

Attachment D

Affidavit of Susan L. Pope

**UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

Southern Company Services, Inc.

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Docket No. ER21-____-000

**AFFIDAVIT
OF
SUSAN L. POPE**

**ON BEHALF OF
THE MEMBERS OF THE SOUTHEAST ENERGY EXCHANGE MARKET**

February 12, 2021

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Attachment D-1: Susan L. Pope CV

1. INTRODUCTION

1. My name is Susan L. Pope. I am a Managing Director at FTI Consulting, Inc. My business address is 200 State Street, Boston, Massachusetts 02109.

1.1 UNDERSTANDING OF SOUTHEAST EEM PROPOSAL

2. The proposed Southeast Energy Exchange Market (“**Southeast EEM**”) is a set of agreements, procedures, and processes to enable use of an automated platform to arrange for bilateral energy transactions with 15-minute granularity (“**Energy Exchanges**”). The automated platform (“**Southeast EEM System**”) will match willing buyers and willing sellers in bilateral transactions across the multi-state footprint of the Southeast EEM member transmission service providers (“**Participating Transmission Providers**”). The Energy Exchanges arranged in each 15-minute interval will depend on the bids and offers of buyers and sellers, available transmission, charges for transmission losses, counterparty restrictions, and requirements under each jurisdictional seller’s market-based rate (“**MBR**”) authority. Considering these inputs and constraints, the software for the Southeast EEM System will match buyers and sellers into Energy Exchanges so as to maximize the benefits of the set of bilateral transactions arranged for each 15-minute interval (the “**Algorithm**”).¹
3. Participants in the Southeast EEM must be able to buy and/or sell physical energy within the footprint of the Participating Transmission Providers (“**Territory**”). Buyers must have at least one valid sink location, and sellers must have at least one valid source location. Additionally, Participants must arrange for transmission service with all Participating Transmission Providers and have enabling agreements for purchases and sales of energy with at least three non-affiliated counterparties.²
4. Energy Exchanges arranged by the Southeast EEM System will be delivered using a new Non-Firm Energy Exchange Transmission Service (“**NFEETS**”) product, which will have a lower NERC priority than any other transmission service offered by the Participating Transmission Providers. NFEETS will utilize available transmission that remains for a 15-minute interval after each Participating Transmission Provider accounts for all of the e-Tags submitted for existing transmission reservations.³ NFEETS will be available at zero cost, other than charges for transmission losses and imbalances (“**zero-cost transmission**”). The Southeast EEM System will automatically submit e-Tags to Participating Transmission Providers for the NFEETS arranged during each 15-minute interval.
5. The Southeast EEM System will calculate a split-the-savings price to be paid by the buyer to the seller of each Energy Exchange (“**Energy Exchange Price**”). The result of the buyer paying the Energy

¹ For a complete description of the inputs and constraints of the Algorithm, *See* Appendix B: Southeast EEM Market Rules and Attachment C: Operations Affidavit.

² Appendix B: Southeast EEM Market Rules, Section III.B.

³ Participating Transmission Providers will also account for unscheduled power flows in determining available transmission.

Exchange Price to the seller is that each receives half of the energy-related benefits of the Energy Exchange, as measured by the difference between the bid price and offer price, and each pays half of the cost of transmission losses. The Algorithm will ensure that both the buyer and the seller benefit (relative to their bid or offer) from each Energy Exchange, taking into account their payment for half of the cost of transmission losses.⁴

1.2 ASSIGNMENT BY COUNSEL

6. I have been asked by counsel for the filing members of the Southeast EEM (“**Members**”) to evaluate three questions as they relate to the Southeast EEM proposal (“**Proposal**”):⁵
 1. Economic Benefits: Will the Southeast EEM enable an increase in economic efficiency relative to the current rules and procedures for arranging bilateral energy sales within the Southeast EEM Territory?
 2. Market Power: Could the Southeast EEM create opportunities for participants in the Southeast EEM (“**Participants**”) to exercise market power?⁶
 3. Market Manipulation: Could the Southeast EEM create opportunities for Participants to engage in market manipulation?

