

~~2.2.66~~ ~~57~~ “Transmission System Emergencies” shall mean Emergency conditions where there is that have the potential, either imminently to exceed or for the next contingency, for system instability or cascading, or for equipment loading or voltages significantly beyond applicable operating limits, such that stability of the transmission system cannot be assured, or to prevent a condition or situation that in the judgment of a Party is imminently likely to endanger life or property. would exceed an IROL.

~~2.2.67~~ ~~58~~ “Voltage and Reactive Power Coordination Procedures” shall have the meaning given under Article Ten ~~Eleven~~.

~~2.3~~ **Rules of Construction.**

2.3.1- No Interpretation Against Drafter. Each Party participated in the drafting of this Agreement and each Party agrees that no rule of construction or interpretation against the drafter shall be applied to the construction or the interpretation of this Agreement.

2.3.2- Incorporation of Preamble and Recitals. The Preamble and Recitals of this Agreement are incorporated into the terms and conditions of this Agreement and made a part thereof.

2.3.3- Rules of Interpretation. Defined terms in the singular shall include the plural and vice versa, and the masculine, feminine, or neuter gender shall include all genders. Whenever the words “include,” “includes,” or “including” are used in this Agreement, they are not limiting and have the meaning as if followed by the words “without limitation.” -The word “Section” refers to the applicable section of this Agreement and, unless otherwise stated, includes all subsections thereof. The word “Article” refers to articles of this Agreement.

~~The word “Article” refers to articles of this Agreement.~~

2.3.4- NERC Reliability Standards. All activities under this Agreement shall be conducted in a manner that meets or exceeds the applicable Reliability Standards approved by FERC, as such Reliability Standards may be revised from time to time.

2.3.5- NAESB Business Practices. All activities under this Agreement shall be conducted in a manner that meets or exceeds the applicable NAESB Business Practices approved by FERC and incorporated into FERC’s regulations, as such NAESB Business Practices may be revised from time to time. TVA incorporates NAESB Business Practices as stated in their Transmission Service Guidelines to the extent they are not inconsistent with TVA’s obligations under the TVA Act.

2.3.6- Good Utility Practice. The Parties shall conduct all activities under this Agreement consistent with Good Utility Practice.

2.3.7- Geographic Scope. Each Party ~~shall~~will perform this Agreement with respect to each BA for which the Party serves as Transmission Service Provider, and with respect to each BA for which it serves as RC, provided that a Party ~~be~~ required to perform this Agreement with respect to a BA for which it serves as RC only to the extent that the applicable agreement under which it serves in that capacity permits such performance.

ARTICLE THREE

~~—OVERVIEW, ADMINISTRATION, AND ADMINISTRATION RELATIONSHIP WITH OTHER AGREEMENTS~~

3.1- Overview and Scope of this Agreement. ~~This Subject to Section 3.2, this~~ Agreement provides the following:

3.1.1- Arrangements for certain exchanges of information and the implementation of reliability and efficiency protocols between the Parties, TVA and PJM.

3.1.2- The equitable and economical management of congestion on (a) Flowgates affected by flows of TVA, LG&E/KU, and PJM, or (b) in order to encourage and facilitate wide-spread use of the congestion management procedures by Third Parties, on Flowgates affected by the flows of ~~either~~ Party and any Third Party that, by

executing a Reciprocal Coordination Agreement, binds itself to the congestion management procedures of this Agreement.

~~3.1.3~~ Certain arrangements among all of the Parties for coordination of their systems.

~~3.1.4~~ Certain arrangements among all of the Parties for administration of this Agreement.

~~3.2~~ ~~**Relationship Between This Agreement And The Joint Operating Agreement.**~~ Notwithstanding any provision of this Agreement, this Agreement does not govern arrangements solely between Midwest ISO and PJM; such arrangements are governed under the JOA, as amended from time to time. No part of this Agreement shall be construed to amend or replace any part of the JOA. In the event of any conflict between this Agreement and the JOA with respect to any undertakings or agreements between Midwest ISO and PJM under the JOA, the JOA shall control. Nothing in this Agreement shall cause any part of the JOA to be binding upon TVA.

~~3.3~~ **Establishment and Functions of Operating Committee.** To administer the arrangements under this Agreement, the Parties shall establish an OC.

~~3.23.1~~ The OC shall have the following duties and responsibilities:

~~3.23.1.1~~ ~~_____~~ Meet ~~as necessary~~~~no less than annually~~ to address any issues associated with this Agreement that a Party may raise and to determine whether any changes to this Agreement, or procedures employed under this Agreement, would enhance coordination under this Agreement; reliability; efficiency, or economy;

~~3.23.1.2~~ ~~_____~~ Conduct additional meetings upon Notice given by any Party, provided that the Notice specifies the reason(s) for the requested meeting;

~~3.23.1.3~~ ~~_____~~ Conduct dispute resolution in accordance with Article ~~Eleven~~~~Twelve~~ of this Agreement;

~~3.23.1.4~~ ~~_____~~ Initiate process reviews at the request of any Party for activities undertaken in the performance of this Agreement;

~~3.23.1.5~~ ~~_____~~ In its discretion, monitor, evaluate, and collaboratively seek to improve the Congestion Management Process; and

~~3.23.1.6~~ ~~_____~~ In its discretion, take other actions, including the establishment of subcommittees and/or task forces, to address any issues that the OC deems necessary in the implementation of this Agreement.

~~3.3.2.2~~ **Operating Committee Representatives.** Upon execution of this Agreement, each Party shall designate a primary and alternate representative to the OC and shall inform the other Parties of its designated representatives by Notice.

A Party may change its designated OC representatives at any time, provided that timely Notice is given to the other Parties. Each designated OC representative shall have the authority to make decisions on issues that arise during the performance of this Agreement. The costs and expenses associated with each Party's designated OC representatives shall be the responsibility of the designating Party.

~~3.2.3.3~~ **Limitations ~~upon~~ Authority of Operating Committee.** Any decision to implement new arrangements or protocols under this Agreement that ~~aeither~~ Party determines, in its sole discretion, would enhance its costs of performance materially, must be by ~~unanimous~~~~mutual~~ consent of the Parties' OC representatives.

~~3.34~~ **Ongoing Review and Revisions.** The Parties have agreed to the terms and conditions of this Agreement as their respective systems exist and are contemplated as of the Effective Date. The Parties expect that these systems and technology applicable to those systems and to the collection and exchange of data will change from time to time throughout the term of this Agreement, including changes to the boundaries of a Party in its capacity as an RTO ~~or BA~~, changes to the boundaries of, or identities of, BAs for which a Party serves as RC, changes or additions to transmission facilities for which the Party is a TOP, and changes to the BAs included in the security constrained, bid-based economic dispatch markets administered by PJM. The Parties agree that the objectives of this Agreement can be fulfilled only if the Parties, from time to time, review and, as appropriate, revise the requirements stated herein in response to changes, including deleting, adding, or revising requirements and protocols. Each Party shall negotiate in good faith in response to such revisions the other ~~Parties~~~~Party~~ may propose from time to time. Nothing in this Agreement, however, shall require ~~aeither~~ Party to reach agreement with respect to any such changes, or to purchase, install, or otherwise implement new equipment, software, or devices, or functions except as required to perform this Agreement.

ARTICLE FOUR —EXCHANGE OF INFORMATION AND DATA

~~4.1-~~ **Exchange of Operating Data.** The Parties shall exchange the following types of data and information: (a) Real-~~time~~~~Time~~ and projected operating data; ~~Projected Operating Data~~; (b) SCADA Data; ~~and~~ (c) Data used for EMS modeling; ~~Models~~; ~~(d) Operations Planning Data~~; ~~and (e) Planning Information and Models~~. The frequency of exchange ~~shall~~~~will~~ be as stated with respect to specific exchanges provided under this Article or, if no frequency is stated, then the frequency shall be as necessary or appropriate to support the purpose of the exchange. Nothing in this Agreement shall require a Party to provide or exchange information that it does not possess or cannot obtain.

To facilitate the exchange of all such data, each Party shall designate to each other ~~Party's Vice President of Operations~~, a contact to be available twenty-four (24) hours each day, seven (7) days per week, and an alternate contact to act in the absence or unavailability of the primary contact, to respond to any inquiries. With respect to each contact and alternate, each Party shall provide the name, telephone number, e-mail address, and fax number.

Each Party may change a designee from time to time by Notice to the other ~~Parties.~~Party's Vice President of Operations.

The Parties agree to exchange data in a timely manner consistent with existing defined formats or such other formats to which the Parties may agree. If any required data exchange format has not been agreed upon as of the Effective Date, or if a Party determines that an agreed format should be revised, a Party shall give Notice of the need for an agreed format or revision and the Parties shall jointly seek to complete development of the format within thirty (30) days of such Notice.

Each Party shall provide the data with respect to all of its transmission customers and, to the extent that the Party is a Market-Based Operating Entity, all entities that participate in the markets it administers, during the term of the Agreement. PJM requests for LG&E/KU data and responses to LG&E/KU requests shall be provided by and requested through TVA as the RC for LG&E/KU, and provided by TVA to the PJM as requested.

~~4.1.1-~~ **4.1.1- Real-Time and Projected Operating Data.**

~~4.1.1.1-~~ The Parties shall exchange the following information:

- ~~(a)~~ (a) ~~Real-time~~ operating information:
 - ~~(i)~~ (i) ~~Generation~~ status of the units in each ~~RC's~~Party's RC Area;
 - ~~(ii)~~ (ii) ~~Transmission line~~ status;
 - ~~(iii)~~ (iii) ~~Real-time~~ loads;
 - ~~(iv)~~ (iv) ~~Scheduled use of~~ reservations;
 - ~~(v)~~ (v) ~~TLR~~ information, including calculation of Market Flows;
 - ~~(vi)~~ (vi) ~~Generation Redispatch information, including the next most economical generation block dispatch order to decrement/increment; as applicable and~~
 - ~~(vii)~~ (b) ~~List of real-time constraints that are binding in the real-time market solutions.~~
- ~~(b)~~ (b) Projected operating information:
 - ~~(i)~~ (i) ~~Merit order~~ for generators participating in each ~~RC's~~Party's RC Area;
 - ~~(ii)~~ (ii) ~~Maintenance~~ schedules for generators and transmission facilities in each Party's RC Area;
 - ~~(iii)~~ (iii) ~~Transmission service reservations; reflecting firm purchase and sales;~~
 - ~~(iv)~~ (iv) ~~Independent power producer~~ information including current operating level, projected operating levels, Scheduled Outage start and end dates;

~~Outage start and end dates;~~ (v)

- ~~(v)~~ The planned and actual operational start-up dates for any permanently added, removed, or significantly altered transmission segments; and
- ~~(vi)~~ (vi) The planned and actual start-up testing and operational start-up dates for any permanently added, removed, or significantly altered generation units.

~~4.1.2-Exchange of SCADA Data.~~ With reference to NERC Reliability ~~Standards~~ Standard TOP-~~003~~

~~005 (Operational Reliability Data~~ Information) and IRO-010 (RC Data Specification and Collection) and the sharing of information necessary to perform Operational Planning Analyses, Real-time monitoring, and Real-time Assessments; ~~Attachment 1—TOP-005 (Electric System Reliability Data);~~

~~4.1.2.1~~ 4.1.2.1 The Parties shall exchange requested transmission power flows, measured bus voltages, and breaker equipment statuses of their ~~bulk~~ transmission facilities via ICCP or EInet. ~~ISN.~~

~~4.1.2.2~~ 4.1.2.2 Each Party shall accommodate, as soon as practical, ~~another~~ the other Party's request for additional existing ICCP/EInet ~~ISN—bulk~~ transmission data points, but in any event, no more than two (2) ~~weeks~~ week after the request has been submitted.

~~4.1.2.3~~ 4.1.2.3 Each Party shall respond to the ~~another~~ the other Party's request for additional, unavailable ICCP/EInet ~~ISN—bulk~~ transmission data points as soon as practical but no later than two (2) weeks after the request has been submitted, with an expected availability target date for the requested data.

~~4.1.2.4~~ 4.1.2.4 The Parties shall comply with all ~~governing~~ confidentiality agreements executed by the Parties relating to ICCP/EInet ~~ISN~~ data.

~~4.1.2.5~~ 4.1.2.5 The Parties shall exchange SCADA ~~Data~~ data consisting of:

- ~~(a)~~ (a) Status measurements 69 kV and above (breaker and switch statuses) (as available and required to observe for reliability as the respective Parties may determine);
- (b)
- ~~(b)~~ Analog measurements 69 kV and above (flows and voltages) (as available and required to observe for reliability as the respective Parties may determine);
- (c)

- ~~(e)~~ Generation point measurements, including generator output for each unit in MW and MVARs, as available;
- ~~(d)~~ _____
- ~~(d)~~ Load point measurements, including bus loads, and specific loads at each substation in MW and MVARs, as available;
- ~~(e)~~ _____
- ~~(e)~~ BAA net interchange;
- ~~(f)~~ Account for Pseudo-Tie in Actual Net Interchange term of respective Area Control Error calculations in accordance with currently effective Reliability Standard INT-009; and
- ~~(g)~~ _____
- ~~(f)~~ BAA instantaneous demand;
- ~~(g)~~ BAA operating reserves; and
- ~~(h)~~ Identification of other Real~~real~~-time data available through ICCP/EInet.~~ISN~~.

4.1.3- Models. The Parties shall exchange their detailed EMS models ~~once on~~ a quarterly basis in a mutually agreed upon format, and shall also exchange incremental model updates in a mutually agreed upon format as new data becomes available. The quarterly model exchange shall include the ICCP/ISN mapping files, all the necessary model parameters, identification of individual bus loads, seasonal equipment ratings, and one-line drawings that shall be used to expedite the model update process. The Parties shall also exchange updates that represent the incremental changes that have occurred to the EMS model since the most recent update. In addition, PJM and TVA should exchange ICCP/+ISN EInet mapping files~~should be exchanged~~ on monthly basis in a mutually agreed upon format to reflect metering and ICCP data changes. Incremental updates that would affect the Wide-Area view of the neighboring entity's RC Area should occur in time to ensure all other affected parties can update their models in accordance with their modeling update deadlines.

