

Business Practices Manual

Participation

Revision History

| Revision Number | Description | Revised by: | Effective Date |
|-----------------|------------------------------------|-------------|----------------|
| 0 | Initial Draft | | 11/9/2022 |
| 1 | Revisions to Clarify Participation | | 6/1/2023 |

Table of Contents

| | |
|---|----|
| 1. Definitions..... | 6 |
| 2. Introduction | 9 |
| 2.1. Purpose of this BPM | 9 |
| 2.2. SEEM Platform | 9 |
| 2.3. SEEM – Members and Participants..... | 9 |
| 2.3.1 SEEM Members..... | 9 |
| 2.3.2 SEEM Participants | 9 |
| 2.4. NFEETS | 10 |
| 2.5. Representative Participation | 10 |
| 2.6. Additional Information | 11 |
| 3. Market Engine..... | 11 |
| 3.1. Overview | 11 |
| 3.2. SEEM Platform Interfaces | 11 |
| 3.3. Participant Inputs..... | 12 |
| 3.3.1 Participation..... | 12 |
| 3.3.2 Bid to Buy..... | 12 |
| 3.3.3 Offer to Sell..... | 12 |
| 3.3.4 All or Nothing Selection | 13 |
| 3.3.5 Maximum Energy Exchange Price..... | 13 |
| 3.3.6 Additional Bid and Offer Limit Information | 13 |
| 3.4. Participating Transmission Provider Inputs | 13 |
| 3.4.1 Available Transfer Capability (ATC) of NFEETS | 14 |
| 3.4.2 Loss Rate (\$/MWh) and Loss Factor (%) | 14 |
| 3.4.3 Network Map | 14 |
| 3.5. Constraints..... | 14 |
| 3.5.1 Participant-Specific Constraints..... | 14 |
| 3.5.2 Generally Applicable Constraints..... | 15 |
| 3.5.3 Other Constraints..... | 15 |
| 3.6. Market Solution | 15 |
| 3.6.1 Timing | 16 |
| 3.6.1.1. Delivery Intervals | 16 |
| 3.6.1.2. Deadlines | 16 |
| 3.6.1.2.1. Participants | 16 |

| | | |
|------------|--|----|
| 3.6.1.2.2. | Participating Transmission Providers..... | 16 |
| 3.6.1.3. | Solution | 16 |
| 3.6.1.4. | Timing Example – First 15-minute Delivery Interval..... | 17 |
| 3.6.2 | Optimization Statement to Maximize Market Benefit | 17 |
| 3.6.3 | Solver | 17 |
| 3.6.4 | Parameters – as recommended and set by SEEM Administrator..... | 17 |
| 3.7. | Benefit, Matching, Pricing, and other Principles | 17 |
| 3.7.1 | Benefit..... | 17 |
| 3.7.2 | Matching Principles | 18 |
| 3.7.3 | Point of Sale | 18 |
| 3.7.3.1. | Example – Delivery to external BA..... | 18 |
| 3.7.3.2. | Example – Delivery within non-SOCO BA from external | 19 |
| 3.7.3.3. | Example – Delivery to SOCO BA from external BA | 19 |
| 3.7.3.3.1. | Delivery from external BA to SOCO BA..... | 19 |
| 3.7.3.3.2. | Delivery from external BA to SOCO BA and wheeled | 19 |
| 3.7.3.4. | Example – Delivery within SOCO BA from internal..... | 19 |
| 3.7.4 | Energy Exchange Price | 19 |
| 3.7.5 | Maximum Energy Exchange Price..... | 20 |
| 3.7.6 | Randomization | 20 |
| 3.8. | Outputs | 20 |
| 3.8.1 | Energy Exchanges | 20 |
| 3.8.2 | TSRs..... | 20 |
| 3.8.3 | E-Tags..... | 20 |
| 3.8.4 | Transmission Financial Loss Data..... | 21 |
| 3.9. | Reports..... | 21 |
| 3.9.1 | Available Reports | 21 |
| 3.9.2 | SEEM Participant Reports | 23 |
| 3.9.2.1. | SEEM Match Results Report | 23 |
| 3.9.2.2. | SEEM Participant Monthly Benefit Report | 23 |
| 3.9.2.3. | SEEM Participant Monthly Loss Settlement Report | 24 |
| 3.9.2.4. | Bids and Offers Report..... | 24 |
| 3.9.3 | Participating Transmission Providers..... | 25 |
| 3.9.3.1. | TSP Capability History | 25 |
| 3.9.3.2. | TSP Loss Rates History | 25 |



| | | |
|----------|--|----|
| 3.9.3.3. | TSP Loss Factors History..... | 26 |
| 3.9.3.4. | TSP Loss Settlement Report..... | 26 |
| 4. | Additional Market Engine Details | 27 |
| 4.1. | Georgia ITS Financial Loss Costs – Rule | 27 |
| 4.2. | CPLC/CPLW Financial Loss Costs – Rule | 27 |
| 4.3. | Available Transmission Capability Usage..... | 28 |
| 5. | SEEM Administrator | 28 |
| 5.1. | Role | 28 |
| 5.2. | Data Reporting..... | 29 |
| 5.2.1 | Public Reporting..... | 29 |
| 5.2.2 | Reporting to FERC | 30 |
| 5.2.3 | Participant Access to Its Own Data | 31 |
| 6. | Market Auditor | 31 |
| 6.1. | Role | 31 |
| 6.2. | Monitoring Activities | 32 |
| | Appendix..... | 35 |
| | Appendix A – SEEM Solution Examples | 36 |
| | Appendix B – SEEM Auditor Agreement, Schedule 4 – Market Screens and Metrics | 42 |
| | Appendix C – Participant Agreement | 45 |
| | Appendix D – Participant Application | 51 |
| | Appendix E – Declaration of Authority | 55 |

1. Definitions

The following terms shall be defined as indicated for the purposes of this manual. Definitions and terms expressed in the singular shall include the plural and vice versa. Any capitalized terms not defined herein shall have the meaning set forth in the SEEM Agreement.

All-or-Nothing – An available constraint that a Participant can use when bidding or offering into the market that determines whether the submission: 1) must be matched in full or not at all or 2) can be matched at any volume below the Bid or Offer volume (subject to the 4MW increment rule) (“All or Nothing Selection”).

Balancing Authority (BA) – the responsible entity that integrates resource plans ahead of time, maintains demand and resource balance within a Balancing Authority Area, and supports interconnection frequency in real time.

Balancing Authority Area (BAA) – 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.

Bid – a voluntary submission containing the required Bid Information to purchase a certain amount of Non-Firm Energy (set forth in MW).

Clock Hour – the sixty-minute period ending at :00.

Contract Path – the continuous transmission path for the flow of Non-Firm Energy between the Participants reserved for an Energy Exchange using the transaction matching, reservation and tagging functions of the SEEM System.

Delivery Interval – the 15-minute period in which Non-Firm Energy is intended to be delivered by a seller to its matched buyer.

Energy Exchange – a transaction for the purchase and sale of Non-Firm Energy in the SEEM between Participants pursuant to an Enabling Agreement and in conformance with the requirements of the SEEM Market Rules.

Electronic Tag or e-Tag – the primary method for coordination of Interchange Schedules or Energy Schedules where energy is transferred between Balancing Authority Areas and coordination required between multiple entities. Various entities can communicate important information pertaining to the Interchange transaction to each other via the internet using computer applications, which are based on the e-Tag specifications and schema maintained by the North American Energy Standards Board (“NAESB”).

Losses – total cost of the electrical energy lost in the transmission of electrical energy from a Source to a Sink, based on the real power Loss Factor (%) and Loss Rate (\$/MWh) of each participating transmission provider along the Energy Exchange’s Contract Path.

Network Map – the computer-based representation of all participating transmission provider service territories, Balancing Authorities, valid transmission paths (Point of Receipt – Point of Delivery combinations), Sources and Sinks.

Non-Firm Energy – a product for which delivery or receipt of the energy may be interrupted for any reason or no reason, without liability on the part of either the buyer or the seller.

Non-Firm Energy Exchange Transmission Service (NFEETS) – transmission service provided by a Participating Transmission Provider or “PTP”, pursuant to its Tariff, that:

- is non-firm transmission service with the lowest curtailment priority (O-NX), provided solely on an as-available basis for 15-minute energy exchanges, after taking into account other higher priority uses and the limitations of the transmission system of the participating transmission provider;
- is available solely for SEEM energy exchanges;
- is identified and offered in the Tariff as “Non-Firm Energy Exchange Service;”
- the charge for such service, and related Schedule 1 and Schedule 2 (or equivalent) ancillary services, is \$0/MWh;
- the charge for financial losses is based on the methodology established in the Participating Transmission Provider’s Tariff;
- must be obtained by a SEEM Participant using the transaction matching, reservation, and tagging functions of the SEEM system rather than directly through Open Access Same Time Information System (OASIS) or other reservation, scheduling, or tagging requirements applicable to other forms of transmission service offered by the Participating Transmission Provider;
- may not be reassigned, redirected, or sold by the transmission customer;
- in combination with the other Participating Transmission Providers’ provisions of NFEETS, the service allows for a continuous Contract Path for Energy Exchanges;
- the Participating Transmission Provider is required to provide the information specified in and as required by Section IV.A.2 of the SEEM Market Rules to the SEEM System.

Offer – a voluntary submission containing the required Offer Information to sell a certain amount of Non-Firm Energy (set forth in MW).

Participant Profile – information identified in Sections IV.A.1. and IV.C.6. of the SEEM Agreement, and such other information requested by the SEEM System Interface, to assist in the creation of Energy Exchanges.

Sink – a pre-approved and validated OATI webRegistry sink point.

Source – a pre-approved and validated OATI webRegistry source point.



SEEM Agent – entity designated by the SEEM Membership Board to act on behalf of each SEEM member for the development and operation of the SEEM Platform under Article 6 of the SEEM Agreement and limited to the actions contained in the SEEM Agent Scope (SEEM Agreement, Appendix C)

SEEM Agreement – FERC-accepted Agreement between the SEEM Members that outlines, defines, and governs the development and operation of the SEEM.

SEEM Algorithm – the mathematical equations that determine the matching bids and offers resulting in energy exchange.

SEEM Market Rules – the rules set forth in Appendix B of the SEEM Agreement that govern participation in SEEM, bidding, offering, matching procedures, data reporting, SEEM Website posting, and auditing process for SEEM.

SEEM System Interface – the graphical user interface (GUI) and application programming interfaces (API) used by the SEEM that meet the SEEM System requirements developed by the SEEM Administrator and the Operating Committee.

SEEM Territory – collectively, the areas served by the Participating Transmission Providers.

2. Introduction

2.1. Purpose of this BPM

This Southeast Energy Exchange Market (SEEM) *Business Practices Manual (BPM) – Participation* is intended to help SEEM Participants better understand the interfaces, functionality, and operation of the SEEM Platform. It also provides background information, guidelines, rules, and processes for Participants engaging with the SEEM Platform. While this BPM will be updated periodically, with changes managed and published by the Operating Committee, the SEEM Agreement controls in the event of any conflict. In the event of a conflict between the terms of the Agreement and the terms of this manual, the terms of the Agreement shall control.

2.2. SEEM Platform

The SEEM Platform has been developed by Hartigen and utilizes their PowerOptix Platform to manage all facets of market operation from data management and workflow automation to market engine solution and result reporting. The PowerOptix software is web-hosted on the Azure cloud Platform. User access and data availability within SEEM is specific to each Participant's users and the roles/functions within their organizations, e.g., marketing or transmission. Each Participant will have Entity Security Administrators (ESA) to manage personnel access and market data visibility.

Participants can access, submit data to, and receive data from the SEEM Platform by utilizing the web-hosted UI or via API. This information, along with their Participant Profile, the SEEM Network Model, and Participant-Specific and Generally Applicable Constraints will be used to create Bid/Offer matches with other Participants for Energy Exchanges.

SEEM manages the creation of e-Tags and TSRs for matched trades through the SEEM Platform. This process is automated to mitigate the effort required to facilitate SEEM trades within the condensed 15-minute trade window. Participants must provide OASIS and tagging credentials to the SEEM Platform to allow SEEM to create TSRs and e-Tags on behalf of the Participants.

2.3. SEEM – Members and Participants

While SEEM Members can be Participants, neither are required to be both, and each role has distinct rights and obligations under the SEEM Agreement. For more comprehensive Membership and Participation details, reference the SEEM Agreement.

2.3.1 SEEM Members

Members govern the SEEM pursuant to the terms of the SEEM Agreement and have a seat on the Membership board, which is responsible for all significant decisions for the SEEM. Additionally, a subset of four representatives makes up the Operating Committee, which oversees the day-to-day operations of the SEEM. Operating Committee Members are elected annually (or as needed) by the Members of each Sector.