1.3 ASSUMPTIONS

7. In developing my opinion on the above questions, I have relied on certain assumptions and information regarding the Proposal.
8. *First*, I assume that the implementation of the Southeast EEM will adhere to the market rules as presented in Appendix B (“**Market Rules**”) to the Southeast Energy Exchange Market Agreement (“**Southeast EEM Agreement**”) and in Attachment C to the Southeast EEM Agreement, the Affidavit of Mr. McGeeney and Mr. Sellers (“**Operations Affidavit**”), *i.e.*, the implementation will not include any material additions to, or deletions from, the Market Rules or the market rules as explained in the Operations Affidavit.⁷
9. *Second*, all bilateral transactions arranged through the Southeast EEM will occur under Members’ existing Federal Energy Regulatory Commission-approved MBR authority and existing Open Access

⁴ Market Rules, Section IV.C.6.b.

⁵ Members are entities who have signed the Southeast Energy Exchange Market Agreement and have funding obligations and voting rights.

⁶ Participants are entities who have signed the Market Participant Agreement for the Southeast EEM, giving them the ability to participate in the Southeast EEM. All Members are Participants, but Participants are only Members if they also sign the Southeast EEM Agreement.

⁷ See Market Rules; Operations Affidavit.

Transmission Tariffs (“**OATTs**”) for jurisdictional entities.⁸ The Member OATTs will be revised to include NFEETS per the terms of the Southeast EEM Agreement. Southeast EEM transactions by non-jurisdictional entities will occur under the authority of their existing arrangements for market-based sales and transmission service.⁹

10. *Third*, I assume the jurisdictional Southeast EEM Participants will utilize the functionality of the Southeast EEM System to ensure that their participation in the Southeast EEM abides by all market power mitigation measures that the Federal Energy Regulatory Commission (the “**Commission**” or “**FERC**”) imposes on them. As explained in the Affidavit of Mr. McGeeney and Mr. Sellers, Participant offers into the Southeast EEM can include counterparty and geographic restrictions to enable them to abide by market power mitigation measures, limiting the parties with whom they can bilaterally trade. Additionally, the Energy Exchange Prices determined by the Southeast EEM System can be capped at the level set by any applicable MBR order.
11. *Fourth*, I assume the software to implement the Southeast EEM platform will maximize the total benefits of the set of Energy Exchanges arranged every 15 minutes with a reasonable degree of consistency. If and when the software implementation requires a rule to resolve ties or ambiguities, I assume that it will utilize a randomization approach.
12. *Fifth*, FERC will continue to monitor adherence to the rules, restrictions, and requirements – that apply to some Members’ pre-Southeast EEM bilateral trading activity – to address the potential for the exercise of horizontal or vertical market power. Likewise, FERC will continue to have the authority it has today over Participating Transmission Providers’ OATTs and administer the underlying principles of open-access and non-discrimination.

1.4 SUMMARY OF CONCLUSIONS

13. Based on the information and assumptions set forth above and the reasons discussed below, I conclude as follows:
 1. Economic Benefits: The Southeast EEM can reasonably be expected to facilitate an on-going increase in the economic benefits from bilateral trading in the Territory, as measured by a reduction in the variable cost of serving load relative to the *status quo*. The anticipated benefits stem from a reduction in transaction costs and the elimination of transmission service costs for NFEETS, which facilitate efficiency gains from bilateral transactions that would not otherwise occur.
 2. Market Power: The Southeast EEM will enable application of market power mitigation measures required today for bilateral trades in the Southeast, per the MBRs of jurisdictional Participants. Taking the current bilateral market as a starting point, the Southeast EEM is designed to eliminate barriers to competition for trades with a 15-minute duration. The Southeast EEM’s combination of zero-cost, non-pancaked transmission service and automated 15-minute trading reduce the

⁸ Operations Affidavit at P 40.

⁹ Operations Affidavit at P 10.

costs of competition making it more likely that willing buyers and sellers will be able to enter into cost-reducing 15-minute trades. The conclusion that the exercise of market power should not be possible in the Southeast EEM is bolstered by the fact that it is a voluntary, residual market, in effect ruling out the possibility of one or more Participants exercising horizontal market power.

3. Market Manipulation: To the best of my understanding, the Market Rules do not provide a material opportunity for strategic conduct in order to obtain priority access to zero-cost NFEETs or to affect the posted weighted-average Energy Exchange Price to benefit the settlement of a related contract. It is highly unlikely that Participants or financial market traders would choose to settle contracts based on the weighted-average Energy Exchange Price, because (among other things) it is calculated across the large Southeast EEM region and, for this reason, is not reflective of the actual market price for energy at any location.