4.1.3.1 Pseudo-Tie Requirements: The Native BA and the Attaining BA shall coordinate unit modeling with respect to the rules of the Native BAA and Attaining BAA for modeling a Pseudo-tie. If the Native BA and Attaining BA do not have this information, modeling data shall be requested from the entity seeking to pseudo-tie the generating unit. This includes coordination of specific technical details for each Pseudo-tie no less than 45 days prior to the Pseudo-Tie in-service date and prior to NAESB Web Registry submission. Article Ten provides more detail on Pseudo-tie requirements.

~~4.1.4 Operations Planning Data.~~ Upon the written request of a Party, a Party shall provide the information specified in this Section to the extent such information is available or can be obtained.

~~4.1.4.1 Flowgates.~~ The Parties shall exchange the following information:

- ~~(a) — Flowgate definitions including seasonal TFC, TRM, CBM, and a & b multipliers;~~
- ~~(b) — Flowgates to be added on demand;~~
- ~~(c) — List of Coordinated Flowgates;~~
- ~~(d) — List of Flowgates to recognize when selling point to point service (if different than the list of Coordinated Flowgates); and~~
- ~~(e) — Firm and non-firm AFC for all Flowgates required under Section 4.1.4.1(c) and (d).~~

~~4.1.4.2 Transmission Service Reservations.~~ The Parties shall exchange the following information:

- ~~(a) — Daily list of all reservations, hourly increment of new reservations;~~
- ~~(b) — List of reservations to exclude;~~
- ~~(c) — Reservation and interchange schedules, as required to permit the accurate calculation of TFC and AFC values;~~
- ~~(d) — Procedures and practices used to model intra RTO reservations, reservations on external systems, and reservation netting;~~
- ~~(e) — List of reservations from OASIS that should not be considered in AFC calculations; and~~
- ~~(f) — List of long-term firm reservations not subject to rollover rights.~~

~~4.1.4.3 Available Flowgate Capability Data.~~ Each Party shall meet a minimum periodicity for calculating and making available AFCs to the other Party. The minimum periodicity depends on the service being offered. Each Party shall provide the following AFC data to the other Party:

- ~~(a) — Hourly for first seven (7) days posted at a minimum, once per hour;~~
- ~~(b) — Daily for days eight (8) through thirty one (31), posted at a minimum, once per day; and~~
- ~~(c) — Monthly for months two (2) through eighteen (18), posted at a minimum, twice per month.~~

~~4.1.4.4 Load Forecast.~~ The Parties shall exchange the following load forecast data and information:

- ~~(a) — Hourly for next seven (7) days, daily for days eight (8) through thirty one (31), and monthly for months two (2) through eighteen (18), submitted once a day;~~
- ~~(b) — Identify the origin of the forecast (e.g., identity of RTO, RC, BAA, etc.);~~
- ~~(c) — Indicate whether this forecast includes transmission system losses, and if it does, indicate what the percent losses are;~~
- ~~(d) — Identify non-conforming loads;~~
- ~~(e) — Indicate how municipal entities, cooperatives, and other entity loads are treated. Indicate whether they are included in the forecast. If~~

~~so, indicate the total load or net load after removing other entity generation; and~~

~~(f) Requirements under Section 5.1.6.~~

~~**4.1.4.5 Generator Data.** The Parties shall exchange the following generator data:~~

~~(a) Unit owner, bus location in model;~~

~~(b) Seasonal ratings, PMIN, PMAX, QMIN, QMAX;~~

~~(c) Station auxiliaries to extent gross generation has been reported; and~~

~~(d) Regulated bus, target voltage and actual voltage.~~

~~**4.1.4.6 Designated Network Resources.** The Parties shall exchange the following Designated Network Resource data:~~

~~(a) Network Integration Transmission Service Specifications;~~

~~(b) Identification of generators that serve as Designated Network Resources;~~

~~(c) To the extent that Designated Network Resources operate between the RC Areas administered by the Parties~~

~~(i) Indication of treatment as pseudo-tie or dynamic/static schedules;~~

~~(ii) Rules for sharing output between joint owners; and (iii)~~

~~Transmission arrangements.~~

~~**4.1.4.7 Balancing Authority Area Net Interchange from Reservations and Tags.** The Parties shall exchange the following data concerning BA net interchange from reservations and tags:~~

~~(a) Any grandfathered agreements that do not appear in OASIS; and~~

~~(b) In cases where tags and reservations cannot be used to develop BAA or zone net interchange, then provide hourly NSI for all generators in the BAAs.~~

~~**4.1.4.8 Dynamic Schedules.** The Parties shall exchange the following data~~

~~concerning dynamic schedules: (a) List of dynamic schedules;~~

~~(b) Identification of the dynamic schedules are being used to move~~

~~load between the Parties' respective RC Areas; (c) Identification of~~

~~marginal generation zones; and (d) Requirements under Section~~

~~5.1.11.~~

~~**4.1.4.9 Controllable Devices.** The Parties shall exchange the following controllable devices data:~~

~~(a) Phase shifters;~~

~~(b) Market dispatchable demand response resources greater than 50 MW;~~

~~(c) DC lines; and~~

~~(d) Back-to-back AC/DC converters.~~

~~**4.1.4.10 Generation and Transmission Scheduled and Forced Outages.**~~

The Parties shall exchange the following data concerning Scheduled Outages of generation and transmission and forced outages:

- (a) ~~Scheduled Outages of generation resources that are planned or forecast, as soon as practicable, including all data specified in Section 5.1.1;~~
- (b) ~~Scheduled Outages of transmission resources that are planned or forecast, as soon as practicable, including all data specified in Section 5.1.3; and~~
- (c) ~~Notification of all forced outages of both generation and transmission resources, not to exceed 30 minutes after they are identified.~~

4.2 Cost of Data and Information Exchange. Each Party shall bear its own cost of providing the data and information to the other ~~Parties~~Party as required under this Article Four and otherwise under this Agreement.

ARTICLE FIVE

~~AVAILABLE~~ TRANSFERFLOWGATE CAPABILITY CALCULATIONS AND RECIPROCAL COORDINATION OF FLOWGATES

5.1 Available TransferFlowgate Capability. ~~The Parties' Protocols.~~ ~~As of the Effective Date, the Parties shall be governed~~use the SDX System to exchange the planned status of all generators rated greater than 50 MW, Scheduled Outages of all interconnections and other transmission facilities operated at greater than 100 kV (but not to include radial transmission facilities serving only load within one transmission source), and peak load forecasts subject to SDX Data Exchange Requirements.

5.1.1 ~~Scheduled Outages of Generation Resources.~~ Each Party shall provide the projected status of generation availability for a minimum of twelve (12) months, or for a longer period if the information is available. ~~The Parties shall update this data no less than once daily for the full posting horizon and more often as required by and system conditions. The data will include complete generation maintenance schedules and the most current available generator availability data, such that each Party is aware of each "return date" of a generator from a scheduled or forced outage. At all times, this exchange will include the status of generators rated greater than 50 MW. If the status of a particular generator of equal to or less than 50 MW is used within a Party's AFC calculation, the status of this unit shall also be supplied.~~

5.1.2 ~~Generation Dispatch Order.~~ ~~As necessary to permit a Party to develop a reasonably accurate dispatch for any modeled condition, each Party shall provide a typical generation dispatch order or the generation participation factors of all units on an affected BAA basis. The generation dispatch order will be updated as required by changes in the status of the unit; however, a new generation dispatch order need not be provided more often than prior to each peak load season.~~

5.1.3 ~~Scheduled Outages of Transmission Resources.~~ Each Party shall provide the projected status of Scheduled Outages of transmission facilities above 100 kV (but not to include radial transmission facilities serving only load within one transmission source) for a minimum of the next twelve (12) months or for a longer

~~period if available. This data shall be updated no less than once daily for the full posting horizon and more often as required by system conditions. The data will include current, accurate, and complete transmission facility maintenance schedules, including the “outage date” and “return date” of a transmission facility from a Scheduled Outage or forced outage. If the status of a particular transmission facility is critical to the determination of AFC of a Party, the status of this facility shall also be provided.~~

~~**5.1.4 Transmission Interchange Schedules/Net Scheduled Interchange.** Each Party shall make available its reservation and interchange schedules/NSI, as required to permit accurate calculation of AFC values. Due to the high volume of this data, the Parties shall either post this data to a mutually agreed upon site for downloading or utilize tag dump information provided by a Party.~~

~~**5.1.5 Reservations.**~~

~~**5.1.5.1** Each Party shall post, to a mutually agreed upon site, actual transmission service requests information for integration into each Party’s AFC determination process.~~

~~**5.1.5.2** Each Party shall develop practices for modeling transmission service requests, including external requests, and netting practices for any allowance of counterflows created by reservations in electrically opposite directions. Each Party shall provide the other Party with the procedures developed and implemented to model intra party requests, requests on external parties, and reservation netting.~~

~~**5.1.5.3** Each Party shall create, maintain, and exchange a list of reservations from its OASIS that should not be considered in AFC calculations and shall make the list available to the other Party. Each Party shall update the list to reflect changes in a timely manner and no less than once per quarter. If a Party does not include a reservation in its own calculations, the reservation should be excluded in the other Party’s analyses.~~

~~**5.1.5.4** Each Party shall maintain a list of long-term firm reservations that are not subject to rollover rights and shall make that list available to the other Party for use in AFC calculations. Each Party shall update the list to reflect changes in a timely manner and no less than once per quarter.~~

~~**5.1.6 Load Data.** The Parties shall exchange forecasted peak load data for each period (e.g., daily, weekly, and monthly) in accordance with each Party’s the applicable Reliability Standards and NAESB Business Practices. Since peak load values may only apply to one (1) hour of the period, for the next seven (7) day horizon, the Parties shall provide either (i) hourly load forecasts or (ii) daily peak load forecasts with a load profile. All load forecasts shall be provided on a BAA or zone basis by the applicable Transmission Service Provider, RTO, RC, BA, or other applicable entity, including total distribution forecast by zones.~~

~~**5.1.7 Calculated Firm and Non-firm Available Transfer** **Flowgate** Capability Implementation Document. The most up-to-date Available Transfer:~~

~~The Parties shall utilize data provided under Section 4.1.4.1(e) to facilitate determinations whether transmission service reservations or interchange schedules~~

~~will impact Flowgates to extents greater than the applicable (firm or non-firm) AFCs and shall abide by the following procedures:~~

~~5.1.7.1 Each Party shall accept or reject transmission service requests based upon projected loadings and AFCs applicable to all Parties' Flowgates and all RCFs; and~~

~~5.1.7.2 Each Party shall limit approvals of transmission service requests, between the Parties, including roll-over transmission service, so as to not exceed the lesser of the sum of the thermal or stability capabilities of the tie lines that interconnect the Parties; provided that firm transmission service customers retain the rollover rights and reservation priority granted to them under the applicable Party's OATT or Transmission Service Guidelines; and further provided that if explicitly stated in the applicable service agreement, a Party may limit rollover rights for new long-term firm service if there is not enough AFC to accommodate rollover rights beyond the initial term.~~

~~5.1.8 **Total Flowgate** Capability Implementation Document and associated ATC documents shall be placed on each Party's OASIS for sharing (Flowgate Rating). The Parties shall exchange (seasonal, normal, and emergency) TFC, as well as all limiting conditions (thermal, voltage, or stability). The Parties shall update this information in a timely manner as required by changes on the transmission system. The Parties acknowledge that these ratings are currently fairly static values and do not currently require frequent updating. Voltage and stability limits may need to be periodically manually updated.~~

~~5.21.9 **Identification of Flowgates.** Each Party shall consider in its TFC and AFC determination process all Flowgates as required under the NERC Reliability Standards that may initiate a TLR event. As determined in accordance with Section 3 of the Congestion Management Process, Flowgates that have a response factor equal to or greater than the distribution factor cut-off must be included in the evaluating Party's model to the extent inclusion is practical.~~

~~5.31.10 **Configuration/Facility Changes (for power system model updates).**~~

~~5.1.10.1 Each Party shall provide to the other Party any transmission configuration changes and generation additions (or retirements) to its transmission system as soon as practical to ensure accurate AFC calculation models. Each Party shall provide a listing of the changes and explicit modeling information for each change. This data exchange shall occur prior to each peak load season and as may be otherwise required.~~

~~5.1.10.2 The Parties shall exchange AFC calculation models of their transmission systems as soon as mechanisms can be established to facilitate this exchange.~~

~~5.1.11 **Dynamic Schedule Flows.** Each Party shall provide the other Party with the actual amount and future projection of dynamic schedule flows. All dynamic schedule flows and tags shall be submitted in accordance with NERC policy and procedures.~~

~~ARTICLE SIX – RECIPROCAL COORDINATION OF FLOWGATES~~

~~6.1~~ **Reciprocal Coordination of Flowgates Operating Protocols.**

~~5.36.1.1~~ **Obligations to Respect Capability Calculations Applicable to Coordinated Flowgates and Allocations Applicable to RCFs.** Each Party shall respect the other ~~Parties'~~Party's determinations of AFC and calculations of firmness (firm, non-firm, network, non-firm hourly) for ~~Real~~real-time operations applicable to the other ~~Parties'~~Party's Coordinated Flowgates. Additionally, each Party shall respect the ~~Allocations~~allocations defined by the ~~Allocation~~allocation process set forth in the Congestion Management Process. Due to the provisions of the Tennessee Valley Authority Act, notwithstanding any other provisions of this Agreement, TVA cannot be required to redispatch generation, to the extent that such redispatch involves the sale of energy, to PJM under any circumstances. Any redispatch provided by TVA shall be provided to eligible Third Parties under separate agreements.

~~5.36.1.2~~ **Coordination Process for Reciprocal Coordinated Flowgates.** The Parties shall maintain the process and timing for exchanging their respective AFC calculations, and Firm Flow calculations/~~Allocations~~allocations with respect to all RCFs. The process will allocate Flowgate capability on a future-looking basis, including the allocation of firm capability for use in both internal dispatch and sale of transmission service. The Congestion Management Process sets forth the procedure for reciprocal coordination. For any controllable Flowgate, the historically determined Firm Flow on the Flowgate and any allocated rights to that Flowgate under this process are subject to the operating practices of the controllable device. The operating practices of the controllable device will be made available to each Party before a change is made. To the extent the controllable device is able to maintain the schedule across the controllable Flowgate, there are no parallel flows and a historical allocation based on parallel flows will not occur. In this instance, the use of the controllable Flowgate will be limited to entities that have arranged transmission service across the interface formed by the controllable device. To the extent the controllable device cannot maintain the schedule across the controllable Flowgate, there will be a historical allocation based on parallel flows.

