

Southeast Energy Exchange Market (SEEM)

May 2022



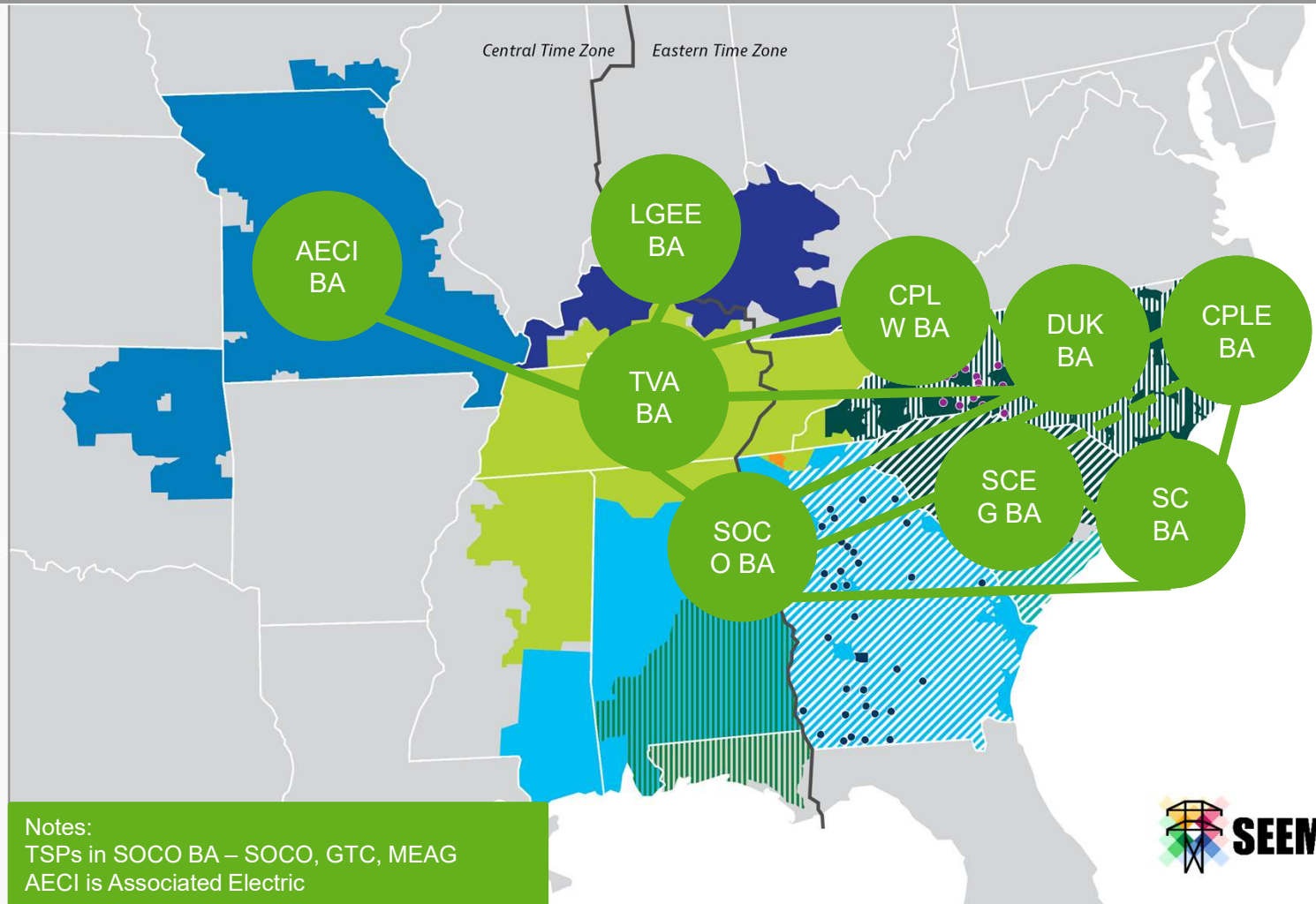
SEEM Footprint

> 160 GW of capacity serving > 640 TWh of energy for load

Electric Service Territory Map

- Southern Company
- ▨ Georgia Transmission*
- ▨ Oglethorpe Power Corp.*
- Dalton Utilities
- MEAG Power
- TVA
- Associated Electric Cooperative, Inc.
- LG&E and KU Energy LLC
- ▨ PowerSouth - Alabama
- ▨ PowerSouth - Florida
- North Carolina Municipal Power Agency No. 1
- Dominion Energy
- Duke Energy
- Santee Cooper
- ▨ Served by Dominion or South Carolina's electric cooperatives
- ▨ Served by Duke or South Carolina's electric cooperatives
- ▨ North Carolina EMCs

*Oglethorpe Power is a Georgia Transmission member and power supplier that serves the 38 member systems