1.5 ORGANIZATION OF AFFIDAVIT

14. The rest of my affidavit is structured as follows:

- Section 2 explains my qualifications as they relate to the assignment by counsel to evaluate certain economic aspects of the Southeast EEM Proposal;
- Section 3 discusses how key features of the Southeast EEM Proposal will enable an increase in economically efficient bilateral trades in the Territory. This section considers whether these benefits could be materially diminished by the bidding incentives of the Proposal or by impacts related to reliability and resource adequacy;
- Section 4 explains why the Southeast EEM will increase competition for 15-minute trades and will not create an opportunity for sellers or buyers to exercise market power; and
- Section 5 explains that there are no apparent opportunities for market manipulation due to the introduction of the Southeast EEM.

2. QUALIFICATIONS

15. I have almost 30 years of experience in providing advisory services to design and improve the operation of electricity markets. I have had long-term projects involving almost all organized electricity markets in the U.S., working on behalf of regulators, transmission owners, generation owners, system operators, governmental entities, industry associations, and trading entities. My work focuses on improving or evaluating the economic efficiency of electricity supply while maintaining standards of reliability. A copy of my resume is provided in Attachment D-1: Susan L. Pope CV.
16. Since 2011, I have been a Managing Director at FTI Consulting, where I am part of an economic practice providing expert services to the electric power sector. Prior to joining FTI Consulting, I was a Principal at LECG, LLC and, prior to this, a Principal and Associate at Putnam, Hayes and Bartlett, Inc. I hold a Ph.D. in Business Economics and an undergraduate degree in Applied Mathematics from Harvard University in Cambridge, Massachusetts.
17. Of relevance to my assignment by counsel, I provided expert advice to the Northwest Power Pool in 2013-2014 during an effort to form a short-term spot market among a group of electrically

interconnected entities that did not operate as a power pool. This work centered on the issues arising in implementing any type of centralized exchange or short-term regional dispatch, while maintaining traditional mechanisms for transmission scheduling and pricing. Like the Southeast EEM Proposal, the Northwest Power Pool sought to enable a market including a large, non-FERC jurisdictional entity as well as entities subject to FERC jurisdiction.

18. Additionally, I have been engaged on several projects related to the California ISO Energy Imbalance Market (“EIM”) which, among other things, is used to schedule residual transmission capacity. I engaged in early assessments of the operation of the EIM on behalf of the Northwest Power Pool and later assessed EIM operation for work on behalf of the Independent Electricity System Operator of Ontario.
19. I also had a lead role for many years in assisting the transmission owning utilities within New York, who were developing the market rules for the New York ISO. Through this work and work in other regions, I developed expertise concerning the connection between transmission pricing and the costs and challenges of maintaining transmission system reliability, how transmission cost shifting can occur as a result of changes to rules for transmission access and pricing, the challenges encountered in including non-jurisdictional entities in regional electricity markets, the connection between transmission pricing and transmission access, and the challenges of maintaining historic transmission rights while introducing improvements to mechanisms for short-term energy purchases and sales. For the New York ISO, the Midcontinent ISO, and the California ISO, I was the lead consultant in designing region-specific mechanisms to address transmission cost shifting potentially arising from their energy market designs.
20. My recent work includes co-authoring testimony in support of reforms to PJM’s operating reserve market, advising the Independent Electricity System Operator of Ontario on the redesign of its electricity markets (since 2017), testifying in Alberta about possible issues with their proposed capacity market, co-leading a series of meetings to advise the Public Utility Authority of Israel on the introduction of competitive electricity markets, and co-authoring reports on electricity market design alternatives on behalf of several regulatory authorities in Australia.

3. SOUTHEAST EEM BENEFITS

3.1 BENEFICIAL DESIGN FEATURES

21. The Southeast EEM design will enable an increase in economically efficient bilateral energy transactions in the Southeast EEM Territory. In the context of the Southeast EEM Proposal, a transaction is considered economically efficient if it reduces the total production costs to serve demand in the Southeast EEM Territory during a 15-minute interval; that is, if it enables lower cost supply to be used instead of higher cost supply.