2.3.2 SEEM Participants

Participation in the SEEM carries separate and distinct rights and obligations from Membership. A Participant must:

- Own or otherwise control a Source (where “control” means the ability to decide when/how to sell the power) within the Territory and/or be contractually obligated to serve a Sink within the SEEM territory;
- Execute a Participant Agreement (Appendix A of the SEEM Agreement) delivered to the SEEM Secretary and SEEM Administrator;
- Execute and deliver a NFEETS Transmission Service Agreement with each PTP, or otherwise have access to NFEETS from each PTP;
- Have or enter into an Enabling Agreement with at least 3 or more Participants.

In addition to these requirements, Participants must also adhere to the SEEM Market Rules (Appendix B of the SEEM Agreement) which outlines Bid and Offer information and requirements, SEEM matches, and reporting. Participation in the SEEM is always voluntary, and a Participant at any time may choose not to transact within the SEEM without reason or cause. Participants may also choose to disable counterparties or locations at their discretion subject to the three Counter-Party Rule discussed below. While SEEM Participants do not have voting rights, they are also not responsible for the costs to maintain the SEEM Platform and there are no timing requirements for a Participant to join SEEM, unlike the annual deadlines for Membership.

Annually, Participants and other stakeholders (including the general public) will be notified of the Annual Meeting and invited to attend. The SEEM Administrator will provide notice to Participants and Stakeholders of the date, place, hour and purpose or purposes of the meeting at least 7 business days in advance. Such notice may be provided via email.

Participants are also able to attend SEEM Membership Board meetings unless attendance at a particular meeting or portion thereof is limited for confidentiality purposes. Participants and other stakeholders can access documentation or meeting minutes from Membership Board meetings on the public portion of the SEEM Website. Hourly, daily, and monthly public reports will also be available on the public portion of the SEEM Website containing the information outlined in Section V of the Market Rules (Appendix B of the SEEM Agreement).

2.4. NFEETS

All SEEM participants must have NFEETS Agreements with all Participating Transmission Providers (PTP) to trade on the SEEM. Both members and participants that are also a Transmission Service Provider (TSP) must have NFEETS available in their Tariff (or equivalent) and are required to offer NFEETS and submit the necessary information (Loss Rate and Loss Factor) to the SEEM Platform to allow customers to utilize their transmission for SEEM transactions. In some cases, the SEEM Platform and guides may refer to TSP instead of PTP but they are synonymous.

2.5. Representative Participation

In the case where more than one entity meets the Participant eligibility requirements for a particular set of Sources or Sinks, the entities who own or control the applicable Source(s) and/or Sink(s) will determine which entity will be the SEEM Participant and submit an application to become a Participant accordingly. Participation in the SEEM is not dependent on the actual Participant interfacing with the SEEM Platform

themselves. In the event a Participant chooses to have another entity act on their behalf, an arrangement that may exist in the hourly bilateral market, SEEM will support this arrangement or form of agency agreement. Hartigen will allow these entities to act on behalf of SEEM Participants, provided the Participant:

- designate its agent in the SEEM Participant Application (see Appendix D) and submit it to the SEEM Administrator;
- sign the Declaration of Authority (see Appendix E) and submit it to the SEEM Administrator;
- Acknowledge that all Participant rights, responsibilities, and obligations under the SEEM Agreement remain with the Participant;
- Acknowledge that notwithstanding the authorization for the non-Participant to participate on the Participant's behalf, nothing diminishes or eliminates the Participant's rights, responsibilities, and obligations under the Participation Agreement to the extent the non-Participant fails to satisfy those responsibilities or obligations when participating on behalf of the Participant; and
- Acknowledge that it is the Participant's responsibility to inform the SEEM Administrator of changes to this authorization.

2.6. Additional Information

SEEM Filings and Documentation: [Filings & Docs | Southeast Energy Exchange Market \(southeastenergymarket.com\)](https://southeastenergymarket.com/filings-docs)

SEEM Participant Informational Webinars: [Southeast Energy Exchange Market \(southeastenergymarket.com\)](https://southeastenergymarket.com/webinars)

3. Market Engine

3.1. Overview

The Market Engine is the 15-min model that collects all necessary Energy Exchange data, runs the SEEM Algorithm, processes the results of the SEEM Algorithm, and generates the output data, reports, and e-Tags and TSRs needed for Energy Exchanges. The SEEM Algorithm will match Bids and Offers from Participants so as to result in Energy Exchanges that maximize the total benefit for the applicable Delivery Interval while simultaneously honoring all requirements and constraints. The total benefit shall be calculated by aggregating the benefits from each Energy Exchange for the applicable Delivery Interval. See SEEM Agreement, Appendix B, Section IV.C.

Energy Exchange means a transaction for the purchase and sale of Non-Firm Energy in SEEM between Participants pursuant to an Enabling Agreement and in conformance with the requirements of the SEEM Market Rules.

3.2. SEEM Platform Interfaces

There are two ways to interface with the SEEM Platform: via API or with the SEEM web-hosted UI. Reference data, model submission data, and reporting data are all available from API as well as user

enterable within the SEEM Platform. The SEEM Platform accepts push notifications with asynchronous messaging when using APIs, though the Participant must use an active listener to ensure the responses (which may not be aligned with the data submission) are received.

For more details on authentication, API calls, code examples, etc., review the SEEM Integration Guide available in the Document Center on the SEEM Platform. Additionally, the SEEM Public API Specification is available here: [Swagger UI \(seemplatform.com\)](https://seemplatform.com/swagger-ui) For initial access or any issues or questions regarding APIs or interfacing with the SEEM Platform, contact SEEM Support at support@hartigen.com.

3.3. Participant Inputs

3.3.1 Participation

Submission of Bids and Offers is voluntary. Participants are not required to submit any Bids or Offers for any Delivery Interval. See SEEM Agreement, Appendix B, Section IV.B.3.d.

If a Participant's Bid or Offer is submitted past the allowable deadline, the Bid or Offer will not be considered for that Delivery Interval.

Enabling Agreements (and associated credit) to facilitate SEEM transactions between the Buyer and Seller are the responsibility of the Buyer and Seller and exist outside of the SEEM Platform.

3.3.2 Bid to Buy

All Bids must include:

- Participant name
- Bid volume (MW) in increments of 4 MW
- Bid Price (\$/MWh)
- Sink
- Specific Delivery Interval
- All or Nothing selection.

A Bid Price represents the maximum price that the Bidder is willing to pay in \$/MWh.

Sink means a pre-approved and validated OATI webRegistry sink point. See SEEM Agreement, Appendix B, Section II. A Sink is associated with a specific load or system where the energy is consumed.

3.3.3 Offer to Sell

All Offers must include:

- Participant name
- Offer volume (MW) in increments of 4 MW

- Offer Price (\$/MWh)
- Source
- Specific Delivery Interval
- Maximum Energy Exchange Price (\$/MWh; optional)
- All or Nothing selection.

An Offer Price represents the minimum price that the Offeror is willing to collect to sell in \$/MWh.

Source means a pre-approved and validated OATI webRegistry source point. See SEEM Agreement, Appendix B, Section II. A Source is associated with a specific generator or system where the energy is generated.

3.3.4 All or Nothing Selection

An “All or Nothing” selection (indicated by the “In Full” checkbox on the SEEM platform) of “True” means the bid or offer volume must be matched in full, though the bid or offer volume can be broken into multiple Energy Exchanges to fulfill the full volume. If the “All or Nothing” selection is “False,” the bid or offer volume can be matched at any volume below the bid or offer volume or broken into multiple Energy Exchanges to fulfill the full volume (subject to the 4MW increment SEEM constraint).

3.3.5 Maximum Energy Exchange Price

An Offer may include the Maximum Energy Exchange Price in \$/MWh which is the highest (not to exceed) price that the Participant is willing to accept for the applicable Delivery Interval. See SEEM Agreement, Appendix B, Section IV.B.3.b. In the Geographic Profile Participants can specify the BAs where a Maximum Energy Exchange Price applies.

3.3.6 Additional Bid and Offer Limit Information

Participants are permitted to submit multiple Bids or Offers for the same Delivery Interval with varying Source or Sink locations (as applicable), volume amounts, and pricing, subject to any limitation on the number of Bids or Offers that may be submitted at any one Source or Sink for a particular Delivery Interval. See SEEM Agreement, Appendix B, Section IV.B.3.c.

At present, there is no limit on the number of Bids or Offers that may be submitted at any one Source or Sink for a particular Delivery Interval.

There is no limit on the maximum volume of a Bid or Offer, but as a result of the 4 MW Bid or Offer volume increment requirement, there is effectively a minimum volume of 4 MW for a Bid or Offer.

3.4. Participating Transmission Provider Inputs

Each Participating Transmission Provider provides Non-Firm Energy Exchange Transmission Service to Participants. Participants are required to have Non-Firm Energy Exchange Transmission Service agreements with each Participating Transmission Provider.

3.4.1 Available Transfer Capability (ATC) of NFEETS

Each Participating Transmission Provider provides to the SEEM Administrator the Available Transfer Capability as calculated by the Participating Transmission Provider per the methodology for calculating ATC that each Participating Transmission Provider already specifies in its OATT (or equivalent) and posts on its OASIS (or equivalent), as that ATC may change from time to time. SEEM Agreement, Appendix B, Section IV.A.2.

While the NFEETS ATC value is pulled once per hour by the SEEM Platform from OASIS, a PTP is able to update their ATC mid-hour to ensure the SEEM Platform has the most up-to-date value for Energy Exchanges. These adjustments could be due to an increase or decrease in ATC due to non-SEEM sub-hourly transactions or responding to reliability issues. In the event changes are necessary, the SEEM Platform allows NFEETS ATC overrides.

3.4.2 Loss Rate (\$/MWh) and Loss Factor (%)

Loss Rate (\$/MWh) and Loss Factor (%) are an input into the SEEM Platform by the relevant Participating Transmission Provider. Each Participating Transmission Provider determines the method for pricing its Losses. Each Participating Transmission Provider's addresses its Losses will be priced. Losses means the total cost of the electrical energy lost in the transmission of electrical energy from a Source to a Sink based on the real power Loss Factor (%) and Loss Rate (\$/MWh) of each Participating Transmission Provider on the Energy Exchange's Contract Path. SEEM Agreement, Appendix B, Section II.

3.4.3 Network Map

Based on information provided by Participating Transmission Providers, the Network Map consists of balancing authority areas (BAAs), Sources, Sinks, Participating Transmission Providers, points of receipt (PORs), points of delivery (PODs) connected to form SEEM Segments and interconnected to form SEEM Paths. SEEM Segments are a combination of Participating Transmission Providers, PORs, and PODs. SEEM Paths are the combination of multiple SEEM Segments to form the Contract Path. Contract Path means the continuous transmission path for the flow of Non-Firm Energy between the Participants reserved for an Energy Exchange using the transaction matching, reservation and tagging functions of the SEEM System. SEEM Agreement, Appendix B, Section II.

3.5. Constraints

3.5.1 Participant-Specific Constraints

- The SEEM Platform contains a Participant Profile screen to allow a Participant to enable or disable counterparties and to mark whether a counterparty is an affiliate. Affiliated counterparties will not count toward the requirement below.
- Minimum of Three (3) Non-Affiliated Participants for Bid or Offer Consideration (the "Three Counterparty Rule")
 - Offers from a Participant for a Delivery Interval will not be processed unless the Participant's Participant-Specific Constraints are set such that there are at least three other non-affiliated Participants with whom the submitting Participant can be matched for an Energy Exchange as a Seller.
 - Bids from a Participant for a Delivery Interval will not be processed unless the Participant's Participant-Specific Constraints are set such that there are at least three (3) other non-

affiliated Participants with whom the submitting Participant can be matched for an Energy Exchange as a Buyer.

- Geographic Constraints
 - The SEEM Platform contains a Geographic Profile screen to allow a Participant to enable or disable specific balancing authorities (BAs) to buy from or sell to and to indicate whether to apply the Maximum Energy Exchange Price limitation when selling to a Participant in that BA.
- Participants shall not be required to provide a reason for any Participant-Specific Constraint. See SEEM Agreement, Appendix B, Section IV.A.1.b.iii.

3.5.2 Generally Applicable Constraints

- In matching Bids and Offers, the SEEM Algorithm shall not make any Energy Exchanges that would cause the ATC of any PTP on any given Contract Path to be exceeded.
- Energy Exchanges shall not be made that cause:
 - A Buyer to buy more MW than the volume set forth in its Bid
 - A Seller to sell more MW than the volume set forth in its Offer
 - A Buyer to buy at higher price than its Bid Price
 - A Seller to sell at a lower price than its Offer Price
- The SEEM Algorithm shall only make Energy Exchanges that yield positive benefits to both Buyer and Seller after Losses have been considered.
- The total MW of potential Energy Exchanges in any Delivery Interval shall not exceed the aggregate amount of Non-Firm Energy identified in the applicable Offers or Bids for such Delivery Interval.
- A Participant's Bid may not be matched with an Offer made by the same Participant.
- The Market Engine as designed is intended to prevent offsetting wash trades as the engine employs randomization and requires a minimum of three non-affiliated counterparties for a Participant to transact which limits a Participant's ability to pre-arrange an outcome. See SEEM Agreement, Appendix B, Section IV.C.6.b.vi. Therefore, transactions through SEEM are not without economic risk due to the nature of the matching process.