~~5.6.1.3.3~~ **Real-Time Operations Process.** The Parties' capabilities and ~~Real~~real-time actions, and those of any Reciprocal Entities, shall be governed by and be in accordance with the Congestion Management Process.

~~5.4~~ ~~6.2~~ **Costs Arising From Reciprocal Coordination of Flowgates.** Each Party and Reciprocal Entity shall bear its own costs, if any, of compliance with the Congestion Management Process and this Article.

~~5.5~~

~~6.3~~ **Maintaining Current Flowgate Models.** For operations and operational planning purposes, each Party will maintain a detailed model of those portions of the other ~~Parties' Party's~~ systems with respect to which a Party is required to respect the other ~~Parties' Party's~~ Coordinated Flowgates, or with respect to which the Party has received Allocations~~allocations~~. On an ongoing basis, each Party ~~will~~shall populate its model with credible ~~and current~~ data and will keep such models up-to-date.

ARTICLE SIX
~~SEVEN~~—COORDINATION OF SCHEDULED OUTAGES

6

~~7.1~~ **Operating Protocols for Coordinating Scheduled Outages.** The Parties have an interregional outage coordination process for coordinating transmission and generation Scheduled Outages to ensure reliability. The following provisions shall govern with respect to transmission and generation Scheduled Outage coordination.

~~67.1.1~~ **Exchange of Transmission and Generation Scheduled Outage Data.** Upon a Party's request, the projected status of generation and transmission availability shall be communicated among the Parties. The Parties shall exchange the most current information on proposed Scheduled Outage information and provide a timely response on potential impacts of proposed Scheduled Outages.

The Parties ~~shall~~ share this information promptly upon its availability, but no less than daily and more often as required by system conditions. The Parties shall utilize a mutually agreed upon format for the exchange of this information, which includes the owning Party's facility name; proposed Scheduled Outage start date and time; proposed facility return date and time; date and time when a response is needed from the impacted Party to modify the proposed schedule; and any other information that may be relevant to the reliability assessment.

Each Party shall also provide information independently on approved and anticipated Scheduled Outages formatted as required for the SDX System.

~~6~~ ~~7.1.2~~ **Evaluation and Coordination of Transmission and Generation Scheduled Outages.** Each Party shall utilize network applications to analyze planned critical facility maintenance to determine the effects on the reliability of ~~the~~its transmission system. Each Party's Scheduled Outage analysis ~~shall~~will consider the impact of its critical Scheduled Outages on the other ~~Parties' Party's~~ system reliability, in addition to its own. The analysis ~~shall~~will include, at a minimum, an evaluation of contingencies including potential real or reactive power concerns; voltage analysis; and real and reactive power reserve analysis.

On a weekly basis, but daily if requested by a Party acting as RC, the operations staffs of the RCs ~~Parties~~ shall jointly discuss any Scheduled Outages to identify potential impacts.

These discussions shall include an indication of either concurrence with the Scheduled Outage or identify significant potential impact due to the Scheduled Outage as scheduled. No Party has the authority to cancel the other ~~Parties'~~ ~~Party's~~ Scheduled Outage (except transmission facilities interconnecting the ~~two~~ Parties' transmission systems). ~~However,; provided, however, that~~ the Parties shall work together to resolve any identified Scheduled Outage conflicts. Consideration ~~shall~~ ~~will~~ be given to Scheduled Outage submittal times and Scheduled Outage criticality when addressing conflicts. If analysis of Scheduled Outages indicates unacceptable system conditions, the Parties shall work with one another and the facility owner(s), as necessary, to provide remedial steps to be taken in advance of proposed maintenance. If an operating procedure cannot be developed, and a change to the proposed schedule is necessary based on significant impact, the Parties shall discuss the facts involved, and make every effort to effect the requested schedule change. If this change cannot be accommodated, the Party with the Scheduled Outage shall notify the impacted Party. A request to adjust a proposed Scheduled Outage date must identify the facility(s) overloaded and proposed a similar time frame of more appropriate dates/times for the Scheduled Outage.

~~The Parties shall notify each other of emergency maintenance and forced outages as soon as possible (but not to exceed 30 minutes) after such conditions are identified. The Parties shall evaluate the impact of emergency and forced outages on the Parties' transmission systems and work with one another to develop remedial steps as necessary.~~

Changes to Scheduled Outages, ~~either~~ ~~both~~ before or after the work has started, may require additional review. Each Party shall consider the impact of these changes on the other ~~Parties'~~ ~~Party's~~ system reliability, in addition to its own. The Parties shall contact each other as soon as possible if these changes result in unacceptable system conditions; and shall work with one another to develop remedial steps as necessary.

6.1.3 **Unscheduled or Forced Outages.** ~~The Parties shall notify each other of emergency maintenance and forced outages that could potentially significantly impact the other entity(ies) as soon as possible (but not to exceed 30 minutes) after such conditions are identified. Reporting of an outage in SDX or RCIS constitutes notice under this Agreement. The Parties shall evaluate the impact of emergency and forced outages on the Parties' transmission systems and work with one another to develop remedial steps as necessary.~~

ARTICLE **SEVEN**

~~EIGHT~~—PRINCIPLES CONCERNING JOINT OPERATIONS IN EMERGENCIES

7

8.1- Emergency Operating Principles.

7.1.1 Coordination of Emergency Response. 8.1.1—In the event an emergency condition is declared in accordance with a Party’s published operating protocols, the Parties shall coordinate respective actions to provide immediate relief until the declaring Party eliminates the declaration of emergency. The Parties shall notify each other of emergency maintenance and forced outages that would have a significant impact on ~~another~~~~the other~~ Party as soon as possible after the conditions are known. The Parties shall evaluate the impact of emergency and forced outages on the Parties’ transmission systems and coordinate to develop remedial steps as necessary or appropriate. If the emergency response allows for coordinating with the other Party(s) before action must be taken, the normal procedures for action requests ~~shall~~~~will~~ be followed. The Parties shall conduct joint annual emergency drills, ensure that all operating staffs are trained and certified, if required, and practice the joint emergency drills that include criteria for declaring an emergency, prioritizing action plans, staffing and responsibilities, and communications.

7.1.2 Departure from Procedures. 8.1.2—In furtherance of maintaining system stability and providing prompt responses to problems, the Parties agree that in situations where there is an actual IROL violation and/or a transmission system is on the verge of imminent collapse, and when there exists a set of applicable emergency principles or an operating guide, each Party shall allow the affected Party to take immediate steps by modifying the normal procedures for action requests so that the Parties and affected Operating Entities can communicate and coordinate simultaneously via telephone conference call or other appropriate means. ~~After~~~~Subsequent to~~ such departures from normal procedures, the requesting Party shall review the event, develop a report, and provide copies thereof to the other ~~Parties~~~~Party~~ and affected Operating Entities.

78.1.3 Development of Principles and Operating Guides. —The Parties shall work together and, ~~in the case of PJM and TVA~~ with the ~~Operating Entities~~~~BA~~s with respect to which they serve as RTO or RC, as applicable, to jointly develop and commit to additional emergency principles and operating guides as may be necessary.

7.1.4 Transmission System Emergencies. 8.1.4—Transmission System Emergencies may be implemented when, in the judgment of a Party, the system is in an ~~Emergency~~~~emergency~~ condition ~~with that is characterized by~~ the potential, either imminently or for the next contingency, for system instability or cascading, or for equipment loading or voltages significantly beyond applicable operating limits, such that stability of the transmission system cannot be assured, or to prevent a condition or situation that in the judgment of a Party is imminently likely to endanger life or property. In the event that it becomes necessary for a Party to declare a Transmission System Emergency for an area that is in close electrical proximity to any of the Parties’ RC Areas, the affected Parties shall either (i) declare a Transmission System Emergency or (ii) redispatch without declaring a Transmission System Emergency. ~~In either case, the Party shall, and~~ take the

necessary action(s) in kind to address the situation that prompted the Transmission System Emergency. These actions may include:

- ~~(a)~~ (a) Curtailment of equivalent amounts of firm point-to-point transactions within the affected Parties;
- (b) Redispatching of generation within the affected Parties; or
- ~~(b)~~ and ~~(c)~~ Load shedding within the affected Parties.

78.1.5 IROL Violations. —In situations where an actual IROL violation exists, or for the next contingency ~~that~~ would exist, within a Party's RC Area, as applicable, and the transmission system is currently, or for the next contingency would be, on the verge of imminent collapse, and there is not an existing emergency principle or operating guide, a Party, in its role as RC, as applicable, shall receive and, subject to the next two sentences of this Section, implement the instruction of the affected Party, communicate the instruction to the affected Operating Entity(s)entity within its own RC or TOP Area as applicable, or utilize telephone conference call capabilities or other appropriate means of communication to allow simultaneous coordination/communication between the Parties and the affected Operating Entity(s)entity. All occurrences of this kind may be reviewed by the Parties after the fact, but the instruction of the affected RC or TOP Area as applicableParty shall be implemented when issued, except a Party may delay implementation in instances where a Party concludes that the requested action cannot be physically implemented; maywill result in a more serious condition on the transmission system; would violate safety, equipment, regulatory, or statutory requirements; orthe requested action is imminently likely to endanger life or property. Any such delay shall be immediately communicated so alternative mitigating actions can be executed. Financial considerations shall have no bearing on actions taken to prevent the collapse of the transmission system.

7.1.6 SOL Exceedances. The Parties shall implement monitoring and contingency analysis as necessary to identify SOL exceedances within their respective TOP Areas. If a Party is experiencing an SOL exceedance within its TOP Area that is either caused or contributed to by conditions on another Party's transmission system or otherwise requires another Party, or Operating Entities within that Party's RC Area, to take action to assist in the mitigation of the SOL exceedance, such action shall be requested and coordinated through the RC function. The Parties agree to work together and act, as necessary and appropriate, to address SOL exceedances.

~~**78.1.6** In a situation where an SOL violation exists within a Party's RC Area, or for the next contingency would exist, the Parties shall work together and take the necessary action(s) in kind to address the situation.~~

8.1.7 RC Coordination. TVA and PJM ~~The Party~~ shall coordinate ~~as RC~~ with ~~each~~ the other as RCParty and, as may be provided under arrangements other than

this Agreement, direct emergency action on the part of generation or transmission within ~~their own respective RC Areas~~~~such BAAs~~ to protect the reliability of the transmission system. Each Party shall exercise such authority as required to resolve emergency conditions in the other Party's RC Area of which it is aware and, in conjunction with any applicable stakeholder processes, shall develop detailed emergency operating procedures.

78.1.7.1 _____-Power System Restoration. During any power system restoration, the Parties shall coordinate their actions with each other, as well as with other appropriate entities ~~in order~~ to restore the transmission system as safely and efficiently as possible. To enhance the effectiveness of actual restoration operations among the Parties, the Parties shall conduct annual coordinated restoration drills that stress cooperation and communication among the Parties.

78.1.7.2 _____-Joint Voltage Stability Operating Protocol. To avoid any voltage stability or collapse problems, the Parties shall coordinate their operations to maintain stable voltage profiles throughout their respective RC Areas. The Parties shall also coordinate their established daily voltage/reactive ~~power~~ management plans.

78.1.7.3 _____-Operating the Most Conservative Result. When a Party identifies an overload ~~or Emergency/emergency situation~~ that may impact ~~another~~~~the other~~ Party's system and the affected Party's results ~~or~~ /systems do not observe a similar situation, the Parties shall operate to the most conservative result until the Parties can identify the reasons for these difference(s).

78.2- Costs of Compliance with Emergency Principles and Procedures. In accordance with each Party's OATT, Transmission Service Guidelines, or other agreements, each Party shall bear its own costs of compliance with this Article. Nothing in this Agreement shall require a Party to purchase emergency energy if the Party cannot recover the costs under an OATT, its Transmission Service Guidelines, or other agreement or lawful arrangement. Notwithstanding any other provisions of this Agreement, PJM acknowledges that TVA cannot sell energy, including emergency energy, to any entity that is not an authorized purchaser under the Tennessee Valley Authority Act. Any such sale shall be provided to eligible Third Parties under separate agreements.

ARTICLE ~~NINE~~ **EIGHT**

~~NINE~~—COORDINATED REGIONAL TRANSMISSION EXPANSION PLANNING

8

9.1 Applicability. This Article Eight applies to each of the Parties in its role as Planning Coordinator for its respective Planning Coordinator areas.

8.2 Joint Planning Committee. ~~———— JPC.~~ The OC ~~shall~~ may form, as a subcommittee of the OC, a JPC. The JPC shall be; comprised of representatives of the Parties' respective staffs in numbers and functions to be identified from time to time. The JPC may establish working groups and/or task forces as deemed appropriate to facilitate performance of the transmission planning objectives outlined in this Article. The JPC shall have a Chairman. The Chairman shall be responsible for:- the scheduling of meetings; the preparation of agendas for meetings; the production of minutes of meetings; and for chairing JPC meetings. The Chairman shall serve a one-year calendar term, except that the term of the first Chairman shall commence on the Effective Date and terminate at the end of the calendar year of the Effective Date. The OC shall designate the first Chairman. Thereafter, the right to designate the Chairman shall rotate from Party to Party. The JPC shall coordinate planning of the Parties' respective systems under this Agreement, including the following:

8.2

9.1 ~~As needed to conduct a Coordinated Transmission Planning Study.1~~
~~———— Prepare and document detailed procedures for the development of power system analysis models. At a minimum, and unless otherwise agreed, the JPC shall develop common power system analysis models to perform coordinated system reliability planning for the Parties' Planning Coordinator areas, as applicable, including well as models for power flow analyses, short circuit analyses, and stability analyses, as required.~~

8.2.2 ~~As mutually agreed by. For studies of interconnections in close electrical proximity at least two the boundaries between the systems of the Parties, conduct the JPC shall coordinate the performance of a Coordinated Transmission Planning Study detailed review of the appropriateness of applicable power system models.~~

~~———— 9.1.2 Conduct, on a regular basis, a CRTPS, as set forth in Section 89.3.4.5.~~

8.29.1.3- Coordinate planning activities under this Article ~~Eight~~Nine, including the exchange of data under this Article and developing necessary report and study protocols ~~and methods for communication of information related to the coordinated planning process.-~~

8.29.1.4 ~~———— Maintain an Internet site and e-mail or other electronic lists for the communication of information related to the coordinated planning process.~~

9.1.5- Meet at least once semi-annually as necessary or as requested by a Party to review and coordinate transmission planning activities. Such meetings shall include, as determined by the Parties to be necessary based on internal discussions, discussion of any system operations or market operations issues as they impact long range planning and the coordination of planning between the systems.