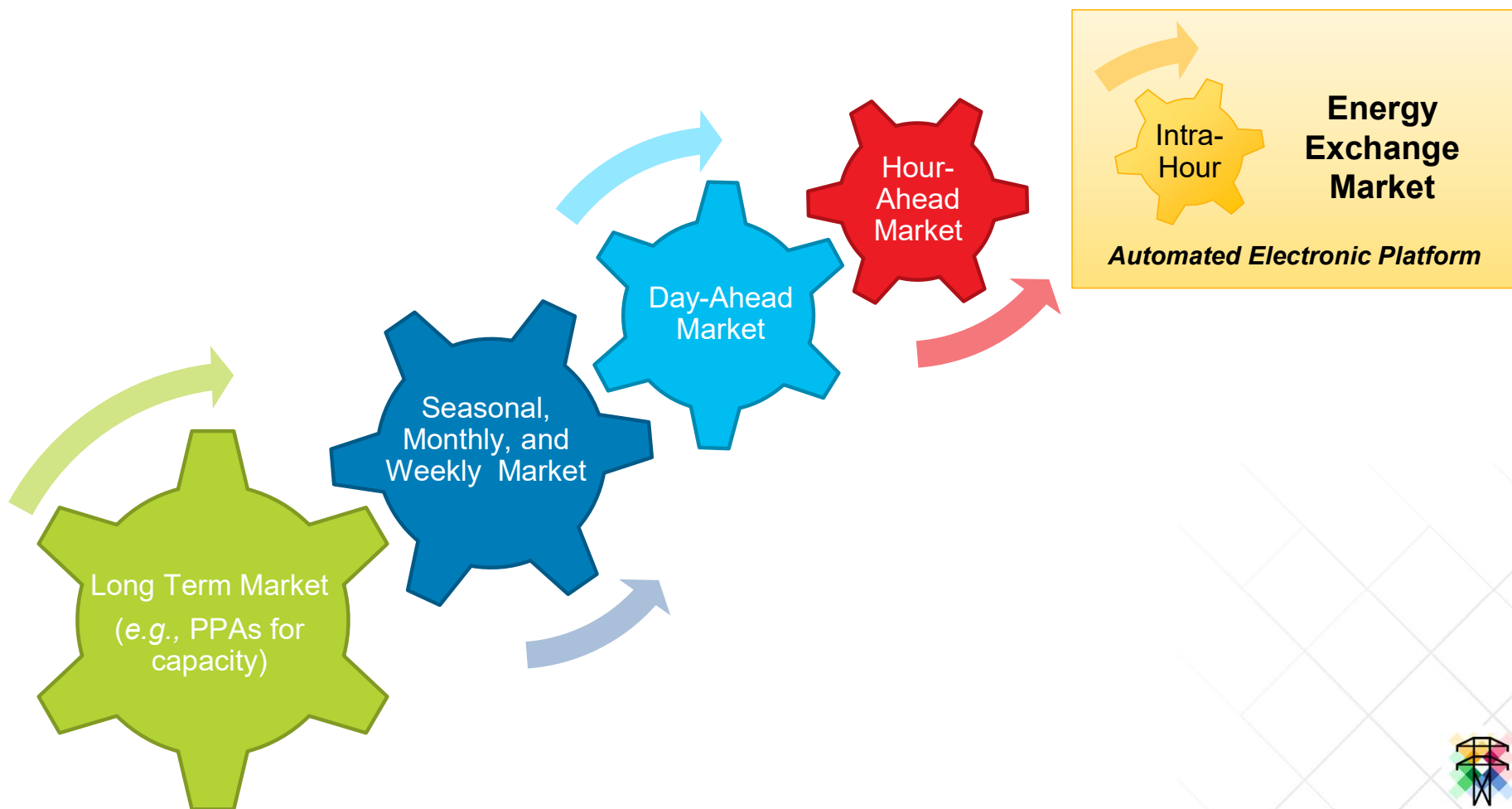


Core Principles

Our objective is to create the most stable, affordable, reliable and cleanest region in the United States.

- Each utility/state maintains control of generation and transmission investment decisions
- Each Transmission Provider remains independent with its own transmission tariff
- Each Balancing Authority remains independent
- Minimize bureaucracy while maximizing benefits to customers
- Participation is voluntary

Southeast Wholesale Market Enhancement



What is SEEM

- A region-wide, automated, intra-hour platform to match buyers and sellers with the goal of more efficient bilateral trading utilizing unused transmission capacity to achieve cost savings for customers (the “Platform”)
- Acts as an overlay to the existing bilateral market to increase efficiency
- Non-discriminatory: Members will fund development and have voting rights, but anyone that can physically transact in the wholesale market in the region can use the Platform
- Platform rules and participation established in the “Platform Agreement”

What SEEM is Not

- Does not replace bilateral market or existing agreements
 - Power sales will take place pursuant to bilateral contracts between participants under, where applicable, market-based rate authority
 - No centralized dispatch
 - Participation is voluntary (no must-offer, no use of non-participating transmission)
- Does not replace or change existing Balancing Authority or Transmission Provider reliability requirements
- Is not an energy imbalance market (“EIM”)