3.5.3 Other Constraints

The SEEM Algorithm will not allow for Energy Exchanges to cross the same transmission service provider more than once per BA.

Example of a SEEM Path for an Energy Exchange that is not allowed: TVA – SOCO – DUK – TVA – AECI

3.6. Market Solution

The SEEM Algorithm will match Bids and Offers from Participants so as to result in Energy Exchanges that maximize the Southeast Energy Exchange Market total benefit for the applicable Delivery Interval while simultaneously honoring all requirements and constraints. The total benefit shall be calculated by aggregating the benefits from each Energy Exchange for the applicable Delivery Interval. See SEEM Agreement, Appendix B, Section IV.C.1.

3.6.1 Timing

3.6.1.1. Delivery Intervals

Delivery Interval means a fifteen (15) minute period in which Non-Firm Energy is intended to be delivered by a Seller to its matched Buyer(s). See SEEM Agreement, Appendix B, Section II.

Each Clock Hour will consist of four (4) Delivery Intervals: xx:00 to xx:15; xx:15 to xx:30; xx:30 to xx:45; and xx:45 to xx:00 of the next Clock Hour. See SEEM Agreement, Appendix B, Section IV.B.1.

Clock Hour means the sixty-minute period ending at :00. See SEEM Agreement, Appendix B, Section II.

3.6.1.2. Deadlines

3.6.1.2.1. Participants

Bids and Offers must be submitted through the SEEM System Interface not earlier than seven (7) days prior to the applicable Delivery Interval and not later than fifteen (15) minutes prior to the Delivery Interval for which they are submitted. Participants may modify or cancel previously submitted Bids or Offers at any time before 15 minutes prior to the upcoming Delivery Interval; no further modifications may be submitted to a Bid or Offer within the fifteen (15)-minute period prior to the applicable Delivery Interval. See SEEM Agreement, Appendix B, Section IV.B.2.c.

3.6.1.2.2. Participating Transmission Providers

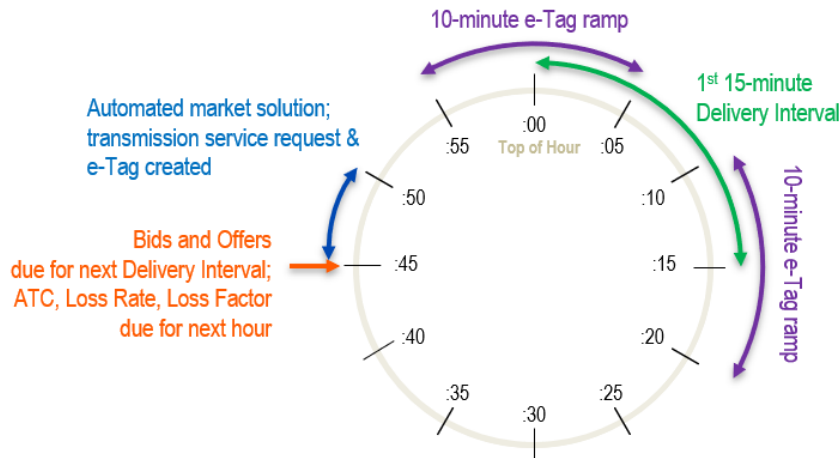
For each Clock Hour, every PTP's ATC must be available as an input to the SEEM Algorithm no later than fifteen (15) minutes before the start of such next Clock Hour. To the extent a Participating Transmission Provider can update its ATC within a Clock Hour, such updated information must be available as an input to the SEEM Algorithm no later than fifteen (15) minutes before the start of the applicable Delivery Interval. See SEEM Agreement, Appendix B, Section IV.B.2.a.

Each Participating Transmission Provider's Loss Factor and Loss Rate must be available as an input to the SEEM Algorithm no later than fifteen (15) minutes prior to the Clock Hour for which the Loss Factor and Loss Rate are to apply. If the Participating Transmission Provider does not update its Loss Factor and Loss Rate, the values for the prior Clock Hour will apply.

3.6.1.3. Solution

The SEEM System will match the Bids and Offers for the next Delivery Interval, subject to the constraints and limitations established, and submit all necessary transmission reservations and e-Tags at least ten (10) minutes prior to the relevant Delivery Interval. See SEEM Agreement, Appendix B, Section IV.B.2.d. See Appendix A for solution examples.

3.6.1.4. Timing Example – First 15-minute Delivery Interval



3.6.2 Optimization Statement to Maximize Market Benefit

Max $\sum ((\text{Bid MW} * \text{Bid Price}) - (\text{Offer MW} * \text{Offer Price}) - (\text{PTP's Loss Factor} * \text{PTP's Loss Rate} / 100))$. See Market Engine Workstream – Platform Guide: Overview in the Document Center on the SEEM Platform.

3.6.3 Solver

The SEEM Platform uses Gurobi Optimizer as the mixed integer linear programming (MILP) solver. See Market Engine Workstream – Platform Guide: Overview in the Document Center on the SEEM Platform.

3.6.4 Parameters – as recommended and set by SEEM Administrator

| Parameter | Value | Description |
|----------------|-------|---|
| Time Limit | 100 | Time limit in seconds for engine to return results; if time limit is exceeded, the model will return no matches for the interval. |
| MIP Gap | 0 | Relative MIP optimality gap |
| Solution Limit | 150 | Maximum number of solutions (all with maximum benefit) that engine will solve before randomly picking one |

3.7. Benefit, Matching, Pricing, and other Principles

3.7.1 Benefit

The SEEM Algorithm will match Bids and Offers from Participants so as to result in Energy Exchanges that maximize the SEEM total benefit for the applicable Delivery Interval while simultaneously honoring all requirements and constraints. The total benefit shall be calculated by aggregating the benefits from each Energy Exchange for the applicable Delivery Interval.

The benefit associated with each Energy Exchange will be calculated by taking the difference between the Bid Price and Offer Price and multiplying it by the MW amount of Non-Firm Energy identified in the Energy Exchange, less the costs of transmission services (Losses) provided along the Contract Path.

The net benefit for any Energy Exchange after Energy Exchange Prices and Losses are considered is intended to be equally split between the Buyer and Seller, however slight imbalances in the Buyer's Benefit versus the Seller's Benefit may exist due to rounding of the Energy Exchange Price and Losses. The SEEM Algorithm shall only make Energy Exchanges that yield positive benefits to both Buyer and Seller after Losses have been considered. See SEEM Agreement, Appendix B, IV.C.6.b.iii.

$$\text{Buyer's Benefit (\$)} = \left[\left(\text{Bid Price} \left(\frac{\$}{\text{MWh}} \right) - \text{Energy Exchange Price} \left(\frac{\$}{\text{MWh}} \right) \right) * \right. \\ \left. \text{Energy Exchange Volume (MWh)} \right] - \left[\text{Buyer's Losses} \left(\frac{\$}{\text{MWh}} \right) * \right. \\ \left. \text{Energy Exchange Volume (MWh)} \right]$$

$$\text{Seller's Benefit (\$)} = \left[\left(\text{Energy Exchange Price} \left(\frac{\$}{\text{MWh}} \right) - \text{Offer Price} \left(\frac{\$}{\text{MWh}} \right) \right) * \right. \\ \left. \text{Energy Exchange Volume (MWh)} \right] - \left[\text{Seller's Losses} \left(\frac{\$}{\text{MWh}} \right) * \right. \\ \left. \text{Energy Exchange Volume (MWh)} \right]$$

3.7.2 Matching Principles

Whole and/or partial amounts of Non-Firm Energy shall be matched, consistent with the Participant's All or Nothing Selection in its Bid Information or Offer Information.

Bids or Offers that can be matched with multiple Participants shall be allowed, subject to the Market Rules.

3.7.3 Point of Sale

- The contractual point of sale of an Energy Exchange will be at the Buyer's Balancing Authority border for a transaction delivered out of or through one or more Balancing Authorities. For an Energy Exchange fully delivered to a Buyer's Balancing Authority border, the Participant acting as the Seller will be the responsible party for the losses associated with the transmission service to deliver the Non-Firm Energy to the point of sale and the Buyer will be responsible for the losses associated with the transmission service required to sink the Non-Firm Energy.
- For an Energy Exchange that stays within one Balancing Authority (Source and Sink in same Balancing Authority), the "point of sale" will be at the bus of the Seller's Source. For an Energy Exchange that stays within one Balancing Authority, the Buyer will be the responsible party for the losses associated with the transmission service required to sink the Non-Firm Energy.

3.7.3.1. Example – Delivery to external BA

Participant 1 selling to Participant 2 to on SEEM Path of SC – CPLE – DUK – TVA – AECI

- Participant 1 delivers energy to Participant 2 at AECI BA at TVA/AECI
- Participant 1 responsible for SC TSP, CPL TSP, DUK TSP, and TVA TSP financial loss costs

- Participant 2 responsible for AECI TSP financial loss costs

3.7.3.2. Example – Delivery within non-SOCO BA from external

Participant 1 selling to Participant 2 on SEEM Path of DUK – DUK

- Participant 1 delivers energy to Participant 2 at DUK BA at bus of Source
- Participant 2 responsible for DUK TSP financial loss costs

3.7.3.3. Example – Delivery to SOCO BA from external BA

3.7.3.3.1. Delivery from external BA to SOCO BA

Participant 1 selling to Participant 2 on SEEM Path of LGEE – TVA – GTC

- Participant 1 delivers energy to Participant 2 at SOCO BA at TVA/SOCO (TVA/GTC)
- Participant 1 responsible for LGEE TSP and TVA TSP financial loss costs
- Participant 2 responsible for GTC TSP financial loss costs

3.7.3.3.2. Delivery from external BA to SOCO BA and wheeled

Participant 1 selling to Participant 2 on SEEM Path of SCEG – GTC – SOCO

- Participant 1 delivers energy to Participant 2 at SOCO BA at SCEG/SOCO (SCEG/GTC)
- Participant 1 responsible for SCEG TSP financial loss costs
- Participant 2 responsible for GTC TSP and SOCO TSP financial loss costs

3.7.3.4. Example – Delivery within SOCO BA from internal

Participant 1 selling to Participant 2 on SEEM Path of SOCO – MEAG

- Participant 1 delivers energy to Participant 2 at SOCO BA at bus of Source
- Participant 2 responsible for SOCO TSP and MEAG TSP financial loss costs

3.7.4 Energy Exchange Price

Each Energy Exchange Price will be the sum of: 1) the average of the Bid Price and Offer Price for the Energy Exchange, and 2) half the net Losses for all PTPs along the Contract Path, where net Losses equals the Losses paid for by Seller minus the Losses paid for by Buyer.

The Energy Exchange Price is reported to 2 decimal places (\$XXX.xx).

Energy Exchange Price

$$= \frac{1}{2} * (Bid\ Price + Offer\ Price) + \frac{1}{2} * (Seller's\ Losses - Buyer's\ Losses)$$

where all prices and losses are in \$/MWh

$$Seller's\ Losses = Loss\ Factor\ (\%) * Loss\ Rate\ \left(\frac{\$}{MWh} \right)$$

for each PTP to whom Seller is responsible for financial losses

$$\text{Buyer's Losses} = \text{Loss Factor (\%)} * \text{Loss Rate} \left(\frac{\$}{\text{MWh}} \right)$$

for each PTP to whom Buyer is responsible for financial losses

3.7.5 Maximum Energy Exchange Price

For any Energy Exchange where the Energy Exchange Price exceeds the Maximum Energy Exchange Price submitted, the Energy Exchange Price will be adjusted down to that Maximum Energy Exchange Price, such that the total benefit associated with the Energy Exchange remains the same, but the benefit allocation will be adjusted in the Buyer's favor.

3.7.6 Randomization

To ensure a fair market, the market engine employs randomization to break ties when multiple solution sets yield the same total market benefit. The model uses a combination of constraint randomization along with NoRel heuristic search to accomplish this. See Market Engine Workstream – Platform Guide in the Document Center on the SEEM Platform for more information.

3.8. Outputs

3.8.1 Energy Exchanges

Energy Exchange means a transaction for the purchase and sale of Non-Firm Energy in SEEM between Participants pursuant to an Enabling Agreement and in conformance with the requirements of the SEEM Market Rules. Energy Exchanges include a Buyer, Seller, Delivery Interval, Contract Path, Energy Exchange Volume (MW or MWh), Energy Exchange Price (\$/MWh).