~~8.2.59.1.6-~~ Establish working groups as necessary to address specific issues, such as the review and development of the regional plans of each Party and localized seams issues.

~~8.2.69.1.7-~~ Establish a schedule, as necessary, for the rotation of responsibility for data management, coordination of analysis activities, report preparation, and other activities.

~~9.1.8.2.7-~~ The JPC may combine with or participate in similarly established joint planning committees amongst multiple entities engaging in coordinated planning studies under tariff provisions or established under joint agreements to which the Parties are signatories, such as the planning meetings with Southeastern Regional Transmission Planning described under Schedule 6-A of the PJM Operating Agreement and under Appendix 8 of Attachment K to the LG&E/KU Open Access Transmission Tariff, for example, for the purpose of providing for broader and more effective ~~inter- regional~~interregional planning coordination.

~~8.39.2-~~ **Data and Information Exchange.** Each Party shall provide the other ~~Parties~~Party with the following data and information for its Planning Coordinator area, as applicable, as follows.- Unless otherwise indicated, such data and information shall be provided as requested ~~by either Party~~ and as available, on a mutually agreed ~~to~~ schedule but no longer than 60 days from the date of such request.

~~8.39.2.1-~~ Data required for the development of load flow cases, short-circuit cases, and stability cases for the Parties' Planning Coordinator areas, as applicable, including ten--year load forecasts, including all critical assumptions that are used in the development of these cases.

~~8.39.2.2-~~ Fully detailed planning models (up to the next ten (10) years) for the Parties' Planning Coordinator areas, as applicable, as requested by any of the Parties and on a mutually agreed schedule as a part of the development of any joint planning studies provided for under this Article ~~Eight~~Nine or as otherwise agreed to.

~~89.2.3.3-~~ The regional plan document produced by the Party, any long-term or short-term reliability assessment documents produced by the Party, and any operating assessment reports produced by the Party.

~~8.39.2.4-~~ The status of expansion studies, System Impact Studies,~~system impact studies~~ and generation interconnection studies, such that each Party has knowledge that a commitment has been made to a system enhancement as a result of any such studies.

~~8.39.2.5-~~ Transmission system maps for the Party's bulk transmission system and lower voltage transmission system maps that are relevant to the coordination of planning between or among the systems.

~~8.39.2.6-~~ Contingency lists for use in load flow and stability analyses, including lists of all single contingency events and multiple facility ~~tower line~~-contingencies, as well as breaker diagrams for the portions of the Party's transmission system that are relevant to the coordination of planning between or among the systems.

~~8.39.2.7~~ _____-The timing of each planned enhancement, including estimated start and completion dates ~~and project mobilization schedules~~, and indications of the likelihood a system enhancement shall~~will~~ be completed and whether the system enhancement should be included in system expansion studies, System Impact Studies,~~system impact studies~~ and generation interconnection studies, and all related applications for regulatory approval and the status thereof. ~~This information shall be provided annually and from time to time upon changes in status.~~

~~9.2.8.3.8~~ _____-~~Identification of and status of interconnection requests that have been received and any long term firm transmission services that have been approved that may impact the operation of a Party's system in a manner that affects the other Party's system, shared on the earlier of the identification of the potential impact, within 30 days of such request by the other Party or on a regular schedule as otherwise agreed to by the Parties.~~

~~9.2.9~~ ~~Information regarding long term firm transmission services on all interfaces relevant to the coordination of planning between or among the systems, shared on the earlier of the identification of the potential impact, within 30 days of such request by the one of the Parties, or on a regular schedule as otherwise agreed to by the Parties.~~

~~9.2.11~~ Load flow and short-circuit data initially shall~~will~~ be exchanged by the Parties in mutually agreed formats.~~in PSS/E format~~. To the extent practical, the maintenance and exchange of power system modeling data shall~~will~~ be implemented through in mutually agreed formats.~~databases~~. When feasible, transmission maps and breaker diagrams shall~~will~~ be provided in an electronic format agreed upon by the Parties. Formats for the exchange of other data shall~~will~~ be agreed upon by the Parties from time to time.

8.49.3- Coordinated System Planning. The Parties shall engage in coordinated system planning to identify inter-regional transmission expansions or enhancements to transmission system capability that may be needed to maintain reliability and/or improve operational performance. The Parties shall coordinate any relevant~~and all~~ studies required to assure the reliable, efficient, and effective operation of the transmission systems. The Parties shall conduct such coordinated planning as set forth below. Such coordination shall be consistent with the Order No. 1000 regional and interregional planning procedures in which the Parties participate.

8.49.3.1- **Single Party Planning.** Each Party shall engage in such transmission planning activities, including expansion planning and System Impact Studies~~plans, system impact studies, and generator interconnection studies~~, as necessary to fulfill its obligations under its applicable OATT, Transmission Service Guidelines, or as it otherwise shall deem appropriate. Such planning shall conform to applicable

reliability requirements of NERC, applicable regional reliability councils, and any successor organizations thereto. Such planning shall also conform to any and all applicable requirements of Federal or State regulatory authorities. ~~Each Party agrees to prepare a regional transmission planning report that documents the procedures, methodologies, and business rules utilized in preparing and completing the report.~~ Each Party shall share its annual transmission planning ~~reports and~~ assessments with the other ~~Parties~~ Party, as well as any information that arises in the performance of such single party planning activities as is necessary or appropriate for effective coordination between the Parties on an ongoing basis.

8.49.3.2- **Analysis of Interconnection Requests.** In accordance with the procedures under which the Parties provide interconnection service, each Party shall coordinate with the other ~~Parties~~ Party the conduct of any studies required in determining the impact of a request for generator or transmission interconnection. ~~For the purpose of determining the potential for Affected System impacts and the need to notify Affected Systems, Parties agree to monitor the other Parties' systems when conducting interconnection request studies including all facilities rated 100 kV and above and contingencies on the other systems adjacent Balancing Authority Areas as appropriate in the judgement of the Direct Connect System. Results of any required coordinated studies shall~~ ~~Results of such coordinated studies will~~ be included in the impacts reported to the interconnection customers as appropriate. Coordination of studies shall include the following:

8.49.3.2.1 Upon a Party's request, the Direct Connect System shall provide a complete listing of all interconnection requests and associated information for each interconnection request within 30 days of the Party's request.

8.4.2.2 ~~Upon either the posting to the OASIS or New Services Queue of a request for interconnection or the review of the study results related to that request for interconnection, the Party receiving the request ("Direct Connect System") shall determine whether the other Parties are potentially impacted. If the other Parties are potentially impacted, the Direct Connect System shall notify such Party and convey the information provided in the posting. The Direct Connect System shall notify the Affected System if any of the following criteria in Sections 8.4.2.2 (a)(i), 8.4.2.2 (a)(ii), or 8.4.2.2 (b) are true:~~

a. ~~While performing the analysis of~~ ~~Party receiving the interconnection request, the Direct Connect System identifies the potential for an adverse ("direct connect system condition~~ through one or both the following tests ~~FE5|NC6|NC7|NC8|NC9|NC10|NC11):~~

i. Thermal powerflow analysis and Associated Criteria: A contingency list for the Affected System²²) shall be agreed upon by the Party for the Direct Connect System and the determine whether the other Party for the adjacent Affected

System. Contingencies on both the Affected System and on the Direct Connect System are analyzed. Identify thermal loadings determined to: (1) have a pre and/or post-contingency loading of over 100% of the applicable rating in the modeling software on a monitored facility of 69 kV or above and (2) flow increases by 3% or more on the same monitored facility.

ii. PTDF Screen and Associated Criteria (DFAX screen under system intact conditions): When the Direct Connect System: (1) is PJM and identifies a customer's request having a 3% or greater PTDF on any monitored transmission facility 69 kV or above of another Party; (2) is TVA and identifies a customer's request having a 5% or greater PTDF on any monitored transmission facility 69 kV or above of another Party; or (3) is LG&E/KU and identifies a customer's request having a 5% or greater PTDF on any monitored transmission facility 69 kV or above of another Party. Such indication will be determined by modeling the customer's request being delivered or sunked to the Direct Connect System.

b. The interconnection request is for a point of interconnection on the Direct Connect System's power flow model within two buses of another Party. For this test, the Parties' power flow models will be reviewed and modified as appropriate to ensure consistency in the vicinity of the point of interconnection.

~~8.4.2.3 Following notice to the potentially impacted. If the other Party is potentially impacted, the direct connect system shall notify such Party and convey the information provided in the posting.~~

~~9.3.2.2 Following the results of either the preliminary feasibility study or the System Impact Study, the direct connect system as described above, an Affected System shall notify the other Party if the study shows potential reliability concerns on the other Party's system. After reviewing the results, if a potentially impacted Party determines that its system may be materially impacted by the interconnection, such Party shall contact the Direct Connect System within 30 days of notice by the Direct Connect System direct connect system, and request participation in the applicable interconnection studies as fully described in Section 8.4.2.5 below. Such participation by Affected Systems shall abide by the OATT or Transmission Service Guidelines of the Direct Connect System and reasonable efforts shall be undertaken to meet the timing requirements of the Direct Connect System's interconnection process. The Parties shall coordinate and mutually agree on with respect to the nature of the Affected System study(s) studies to be performed to test the impacts of the interconnection on~~

the ~~Affected System~~~~potentially impacted Party~~, who shall perform the studies.- If the Parties cannot mutually agree on the nature of the studies to be performed they can resolve the differences through the dispute resolution procedures documented in Article ~~Eleven~~~~Twelve~~. The Parties shall strive to minimize the costs associated with the coordinated study process.

8.49.3.2.4 ~~3~~ Any coordinated studies shall be performed in accordance with Good Utility Practice in accordance with the study scope and timeline mutually agreed to in ~~8.49.3.2.32~~ above utilizing the responsibility options outlined in ~~8.49.3.2.54~~ below.:-

8.49.3.2.5 ~~4~~ The ~~Affected System(s)~~~~potentially impacted Party~~ may participate in the coordinated study at the System Impact Study or preliminary feasibility study stage either by taking responsibility for performance of studies of its system if the ~~Affected System~~~~potentially impacted Party~~ determines that its system may be materially impacted, or by providing input to the studies to be performed by the ~~Direct Connect System~~~~direct connect system~~.- If the constraints found require infrastructure additions to mitigate them, then the ~~Affected System~~~~potentially impacted Party~~ shall also perform its own Facilities Study. -The interconnection customer and ~~Affected System~~~~potentially impacted Party~~ shall enter into any study agreements that the ~~Affected System~~~~potentially impacted Party~~ deems necessary to perform its own studies.

8.49.3.2.6 ~~5~~ The costs incurred by the ~~Affected System(s)~~~~potentially impacted Party~~ in the performance of any and all of its studies shall be paid by the interconnection customer in accordance with the provisions of the study agreements between the ~~Affected System(s) and the interconnection customer~~. Where the Direct Connect system has implemented a cluster study approach to new interconnection requests, to [NC12]facilitate the Affected System process in a manner consistent with the Direct Connect System's interconnection process, the Direct Connect System may enter into the Affected System study agreement with the Affected System on behalf of its interconnection customers. In such instance, the costs of the Affected System study will be paid by the Direct Connect System, with the expectation that such costs will be recovered by the Direct Connect System from its interconnection customers. ~~potentially impacted Party and the interconnection customer. The direct connect system may withhold interconnection rights from the interconnection customer until the interconnection customer satisfies the requirements of the potentially impacted Party.~~

8.49.3.2.7 ~~6~~ The ~~Direct Connect System~~~~direct connect system~~ and ~~Affected System(s)~~~~potentially impacted Party~~ shall identify any transmission facilities or upgrades pursuant to the Parties' respective OATT or

Transmission Service Guidelines~~infrastructure improvements~~ required on their respective systems as a result of the proposed interconnection.

8.49.3.2.8 ~~7~~—Construction and cost responsibility associated with any transmission facilities or upgrades on the Direct Connect System or Affected System~~infrastructure improvements~~ required as a result of the proposed interconnection shall be accomplished under the terms of the applicable Party's OATT, Transmission Service Guidelines, or other controlling agreements, and consistent with applicable Federal or State regulatory policy and applicable law.

8.49.3.2.9 ~~8~~—In the event that the Affected System(s) determine that Network Upgrades are required on ~~its~~the potentially impacted Party's system, then interconnection service ~~shall~~will commence on a schedule mutually agreed upon among the Parties. ~~This schedule shall~~will include milestones with respect to the Network Upgrade construction and the amount of service that can commence after each milestone.