Non-Firm Energy Exchange Transmission Service

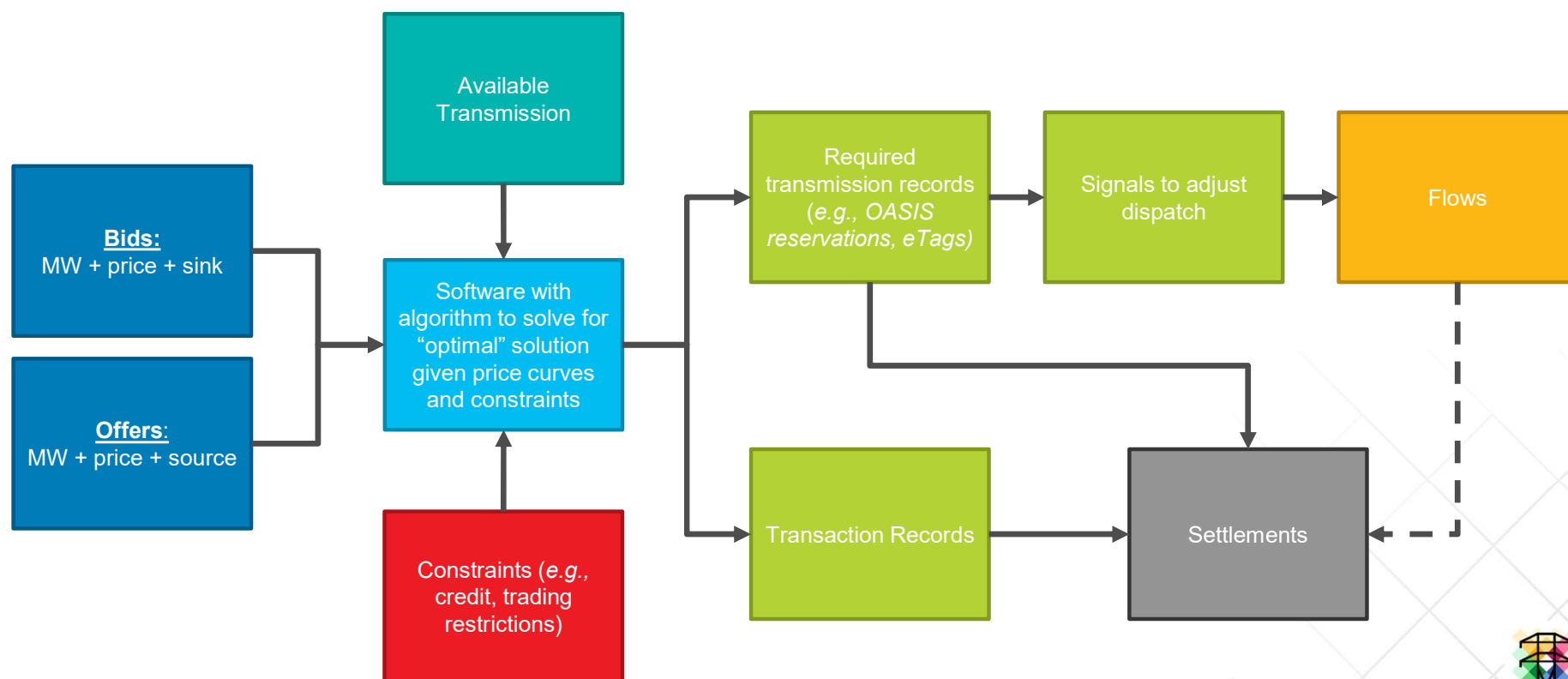
- Provided under individual Member TSP's open access transmission tariff ("OATT")
- Lowest priority, non-firm service
- \$0/MWh rate
- Intra-hour 15-minute term
- E-tags will be submitted by the Platform
- No Schedule 1 or Schedule 2 charges
- Financial loss charges will be paid to TSPs
 - established in individual OATTs
 - split between buyer and seller through the Platform

Reliability