22. There are two general reasons why the Southeast EEM will enable cost reductions that cannot be achieved with the bilateral trading tools and procedures currently used within the Territory:¹⁰

- Reduction in Transaction Costs: The Southeast EEM will employ automation to quickly match willing buyers with willing sellers, enabling 15-minute trades to be arranged over a broad geographic area; and
- Zero-Cost Transmission: The transmission service charge will be zero for NFEETS.

3.1.1. REDUCTION IN TRANSACTION COSTS¹¹

23. Bilateral energy markets generally rely on potential buyers and potential sellers to communicate directly with each other to identify opportunities for mutually beneficial transactions. Efficient bilateral transactions are arranged in this manner all of the time but discovering information about willing counterparties requires manual effort and time. The cost of this effort can become large relative to the benefit for transactions with shorter durations. For example, the effort involved in identifying and executing an hourly transaction is not likely to be much greater than the effort required to identify and execute a 15-minute transaction, but the benefit of making that effort might be four times as large for the hourly transaction.

24. As a practical matter, there is a limit to how short the duration of a transaction can be while still providing sufficient benefit to justify the transaction cost of identifying and executing the trade. Experience in the major bilateral markets in the United States indicates that there is little to no sub-hourly trading activity, and I am informed by Southeast EEM Members that such sub-hourly trades are rare in the Southeast.¹² This suggests that hourly granularity may be the shortest transaction duration that is worth pursuing through conventional bilateral trading activity.

25. The shortest term for bilateral trading within the Southeast EEM Territory today is primarily hourly.¹³ These trades typically require a source of supply (*i.e.*, generation) that will be available for the entire hour and also a sink (*i.e.*, demand) that typically is served for the entire hour. Furthermore, these hourly commitments must be finalized no later than 20 minutes prior to the start of the operating hour (“**T-20**”).

¹⁰ Current bilateral trading tools and procedures in the Southeast are described in Attachment B: Overview Affidavit at P 6-19.

¹¹ In economics, “transaction cost” refers to costs incurred in making a transaction including, for example, effort, costs of obtaining information, and other costs referred to in this filing as arising from transactional friction. For purposes of this affidavit, I do not include explicit charges for transmission reservations or transmission losses within the meaning of transaction cost.

¹² Operations Affidavit at P 34.

¹³ Operations Affidavit at P 34-35.

26. Under the Proposal, the Members would build a platform for automated matching of willing buyers and sellers in order to overcome the transaction costs inhibiting short-duration trades. The Southeast EEM would enable transaction commitments for 15 minutes at a time, with bids and offers due 15 minutes prior to the start of each 15-minute interval according to the planned timeline. Automation of 15-minute trades will enable buyers and sellers to effectuate bilateral trades appropriating economic benefits that are unrealized, for a variety of reasons, under the *status quo* procedures for bilateral trading in the Southeast.¹⁴
27. Additional efficient trades will occur because automation of 15-minute trading will make it easier for transactions to be used to meet customer loads or to use supply resources that may be present for part of an operating hour, but not for all of it. Furthermore, the reduction in the cost of trading will likely encourage parties who might not otherwise have sought a bilateral trade to submit bids and offers, expanding the opportunity for beneficial trades to be arranged. The Proposal also facilitates transactions that become economic due to changes in supply and demand within each hour, so that bilateral trading activity will no longer be largely frozen based on T-20 conditions. This could help to reduce the costs of integrating increasing quantities of intermittent renewable resources, because the output of these units varies continuously. A load-serving entity may, for example, purchase energy through the Southeast EEM to balance a reduction in wind supply, rather than using a more expensive supply source to compensate for the reduction.
28. Finally, the Proposal supports execution of Energy Exchanges through coordination with the transmission scheduling processes of Participating Transmission Providers to effectuate physical delivery. By automating the trading process and arranging for e-Tags, the Southeast EEM reduces the costs and friction of sub-hourly trading across a broad region.