Actual settlement of Energy Exchange costs owed by the Buyer to the Seller will be handled between the Buyer and Seller in accordance with their agreed upon billing practices outside of the SEEM Platform.

3.8.2 TSRs

TSRs (Transmission Service Requests) are submitted by the SEEM Platform on behalf of the companies involved in the transaction along the Contract Path for a completed Bid/Offer match. For each leg of the Contract Path, the TSR must be approved by the PTP prior to the e-Tag creation. TSRs submitted by the SEEM will have a Transmission Service Type of "NFEETS". Timing of TSR approval is in relation to WECC requirements; e-Tag checkout refers to each PTP/BA

3.8.3 E-Tags

Given a bid/offer match and upon confirmation of TSRs for each leg of the Contract Path, the SEEM Platform will submit an E-Tag to record the details of the transaction to transfer energy from the seller to the buyer. The E-Tag will be validated by all parties on the tag and upon approval (passive or explicit) the E-Tag will be Implemented.



Timing of Tag approval is in relation to WECC requirements; e-Tag checkout refers to each PTP/BA. Interchange Checkout (NSI) with Counterparties will be on MWh basis with E-Tags created by the SEEM Platform as one component of the total hourly net interchange.

3.8.4 Transmission Financial Loss Data

The SEEM Platform utilizes transmission financial loss data when determining the Energy Exchange Price. This is to ensure an equal benefit between the Buyer and Seller in the Energy Exchange. However, actual transmission financial loss costs (Losses) are handled outside of the SEEM Platform where the relevant PTP will bill the customer for a TSR.

$$\text{Losses (\$)} = \text{Loss Factor (\%)} * \text{Loss Rate} \left(\frac{\$}{\text{MWh}} \right) * \text{Energy Exchange Volume (MWh)}$$

3.9. Reports

There are multiple reports available on the SEEM Platform, both for marketing and non-marketing function employees. Reporting on the SEEM Platform is restricted to allow only the data for each Participant to be viewed by itself or an authorized agent. Access to a Participant's reports is controlled via user roles assigned by an ESA to limit the data available to marketing and non-marketing employees on the SEEM Platform. Each of the reports is configurable (column layouts, data fields displayed), can be filtered, and can also be exported to Excel for further utilization. Many reports can also be viewed in Pivot Table format to aggregate or filter various data fields directly from the SEEM Platform UI. The Market Results and Reporting Workstream Platform Guide provides step-by-step configuration instructions with screenshots.

For more information on the reports and details available, see the Market Results and Reporting Workstream Platform Guide in the Document Center on the SEEM Platform.

3.9.1 Available Reports

Participant Results and Reports

| SEEM Platform Window | SEEM Platform Menu Path | Description |
|--|---|--|
| SEEM Match Results | Results SEEM Results | Participants can view historical results of matched trades with bid/offer information, E-tags, TSRS, audit history, trader, etc. |
| SEEM Participant Monthly Benefit Report | Results SEEM Participant Monthly Benefit Report | Participants can view benefit from SEEM trades at a rolled-up |

| | | |
|--|---|---|
| | | monthly level sum of all transactions. |
| SEEM Participant Monthly Loss Settlement Report | Results SEEM Participant Monthly Loss Settlement Report | Participants view transmission loss settlement data that is rolled up to the Transmission Provider and Counterparty Level. |
| Bids and Offers | Trading Bids and Offers | Participants can view historical bids and offers over a period of time and their final statuses of cleared, uncleared or unsubmitted. |

Non-marketing Employee (Transmission) Results and Reports

| SEEM Platform Window | SEEM Platform Menu Path | Description |
|--|--|---|
| TSP Capability History | Transmission TSP Capability History | PTP users can view historical results of NFEETS transmission data including manual override history |
| TSP Loss Rates History | Transmission TSP Loss Rates History | PTP users can view historical results of loss rates for their own transmission data including audit history |
| TSP Loss Factors History | Transmission TSP Loss Factors History | PTP users can view historical results of loss factors for their own transmission data including audit history |
| SEEM TSP Loss Settlement Report | Transmission SEEM TSP Loss Settlement Report | PTP users can view historical results of NFEETS transmission data and corresponding charges and transaction details such as the E-Tag and TSRs. They cannot see trade price details |

3.9.2 SEEM Participant Reports

3.9.2.1. SEEM Match Results Report

The SEEM Match Results Report is found under the “Results” dropdown and is used to display the matched transactions for each Participant. Each Participant can only see its own information. Each line in this report will show the following critical data fields:

- Participant – the marketing participant for the transaction (could be buyer or seller).
- Date – date of the transaction.
- Interval Start/End – 15-minute start time and stop time for the transaction.
- Buyer/Seller – which side of the transaction the Participant is on.
- Counterparty – the Participant on the other side of the transaction.
- Source and Sink – to identify the source and sink locations of the transaction.
- Trade Volume (MW) – MW amount of the total trade volume for the 15-minute trade interval.
- Trade Volume (MWh) – MW amount for the 15-minute trade window divided by 4 for hourly representation.
- Trade Price – the \$/MWh settlement price of the transaction.
- Trade Amount – the Trade Price multiplied by the Trade Volume (MWh); the total value of the transaction.

There are other fields that can be included in the report configuration that provide additional information for each Energy Exchange, including Transaction ID, POR/POD, TSR Aref numbers, Tag IDs, etc.

Bid or Offer price/volume details can also be viewed, but only the side of the transaction of the counterparty generating the report. In other words, if counterparty A was the buyer, they can view their Bid Price and Bid volume, but not the Offer Price and Offer volume of the counterparty with whom they were matched. There are several pre-configured reports that can be selected in the dropdown in the upper right of the report screen, including Daily Trade Analysis (showing daily total volumes, average price, and total trade amounts), and Hourly Trade Analysis (same, but on hourly level).

3.9.2.2. SEEM Participant Monthly Benefit Report

The SEEM Participant Monthly Benefit Report is found under the “Results” dropdown, and is used to display the total monthly benefit for the Participant for the selected month.

- Participant – the marketing participant for the transaction (could be buyer or seller).
- Month – the month during which the benefits are being totaled.

- Benefit – the total benefit, in dollars, for the participant for the selected month.

3.9.2.3. SEEM Participant Monthly Loss Settlement Report

The SEEM Participant Monthly Loss Settlement Report is found under the “Results” dropdown. It calculates the total amount, in dollars, due to each transmission service provider and the associated counterparties for the transactions. The data fields displayed in this report are as follows:

- Participant – the marketing participant for the transaction (could be buyer or seller).
- Month – the month during which the settlements are being totaled.
- TSP – the name of the PTP owed the financial loss settlement.
- Counterparty – the name of the counterparty with whom the Participant transacted.
- Trade Volume (MW) – the MW value of the associated losses for the month.
- Trade Volume (MWh) – the MWh value of the associated losses for the month.
- Loss Amount – Amount of funds due for the group of transactions at the PTP and counterparty level.

3.9.2.4. Bids and Offers Report

A Participant’s own Bids and Offers can be viewed, and exported to Excel, from the Bid and Offer window under the “Trading” dropdown. Some of the critical data fields that can be displayed here are as follows:

- Participant – the marketing participant for the transaction (could be buyer or seller).
- Type – whether the submission is a Bid or an Offer.
- Date – date of the transaction.
- Interval Start/End – 15-minute start time and stop time for the transaction.
- MP ID – the Bid or Offer unique identifying number.
- Source/Sink – where the Offer is sourced from or the Bid is sinking.
- In Full – a checkbox for designating whether the Bid or Offer has to be met in full (checked means yes, while unchecked means no).
- MW – the amount, in MW, of the Bid or Offer.
- Price – the price of the Bid or Offer.
- Internal Status – whether the Bid or Offer has been saved or submitted.

- SEEM Status – the status of the Bid or Offer within the SEEM Platform (i.e. cleared, uncleared, error)

Other fields that can be displayed and can be configured include Max Price, Book Strategy, Trader, and who the bid or offer was last modified by.

3.9.3 Participating Transmission Providers

3.9.3.1. TSP Capability History

The TSP Capability History shows the ATC availability for a given time interval for all SEEM segments applicable to the PTP. This includes the ATC value pulled directly from OASIS, as well as any overrides that might have been placed manually or automatically (via API), along with who modified that record value. Note that the TSP Capability and TSP Capability History views are essentially the same, though the TSP Capability shows the next trade interval and can be used to manually override the OASIS ATC value if needed.

- TSP – The applicable PTP posting NFEETS availability to the Platform. For companies that represent multiple PTP affiliates, they will all be visible within this report.
- SEEM Segment – the PTP specific transmission path combinations for which ATC values are reported and used by the SEEM Platform for NFEETS availability.
- OASIS – ATC value pulled from OASIS by the SEEM Platform.
- Override – the ATC value for a specific interval meant to take precedence over the OASIS ATC value. This override value can be updated manually or via API.
- Final – the ATC value that the SEEM Platform will use for the given interval in its solution. If an override value is present, this will be the value used instead of the OASIS value.

3.9.3.2. TSP Loss Rates History

The TSP Loss Rates History shows the transmission loss rates that have been submitted to the market by the applicable PTP during a specific 15-minute SEEM trade interval. Note that the TSP Loss Rates and TSP Loss Rates History views are the largely the same, though the TSP Loss Rates view shows future loss rates that have been posted to the Platform (where applicable) and the TSP Loss Rates History view shows historical loss rate data.

- TSP – The applicable PTP for which the loss rate applies during a specific trade interval. For companies that represent multiple PTP affiliates, they will all be visible within this report.
- Loss Rate – the PTP's reported loss rate, in \$/MWh, that is used to determine total financial losses (with the transmission loss factor) the PTP will incur for SEEM transactions utilizing that transmission system.

3.9.3.3. TSP Loss Factors History

The TSP Loss Factors History shows the transmission loss factors used during a specific 15-minute SEEM trade interval. Loss factors are posted directly to the Platform and updated as needed for each PTP (usually annually or semi-annually). Note that the TSP Loss Factors and TSP Loss Factors History views are largely the same, but the TSP Loss Factors view shows the current start and end dates/intervals for a PTP's posted loss factor.

- TSP – The applicable PTP posting loss factors to the Platform. For companies that represent multiple PTP affiliates, they will all be visible within this report.
- Loss Factor – the PTP's reported real loss factor, in %, that is used to determine the amount of transmission losses that would occur from a transaction utilizing that transmission system.

3.9.3.4. TSP Loss Settlement Report

The TSP Loss Settlement Report is user centric and should show the loss amount (\$) for each transaction (match ID) that utilized the transmission of the participating user. Each line in this report will show the following critical data fields for transmission billing and reporting:

- Participant – who the PTP will need to bill for the transaction, as they are a trading counterparty for the SEEM trade (could be buyer or seller).
- TSP – the PTP whose transmission service was utilized for the SEEM transaction. For companies that represent multiple PTP affiliates, they will all be visible within the report viewed from the SEEM Platform.
- Trade Volume (MW) – MW amount of the total trade volume for the 15-minute trade interval.
- Trade Volume (MWh) – MW amount for the 15-minute trade window divided by 4 for hourly representation.
- Loss Factor (%) – The transmission system loss percentage that represents the real power losses associated with the use of transmission facilities posted by the PTP. This is usually captured in the PTP's Tariff (or equivalent) and updated annually or semi-annually.
- Loss Rate (\$/MWh) – the cost per MWh the PTP incurs to replace the existing generation to make up for the SEEM transaction losses.
- Loss Amount – total dollar amount the PTP is owed for the transaction. This is calculated using the following equation: $\text{Loss Amount} = \text{Loss Rate} * \text{Loss Factor} * \text{Trade Volume (MWh)}$.
- Tag Status – shows the status of the eTag and should be IMPLEMENTED for transmission billing purposes. Any eTag that isn't showing IMPLEMENTED status should not show a value for the Loss Amount.

There are other data fields that may be useful to identify the specific SEEM transaction, source and sink BAs, transmission path, and TSR data. While this report can be used for transmission billing purposes, this

additional data can be used to reconcile trade and transaction information with their internal ETRM or trade settlement system.

As this report is broken down by each transaction, it can be filtered for the date range needed and consolidated into a view that represents the total transmission costs owed by each SEEM participant using the Pivot Data view.

4. Additional Market Engine Details

4.1. Georgia ITS Financial Loss Costs – Rule

For Energy Exchanges that flow within the Georgia ITS, the SEEM Algorithm only charges for one PTP financial loss cost which mimics how losses are handled in the current bilateral market by GTC TSP, MEAG TSP, and SOCO TSP for relevant SEEM Paths. This is accomplished by identifying the following SEEM Paths and setting the non-Sink SEEM Segments to a financial loss cost of zero when solving. For clarification, the following rules apply to only Energy Exchanges within the SOCO BA and not Energy Exchanges delivered to SOCO BA from outside or delivered from SOCO BA to outside.