- Balancing Authority responsibilities remain with existing Balancing Authorities (BAs)
 - No centralized, security-constrained economic dispatch or LMPs
 - BAs will retain existing dispatch and balancing responsibilities
 - TSPs will continue to use same ATC calculations
- These features avoid risk of unreserved use of non-participating transmission systems

Fifteen Minute Process

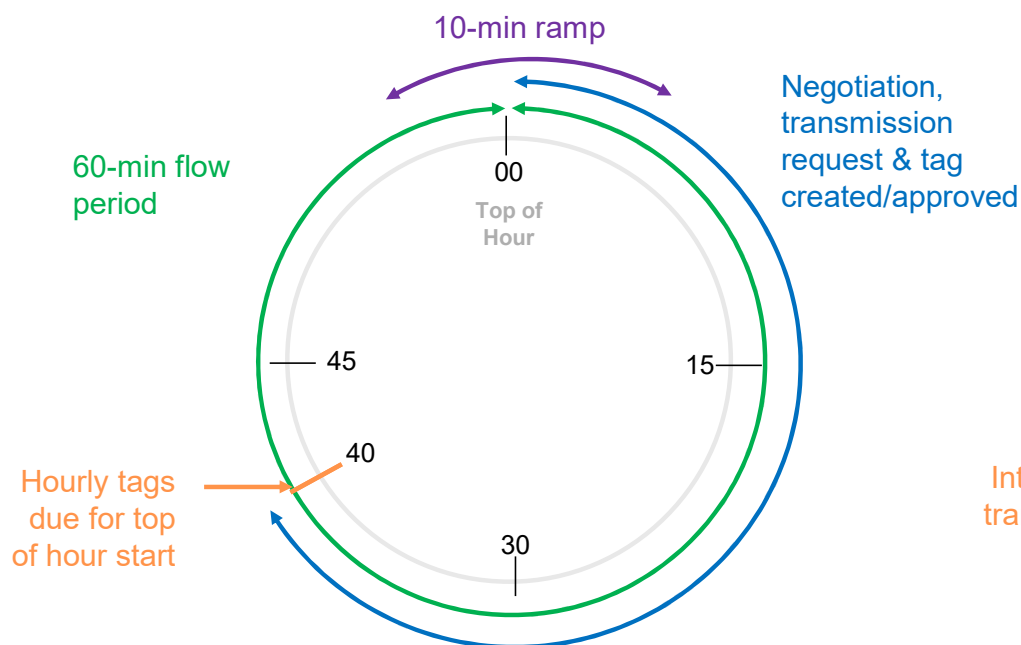
Goal: Maximize savings based on bids/offers for the entire SEEM footprint.