~~**8.49.3.2.11** Each⁹ Thermal and reactive impacts associated with circulation and other phenomena that result from interconnection and impact the systems of both Parties shall be evaluated in the evaluation of specific requests associated with delivery service.~~

~~**9.3.2.10** Each Party shall maintain a separate interconnection queue. The JPC shall maintain a composite listing of interconnection requests for all interconnection projects that have been identified as potentially impacting the systems of either Party. The JPC shall post this listing on the Internet site maintained for the communication of information related to the coordinated system planning process.~~

8.49.3.3 ~~Analysis of Long-Term Firm Transmission Service Requests.~~ In accordance with applicable procedures under which the Parties provide long-term firm transmission service, the Parties shall coordinate the conduct of any studies required to determine the impact of a request for such service. For the purpose of determining the potential for Affected System impacts and the need to notify Affected Systems, Parties agree to monitor the other Parties' systems when conducting long-term transmission service request studies including all facilities rated 100 kV and above with contingencies on the other system's adjacent Balancing Authority Areas as appropriate in the judgement of the Direct Connect System. Results of any required~~such~~ coordinated studies will be included in the impacts reported to the transmission service customers as appropriate. Coordination of studies ~~shall~~will include the following:

~~8.49.3.3.1~~ ~~The Parties shall coordinate the calculation of AFC values associated with the service, based on contingencies on the systems of each Party that may be impacted by the granting of the service.~~

~~9.3.3.2~~ Upon either the posting to the OASIS or New Services Queue of a request for service or review of studies related to the evaluation of that service request, the Party receiving the request shall determine whether the other ~~Parties are~~Party is potentially impacted as described in this section. If the other ~~Parties are~~Party is potentially impacted, the Party receiving the request shall notify the Affected Systems~~such Party~~ and convey the information provided in the posting. The Direct Connect System shall notify the potentially impacted system(s) as an Affected System if one or both of the following criteria in Sections 8.4.3.1 (a)(i), 8.4.3.1 (a)(ii), or 8.4.3.1 (b) are true:

a. While performing the analysis of the transmission service request, the Party receiving the request identifies the potential for an adverse condition on another Party's transmission system through one or both of the following tests^[FE13]:

(i) Thermal powerflow analysis and Associated Criteria: A contingency list for the Affected System and Direct Connect System shall be agreed upon by the Party for the Direct Connect System and the Party for the adjacent Affected System. Contingencies on both the Affected System and on the Direct Connect system are analyzed. Identify thermal loadings determined to: (1) have a pre and/or post-contingency loading of over 100% of the applicable rating in the modeling software on a monitored facility of 69 kV or above; and (2) flow increases by 3% or more on the same monitored facility.

(ii) PTDF Screen and Associated Criteria (DFAX screen under system intact conditions): When the Direct Connect System: (1) is PJM and identifies a customer's request having a 3% or greater PTDF on any monitored transmission facility 69 kV or above of another Party; (2) is TVA and identifies a customer's request having a 5% or greater PTDF on any monitored transmission facility 69 kV or above of another Party; or (3) is LG&E/KU and identifies a customer's request having a 5% or greater PTDF on any monitored transmission facility 69 kV or above of another Party.

b. The source of the transmission service request is within two buses of another Party based on the power flow model of the system receiving the request. For this test, the Parties' power flow models

will be reviewed and modified as appropriate to ensure consistency in the vicinity of the source.

~~8.4.3.2~~ After notification, if the Affected System ~~9.3.3.3~~ If the potentially impacted Party determines that its system may be materially impacted by granting the service, and the nature of the service is such that a request on the Affected System ~~potentially impacted Party's~~ OASIS is unnecessary (i.e., the Affected System ~~potentially impacted Party~~ is “off the path”), then such Party shall contact the Party that is the source or the sink for ~~receiving~~ the request and request

participation in the applicable studies within 30 days of notice by the system receiving the request. Such participation shall abide by the Tariff timing requirements of the Party that receives the request. The Parties shall coordinate with respect to the nature of studies to be performed to test the impacts of the requested service on the Affected System ~~potentially impacted Party~~. The Parties shall strive to minimize the costs associated with the coordinated study process. ~~The JPC shall develop screening procedures to assist in the identification of service requests that may impact systems of the Parties other than the Party receiving the request.~~

~~8.49.3.3~~ _____ ~~4~~ Any coordinated studies shall be performed in accordance with the mutually agreed upon study scope and timeline requirements developed by the Parties. If the Parties cannot mutually agree on the nature and timeline of the studies to be performed, they can resolve the differences through the dispute resolution procedures documented in Article ~~Eleven~~ Twelve of this Agreement.

~~8.49.3.4~~ _____ ~~3.5~~—During the System Impact Study, the Affected System ~~potentially impacted Party~~ may participate in the coordinated study either by taking responsibility for performance of Affected System study(s) ~~studies~~ of its system if the Affected System ~~potentially impacted Party~~ determines that its system may be materially impacted, or by providing input to the studies to be performed by the Party receiving the request. ~~The Affected System~~ ~~potentially impacted Party~~ shall also conduct its own Facilities Study if it identifies constraints on its system that require infrastructure additions to mitigate the constraints. The Affected System ~~shall engage the~~ transmission service customer to and ~~potentially impacted Party~~ ~~shall~~ enter into any study agreements that the Affected System ~~potentially impacted Party~~ deems necessary to perform its own studies.

~~8.49.3.5~~ _____ ~~3.6~~—The costs incurred by the Affected System ~~potentially impacted Party~~ in the performance of its studies shall be paid by the transmission service customer in accordance with the provisions of the study agreements between the Affected System and the transmission service customer. Where the Direct Connect system has implemented a cluster study approach to new

~~service / transmission service requests, to facilitate the Affected System process in a manner consistent with the Direct Connect System's new service/transmission service request process, the Direct Connect System may enter into the Affected System study agreement with the Affected System on behalf of its transmission service customers. In such instance, the costs of the Affected System study will be paid by the Direct Connect System, with the expectation that such costs will be recovered by the Direct Connect System from its [customers|ATB14|PS15|NC16|NC17]. potentially impacted Party and the transmission service customer. The Party receiving the request shall hold the transmission service request in study status until the transmission customer satisfies the requirements of the potentially impacted Party.~~

~~**8.49.3.6** 3.7—The Party receiving the request and the Affected System potentially impacted Party shall identify any Network Upgrades transmission infrastructure improvements required on their respective systems as a result of the transmission service request.~~

~~**8.49.3.7** 3.8—Construction and cost responsibility associated with any transmission infrastructure improvements on the system of the Party receiving the request and the Affected System required as a result of the transmission service request shall be accomplished under the terms of the applicable OATT, Transmission Service Guidelines, and controlling agreements, and be consistent with applicable Federal or State regulatory policy and applicable law.~~

~~**8.49.3.8** 3.9—In the event that Network Upgrades are required on the Affected System, potentially impacted Party's system, then transmission service shall commence on a schedule mutually agreed upon among the Parties. This schedule shall will include milestones with respect to the Network Upgrade construction and the amount of service that can commence after each milestone.~~

8.4.4 Analysis for the Integration of Balancing Authority Areas. Prior|CKA18| to integrating an external entity's Balancing Authority Area or combined system (e.g., a combination of load, generation, and/or transmission) into a Party's Balancing Authority Area, the Party integrating the external entity shall notify the non-integrating Party(s) at least six months |NC19| prior to the expected effective date of integration, unless otherwise agreed upon by the Parties. The non-integrating Party(s) shall be afforded a reasonable opportunity to evaluate the impacts on the non-integrating Party's system that might result from the flows between the external entity's system and the integrating Party's Balancing Authority Area. The Parties agree that they will use good faith efforts to identify and mitigate adverse impacts

on the transmission systems of the non-integrating Party(s) of an integration of other Balancing Authority Areas. In doing so, the Parties will negotiate in good faith to reach an agreement on such mitigation including cost allocation. Provided, however, that the allocation of costs among the Parties for such upgrades may be subject to FERC acceptance pursuant to sections 205 or 206 of the Federal Power Act, as determined to be appropriate based on the Parties' respective jurisdictional analysis. Such a FERC filing will not result of TVA waiving its non-jurisdictional status.

8.4.4.1 The integrating Party shall provide a new integrated BAA-wide generation dispatch order to the non-integrating Party(s) to allow for the study of change in power flows.

8.4.4.2 The integrating Party shall provide the results of a deliverability study between the integrating load or generation and the integrating Party's system. The deliverability study shall identify potential impacts on the non-integrating Party's system.

8.4.4.3 If the non-integrating Party(s) identifies potential adverse impacts, it will coordinate with the integrating Party to propose mitigation or remediation of such potential adverse impacts prior to the integration of the external entity's system into the integrating Party's Balancing Authority Area.

8.4.4.4 To the extent necessary and appropriate, the impacted non-integrating Party and the integrating Party shall endeavor to develop temporary operating guides to facilitate the integration of the external entity into the integrating Party's Balancing Authority Area pending the completion of any long-term remediation. The cost of implementing such temporary operating guides shall be mutually agreed by the Parties, and subject to FERC acceptance as determined to be appropriate based on the Parties' respective jurisdictional analysis. Such a FERC filing will not result of TVA waiving its non-jurisdictional status.

8.4.4.5 If the Party integrating the external entity's system and an impacted non-integrating Party cannot mutually agree on necessary upgrades or other mitigation, they can resolve the differences through the dispute resolution procedures documented in ~~Article 9.3.4~~ **Coordinated Transmission Planning Study (CTPS)**. Each Party agrees to assist in the conduct of the CTPS as follows:

9.3.4.1 Every three years 11 of this ~~Agreement~~ **[CKA20][CKA21][NC22][NC23]**.

8.4.5 **Coordinated Transmission Planning Study.** Each Party agrees to assist in the conduct of the CTPS as follows:

8.4.5.1 ~~When a need is identified by the JPC,~~ the Parties shall conduct a CTPS. ~~This may include sensitivity~~Sensitivity analyses ~~will be performed,~~ as required, ~~during the off years~~ based on a review by the JPC of discrete reliability problems or operability issues that arise due to changing system conditions.

89.3.4.5.2 ~~_____~~The ~~JPC~~CTPS shall identify ~~all~~reliability and expansion issues for joint consideration, and ~~may~~shall propose potential resolutions to be considered by the Parties consistent with Order No. 1000 regional and interregional processes.

89.3.4.5.3 ~~_____~~-Nothing in this Agreement shall obligate ~~either~~ Party in any way to construct, finance, operate, or otherwise support any transmission infrastructure improvements or other transmission-related projects identified in the CTPS. Any decision to proceed with any transmission infrastructure improvements or other transmission-related projects identified in the CTPS shall be set forth in a separate agreement executed by the Parties.

89.3.4.5.4 ~~_____~~-Nothing in this Agreement shall give ~~either~~ Party any rights to financial compensation due to the impact of ~~any~~the other Party's transmission plans, including but not limited to its decisions whether or not to construct any transmission infrastructure improvements or other transmission-related projects identified in the CTPS

89.3.4.5.5 ~~_____~~-Each Party shall be responsible for providing the technical support required to complete the analysis for the CTPS.

89.3.4.5.6 ~~_____~~-The JPC shall develop the scope and procedure for the CTPS. The scope of the CTPS ~~shall~~will include evaluations of the transmission systems against reliability criteria, operational performance criteria, and economic performance criteria applicable to each Party.

89.3.4.5.7 ~~_____~~-The Parties shall use planning models that are developed in accordance with the procedures to be established by the JPC. Exchange of power flow models ~~shall~~will be in a format that is acceptable to each Party.

89.3.4.5.8 ~~_____ 8~~ ~~The CTPS will initially evaluate the reliability of the combined transmission systems.~~

9.3.4.9 ~~_____~~The performance of the combined transmission systems ~~shall~~will be tested against agreed upon operational and economic criteria, where applicable, using the updated baseline model.

89.3.4.5.9 ~~_____ 10~~-Economic criteria applicable to each Party shall be developed by that Party.

~~89.3.4.5.10~~ ~~11~~ To the extent that the JPC agrees to combine with or participate in similarly established coordinated transmission planning studies among multiple planning entities as provided for under ~~Section 9.1.8.4.5~~, the CTPS may be integrated into such other coordinated activities, provided that the requirements of the CTPS are integrated into the scope of such other coordinated activities.

~~8.4.69.3.5~~ **Review and Approval Processes.** To the extent applicable, each Party shall conduct the necessary stakeholder review and approval process associated with transmission system planning, as required by its OATT or Transmission Service Guidelines, Governing Documents, and/or applicable Federal or State regulatory requirements.

ARTICLE NINE
~~TEN~~ **JOINT CHECKOUT PROCEDURES**

9

~~10.1~~ **Scheduling Checkout Protocols.**

~~910.1.1~~ **Scheduling Protocols.** Each Party shall leverage technology to perform electronic approvals of schedules, and to perform electronic checkouts. The Parties shall follow the following scheduling protocols:

~~910.1.1.1~~ **Each Party, acting as the scheduling agent for its respective BAs, shall conduct all checkouts with first-tier BAs. A first-tier BA is any BA that is directly connected to any Party's members' BA or any BA operated by an independent transmission company.**

~~910.1.1.2~~ **The Parties shall require all schedules to be tagged in accordance with applicable NERC tagging standards and NAESB Business Practices standard. For reserve sharing and other emergency schedules that are not tagged, the Parties shall enter manual schedules after the fact into their respective scheduling systems to facilitate checkout between the Parties.**

~~910.1.1.3~~ **When there is a scheduling conflict, the Parties shall work together to modify the schedule as soon as practical. If there is a scheduling conflict that is identified before the schedule has started, then both Parties shall make the correction in Real-time. If the schedule has already started and one Party identifies an error, then the Parties shall make the correction at the earliest possible quarter hour increment. If a scheduling conflict cannot be resolved between the Parties (but the source and sink have agreed to a MW value), then the Parties shall adjust their numbers to that same MW value. If source and sink are unable to agree to a MW value, then the previously tagged value shall stand for both Parties.**

910.1.1.4 ____-For entities that do not use the Parties' electronic scheduling interfaces, the Parties shall contact the non-member first-tier entities by telephone to perform checkouts. __When performing checkouts by telephone, three-part communication~~each entity shall be used~~~~verbally repeat the numerical NSI value~~ to ensure accuracy of NSI values.

910.1.1.5 ____-The Parties shall perform the following types of checkouts:

- ~~(a)~~ **(a)** ____ Pre-schedule (day-ahead), daily between 1600 and 2000 (eastern prevailing time) hours.
- ~~(b)~~ **(b)** ____ Hourly Before-~~the~~-Fact (~~Real~~real-time):
 - ~~(i)~~ **(i)** ____ Checkout for the next hours shall be net scheduled. Import and export totals may also be verified in addition to NSI if it is deemed necessary by a Party. The Parties may checkout individual schedules, if deemed necessary by the Parties;
 - ~~(ii)~~ **(ii)** ____ Hourly checkout is performed starting at the half hour and ending at the ramp hour;
 - ~~(iii)~~ **(iii)** ____ Intra-hour checkout/schedule confirmation shall occur as required due to intra-hour scheduled changes.
- ~~(c)~~ **(c)** ____ Daily after-~~the~~-fact checkout shall occur no later than ten (10) business days after the fact (via email or a mutually agreed upon method).
- ~~(d)~~ **(d)** ____ Monthly after-~~the~~-fact checkout shall occur no later than one (1) month after the fact (via phone or a mutually agreed upon method).