Impacted SEEM Paths include:

- MEAG – GTC
- MEAG – SOCO
- GTC – MEAG
- GTC – SOCO
- GTC – MEAG – SOCO
- GTC – SOCO – MEAG
- MEAG – SOCO – GTC

Examples include:

- MEAG – GTC set MEAG TSP Financial Loss = 0
- GTC – MEAG – SOCO set the GTC TSP and MEAG TSP Financial Losses = 0

4.2. CPLE/CPLW Financial Loss Costs – Rule

For Energy Exchanges that flow across both CPLW BA and CPLE BA, the SEEM Algorithm only charges for one CPL TSP financial loss cost which mimics how transmission losses are handled in the current bilateral market by CPL TSP. The SEEM Algorithm accomplishes this by setting the first CPL TSP SEEM Segment to a financial loss cost of zero when solving.

Examples include:

- TVA-CPL (CPLW)-DUK-CPL (CPLE) set CPLW Financial Loss = 0 for CPL

- SCEG-CPL (CPLE)-DUK-CPL (CPLW)-TVA set CPLE Financial Loss = 0 for CPL
- CPL (CPLE)-SC-GTC-TVA-CPL (CPLW) set CPLE Financial Loss = 0 for CPL

4.3. Available Transmission Capability Usage

SEEM PTPs can choose one of two different options that determine how NFEETS impacts are applied to ATC. Option 1 allows for every NFEETS offering on OASIS to be discrete and separate from any other offering for the same time period. NFEETS impacts to one SEEM Segment are unique and separate from impacts to another SEEM Segment even if they share a common POR or POD. Option 2 allows for NFEETS impacts to be applied to multiple SEEM Segments if they share a common POR or POD. This may be required for a PTP to ensure that a SEEM interface is never oversubscribed. For Option 2 an additional concept called an Interface Segment is introduced into the Network Model. Interface Segments are used to group together SEEM Segments with a common POR or POD in order to restrict the SEEM Market Engine at the interface. In the Entities screen each PTP designates which option will be applied for their transmission system. For PTPs designated as Option 2 the SEEM Market Engine will optimize ATC with the Interface Segment constraint while Option 1 PTPs' ATC will be optimized with no Interface Segment.

5. SEEM Administrator

5.1. Role

The SEEM Administrator is an independent third party that operates SEEM Algorithm and System Interface day-to-day. The SEEM Administrator, which is independent from any Member, Participant, SEEM Agent, or Market Auditor (and all their affiliates), administers SEEM in accordance with the SEEM Market Rules for the purpose of matching Bids and Offers around the clock. Among other things, the SEEM Administrator is responsible for overseeing and performing all the operation and maintenance services necessary for the SEEM Platform to operate reliably, as well as protecting and safeguarding the data that goes in and comes out of the Platform. The SEEM Administrator also plays a critical role in facilitating communication with Members and Participants of SEEM and other interested parties. While the SEEM Administrator submits TSRs and e-Tags to reserve and schedule transmission service in connection with SEEM transactions, it does not provide transmission service. Transmission service is provided by individual transmission providers who do so under their respective tariffs.

Some examples of responsibilities of the SEEM Administrator include:

- Being the formal recipient of Participant-related information, such as Participation Agreements and updates or modifications of Participant information;
- Publishing required information such as a list of all Members and Participants and their contact information and notices for required and other meetings;
- Providing applicable Platform training and onboarding assistance for new Participants and PTPs, and providing general assistance requested by existing and potential Members, Participants, and PTPs;
- Creating and updating the Network Map of the SEEM Territory for the purposes of confirming ATC, using information provided by PTPs;
- Maintaining and managing content on the SEEM Website;

- Creating, generating, and publishing monthly, daily, and hourly information reports as required by the SEEM Market Rules (see Section 6.2 below);
- Submitting a weekly report of certain confidential market data to the Federal Energy Regulatory Commission and the SEEM Auditor; and
- Setting and maintaining the SEEM Platform configuration parameters, including matching process, addition/deletion of Participants, management of data for confidentiality and records retention, and granting access to the SEEM Platform.

All Participants with Market-Based Rate authority must provide accurate and factual information and exercise due diligence to avoid providing false or misleading information in the course of its SEEM-related communications with the Market Auditor and SEEM Administrator.

5.2. Data Reporting

5.2.1 Public Reporting

The decision and obligation to report quantities, prices or other data regarding SEEM transactions is the responsibility of each Seller and Buyer. The SEEM Administrator will not report specific transactions on behalf of Sellers and Buyers. However, certain aggregated data will be prepared and posted by the SEEM Administrator in a manner that provides transparency, while protecting commercially sensitive information and avoiding potentially anti-competitive price discovery.

The SEEM Administrator will prepare and post the following reports on the public portion of the SEEM Website in accordance with Section V. of the SEEM Market Rules:

- Monthly Information Report
 - When posted: on or before midnight of the fifth business day of the following month of the information from the prior month
 - Information included:
 - Any changes made to the Network Map
 - Minimum, maximum, and average match prices
 - Amount of Non-Firm Energy offered and sold and bid and purchased over all Delivery Intervals
 - Amount of Non-Firm Energy that that flowed once matched as an Energy Exchange
 - Total number of Energy Exchanges
 - Total benefit of matched transactions
 - Minimum, maximum and average MW Energy Exchange amount
 - Energy Exchanges made but not executed
 - ATC made available to SEEM by each PTP for each Delivery Interval and amount of such ATC not used by SEEM
 - When posted: on a four-month lag, with appropriate masking to remove Participant identities and Source and Sink information
 - Information included:
 - Bid/offer price, quantity, and “All or Nothing” information for each bid and offer in each Delivery Interval

- Matched bids and offers and corresponding price
 - Total number of possible counterparties not subject to Participant-Specific Constraint for each Seller in each Delivery Interval
 - Total number of possible counterparties not subject to Participant-Specific Constraint for each Buyer in each Delivery Interval
- Daily Information Report
 - When posted: by 6:00 A.M. CPT
 - Information included (prior day information):
 - Total number of Bids and Offers during each Clock Hour of the prior day
 - Amount of Non-Firm Energy offered and sold and bid and purchased during each Clock Hour of the prior day
 - Number of Energy Exchanges executed for each Clock Hour of the prior day
 - Total number of Participants who submitted Bids for each Clock Hour of the prior day
 - Total number of Participants who submitted Offers for each Clock Hour of the prior day
 - Weighted average match price per Clock Hour
- Hourly Information Report
 - When posted: fifteen (15) minutes after the applicable hour
 - Information included:
 - Total number of Bids and Offers during the Clock Hour
 - Amount of Non-Firm Energy offered and sold and bid and purchased during the Clock Hour
 - Number of Energy Exchanges executed for the Clock Hour
 - Total number of Participants who submitted Bids for the Clock Hour
 - Total number of Participants who submitted Offers for the Clock Hour

5.2.2 Reporting to FERC

In addition to the information made available to the public described above in Section 5.2.1 Public Reporting above, the SEEM Administrator provides certain weekly confidential market data to the Federal Energy Regulatory Commission and the Market Auditor. The following unmasked data will be provided every seven days, in accordance with Appendix D of the SEEM Agreement:

- Participant, Bid/Offer Price, quantity, location, and “All or Nothing” information for each Bid and Offer in each Delivery Hour;
- Specific parameter data for each Participant for all 15-minute Delivery Intervals, including counterparties and Balancing areas the Participant has elected not to be matched with for a Delivery Interval;
- Enabling Agreement counterparties for each Participant;
- Updated Network Map;
- For each Delivery Interval, ATC made available to SEEM by each PTP and amount of such ATC not used by SEEM;
- Price caps, as relevant for each participant;

- Matched Bids and Offers with associated scheduled MWh quantity and price;
- Implied marginal benefit information for each ATC limit for each Delivery Interval to the extent the information can be produced by the SEEM Algorithm; and
- Descriptive information, such as Participant names and unique identifiers.

Any questions from FERC, NERC, applicable state commissions in the region, Tennessee Valley Authority's Inspector General, and any other applicable regulators that oversee the electric operations of any Member regarding the integrity of the matching process will be submitted by the Market Auditor to the SEEM Administrator and posted to the SEEM Website subject to requirements on confidential treatment of Transmission Function Information and Commercially Sensitive Information. Where reasonable the Market Auditor will respond within 30 days.

More complex inquiries requiring more substantial investigation by the Market Auditor will be undertaken only if authorized by the Membership Board. Market Auditor will submit such complex inquiries to the Membership Board within 14 days for approval to conduct further investigation. The Membership Board, in consultation with the Market Auditor, will commission and approve any such investigations.

5.2.3 Participant Access to Its Own Data

Each Participant may run all reports available in the system, but such reports will be strictly limited to data and information related to itself. To facilitate orderly access, each Participant must identify a company system administrator, who will be given the ability to grant access to specific delegates, who are authorized to run such reports and access related data.

6. Market Auditor

6.1. Role

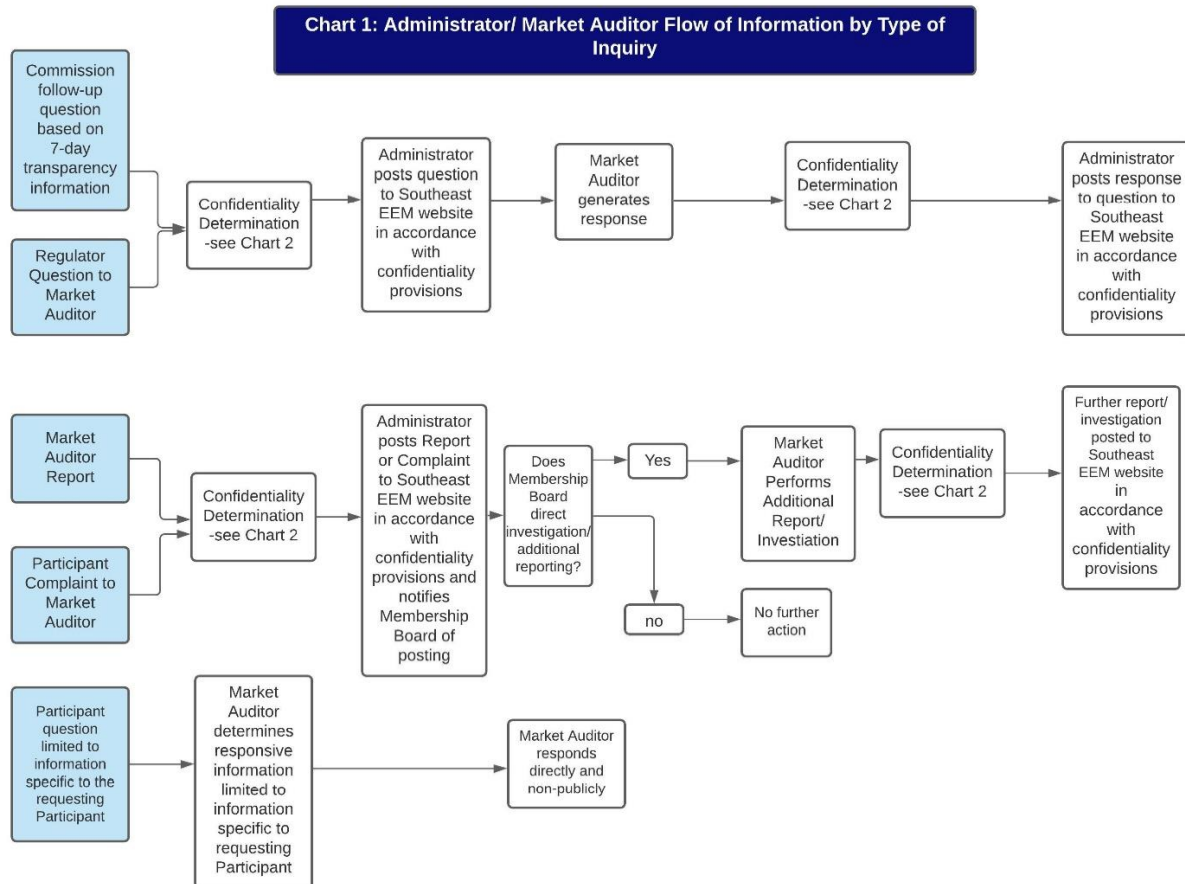
As an independent third party, the Market Auditor carries out certain monitoring and reporting activities to ensure the SEEM System is operating correctly and in accordance with the Market Rules, including issuing periodic reports, responding to regulator questions and inquiries, responding to Participant inquiries, and reporting Participant complaints and further investigating such complaints at the direction of the Membership Board, as further explained below.