Market Structure

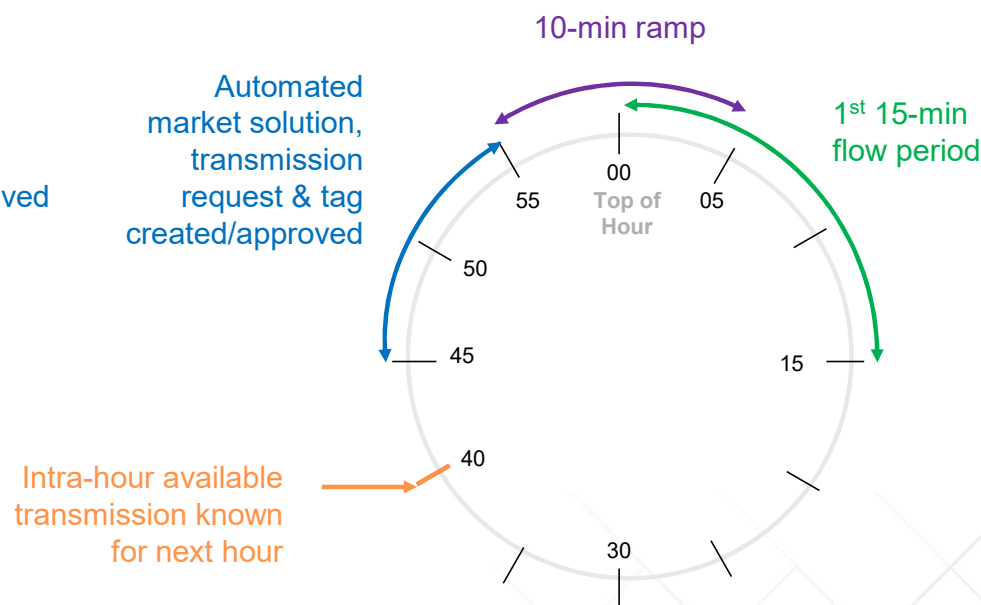
Reducing transaction friction through technology

Current 60 Minute Bilateral Market



- One 60-minute increment
- Standard 10-min “across the top” ramping
- e-tag deadline 20-minutes ahead