910.1.1.6 ____-The Parties shall require that each checkout be performed with first tier BAs. If a checkout discrepancy is discovered, the Parties shall use the NERC tag to determine where the discrepancy exists. The Parties shall require any entity that conducts business within its RC Area to checkout with the applicable Party using NERC tag numbers. ~~Any;~~a special naming convention used by that entity or other naming conventions given to schedules by other entities ~~shall~~will not be permitted.

**ARTICLE ~~TEN~~ELEVEN - ~~VOLTAGE CONTROL AND REACTIVE POWER~~
ADDITIONAL COORDINATION PROVISIONS**

11.1 Application of Congestion Management Process. The Parties have agreed to certain operating protocols under this Agreement to ensure system reliability and efficient market operations as systems exist and are contemplated as of the Effective Date. These protocols include the Congestion Management Process and applicable NERC reliability plans. As addressed in Section 3.3, the Parties expect that these systems and the operating protocols applicable to these systems will change and revisions to this Agreement will be required from time to time.

10.2 Voltage and Reactive Power — Coordination Objectives. TVA and PJM~~The Parties~~ shall utilize the following procedures (“Voltage and Reactive Power Coordination Procedures”):

10.211.1 ~~1~~ 1 ~~The Voltage and Reactive Power Coordination Procedures address the following components: (a) procedures to assist PJM and TVA~~~~the Parties~~ in maintaining a Wide Area view of interconnection conditions by enhancing the coordination of voltage and reactive levels throughout their respective RC Areas; (b) procedures to ensure the maintenance of sufficient reactive reserves to respond to scenarios of high load periods, loss of critical reactive resources, and unusually high transfers; and (c) procedures for sharing of data with other neighboring RCs for their analysis and coordinated operation.

1011.1.2.2 ~~2~~ 2 ~~The Parties shall review the Voltage and Reactive Power Coordination Procedures from time to time to make revisions and enhancements as appropriate to accommodate additional capabilities or changes to industry reliability requirements.~~

10.3 ~~11.2~~ Specific Voltage and Reactive Power Coordination Procedures. TVA and PJM~~The Parties~~ shall utilize the following procedures to coordinate the use of voltage control equipment to maintain a reliable bulk power transmission system voltage profile on their respective systems.

10.311.2.1 ~~1~~ 1 ~~Under normal conditions, each RC~~~~Party~~ shall coordinate with the Transmission Owners, TOPs, and BAs as necessary and feasible to supply its own reactive load and losses at all load levels.

10.311.2 ~~2~~ 2 ~~Voltage schedule coordination is the responsibility of each RC. Party.~~ Generally, the voltage schedule is determined based on conditions in the proximity of generating stations and Extra High Voltage~~EHV~~ stations with voltage regulating capabilities. Each RC~~Party~~ works with its respective Transmission Owners, TOPs, and BAs to determine adequate and reliable voltage schedules considering actual and post-contingency conditions.

1011.2.3.3 ~~3~~ 3 ~~Each RC~~~~Party~~ shall establish voltage limits at critical locations within its own transmission system and exchange this information with the other RC. Party. This information shall include: normal high voltage limits; normal low voltage

limits; post-contingency emergency high voltage limits; and post-contingency emergency low voltage limits; and the voltage limit value (if available) at which load shedding ~~shall~~will be implemented.

10.311.2.4 ~~___~~ Each RCParty shall maintain awareness of the voltage limits in the other RC'sParty's areas (where the EMS Model includes sufficient detail to permit this) and awareness of outages and potential contingencies that could result in violation of those voltage limits.

10.311.2.5 ~~___~~ The RCsParties shall clearly communicate the level of voltage support needed during pre- or post-contingency conditions requiring voltage and reactive power coordination.

10.311.2.6 ~~___~~ Each RCParty shall maintain a list of actions that are available to be taken when voltage support is necessary to respond to anticipated or prevailing transmission system conditions.

10.311.2.7 ~~___~~ The RCsParties shall exchange voltage schedule information on an annual basis, or more frequently as necessary to reflect actual operations. The RCsParties shall coordinate as needed to discuss any issues due to the anticipated conditions and determine any actions that may be required in response to voltage concerns.

10.311.2.8 ~~___~~ In conjunction with the coordination of Scheduled Outages addressed in Article Six ~~Seven~~ and the RCs'Parties' respective day-ahead reliability analysis processes, the RCsParties shall coordinate the impact of outages and transmission system conditions on the voltage/reactive profile. Coordination ~~shall~~will include the following elements:

10.311.2.8.1 ~~___~~ Each RCParty shall review its forecasted loads, transfers, and all information on available generation and transmission reactive power sources at the beginning of each shift.

10.311.2.8.2 ~~___~~ If no reactive problems are anticipated after the review, each RCParty shall operate independently, in accordance with the above stated criteria and any individual transmission system guidelines for the supply of the RC'sParty's reactive power requirements.

10.311.2.8.3 ~~___~~ If an RCa-Party anticipates reactive problems after the review, it may request joint implementation of reactive support levels under these Voltage and Reactive Power Coordination Procedures, as it deems appropriate to the situation. When an RCa-Party calls for a particular level of support to be implemented under these procedures, it or the applicable TOP or BA must identify the time it ~~shall~~will start adjusting its system, the support level it is implementing, and the voltage problem area.

10.311.2.8.4 ~~—~~If ~~an RCa-Party~~ experiences an actual low or high voltage condition after initial reactive support measures are taken, then the emergency reactive support level is implemented for the area experiencing the problem. ~~The impacted RCParty~~ shall also notify applicable RCs as soon as feasible. ~~In addition, the Voltage and Reactive Power Coordination Procedures are to be consulted to determine if further action is necessary to correct an undesirable voltage situation.~~

10.311.2.9 ~~—~~The ~~RCsParties~~ shall coordinate the use of voltage control equipment to maintain a reliable bulk power transmission system voltage profile on their systems and surrounding systems. ~~The following procedures are intended to ensure that bulk systems voltage levels enhance system reliability.~~

10.311.2.9.1 ~~—~~Each ~~RCParty~~ shall coordinate operational control of reactive sources within its ~~RC Areatransmission system~~, and ~~shallwill~~ direct adjustments to voltage schedules at appropriate facilities.

- ~~(a)~~ **(a)** ~~—~~Each ~~RCParty~~ generally shall adjust its voltage schedules to best utilize its resources for operation, prior to coordinated actions with the other ~~RC.Party~~.
- ~~(b)~~ **(b)** ~~—~~If ~~an RCa-Party~~ anticipates voltage or reactive problems, it shall inform the other ~~RCParty~~ of the situation, describe the conditions, and request voltage/reactive support under these procedures. As a part of the request, the ~~RCParty~~ must identify the specific area where voltage/reactive support is requested, and provide an estimate of the magnitude and time duration of the request as well as the specific requirements for reactive support. The ~~RCsParties~~ shall determine the appropriate measures to address the condition and develop a plan of action.
- ~~(c)~~ **(c)** ~~—~~Each ~~RCParty~~ shall~~—~~ contact its affected Transmission Owners, TOPs, and BAs to ensure that the situation is fully understood and that an effective operating plan to address the situation has been developed. ~~—~~If necessary, the ~~RCsParties~~ shall convene a conference call with the affected Transmission Owners, TOPs, and BAs.
- ~~(d)~~ **(d)** ~~—~~Each ~~RCParty~~ shall implement or direct voltage schedule changes requested by the other ~~RCParty~~, provided that ~~an RCa-Party~~ may decline a requested change if the change would result in equipment violations or reduce the effective operation of its facilities. ~~An RCA-Party~~ that declines a requested change must inform the requesting Party that the request cannot be granted and state the reason for denial.

11.2.10.3.10 -Voltage/Reactive Power Transfer Limits.

10.311.2.10.1 -Each RCParty may monitor power transfer on interfaces defined as a Flowgate used to control voltage collapse conditions. In cases where the potential for voltage collapse (or cascading) is identified, prompt voltage support, and generation adjustments may be needed. Where coordinated effort is required for voltage stability interfaces, generation adjustment requests to avoid voltage collapse or cascading conditions must be clearly communicated and implemented promptly. Using these limits, the Parties shall implement the following Realreal-time coordination:

——(a)- At 95 percent% of Interface Limit:

- (i) An RCA Party, which observes the reading, shall contact the other RCParty to discuss whether further analysis is required.
- (ii) The RC, managingParty, owning the applicable Flowgate, shall notify other RCs via the Reliability Coordinator Information System.RCIS.
- (iii) The RCsParties shall contact the affected TOPs and BAs to discuss reactive outputs and any adjustments required.
- (iv) The affected RCParty shall take appropriate actions, which may include redispatching generation and directing schedule curtailments.

——(b)-Exceeding Interface Limit:

- (i) The RC managingParty owning the applicable Flowgate shall -declare an emergency and inform other RCs of the emergency.
- (ii) The affected RCParty shall take immediate action, which may include generation redispatch, ordering immediate schedule curtailments, and if required, load shedding.

11.2.10.3.10.2 -Where feasible, and if the RCs'Parties' EMS models have sufficient detail, each RCParty shall attempt to duplicate the other RC'sParty's power transfer evaluation in order to provide backup limit calculation in the event that the primary RCParty is unable accurately to determine the appropriate reliability limits.

~~11.2.10.3.10.3~~ **10.3** –If a new power transfer interface is determined to exist, and detailed modeling does not exist for the interface, the RCsParties shall coordinate to determine how their models need to be enhanced and to determine procedures for coordination in furtherance of the enhancement.

10.4 Pseudo-Tie Coordination^[NC24]

10.4.1 Authorities for Pseudo-Tied Units into PJM and out of LG&E/KU Balancing Authority Areas. LG&E/KU shall be the Native TOP and Native BA, and TVA shall be the Native RC, responsible for transmission related congestion (SOLs and IROLs) on the transmission system where the Pseudo-Tied units are physically connected with the LGE/KU transmission system and Pseudo-Tied into PJM. PJM shall be the Attaining RC and BA, responsible for the commitment and dispatch of each pseudo-tied unit or the Pseudo-Tied portion of each partially Pseudo-Tied unit physically located within the LG&E/KU BAA and TVA RC Area that is Pseudo-Tied into the PJM BAA.

PJM shall be the Attaining BA and Attaining RC for all the MW of such generation units that are Pseudo-Tied out of the LG&E/KU BAA and into the PJM BAA.

10.4.2 Authorities for Pseudo-Tied Units into PJM and out of TVA Balancing Authority Areas. TVA shall be the Native TOP, Native BA, and Native RC, responsible for transmission related congestion (SOLs and IROLs) on the transmission system where the pseudo-tied units are physically connected with the TVA transmission system and pseudo-tied into PJM. PJM shall be the Attaining RC and BA, responsible for the commitment and dispatch of each pseudo-tied unit or the pseudo-tied portion of a partially pseudo-tied unit physically located within the TVA BAA that are pseudo-tied into the PJM BAA.

PJM shall be the Attaining BA and Attaining RC for all of the MW of such generation units that are pseudo-tied out of the TVA BAA and into the PJM BAA.

10.4.3 Authorities for Pseudo-Tied Units into LG&E/KU and out of TVA Balancing Authority Areas. TVA shall be the Native TOP, Native BA, and only RC (Native and Attaining), responsible for transmission related congestion (SOLs and IROLs) on the transmission system where the pseudo-tied units are physically connected with the TVA transmission system and pseudo-tied into LG&E/KU. LG&E/KU shall be the Attaining BA, responsible for the commitment and dispatch of each pseudo-tied unit or the pseudo-tied portion of a partially pseudo-tied unit physically located within the TVA BAA and TVA RC Area that are pseudo-tied into the LG&E/KU BAA.

LG&E/KU shall be the Attaining BA for all of the MW of such generation units that are pseudo-tied out of the TVA BAA and into the LG&E/KU BAA.

10.4.4 Authorities for Pseudo-Tied Units into TVA and out of LG&E/KU Balancing Authority Areas. LG&E/KU shall be the Native TOP and Native BA responsible for transmission related congestion (SOLs and IROLs) on the transmission system where the pseudo-tied units are physically connected with the LG&E/KU transmission system and pseudo-tied into TVA. TVA shall be the Attaining BA and only RC (Native and Attaining), responsible for the commitment and dispatch of each pseudo-tied unit or the pseudo-tied portion of a partially pseudo-tied unit physically located within the LG&E/KU BAA that are pseudo-tied into the TVA BAA.

TVA shall be the Attaining BA for all of the MW of such generation units that are pseudo-tied out of the LG&E/KU BAA and into the TVA BAA.

10.4.5 Authorities for Pseudo-Tied Units into LG&E/KU and out of PJM Balancing Authority Areas. PJM shall be the Native TOP, Native BA, and Native RC, responsible for transmission related congestion (SOLs and IROLs) on the transmission system where the pseudo-tied units are physically connected with the PJM transmission system and pseudo-tied into LGE/KU. LG&E/KU shall be the Attaining BA responsible for commitment and dispatch of each pseudo-tied unit or the pseudo-tied portion of a partially pseudo-tied unit physically located within the PJM BAA and RC Area.

LG&E/KU shall be the Attaining BA and TVA shall be the Attaining RC for all of the MWs of such generating units that are pseudo-tied out of the PJM BAA and into the LG&E/KU BAA.

10.4.6 Authorities for Pseudo-Tied Units into TVA and out of PJM Balancing Authority Area. PJM will be the Native TOP, Native BA, and Native RC, responsible for transmission related congestion (SOLs and IROLs) on the transmission system where the pseudo-tied units are physically connected with the PJM system and pseudo-tied into TVA. TVA will be the Attaining RC and BA responsible for commitment and dispatch of each pseudo-tied unit or the pseudo-tied portion of a partially pseudo-tied unit physically located within the TVA BAA and RC Area.