The Market Auditor is completely independent from any Member, Participant, the SEEM Agent, and the SEEM Administrator (and all their affiliates). Importantly, it has independent authority to prepare reports required under the SEEM Agreement without prior review or approval from any other entity. Its conclusions and supporting information, through the Website posting process implemented by the SEEM Administrator, will be made available simultaneously to all interested parties subject to requirements on confidential treatment of Transmission Function Information and Commercially Sensitive Information.

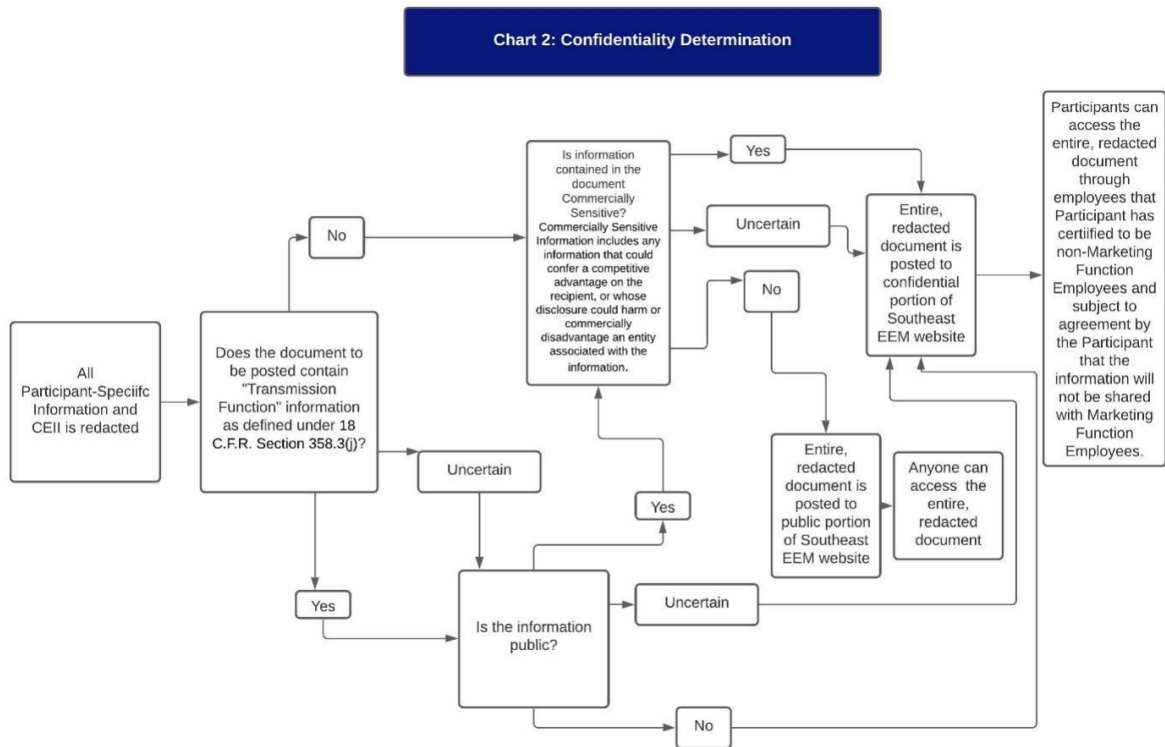
All Participants with Market-Based Rate authority must provide accurate and factual information and exercise due diligence to avoid providing false or misleading information in the course of any SEEM-related communications with the Market Auditor and SEEM Administrator.

6.2. Monitoring Activities

The below flowchart shows how questions from regulators (including follow-up questions regarding the data feed provided weekly to FERC, Participant inquiries, and Participant Complaints are handled by the Market Auditor.



The confidentiality determination is made as follows:



On a regular basis (at least weekly), the Market Auditor will calculate screens, metrics, and conduct other analyses of market and other data to evaluate the proper functioning of the SEEM market. Attachment B of this manual identifies the technical approach of the Market Auditor for calculating and evaluating the metrics and screens. Monthly reports will be published on the SEEM Website, which will summarize the weekly auditing activities. The Market Auditor will also prepare and post an annual report that compiles observations concerning the SEEM market outcomes and an evaluation of the proper functioning of the SEEM Market.

Any Participant, FERC, NERC, applicable state commissions in the region, the Tennessee Valley Authority's Inspector General, or any other applicable regulator may submit a question regarding the integrity of the matching process to the Auditor. Any such questions will be submitted by the Market Auditor to the SEEM Administrator and posted to the SEEM Website by the SEEM Administrator subject to requirements on confidential treatment of Transmission Function Information and Commercially Sensitive Information. The Market Auditor's responses will be similarly submitted and posted within 30 days, subject to requirements on confidential treatment of Transmission Function Information and Commercially Sensitive Information. More complex inquiries requiring more substantial investigation by the Market Auditor will be undertaken only if authorized by the Membership Board. The Market Auditor will submit such complex inquiries to the Membership Board within 14 days for approval to conduct further investigation. The Membership Board, after consultation with the Market Auditor, will commission and approve any such investigations.



Participants can submit complaints about whether the SEEM market is functioning as designed to the Market Auditor by sending an email to seemauditor@potomaceconomics.com. The Market Auditor will notify the Membership Board within 14 days concerning the nature of any complaint received and provide a general opinion concerning the value of further investigation. The Membership Board will determine what further actions (if any) should be taken regarding the complaint. The decision whether to further investigate the complaint (or a notice that more time is needed to decide) will be posted within 60 days. The disposition of all complaints, including attendant reports and conclusions, will be submitted by the Market Auditor to the SEEM Administrator and posted on the SEEM Website, subject to applicable requirements on confidential treatment of Transmission Function Information and Commercially Sensitive Information

Appendix

Appendix A – SEEM Solution Examples

Example 1 to show basic calculations for Settlement:

Participant Data:

- Offer1 to Sell from Participant 1 in BA1
 - Offer Price \$20/MWh
 - Offer Volume 48 MW
 - Max Energy Exchange Price None
 - All or Nothing (In Full) No – meaning matches totaling less than offer volume allowed
- Bid1 to Buy from Participant 2 in BA2
 - Bid Price \$30/MWh
 - Bid Volume 48 MW
 - All or Nothing (In Full) No – meaning matches totaling less than bid volume allowed

Transmission Data:

- PTP1 in BA1
 - Loss Rate \$24/MWh
 - Loss Factor 1.95%
 - ATC on SEEM Segment 1 200 MW for segment from BA1 to BA2
- PTP2 in BA2
 - Loss Rate \$32/MWh
 - Loss Factor 2.00%
 - ATC on SEEM Segment 2 200 MW for segment from BA1 to BA2

Trade #1: Participant 1 sells 48 MW to Participant 2 delivered to BA2 at \$24.91/MWh

Energy Exchange Price:

Trade Price = $(1/2) \times (\text{Seller's Offer Price} + \text{Buyer's Bid Price}) + (1/2) \times (\text{Seller's Financial Losses} - \text{Buyer's Financial Losses})$

- Where Seller's Financial Losses (\$/MWh Rate) = (PTP1 Loss Rate) x (PTP1 Loss Factor)
- Where Buyer's Financial Losses (\$/MWh Rate) = (PTP2 Loss Rate) x (PTP2 Loss Factor)

$\$25/\text{MWh} + (1/2) \times (\$0.468/\text{MWh} - \$0.640/\text{MWh}) = \$25/\text{MWh} - \$0.086/\text{MWh} = \underline{\underline{\$24.91/\text{MWh}}}$

- $(1/2) \times (\text{Offer} + \text{Bid}) = (1/2) \times (\$20/\text{MWh} + \$30/\text{MWh}) = \$25/\text{MWh}$
- Seller's Financial Losses (Rate) = $(\$24/\text{MWh} \times 1.95\%) = \$0.468/\text{MWh}$
- Buyers' Financial Losses (Rate) = $(\$32/\text{MWh} \times 2\%) = \$0.640/\text{MWh}$

Settlement:

Buyer (Participant 2) owes Seller (Participant 1) for non-firm energy trade

- Trade Price x Trade Volume / 4 periods per hour = $\$24.91/\text{MWh} \times 48 \text{ MW} / 4 = \underline{\underline{\$298.92}}$

Seller (Participant 1) owes PTP1 for financial loss cost

- Financial Losses = Loss Rate x Loss Factor x Trade Volume / 4 periods per hour

$$= \$24/\text{MWh} \times 1.95\% \times 48 \text{ MW} / 4 \text{ periods per hour} = \underline{\$5.62}$$

Buyer (Participant 2) owes PTP2 for financial loss cost

- Financial Losses = Loss Rate x Loss Factor x Trade Volume / 4 periods per hour

$$= \$32/\text{MWh} \times 2.00\% \times 48 \text{ MW} / 4 \text{ periods per hour} = \underline{\$7.68}$$

Benefit:

- Buyer's Benefit = Avoided Cost – Cost of Deal =
 $(\$30/\text{MWh} \times 48 \text{ MW per 15-min} / 4 \text{ periods per hour}) - \$298.92 - \$7.68 = \53.40
- Seller's Benefit = Deal Revenue – Cost to Serve Sale =
 $\$298.92 - (\$20/\text{MWh} \times 48 \text{ MW per 15-min} / 4 \text{ periods per hour}) - \$5.62 = \$53.30$
- Buyer versus Seller benefit split slightly different than equal due to rounding of settlement data to two decimals

PTP1

\$24/MWh loss rate (cost)

1.95% loss factor

Participant 1 in BA1 – Seller

\$20/MWh offer price

48 MW offer volume

Participant 2 in BA2 – Buyer

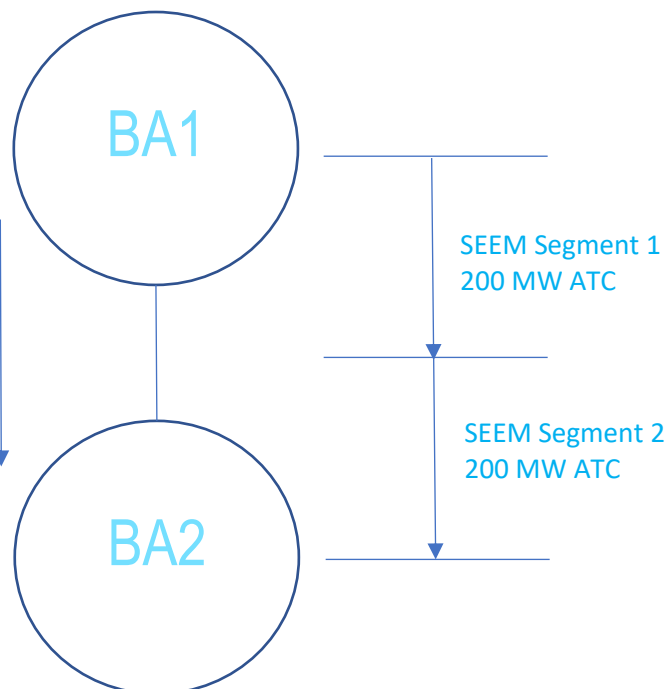
\$30/MWh bid price

48 MW bid volume

PTP2

\$32/MWh loss rate (cost)

2.00% loss factor



Example 2 with multiple bids/offers, optimization, ATC constraints, economic re-routing:

Participant Data:

- Offer1 to Sell from Participant 1 in BA1
 - Offer Price \$40/MWh
 - Offer Volume 24 MW
 - Max Energy Exchange Price None
 - All or Nothing No – meaning matches totaling < offer volume allowed
- Offer2 to Sell from Participant 2 in BA1
 - Offer Price \$35/MWh
 - Offer Volume 24 MW
 - Max Energy Exchange Price None
 - All or Nothing No – meaning matches totaling < offer volume allowed
- Bid1 to Buy from Participant 3 in BA3
 - Bid Price \$60/MWh
 - Bid Volume 48 MW
 - All or Nothing No – meaning matches totaling < bid volume allowed
- Bid2 to Buy from Participant 4 in BA3
 - Bid Price \$55/MWh
 - Bid Volume 48 MW
 - All or Nothing No – meaning matches totaling < bid volume allowed

Transmission Data:

- PTP1 in BA1
 - Loss Rate \$50/MWh
 - Loss Factor 3.0%
 - ATC on SEEM Segment 1 0 MW for segment from BA1 to BA3
 - ATC on SEEM Segment 2 100 MW for segment from BA1 to BA2
- PTP2 in BA2
 - Loss Rate \$45/MWh
 - Loss Factor 1.95%
 - ATC on SEEM Segment 3 100 MW for segment from BA1 to BA2
 - ATC on SEEM Segment 4 40 MW for segment from BA2 to BA3
- PTP3 in BA3
 - Loss Rate \$57/MWh
 - Loss Factor 2.20%
 - ATC on SEEM Segment 5 0 MW for segment from BA1 to BA3
 - ATC on SEEM Segment 6 40 MW for segment from BA2 to BA3

Market Engine:

Goal is to maximize market value during Delivery Interval subject to constraints. ATC between the Offers and the Bids serves as a constraint since the direct path from BA1 to BA3 is limited to 0 MW ATC. To economically re-route the available transactions, a maximum of 40 MW can be sold from the offerors in BA1 thru BA2 to the bidders in BA3. Routing the energy from BA1 thru BA2 to BA3 incurs additional financial losses but still allows for the transactions to occur economically. To achieve maximum market value while honoring the ATC constraints, Offer2 will be fully utilized, Offer1 will be partially utilized, Bid1

will be fully utilized, and Bid2 will not be utilized. If Offer1 were utilized more or if Bid2 were utilized at all, the total market benefit would be less.