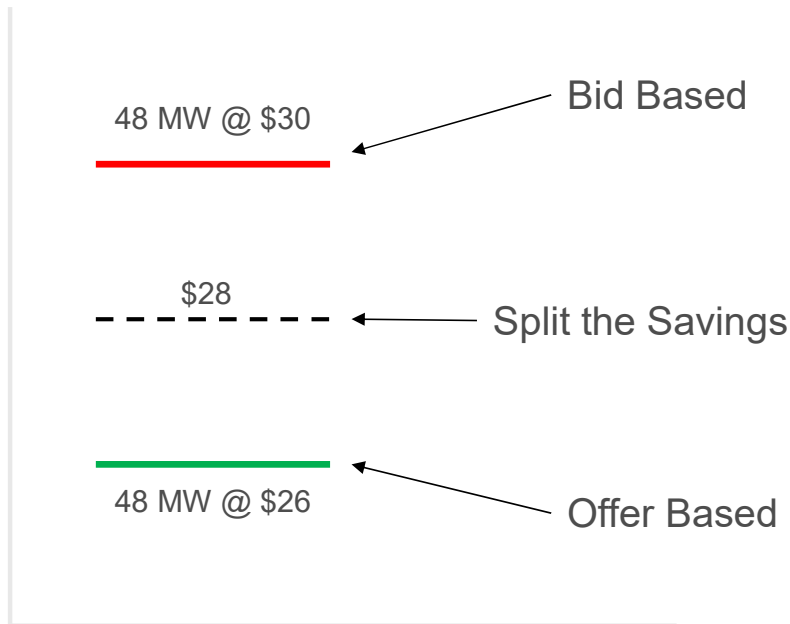
SEEM 15 Minute Bilateral Market



- Four 15-minute intra-hour flow periods
- Standard 10-min ramping
- Bid/offer deadline 15 minutes prior to schedule
- e-tag deadline 10-minutes ahead



Pricing – Split the Savings












- Bids and Offers
 - Megawatts, Price, Source/Sink
 - Source/Sink valid Web Registry point
 - 4 MW increments (due to integration)
- Matching Algorithm
 - No single clearing price
 - Split the Savings (Midpoint) pricing basis
 - Mixed Integer Linear Program (MILP) will solve for the solution that maximizes benefit for the region and uses randomization as needed to break “ties”

Market Requirements

- Financial Losses
 - Each Transmission Service Provider (“TSP”) will require financial losses
 - Simple and Reasonable Representation of Transmission Providers’ (“TSP”) Cost to Supply
 - » Individual TSP determines method for pricing its financial losses
 - » Each TSP responsible for updating its tariff to speak to how it will price losses
 - » Loss Price (\$/MWh) and Loss Factor (%) an input into algorithm by TSP
- Network Model
 - A model representing TSP areas, valid paths, source locations, sink locations, etc.
- No additional check on Balancing Authority (“BA”) generation/load balancing.

Project Roadmap

	Days	Start	End	January	February	March	April	May	June	July	August	September	October
Discovery and Deployment	45	1/10/22	3/11/22										
SSO Setup		2/1/22											
Initial API Access (Members and Vendors)		2/1/22											
Design and Planning	35	3/14/22	4/29/22										
Development and Configuration	35	4/11/22	5/27/22										
System Testing	33	5/30/22	7/13/22										
Start Onboarding Participants (if applicable)		5/30/22											
Training (Members, Participants, and Vendors)	43	5/30/22	7/27/22										
Company Configuration in SEEM Platform	43	5/30/22	7/27/22										
Market Trials	35	7/28/22	9/14/22										
Go\No Go Decision		9/15/22											
Market Cutover	12	9/15/22	9/30/22										
Go Live		10/3/22											

Legal Considerations

SEEM Membership and Participation

- SEEM Members refers to the group of load serving entities in the Southeast who developed and funded the SEEM platform
- Participants refers to the entities that will buy and sell power using the SEEM platform
 - We anticipate that the Members will also apply to be Participants, but also expect that there will be many non-Member Participants
- There will be no difference in how Participants operate or are treated in the SEEM market, regardless of Membership
 - All Participants will have the same rights and obligations
 - All Participants' bids and offers will be treated equally
 - All Participants will have access to the same information

SEEM Participation Criteria

- To be a Participant, you must
 - Own or otherwise control a Source (i.e., a pre-approved and validated OATI webRegistry source point) within the SEEM footprint and/or;
 - Be contractually obligated to serve a Sink i.e., a pre-approved and validated OATI webRegistry sink point) within the SEEM footprint.
 - To be clear, control of a Source is required to sell power and a load serving obligation at a Sink is required to purchase power.
- Other basic requirements:
 - Execute and deliver to the Administrator a Participation Agreement;
 - Execute and deliver to the Administrator transmission agreements with all of the Participating Transmission Providers (or otherwise show that you have access to such transmission service)
 - Execute Enabling Agreements with at least three other non-affiliated Participants