TVA will be the Attaining BA and Attaining RC for all of the MW of such generation units that are pseudo-tied out of the PJM BAA and into the TVA BAA.

10.4.7 Partial Pseudo-Tie. If only a portion of the installed capacity of a generating unit is pseudo-tied out of the Native BA and into the Attaining BA such that a unique share resides in each Balancing Authority, the Attaining BA shall send dispatch instructions to the portion of the resource committed to the Attaining BA. Approval of Scheduled Outages shall be coordinated between the Native and Attaining BA subject to **Section 10.4.8** below. The Native BA shall send dispatch instructions to the portion of the resource committed to the Native BA. The Native BA and TOP

shall manage any local issues, including but not limited to local transmission constraints and voltage control. Unit commitment shall be coordinated between the Native and Attaining BAs based on mutually agreed upon operating procedures for managing conflict. [WPR25] [NC26][NC27][NC28]

10.4.8 Unit Outages. Scheduled or planned outages of partially pseudo-tied units shall be subject to the approval of the Native BA and TOP and submitted in accordance with the outage scheduling procedures and requirements of the Native BA. Scheduled or planned outages of units that have been pseudo-tied in their entirety shall be coordinated between the Parties in accordance with the Parties' tariffs, business practices, and manuals.

10.4.9 Voltage and Reactive Power Schedule. The Native TOP shall provide the voltage schedule for any fully or partially pseudo-tied unit. The Attaining BA shall have no operational control of reactive resources.

10.4.10 Primary Frequency Response. The unit shall be capable of meeting the minimum primary frequency response requirements of both the Native and Attaining BA. When the pseudo-tie is in service in the Attaining BA requirements for primary frequency response shall apply to a fully pseudo-tied unit or the pseudo-tied portion of a partially pseudo-tied unit [CKA29][WPR30][NC31][NC32].

10.4.11 Station Service. The Parties agree that the entity pseudo-tying the unit from the Native Balancing Authority Area to the Attaining Balancing Authority Area shall obtain station service for the pseudo-tied unit in accordance with the rules of the Native BA.

10.4.12 Non-recallability. The Parties agree that the fully pseudo-tied unit or the pseudo-tied portion of a partially pseudo-tied unit is non-recallable to ensure that the unit shall not be directed to serve load in the Native Balancing Authority Area at a time when the Attaining Balancing Authority Area requires the output of the unit. However, a pseudo-tied unit may be committed, de-committed or re-dispatched, for local SOL or IROLs by the Native RC and TOP. If time permits, any instructions to a pseudo-tied unit shall go through the Attaining Balancing Authority. The Parties agree that any energy produced by the pseudo-tied unit during the transmission emergency shall be delivered to the Attaining Balancing Authority as appropriate under the Native TOP's emergency procedures and that the presence of pseudo-ties shall not require prioritization of interconnections in system restoration events.

10.4.13 Losses. The parties agree that the entity seeking to Pseudo-Tie shall be responsible for loss compensation to deliver its energy to or receive its energy from the Native Balancing Authority to the Attaining Balancing Authority. Pseudo-tie value(s) shall be calculated net of losses at the high voltage side of the generator step up transformer.

10.4.14 Reporting. For a fully pseudo-tied unit, the Attaining RC shall be responsible for reporting generation outages and deratings of the pseudo-tied unit to the NERC SDX. For a partially pseudo-tied unit, the Native and Attaining RCs shall be responsible for reporting the outage or derating information to SDX for the portion of the unit pseudo-tied into their respective RC Area.

10.4.15 Suspension. The Parties reserve the right to suspend a pseudo-tie if the entity that pseudo-tied the unit no longer satisfies the Parties' requirements for pseudo-ties, criteria for participation in the Attaining Authority's BA's markets as an external resource, or other applicable requirements (as detailed in the Parties' respective tariffs, business practices, and manuals), if the entity that pseudo-tied the unit commits a material default under its pseudo-tie agreement or has failed to cure any breach of such agreement, or if a Party reasonably determines that the pseudo-tie poses a risk to system reliability or risk of violation of established reliability criteria, by giving immediate notice of suspension. Suspension shall be coordinated between the Parties and may include but not be limited to decommitting the unit or requiring the unit to follow manual dispatch instructions. During any suspension period, the pseudo-tied generating unit shall remain under the operational control of the Attaining Balancing Authority and shall not be under the operational control of Native Balancing Authority.

10.4.16 Termination. The Parties shall each have the right to terminate a pseudo-tie between their respective Balancing Authorities in accordance with their respective tariffs or guidelines and the notice provisions below. The Parties shall coordinate the change to the pseudo-tie status.

10.4.17 Notice of Termination. Notification regarding termination of a pseudo-tie shall be provided as follows:

- (a) The Balancing Authority seeking to terminate the pseudo-tie of a PJM Generation Capacity Resource, for any reason other than the reasons described in subsection (b) below, shall give the other Balancing Authority and the entity that pseudo-tied the unit at least forty-two (42) months written notice prior to the commencement of a PJM Delivery Year, for any reason, subject to receiving all necessary regulatory approvals for such termination.
- (b) The Balancing Authority seeking to terminate the pseudo-tie of any Generation Resource for the reasons described in this subsection (b) shall give the other Balancing Authority and the entity that pseudo-tied the unit at least sixty (60) days' written notice of such termination request.

 - (i) The entity that pseudo-tied the unit into the Attaining BA no longer satisfies the Attaining BA's or Native BA's requirements for pseudo-ties, or

- (ii) The entity that pseudo-tied the unit into the PJM BA no longer satisfies PJM's criteria for participation in its markets for an external resource, or
 - (iii) The entity that pseudo-tied the unit into the Attaining BA commits a material default of the terms of the pseudo-tie agreement with Attaining BA or Native BA, or
 - (iv) The entity that pseudo-tied the unit into the Attaining BA has failed to cure any breach of such agreement, or
 - (v) The Attaining BA or Native BA experiences an emergency or other unforeseen, adverse condition that may impair or degrade the reliability of the transmission system such as, but not limited to, a transmission constraint that impairs the reliability of the Attaining BA's or Native BA's transmission system or a condition that causes the pseudo-tied unit to become undeliverable, or
 - (vi) The Attaining BA or Native BA determines there is risk of or a violation of established reliability criteria.
- (c) A notice of cancellation shall be filed with the Commission, if required. Termination shall be effective as of the date specified in the notification of cancellation, or following acceptance by the Commission, if required.

ARTICLE ELEVEN
~~TWELVE~~—DISPUTE RESOLUTION PROCEDURES

11

~~12.1~~- Dispute Resolution Procedures. The Parties shall attempt in good faith to achieve consensus with respect to all matters arising under this Agreement and to use reasonable efforts through good faith discussion and negotiation to avoid and resolve disputes that could delay or impede a Party from receiving the benefits of this Agreement. These dispute resolution procedures apply to any dispute that arises from a Party's performance of, or failure to perform, this Agreement and which the applicable Parties are unable to resolve prior to invocation of these procedures. ~~†~~

~~1112.1.1~~ _____-Step One. In the event a dispute arises, a Party shall give Notice of the dispute to the other ~~Parties~~Party. Within ten (10) days of such Notice, the OC shall meet and the Parties shall attempt to resolve the Dispute by reasonable efforts through good faith discussion and negotiation. In addition to a Party's OC representative, a Party shall also be permitted to bring no more than two (2) additional individuals to OC meetings held under this Step One as subject matter experts; however, all such participants must be employees of the Party they represent. In addition, each Party may bring no more than two (2) attorneys.

~~1112.1.2~~ _____-Step Two. In the event the OC is unable to resolve the dispute under Step One within twenty (20) days of the giving of Notice as provided under **Section ~~1112.1.1~~**, and only in such event, a Party shall be entitled to invoke Step Two. A Party may

invoke Step Two by giving Notice thereof to the OC no later than thirty (30) days after the meeting of the OC under Step One. ~~IF A PARTY DOES NOT INVOKE STEP TWO WITHIN SUCH THIRTY (30)-DAY PERIOD, IT SHALL BE DEEMED TO HAVE WAIVED ITS RIGHTS WITH RESPECT TO THE DISPUTE, AND SHALL BE PRECLUDED FROM PURSUING ITS RIGHTS OR DEFENDING UNDER STEP TWO OR STEP THREE.~~ In

the event a Party invokes Step Two, the OC shall, in writing, and no later than fourteen ~~(14five (5))~~ days after receipt of the Notice, refer the dispute in writing for consideration to the officers of highest authority of the Parties. Such officers shall meet in person no later than fourteen (14) days after such referral, and shall make a good faith effort to resolve the dispute. The Parties shall exchange written position papers concerning the dispute no later than forty-eight (48) hours in advance of such meeting. In the event the Parties fail to resolve the dispute under Step Two, ~~either of the~~ disputing ~~Party~~Parties shall be entitled to invoke Step Three.

1112.1.3 ~~_____~~ **Step Three.** After completion of Steps One and Two, ~~the Parties~~either Party to the dispute shall have the right to file, with respect to the dispute, an action only in the United States District Court for the District of Columbia, except as provided below, and each Party submits itself to the personal jurisdiction of such Court. The Parties agree that in any such action, each Party shall stipulate to have a United States Magistrate Judge conduct any and all proceedings in the litigation in accordance with 28 U.S.C. § 636(c), and Fed. R. Civ. P. 73, and shall waive any right to a trial of the dispute by jury. The decision of the Magistrate Judge shall be final and binding on the disputing Parties, and not subject to appeal, and ~~each~~either Party to the dispute may seek to enforce the decision, and any resulting order or judgment by judicial proceedings. In the event the United States District Court dismisses the action for lack of subject matter jurisdiction, and notwithstanding the foregoing, a Party may file an action in any court with jurisdiction in order to obtain a resolution of the dispute, and any right of a Party to the dispute to trial of the action by jury shall be waived.

1112.1.4 ~~_____~~ **Exceptions.** In the event of disputes involving Confidential Information, infringement or ownership of Intellectual Property or rights pertaining thereto, or any dispute where a Party seeks temporary or preliminary injunctive relief to avoid alleged immediate and irreparable harm, the procedures stated in this Article shall apply, but shall not preclude a Party from seeking such temporary or preliminary injunctive relief. If a Party seeks such judicial relief but fails to obtain it, the Party seeking such relief shall pay the reasonable attorneys' fees and costs of the other Party(s) incurred with respect to opposing such relief.

11.1.5 ~~_____~~ **Effect on FPA 205/206 Rights and Obligations.** Notwithstanding the foregoing, nothing in this Article 11 is intended to supersede or waive the FPA Sections 205 and/or 206 filing rights or obligations of the Parties, as applicable. For the avoidance of doubt, the Parties acknowledge that to the extent a Party is subject to FERC jurisdiction under the FPA, resolution of a dispute as agreed upon by the

Parties may require such Party to seek FERC acceptance FPA Section 205 or 206, and such request for acceptance should not itself be considered a breach of these dispute resolution procedures.

ARTICLE TWELVE
~~THIRTEEN~~—RETAINED RIGHTS OF PARTIES

12

13.1- Parties Entitled to Act Separately. This Agreement does not create or establish, and shall not be construed to create or establish, any partnership or joint venture between the Parties. This Agreement establishes terms and conditions solely of a contractual relationship, among independent entities, to facilitate the achievement of the joint objectives described in the Agreement. The contractual relationship established hereunder implies no duties or obligations among the Parties except as specified expressly herein. All obligations hereunder shall be subject to, and performed in a manner that complies with each Party's internal requirements; provided, however, this sentence shall not limit any payment obligation or indemnity obligation under **Section 1546.3**.

ARTICLE THIRTEEN
~~FOURTEEN~~—EFFECTIVE DATE, IMPLEMENTATION, TERM AND TERMINATION

13

14.1- **Effective Date; Implementation.** This Agreement shall become effective on the date it is executed by all Parties ("Effective Date").^[NC35]

1314.2- **Term.** This Agreement shall continue in full force and effect for a term of **five** ~~(5ten-10)~~ years, ^[SN36]and shall continue year to year thereafter, unless terminated earlier in accordance with the provisions of this Agreement.

1314.3- **Right of a Party to Terminate.**

1314.3.1 ~~Any~~**Either** Party may terminate this Agreement at any time upon not less than twelve (12) months' Notice to ~~to~~ the other ~~Parties.~~**Party.**

13.3.2 ~~Any~~**14.32** ~~Either~~ Party may terminate this Agreement in accordance with **Section 1314.4, 1314.5, or 1314.6.**

1314.4- **Termination or Modification Due to Regulatory Action.** In the event that FERC, or any person, takes any action to subject TVA or TVA's activities under this Agreement to FERC's jurisdiction under the Federal Power Act, **TVA may terminate this Agreement upon thirty (30) days' Notice. A**~~either~~ Party may terminate this Agreement upon thirty (30) days' Notice **if FERC makes, or requires the Parties to make, any substantive modifications to the provisions of this Agreement.**

~~**1314.5** Termination Due To FERC Modification.~~ PJM, which is subject to jurisdiction of the FERC under the Federal Power Act, has concluded that this Agreement need not be filed with FERC under the Federal Power Act and its implementing regulations. To any extent that FERC, any other administrative or judicial body, or any other person requires this Agreement to be filed with FERC for acceptance and approval, either Party may terminate this Agreement upon thirty (30) days' Notice if FERC makes any modifications to the provisions of this Agreement.

14.6- Change in NERC. This Agreement is premised on the existence of NERC, and the applicability of NERC definitions, policies, and procedures. To the extent that NERC ceases to exist in its current form, and/or is replaced with an entity with authority for reliability over the transmission systems of the Parties, the Parties shall promptly meet to determine whether to revise this Agreement to reflect the new reliability entity and the Parties' obligations in light of the authority of the new reliability entity or to terminate this Agreement.

1314.7- Survival. The applicable provisions of this Agreement shall continue in effect after any termination of this Agreement to provide for adjustments and payments ~~under Article Twelve~~, dispute resolution, determination and enforcement of liability, and indemnification, arising from acts or events that occurred during the period this Agreement was in effect.

1314.8- Post-Termination Cooperation. Following any termination of this Agreement, both Parties shall thereafter cooperate fully and work diligently in good faith to achieve an orderly resolution of all matters resulting from such termination.