3.1.2. ZERO-COST TRANSMISSION

29. The Southeast EEM Proposal includes the new NFEETS product to be offered at zero cost (other than charges for losses and imbalances) by all Participating Transmission Providers.¹⁵ This substantially reduces the potential that 15-minute transactions that would otherwise be economically efficient are not executed due to the cost of transmission service from source to sink. For example, a load-serving entity could reduce production costs to meet demand by purchasing power from a generator at a price of \$30/MWh rather than running its own generator that costs \$35/MWh. However, if delivery of the purchased power required transmission service to be procured at a cost of \$6/MWh, then there would be no net benefit to the parties of undertaking the transaction.
30. The application of tariff rates, while necessary to recover fixed and sunk costs such as transmission facilities, may impede otherwise economic transactions at the margin; in the example, the charge to recover sunk transmission costs prevents a reduction in the cost of serving load. Elimination of a transmission charge for NFEETS removes this impediment for 15-minute trades arranged through the Southeast EEM. In the prior example, NFEETS could enable the \$30/MWh purchased power to be

¹⁴ See Operations Affidavit at P 34.

¹⁵ Operations Affidavit at P 13 & 33.

used to serve demand instead of the more expensive \$35/MWh generator. A NFEETS charge greater than zero could impede some otherwise efficient 15-minute transactions from occurring.

31. Importantly, the Proposal provides zero-cost transmission service across the entire Southeast EEM Territory, eliminating the pancaked transmission rates potentially preventing many efficient sub-hourly trades today. Bilateral trades scheduled using current OATT services incur transmission charges for each of the transmission systems used to complete the trade. These charges can cause otherwise economically efficient trades to be unprofitable, particularly between potential sources and sinks that are separated by one or more transmission wheels. NFEETS eliminates pancaked transmission charges for 15-minute transactions across a broad region, enabling additional economic trades that would not otherwise occur.¹⁶
32. The Southeast EEM's combination of zero-cost, non-pancaked transmission service and automated 15-minute trading enable willing buyers and sellers to arrange beneficial trades that use available transmission remaining after deliveries have been scheduled under existing OATT service. The Proposal will yield benefits by arranging bilateral trades using the available transmission of multiple Participating Transmission Providers in ways that are unlikely to occur today. The automated system will have a substantial advantage in searching for transmission paths with available transmission to complete beneficial trades, overcoming transaction costs and information barriers. Further, the Algorithm will exhaustively seek out all possible beneficial trades across the Territory, as measured by voluntary bids and offers, capturing the additional benefits made available by scheduling otherwise unused available transmission with zero-cost transmission service.

3.1.3. MAXIMIZATION OF TOTAL BENEFITS

33. The design of the Southeast EEM leverages automation and zero-cost transmission to facilitate beneficial sub-hourly bilateral transactions. Building on this, the Proposal seeks to maximize the sum of the benefits of the trades arranged for each 15-minute period.¹⁷ As explained in the Affidavit of Mr. McGeeney and Mr. Sellers, trades will be arranged based on the bids and offers of willing buyers and sellers and will account for available transmission limits, transmission loss charges, and counterparty constraints.¹⁸
34. The Southeast EEM System will only arrange Energy Exchanges with a positive benefit to both the buyer and the seller. The total benefit of a single Energy Exchange transaction is the savings enabled by the transaction, as measured by the bid of the buyer minus the offer of the seller multiplied by the megawatt-hour quantity of the transaction, less the total cost of losses for the transaction. After

¹⁶ Overview Affidavit at P 13.

¹⁷ The term, "benefits", as used in this context, is not synonymous with "economic cost savings," since it is calculated from voluntary bids and offers.

¹⁸ Operations Affidavit at P 38.

settlements for energy and losses have been completed, the buyer and seller each receive half of this total benefit.¹⁹

35. The total benefit of the Southeast EEM in a 15-minute interval is the sum of the benefits received by all buyers and sellers matched in Energy Exchanges.

3.2 BIDDING INCENTIVES

36. The anticipated economic benefits of the Southeast EEM could be reduced if the bidding incentives created by the Proposal design were to cause a substantial number of efficient trades not to occur.²⁰ If there were opportunities for participants to decrease their costs or increase their profits by submitting bids or offers that deviated, perhaps substantially, from their underlying costs, there would not be a loss in economic efficiency so long as the bidding behavior did not prevent an Energy Exchange that would have been economically beneficial from occurring.²¹ If Participants make mistakes, and increase their offers too much, or decrease their bids too much, they might not be matched in Energy Exchanges that would be beneficial. If the Proposal creates incentives for bids and offers to deviate from underlying costs in a manner that causes them to often fail to be matched, although a match would have been beneficial, then the bidding incentives could limit the economic efficiency benefits that are realized.