SEEM Participation Criteria – Enabling Agreements

- Enabling Agreements are contracts that allow one Participant to transact with another Participant.
 - For sellers that are FERC-jurisdictional, Enabling Agreements must be entered into pursuant to the seller's market-based rate authority
- Enabling Agreements can be purchases, sales or both
 - In order to sell power under SEEM, you must have 3 Enabling Agreements to sell power to unaffiliated Participants
 - In order to buy power under SEEM, you must have 3 Enabling Agreements to buy power to unaffiliated Participants
- The terms and conditions for SEEM transactions will be governed by the Enabling Agreement between the matched Participants
 - SEEM just does the matching and sets the price
 - All other commercial terms are set by the Enabling Agreement
 - Regulatory requirements and obligations will also apply (e.g., reporting, market manipulation regulations, etc.)



SEEM Participation – Agency/Contract Issues

- Not every potential Participant interacts with the market in the same way
 - Some entities outsource marketing activities
 - Some entities conduct marketing activities through affiliates
 - SEEM's goal is to accommodate the differences to allow entities to interface with SEEM in the same way that you interface with the rest of the wholesale market
 - Example – If a small utility outsources marketing to a third party, the utility can still be a participant and can authorize the third party to submit bids and offers in SEEM on the utility's behalf
- Some contractual arrangements can satisfy the Participant criteria, other will not
 - Example – if a tolling agreement gives the off-taker complete control over dispatch and control of all the output of a Source, the off-taker can be a Participant
 - Example – if under a PPA, the purchaser receives a certain amount of power that may come from a number of Sources, the PPA will not qualify the purchaser as a Participant

SEEM Participation – Participant Specific Constraints

- Every Participant is required to inform the Administrator of any constraints on matching the Participants with others
 - The constraints can be geographic or counter party specific
 - The Participant is obligated to ensure that that information is complete and accurate and must update the information as necessary
- Some Constraints may be legally required
 - Example – A participant is unable to transact in a certain geographic region due to market power issues
 - Example – A Participant cannot transact through SEEM with certain affiliated entities
- Some Constraints may be discretionary
 - As is the case in the market generally, SEEM transactions are entirely voluntary
 - A Participant may simply choose not to transact with another Participant and need not give any reason within SEEM for its decision
- SEEM will “toggle off” potential counter parties in the system to accommodate a Participant’s constraints (discretionary and otherwise)
 - A Participant will still need to have the requisite number of Enabling Agreements active in order to participate in SEEM

SEEM Participation – The Participation Agreement

- Obligates the Participant to abide by the SEEM Market Rules
 - Participants must identify a Company System Administrator who will assist the SEEM Administrator in developing public reports regarding transaction volumes and pricing
- Obligates the Participant to provide information reasonably required by the Administrator
- Full indemnity for SEEM and the Administrator (except for gross negligence and willful misconduct)
- Participant concerns can be directed to:
 - The Auditor
 - The SEEM Board
 - FERC

Operational Considerations

Early Operational Considerations

- Authentication
 - Multifactor Authentication
 - Single Sign On (SSO)
 - » Azure
 - » OKTA
- SEEM Platform versus APIs
 - Submit Bids\Offers
 - Match Results
 - Other Functions
- Internal versus Vendor Systems
 - Formulate Bids\Offers
 - Submit Bids\Offers
 - Pull data into your ETRM systems

Early Operational Considerations

- Sources\Sinks
 - Where do you plan to source and sink your matches?
- Special Tagging Rules?
- Counterparty Constraints
 - Are there certain counterparties that you cannot trade with at market-based rates?
- Geographic Constraints
 - Are there certain geographic regions or BAs where you cannot trade at market-based rates?
- Other Constraints?