ARTICLE FOURTEEN
~~**FIFTEEN**~~—**CONFIDENTIAL INFORMATION**

14

15.1- Definition. The term "Confidential Information" shall mean: (a) all data and information, whether furnished before or after the execution of this Agreement, whether oral, written, or recorded/electronic, and regardless of the manner in which it is furnished, that is marked "Confidential" or "Proprietary" or which under all of the circumstances should be treated as confidential or proprietary; (b) any data or information deemed confidential under some other form of confidentiality agreement or tariff provided to a Party by a generator; (c) all reports, summaries, compilations, analyses, notes, or any other data or information of a Party hereto which are based on, contain, or reflect any Confidential Information; (d) applicable material deemed Confidential Information pursuant to the PJM Data Confidentiality Regional Stakeholder Group; and (e) any data and information which, if disclosed by a transmission function employee of a utility regulated by the FERC to a market function employee of the same utility system, other than by public posting, would violate the FERC's Standards of Conduct set forth in 18 C.F.R. §§ ~~37.1-37.8~~ and the PJM's Standards of Conduct on file with the FERC and TVA's Standard of Conduct. The Parties

agree that Confidential Information constitutes commercially sensitive and proprietary trade secret information.

14.1.1 ~~Confidential Data Exchange.~~ The Parties agree that various components of the data exchanged under ~~Sections~~ **Section 4.1** and 6.1, including transmission and data exchanged under, § 4.1.4.10 (a) (generation scheduled outage data and unscheduled or Scheduled Outages), 4.1.4.10(e) (notifications of short term forced outage outages), and data exchanged under § 5.1.1 (12 month schedule for Scheduled Outages), are Confidential Information:

- ~~(a)~~ **(a)** The Party receiving the Confidential Information shall treat the information in the same confidential manner as its Governing Documents require it treat the confidential information of its own members and market participants.
- ~~(b)~~ **(b)** The receiving Party shall not release the producing Party's Confidential Information until expiration of the time period controlling the producing Party's disclosure of the same information, as such period is described in the producing Party's Governing Documents from time to time. As of the Effective Date, this period is six (6) months with respect to bid or pricing data, and seven (7) calendar days for transmission data after the event ends.
- ~~(c)~~ **(c)** All other prerequisites applicable to the producing Party's release of such Confidential Information have been satisfied as determined by the producing Party.
- ~~(d)~~ **(d)** Notwithstanding any other provision in this Agreement, EMS models and the data used for EMS modeling exchanged pursuant to § 4.1 may be released to the receiving party's Transmission Owners for operational or reliability compliance purposes. The respective Party's Transmission Owners shall be required to maintain the EMS models and the data as confidential in a manner consistent with or superior to the terms and conditions contained herein.

14.2 **14.2** **Protection.** During the course of the Parties' performance under this Agreement, a Party may receive or become exposed to Confidential Information. Except as set forth herein, the Parties agree to keep in confidence, and not to copy, disclose, or distribute any Confidential Information or any part thereof, without the prior written permission of the issuing Party. In addition, each Party shall ensure that its employees, its agents, its subcontractors, and its subcontractors' employees, and agents to whom Confidential Information is given or exposed, agree to be bound by the terms and conditions contained herein. Each Party shall be liable for any breach of this Article by its employees, its agents, its subcontractors, and its subcontractors' employees and agents.

~~15.3~~ **14.3 Scope.** This obligation of confidentiality shall not extend to data and information that, at no fault of a recipient Party, is or was: (a) in the public domain or generally available or known to the public; (b) disclosed to a recipient by a non-Party who had a legal right to do so; (c) independently developed by a Party or known to such Party prior to its disclosure hereunder; and (d) which is required to be disclosed by subpoena, law, or other directive of a Governmental Authority.

~~15.4~~—**14.4 Standard of Care.** Each Party shall protect Confidential Information from disclosure, dissemination, or publication. Regardless of whether a Party is subject to the jurisdiction of the FERC under the Federal Power Act, and regardless of whether a Party is a RTO, each Party agrees to restrict access to all Confidential Information to only those persons authorized to view such information (a) by the FERC’s Standards of Conduct, 18 C.F.R. §§

§§ 37.1-37.8 or, if more restrictive, (b) by such Party’s board resolutions, tariff provisions, or other internal policies governing access to, and the sharing of, energy market or transmission system information.

~~14.5.5-~~ **Required Disclosure.** If a Governmental Authority requests or requires a Party to disclose any Confidential Information, such Party shall provide the supplying Party with prompt Notice of such request or requirement so that the supplying Party may seek an appropriate protective order or other appropriate remedy or waive compliance with the provisions of this Agreement. Notwithstanding the absence of a protective order or a waiver, a Party shall disclose only such Confidential Information, which it is legally required to disclose. Each Party shall use reasonable efforts to obtain reliable assurances that confidential treatment ~~shall~~will be accorded to Confidential Information required to be disclosed.

In response to any Freedom of Information Act (FOIA) request for information received from or relating to a Party which has been designated Confidential Information, TVA shall evaluate the request and determine the applicability of any FOIA exemptions. TVA shall consult with the affected Party regarding the applicability of the FOIA exemptions, including 5 U.S.C. § 552. Pursuant to its responsibilities under the FOIA, TVA must make the final determination regarding whether the information requested is legally exempt from disclosure under the FOIA, and shall notify PJM in advance of the release of any Confidential Information as part of the response to a FOIA request.

If a Party is required to disclose any Confidential Information (the Disclosing Party) under this Section, a Party supplying such Confidential Information (the Supplying Party) shall have the right to immediately suspend supplying such Confidential Information to the Disclosing Party. In that event, the Parties shall meet as soon as practicable in an effort to resolve any and all issues associated with the required disclosure of such Confidential Information, and the likelihood of additional disclosures of such Confidential Information. If the Parties are unable to resolve those issues within ten (10) days, notwithstanding **Section 14.3**, the Supplying Party shall have the right to terminate this Agreement immediately.

1415.6- Return of Confidential Information. All Confidential Information provided by the supplying Party shall be returned by the receiving Party to the supplying Party promptly upon request. Upon termination or expiration of this Agreement, a Party shall use reasonable efforts to destroy, erase, delete, or return to the supplying Party any and all written or electronic Confidential Information. In no event shall a receiving Party retain copies of any Confidential Information provided by a supplying Party.

1415.7- Equitable Relief. Each Party acknowledges that remedies at law are inadequate to protect against breach of the covenants and agreements in this Article, and hereby in advance agrees, without prejudice to any rights to judicial relief that it may otherwise have, to the granting of equitable relief, including injunction, in the supplying Party's favor without proof of actual damages. In addition to the equitable relief referred to in this Section, a supplying Party shall only be entitled to recover from a receiving Party any and all gains wrongfully acquired, directly or indirectly, from a receiving Party's unauthorized disclosure of Confidential Information.

ARTICLE ~~SIXTEEN~~ FIFTEEN
~~SIXTEEN~~—ADDITIONAL PROVISIONS

15

16.1- Unauthorized Transfer of Third-Party Intellectual Property. In the performance of this Agreement, no Party shall transfer to ~~another~~~~the other~~ Party any Intellectual Property, the use of which by that Party would constitute an infringement of the rights of any ~~non-Party~~~~nonParty~~. In the event such transfer occurs, whether or not inadvertent, the transferring Party shall, promptly upon learning of the transfer, provide Notice to the receiving Party and upon receipt of such Notice the receiving Party shall take reasonable steps to avoid claims and mitigate losses.

1516.2- Intellectual Property Developed Under This Agreement. If during the term of this Agreement, the Parties mutually develop any new Intellectual Property that is reduced to writing, the Parties shall negotiate in good faith concerning the ownership and licensing of such Intellectual Property.

1516.3- Indemnification. Each Party shall defend, indemnify, and hold the other ~~Parties~~~~Party~~ harmless from all actual losses, damages, liabilities, claims, expenses, causes of action, and judgments (collectively, "Losses"), brought or obtained by any non-Party against such Party, only to the extent that such Losses arise directly from:

- (a) (a) Gross negligence, recklessness, or willful misconduct of such Party or any of its agents or employees, in the performance of this Agreement, except to the extent the Losses arise (i) from gross negligence, recklessness, willful misconduct or breach of contract or law by ~~another~~~~the other~~ Party or such other Party's agents or employees, or (ii) as a consequence of strict liability imposed as a matter of law upon another Party, or such other Party's agents or employees;

- (b) ~~employees, or (ii) as a consequence of strict liability imposed as a matter of law upon the other Party, or such other Party's agents or employees;~~
- (b) Any claim that such Party violated any copyright, patent, trademark, license, or other intellectual property right of a non-Party in the performance of this Agreement;
- (e) ~~(c)~~ Any claim arising from the transfer of Intellectual Property in violation of **Section 16.1 15.1**; or
- (d) (d) Any claim that such Party caused bodily injury to an employee of ~~another~~ **the other** Party due to gross negligence, recklessness, or willful conduct of such Party.

16.4 15.4 Limitation of Liability. Except as set forth in this Article: (a) no Party shall be liable to ~~another~~ **the other** Party, directly or indirectly, for any damages or losses of any kind sustained due to any failure to perform its obligations under this Agreement, unless such failure to perform was malicious or reckless; and (b) any liability of a Party to ~~another~~ **the other** Party shall be limited to direct damages, and no lost profits, damages to compensate for lost goodwill, consequential damages, or punitive damages shall be sought or awarded.

16.5 15.5 Permitted Assignments. This Agreement may not be assigned by ~~either~~ Party except: (a) with the written consent of the non-assigning ~~Parties~~ **Party**, which consent may be withheld in **each** such Party's absolute discretion; and (b) in the case of a merger, consolidation, sale, or spin-off of substantially all of a Party's assets. In the case of a merger, consolidation, sale, reorganization, or spin-off by a Party, such Party shall assure that the successor or purchaser adopts this Agreement, and the other ~~Parties~~ **Party** shall be deemed to have consented to such adoption.

16.6 15.6 Liability to Non-Parties. Nothing in this Agreement, whether express or implied, is intended to confer any rights or remedies under or by reason of this Agreement on any person or entity that is not a Party or a permitted successor or assign; provided, that nothing in this Section shall affect the rights or obligations of any Reciprocal Entity under a Reciprocal Coordination Agreement.

16.7 15.7 Force Majeure. No Party shall be in breach of this Agreement to the extent and during the period that such Party's performance is made impracticable by any unanticipated cause or causes beyond such Party's control, and without such Party's fault or negligence, which may include, but are not limited to, any act, omission, or circumstance occasioned by or in consequence of any act of God, labor dispute, act of the public enemy, war, insurrection, riot, fire, storm or flood, explosion, breakage or accident to machinery or equipment, or curtailment, order, regulation or restriction imposed by a Governmental Authority. Upon the occurrence of an event considered by a Party to constitute a force majeure event, such Party shall use reasonable efforts to endeavor to continue to perform its obligations as far as reasonably practicable and to remedy the event, provided that this Section shall not require ~~either~~ Party to settle any strike or labor dispute. A Party claiming

a force majeure event shall notify the other ~~Parties~~Party in writing immediately, and in no event later than forty-eight (48) hours after the occurrence of the force majeure event. -The foregoing notwithstanding, the occurrence of a cause under this Section shall not excuse a Party from making any payment otherwise required under this Agreement.

16.8 **15.8** **Amendment.** No amendment of or modification to this Agreement shall be made or become enforceable except by a written instrument duly executed by all of the Parties.

16.9 **15.9** **Headings.** The headings used for the Articles and Sections of this Agreement are for convenience and reference purposes only, and shall not be construed to modify, expand, limit, or restrict the provisions of this Agreement.

16.10 **15.10** **Counterparts.** This Agreement may be executed in any number of counterparts, each of which shall be an original, but all of which together ~~shall will~~ constitute one instrument, binding upon the Parties hereto, notwithstanding that both Parties may not have executed the same counterpart.

16.11 **15.11** **Notices.** A notice (“Notice”) shall be effective only if in writing and delivered by: hand; reputable overnight courier; United States mail; or telefacsimile. Electronic mail is not effective Notice. Notice shall be deemed to have been given: (a) when delivered to the recipient by hand, overnight courier, or telefacsimile or (b) if delivered by United States mail, on the postmark date. Notice shall be addressed as follows:

____PJM:____ Michael ~~E. Bryson~~~~J. Kormos~~
~~Executive~~Vice President, Operations PJM Interconnection, L.L.C.
2750 Monroe Boulevard
Valley Forge Corporate Center
Audubon, PA 19403
Tel: (610) 666-~~46594377~~
Fax: (610) 666-4281

____TVA:____
~~Gregory J. Henrich~~
~~Timothy E. Ponseti~~
Vice President, Transmission Operations & Power Supply
Tennessee Valley Authority
1101 Market Street, MR 1 B-C
Chattanooga, TN 37402-2801
Tel: (423) 751-~~29182699~~
Fax: (423) 751-7116

LG&E/KU:
[need to insert contact information]

A Party may change its designated recipient of Notices, or its address, from time to time, by giving Notice of such change.

1516.12 ~~_____~~ **-Governing Law.** This Agreement and the rights and duties of the Parties relating to this Agreement shall be governed by and construed in accordance with the Federal laws of the United States of America, including but not limited to federal, and general contract law. Subject to Article Eleven (Dispute Resolution).

~~15 Subject to Article Twelve (Dispute Resolution).~~

16.13 ~~_____~~ **-Prior Agreements; Entire Agreement.** All prior agreements by the Parties relating to the matters contemplated by this Agreement, whether written or oral, are superseded by this Agreement, and shall be of no further force or effect. ~~For the avoidance of doubt, as provided under Section 3.2, this Agreement does not supersede the JOA.~~

PJM INTERCONNECTION, ~~L.L.C.~~ LLC

By:

Signature

Michael ~~Bryson, J. Kormos~~

~~Executive~~ Vice President, Operations

TENNESSEE VALLEY AUTHORITY

By:

[name]

Signature

Jacinda B. Woodward

Senior Vice President - Transmission

LOUISVILLE GAS & ELECTRIC COMPANY

By:

[name] [title]

KENTUCKY UTILITIES COMPANY

By:

[name] [title]