For Trade #1: Participant 2 sells 24 MW to Participant 3 delivered to BA3 at \$48.06/MWh

Energy Exchange Price:

Trade Price = $(1/2) \times (\text{Seller's Offer Price} + \text{Buyer's Bid Price}) + (1/2) \times (\text{Seller's Financial Losses} - \text{Buyer's Financial Losses})$

- Where Seller's Financial Losses (\$/MWh Rate) = (PTP1 Loss Rate) x (PTP1 Loss Factor) + (PTP2 Loss Rate) x (PTP2 Loss Factor)
- Where Buyer's Financial Losses (\$/MWh Rate) = (PTP3 Loss Rate) x (PTP3 Loss Factor)

$\$47.50/\text{MWh} + (1/2) \times (\$2.38/\text{MWh} - \$1.25/\text{MWh}) = \underline{\$48.06/\text{MWh}}$

- $(1/2) \times (\text{Offer} + \text{Bid}) = (1/2) \times (\$35/\text{MWh} + \$60/\text{MWh}) = \$47.50/\text{MWh}$
- Seller's Financial Losses (Rate) = $(\$50/\text{MWh} \times 3.00\%) + (\$45/\text{MWh} \times 1.95\%) = \$2.38/\text{MWh}$
- Buyers' Financial Losses (Rate) = $(\$57/\text{MWh} \times 2.20\%) = \$1.25/\text{MWh}$

Settlement:

Buyer (Participant 3) owes Seller (Participant 2) for non-firm energy trade

- Trade Price x Trade Volume / 4 periods per hour = $\$48.06/\text{MWh} \times 24 \text{ MW} / 4 = \underline{\$288.36}$

Seller (Participant 2) owes PTP1 for financial loss cost

- Financial Losses = Loss Rate x Loss Factor x Trade Volume / 4 periods per hour
= $\$50/\text{MWh} \times 3.00\% \times 24 \text{ MW} / 4 \text{ periods per hour} = \underline{\$9.00}$

Seller (Participant 2) owes PTP2 for financial loss cost

- Financial Losses = Loss Rate x Loss Factor x Trade Volume / 4 periods per hour
= $\$45/\text{MWh} \times 1.95\% \times 24 \text{ MW} / 4 \text{ periods per hour} = \underline{\$5.27}$

Buyer (Participant 3) owes PTP3 for financial loss cost

- Financial Losses = Loss Rate x Loss Factor x Trade Volume / 4 periods per hour
= $\$57/\text{MWh} \times 2.20\% \times 24 \text{ MW} / 4 \text{ periods per hour} = \underline{\$7.52}$

Benefit:

- Buyer's Benefit = Avoided Cost – Cost of Deal =
 $(\$60/\text{MWh} \times 24 \text{ MW per 15-min} / 4 \text{ periods per hour}) - \$288.36 - \$7.52 = \64.12
- Seller's Benefit = Deal Revenue – Cost to Serve Sale =
 $\$288.36 - (\$35/\text{MWh} \times 24 \text{ MW per 15-min} / 4 \text{ periods per hour}) - \$9.00 - \$5.27 = \64.10
- Buyer versus Seller benefit split slightly different due to rounding of settlement data to two decimals

For Trade #2: Participant 1 sells 16 MW to Participant 3 delivered to BA3 at \$50.56/MWh

Energy Exchange Price:

Trade Price = $(1/2) \times (\text{Seller's Offer Price} + \text{Buyer's Bid Price}) + (1/2) \times (\text{Seller's Financial Losses} - \text{Buyer's Financial Losses})$

- Where Seller's Financial Losses (\$/MWh Rate) = $(\text{PTP1 Loss Rate}) \times (\text{PTP1 Loss Factor}) + (\text{PTP2 Loss Rate}) \times (\text{PTP2 Loss Factor})$
- Where Buyer's Financial Losses (\$/MWh Rate) = $(\text{PTP3 Loss Rate}) \times (\text{PTP3 Loss Factor})$

$\$50.00/\text{MWh} + (1/2) \times (\$2.38/\text{MWh} - \$1.25/\text{MWh}) = \underline{\underline{\$50.56/\text{MWh}}}$

- $(1/2) \times (\text{Offer} + \text{Bid}) = (1/2) \times (\$40/\text{MWh} + \$60/\text{MWh}) = \$50.00/\text{MWh}$
- Seller's Financial Losses (Rate) = $(\$50/\text{MWh} \times 3.00\%) + (\$45/\text{MWh} \times 1.95\%) = \$2.38/\text{MWh}$
- Buyers' Financial Losses (Rate) = $(\$57/\text{MWh} \times 2.20\%) = \$1.25/\text{MWh}$

Settlement:

Buyer (Participant 3) owes Seller (Participant 1) for non-firm energy trade

- Trade Price x Trade Volume / 4 periods per hour = $\$48.06/\text{MWh} \times 16 \text{ MW} / 4 = \underline{\underline{\$202.24}}$

Seller (Participant 1) owes PTP1 for financial loss cost

- Financial Losses = Loss Rate x Loss Factor x Trade Volume / 4 periods per hour
= $\$50/\text{MWh} \times 3.00\% \times 16 \text{ MW} / 4 \text{ periods per hour} = \underline{\underline{\$6.00}}$

Seller (Participant 1) owes PTP2 for financial loss cost

- Financial Losses = Loss Rate x Loss Factor x Trade Volume / 4 periods per hour
= $\$45/\text{MWh} \times 1.95\% \times 16 \text{ MW} / 4 \text{ periods per hour} = \underline{\underline{\$3.51}}$

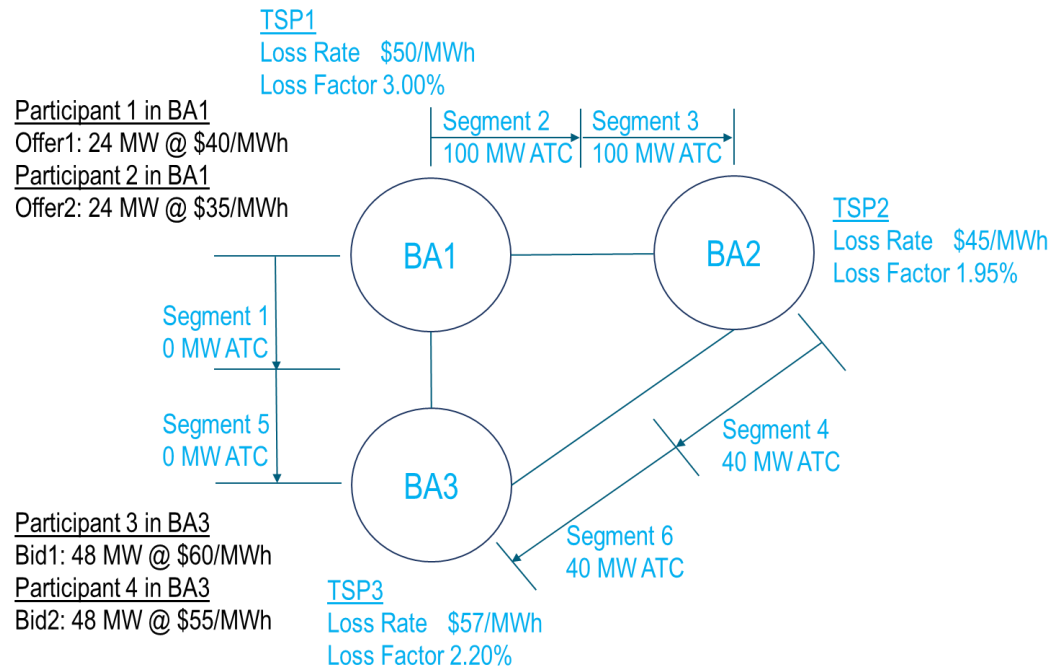
Buyer (Participant 3) owes PTP3 for financial loss cost

- Financial Losses = Loss Rate x Loss Factor x Trade Volume / 4 periods per hour
= $\$57/\text{MWh} \times 2.20\% \times 16 \text{ MW} / 4 \text{ periods per hour} = \underline{\underline{\$5.02}}$

Benefit:

- Buyer's Benefit = Avoided Cost – Cost of Deal =
 $(\$60/\text{MWh} \times 16 \text{ MW per 15-min} / 4 \text{ periods per hour}) - \$202.24 - \$5.02 = \32.74
- Seller's Benefit = Deal Revenue – Cost to Serve Sale =
 $\$202.24 - (\$40/\text{MWh} \times 16 \text{ MW per 15-min} / 4 \text{ periods per hour}) - \$6.00 - \$3.51 = \32.73

Buyer versus Seller benefit split slightly different due to rounding of settlement data to two decimals



Appendix B – SEEM Auditor Agreement, Schedule 4: Market Auditor Screens and Metrics

In accordance with the auditing process under the SEEM market rules, the following metrics and screens are designed to implement the auditing procedures. These are designed to verify and evaluate whether SEEM operates in accordance with the Southeast EEM Rules (section IV), especially including auditing Bids, Offers, constraints, matched settlements, OASIS reservations, and e-tags, and Participant-Specific Constraints and Generally Applicable Constraints identified in Section IV.C.6 related to the operation of the Southeast EEM System.

These are the minimum screens and metrics that will be deployed. The Auditor will also develop appropriate metrics and screens to support monthly reporting.

Bid/Offer Information Requirements

The following screens and metrics audit the information provided in participant bids and offers.

- Offers (bids) from a Participant must have Participant-Specific Constraints identifying at least three other non-affiliated Participants that can be matched as counterparties
 - (1) Check each offer and bid against database Table that records eligible counterparties ensure at least three reciprocal, non-affiliated counterparties;
 - (2) Automated daily alert to Auditor and Administrator if screen fails.
- All Offers (bids) properly include a Source (sink)
 - (1) check source sink field against all possible source sink values;
 - (2) Automated daily alert to Auditor and Administrator if screen fails.
- Each offer/bid should have delivery interval
 - (1) Check bid/offer against SEEM bid/offer input table;
 - (2) Interval is 15 minutes;
 - (3) Interval start/stop on the quarter hours;
 - (4) Automated daily alert to Auditor and Administrator if screen fails.
- Bids and offers are in 4 MW increments
 - (1) Bid/Offer is in 4 MW increments;
 - (2) Automated daily alert to Auditor and Administrator if screen fails.

- “All or Nothing Selection” indicated

- (1) All or Nothing field is “0” or “1”;

- (2) Automated daily alert to Auditor and Administrator if screen fails.

- Ensure that the Network Map is accurate

Network Map is an electronic file that reflects all set of all possible paths for bilateral trades made up of SEEM segments Current map is limited to 15 segments resulting in approximately 16,000 paths.

- (1) Replicate the possible universe of paths and match them to the Network Map file;

- (2) Discuss results with Administrator monthly.

Matching

The following screens and metrics audit the accuracy of matches produced by SEEM.

- Ensure System does not create matches in excess of ATC

- (1) For each match, identify all SEEM segments and ATC used by all matches on the segment;

- (2) check ATC used is \leq ATC at beginning of interval;

- (3) Automated daily alert to Auditor and Administrator if screen fails.

- Generally-Applicable constraint: Match price does not exceed bid, Match price is greater than offer

- (1) Matching price \leq bid (\geq Offer);

- (2) Automated daily alert to Auditor and Administrator if screen fails.

- Generally-Applicable constraint: Buyer/seller are distinct Participants

- (1) Buyer not equal to Seller;

- (2) Automated daily alert to Auditor and Administrator if screen fails.

- Check Participant-specific constraints for any changes (monthly)

- (1) Review monthly with Administrator any changes to constraints;

- (2) Prepare any changes to screens to reflect changes.

- Verify calculation of SEEM benefits

- (1) Weekly Spot Check matches to ensure benefits are calculated in accordance with market rules;
 - (2) Report and concerns to Market Administrator.
- Any Maximum offer price declared must bind the transaction
 - (1) Identify all offers with max price indicated;
 - (2) Check match is cleared at or below max price if match occurs in a BA where max price applies;
 - (3) Automated daily alert to Auditor and Administrator if screen fails.
 - Each match has a tag
 - (1) Check each match against the input OASIS tag table;
 - (2) Automated daily alert to Auditor and Administrator if no tag shows.
 - Make sure a participant Bid is not matched with an offer made by the same Participant
 - (1) Check source and sink of each match to verify distinct values;
 - (2) Automated daily alert to Auditor and Administrator if no source and sink are the same.

Constraints

The following screens and metrics audit the constraints use in the SEEM Model

- Exchange volume must not exceed offer or bid volume
 - (1) Bid (Offer) MW \geq (\leq) SEEM Match MW;
 - (2) Automated daily alert to Auditor and Administrator if screen fails.
- The Southeast EEM Algorithm shall only make Energy Exchanges that yield positive benefits to both Buyer and Seller
 - (1) Ensure Seller's Benefit greater than 0 where Seller's Benefit = (Trade Price – Offer Price) – Seller's Losses where all benefits, prices, and losses are described in \$/MWh; (Automated daily alert to Auditor and Administrator if screen fails).
 - (2) Ensure Buyer's Benefit greater than 0 where Buyer's Benefit = (Bid Price – Trade Price) – Buyer's Losses where all benefits, prices, and losses are described in \$/MWh; (Automated daily alert to Auditor and Administrator if screen fails).

Appendix C – Participant Agreement

FORM OF PARTICIPANT AGREEMENT

- 1.0 This Participant Agreement (“Agreement”), dated as of _____, is entered into, by and between Southern Company Services, solely as agent and on behalf of SEEM Members, the Southeast EEM Agent acting in its capacity as the agent of the Members of the Southeast Energy Exchange Market (“Southeast EEM”) and _____ (“Participant”).
- 2.0 The Participant and Southeast EEM agree that this Agreement shall incorporate, in their entirety, Appendix B to the Southeast EEM Agreement (“Southeast EEM Market Rules”), designated as Alabama Power Company’s Market Based Rate Tariff, Rate Schedule No. 1011, Southeast EEM Agreement, and the Southeast EEM Manuals. Any term not defined herein shall have the meaning ascribed to it in the Southeast EEM Market Rules. In the event of any conflict between this Agreement and the Southeast EEM Market Rules, the Southeast EEM Market Rules shall control.
- 3.0 The Participant has submitted an application for participation in the Southeast EEM and has been determined by the Southeast EEM to meet all requirements of being a Participant as defined in the Southeast EEM Market Rules. The Participant warrants that all information submitted in the application is true and accurate.
- 4.0 The Participant agrees to be bound by and accepts all of the terms of the Southeast EEM Market Rules and the Southeast EEM Manuals, as both may be amended from time to time.



Any amendments to the Southeast EEM Market Rules or the Southeast EEM Manuals are automatically and without further action incorporated into this Agreement.

5.0 The Southeast EEM agrees that Participant shall be deemed a “Participant” under the terms of the Southeast EEM Market Rules, with all rights of participation and access to the Southeast EEM System afforded Participants under the Southeast EEM Market Rules.

6.0 The Participant shall supply the Southeast EEM Administrator with any and all information deemed reasonably necessary for the administration of the Southeast EEM System.

6.1 The Participant acknowledges and agrees that it will not provide information posted in the confidential section of the Southeast EEM Website to any employee of itself or an affiliate engaged in Marketing Functions, where Marketing Functions shall be those meeting the definition found at 18 C.F.R. Section 358.3(d), except that for purposes of this Agreement Marketing Functions shall also refer to the functions described in that provision even if the entity performing those functions is not a public utility subject to FERC jurisdiction. The Participant shall identify to the Southeast EEM Administrator all employees who may access the confidential portion of the Southeast EEM Website, and certify that such employees are not engaged in Marketing Functions, and the Southeast EEM Administrator will grant access to the confidential portion of the Southeast EEM Website only to such employees. The Participant shall be responsible to ensure that the Southeast EEM Administrator is notified before any such employee commences engagement in

Marketing Functions such that access to the confidential section of the Southeast EEM Website can be revoked.

- 6.2 To the extent the Participant holds Market-Based Rate authority, the Participant acknowledges that it is obligated to provide accurate and factual information, and must exercise due diligence to avoid providing false or misleading information or omitting material information, in any communications with the Southeast EEM Administrator or the Market Auditor related to its participation in the Southeast Energy Exchange Market.
- 7.0 Either Party can assign or transfer any or all of its rights and/or obligations under this Agreement upon thirty (30) days written notice. Any such transfer or assignment shall be conditioned upon the successor in interest accepting the rights and/or obligations under this Agreement as if said successor in interest was an original Party to this Agreement.
- 8.0 An event of “Force Majeure” means any act of God, labor disturbance, act of the public enemy, war, insurrection, riot, fire, storm or flood, explosion, pandemic, epidemic, breakage or accident to machinery or equipment, any curtailment, order, regulation or restriction imposed by governmental military or lawfully established civilian authorities or any other cause beyond a Party’s control. A Force Majeure event does not include an act of negligence or intentional wrongdoing. Neither the Southeast EEM Agent, the Southeast EEM, the Members, nor the Participant will be considered in default as to any obligation under this Agreement if prevented from fulfilling the obligation due to an event of Force Majeure. However, a Party whose performance under this Agreement is hindered by an

event of Force Majeure shall make all reasonable efforts to perform its obligations under this Agreement.

- 9.0 The Participant shall at all times indemnify, defend, and save the Southeast EEM System, the Southeast EEM Agent and the Southeast EEM Administrator harmless from, any and all damages, losses, claims, including claims and actions relating to demands, suits, recoveries, costs and expenses, court costs, attorney fees, and all other obligations by or to third parties, arising out of or resulting from the Southeast EEM Agent's or Southeast EEM Administrator's, as applicable, performance of its obligations under this Agreement and the Southeast EEM Market Rules, except in cases of negligence or intentional wrongdoing by the Southeast EEM Agent or Southeast EEM Administrator, as applicable.
- 10.0 This Agreement shall be deemed to be a contract made under, and for all purposes shall be governed by and construed in accordance with, the laws of the State of Delaware.
- 11.0 This Agreement shall be effective upon execution by both parties and shall remain in full force and effect until terminated pursuant to Sections 12 or 13 of this Agreement.
- 12.0 The Southeast EEM may terminate this Agreement by providing written notice of termination to the Participant in the event the Participant commits a material violation of its obligations under the terms of the Southeast EEM Market Rules which, if capable of being remedied, is not remedied within thirty (30) days after the date the Southeast EEM has given the Participant written notice of the violation, unless excused by reason of Force Majeure as provided in Section 8 of this Agreement.



- 13.0 The Participant may terminate this Agreement upon thirty (30) days written notice to the Southeast EEM.
- 14.0 Upon termination of this Agreement for any reason, Participant shall not have access to the Southeast EEM System, nor be entitled to submit Bids or Offers thereunder.
- 15.0 This Agreement may be executed in one or more counterparts at different times, each of which shall be regarded as an original and all of which, taken together, shall constitute one and the same Agreement.
- 16.0 Any notice or request made to either of the Parties to this Agreement shall be made to the following representatives:

| | <u>Southeast EEM</u> | <u>Participant</u> |
|----------|-----------------------------------|--------------------|
| | Adrianne Collins | |
| Title: | <u>SVP, Power Delivery</u> | _____ |
| Address: | <u>600 18th St N P O Box 2641</u> | _____ |
| | <u>Birmingham, AL 35203</u> | _____ |



IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed by
their respective authorized officials.

Southeast EEM Agent: Southern Company Services,
as agent for Alabama Power Company, Georgia Power
Company, and Mississippi Power Company

Southeast EEM

Participant

By: _____

By: _____

Name: Adrienne Collins

Name: _____

Title: SVP, Power Delivery

Title: _____

Date: _____

Date: _____



Appendix D – Participant Application

Instructions: *Please provide all requested information and check each item as applicable for completion.*

Date: _____

Applicant Legal Name: _____

Applicant contact(s):

Applicant contact phone(s):

Applicant contact email(s):

Applicant hereby submits this Application pursuant to Section 3.0 of the Form of Participant Agreement executed by Applicant on _____. As required by Section 3.0 of that Agreement, Applicant warrants that all information submitted in this application is true and accurate. **Applicant further acknowledges that the accuracy of this information is vital and acknowledges that Applicant is responsible to promptly update the information in this Application, if it changes**

Applicant acknowledges that pursuant to SEEM Agreement, App'x B, Market Rules Section IV.A.1, Applicant will be required, prior to submitting bids and offers, to provide all information required for its Participant Profile.

Applicant has designated an Entity Security Administrator (ESA) who has the responsibility of maintaining roles and determining who has access to data.

Designated ESA: _____

ESA Phone Number: _____

ESA Cell Phone: _____

ESA Email Address: _____

Pursuant to Section 6 of the Participant Agreement, Applicant warrants that the following employees may access the confidential portion of the SEEM Website, and certifies that such employees are not engaged in Marketing Functions:

| Name | Title | Email | Contact Ph. Number |
|------|-------|-------|--------------------|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Pursuant to SEEM Agreement, App'x B, Market Rules Section III.B.4 Applicant warrants that it has NFEETS agreements in place with each current participating transmission service provider, as identified in the list maintained by the SEEM Administrator and available at www.southeastenergymarket.com.

Applicant warrants that it has authority to transact for a physical load or physical resource that 1) is physically located within the SEEM geographical footprint, 2) is directly connected to one of the SEEM transmission providers and 3) can be used for SEEM transactions according to the SEEM Market Rules.

- Applicant intends to use the following source(s) and/or sinks for SEEM participation:

| Source / Sink | Associated Transmission Service Provider |
|---------------|--|
| | |
| | |
| | |
| | |

Pursuant to SEEM Agreement, App'x B, Market Rules Section III.B.5 Applicant warrants that it has enabling agreements with no less than three non-affiliated SEEM Participants. A list of current SEEM Participants is maintained by the SEEM Administrator at www.southeastenergymarket.com. Applicant has enabling agreements with the following Participants (Applicant may include expected Participants whose Participation Application is pending or being submitted contemporaneously by so indicating):



The Applicant is an affiliate of the following entities that are or that have applied to be SEEM Participants:

State whether the Applicant intends submit bids and offers itself or whether the Applicant intends to authorize another entity to do so on the Applicant's behalf. If the Applicant intends to authorize another entity to submit bids and offers on behalf of the Applicant, identify such entity and briefly describe its relationship with the Applicant.



Applicant hereby submits that all of the above information is true and accurate and therefore has met the criteria to become a SEEM Participant.

Submitted by: _____

Title: _____

Date: _____



Appendix E – Declaration of Authority **FORM**

DECLARATION OF AUTHORITY

This DECLARATION OF AUTHORITY (“Declaration”) is a declaration and certification between [PARTICIPANT] with its principal place of business located at [PARTICIPANT ADDRESS] (“Principal”), and [AGENT] with its principal place of business located at [NON-PARTICIPANT AGENT ADDRESS] (“Agent”), (collectively the “Parties”).

RECITALS:

WHEREAS, Principal has authorized Agent to enter into wholesale electric power contracts, agreements and undertake activities as may be necessary to coordinate the purchase, sale, and settlement of electric power transactions on behalf of Principal;

WHEREAS, Principal has elected to become a Participant of the SOUTHEAST ENERGY EXCHANGE MARKET (“Southeast EEM”) to facilitate the matching of Sellers with Buyers for the purpose of entering into energy exchanges (each of the capitalized terms referred to herein are defined in that certain Southeast Energy Exchange Market Agreement);

WHEREAS, Principal has requested Agent to perform certain trading activities on its behalf and made in connection with the Southeast EEM trading platform and that certain Participation Agreement dated the ____ day of _____ 202_ (the “Agreement”) executed by Principal, in the same manner that Agent is currently conducting trading activities on behalf of Principal in the open market.

[Declaration Page to Follow]



DECLARATION:

NOW, THEREFORE, for good and valuable consideration, Principal provides the following authorization to Agent:

(1) **Declaration of Authority** – Principal hereby delegates to Agent the authority to enter into such contracts, agreements and undertake all activities as may be necessary to coordinate the purchase, sale, and settlement of electric power transactions on behalf of Principal on the SEEM platform, and in connection with the Agreement, in the same manner that Agent is currently authorized to engage in such activities on behalf of Principal on the open market. Principal affirms that all actions taken by Agent, as described in this Declaration, shall bind Principal.

IN WITNESS WHEREOF, Principal executes this Declaration to be effective as of the ____ day of _____, 202__.

[PARTICIPANT], Principal

[PARTICIPANT]

[TITLE]