3.2.1. SPLIT-THE-SAVINGS PRICING

37. In this section I conclude that, because of a Participant's uncertainty about how far its bid or offer can deviate from its cost without causing it to not be matched at all, it does not appear that bidding incentives are likely to cause a material limitation on the efficient trades that the Southeast EEM is otherwise likely to create. Moreover, in situations of reduced uncertainty, I would still expect rational Participants to determine how to bid and offer so as to be beneficially matched the majority of the time. Taking into account expected compliance with the market power mitigation measures required today for bilateral trades and the 3 eligible counterparty requirement (as discussed in later sections of my affidavit), it is highly likely that the Southeast EEM will facilitate an ongoing increase in the economic benefits from bilateral trading in the Territory, as measured by a reduction in the variable cost of serving load.
38. Energy Exchanges arranged by the Southeast EEM System will be settled based on split-the-savings pricing as applied to the individual transaction. Each Energy Exchange arranged for a 15-minute interval will likely be settled at a different Energy Exchange Price; *i.e.*, the buyer for each Energy

¹⁹ The division of the benefits of an Energy Exchange may not be equal between the buyer and seller when the Energy Exchange Price the buyer pays to the seller is capped by the price allowed under an approved MBR. In these instances, the buyer may receive more than half of the total benefits of the Energy Exchange.

²⁰ In theory, the benefits also would be impacted if inefficient trades occurred, but this would suppose conduct in which buyers bid above their avoided costs or sellers offered at less than their marginal production cost despite the risk of losing money when paired in an Energy Exchange.

²¹ In this section I focus on possible incentives to modify bids or offers in order to increase profits on a single bilateral trade. In later sections I discuss the potential for the exercise of market power or market manipulation.

Exchange is likely to be paying a different price to its matched seller than the price paid by other matched buyers to their sellers during the same interval. This result is consistent with the way pricing works for bilateral transactions today, where a different price is negotiated for each transaction.

39. Under the Proposal, the Energy Exchange Price per megawatt-hour the buyer pays to the seller is calculated as follows:

- (1) **Energy Exchange Price (\$/MWh) =**

$$\frac{\frac{1}{2}(Bid\ Price + Offer\ Price)(MWh) + \frac{1}{2}(Seller\ Losses - Buyer\ Losses)}{MWh}$$

Where *Bid Price* and *Offer Price* refer to prices in \$/MWh and *Seller Losses* and *Buyer Losses* refer to the total cost of losses.

40. The net result of the buyer paying the Energy Exchange Price to the seller is that each receives half of the energy benefits, as measured by the difference between the bid price and offer price, and each pays half of the cost of transmission losses for the Energy Exchange. The reason the Energy Exchange Price is not calculated by simply splitting the total loss charges for the transaction is that the seller will likely be billed for all loss charges except those charged by the Participating Transmission Provider to whom the buyer is interconnected; these loss charges will likely be paid by the buyer. Since the buyer and seller will be paying different amounts to transmission providers for the losses for their transaction, the difference is accounted for in calculating the Energy Exchange Price the buyer pays the seller, thereby equalizing the benefits received by each.
41. With the Southeast EEM split-the-savings pricing, there may be an incentive for buyer bids and seller offers to deviate from their underlying costs because the Energy Exchange Price is calculated directly from their bids and offers, *i.e.*, by changing its bid or offer a Participant would change the price for the trade. The incentive should be substantially mitigated by the uncertainty buyers and sellers face about the bid or offer level required to be beneficially matched, as discussed below.

3.2.2. BILATERAL TRANSACTION PRICING TODAY

42. Today, buyers with the potential to avoid high costs for the supply used to serve their load seek out sellers that might be able to sell them lower-cost energy, and vice versa. When arranging for a bilateral transaction, buyers have an incentive to negotiate payment of the lowest price that a seller is willing to accept; doing so maximizes the share of the transaction benefit that accrues to the buyer. Similarly, a bilateral seller has an incentive to negotiate a price that is as high as a buyer is willing to pay; doing so maximizes the share of the transaction benefit that accrues to the seller.
43. Today, buyers and sellers are generally known to one another during the negotiation of a trade and might have an idea of one another's costs based on their transactional history. The negotiated price might depend, for example, on the parties' historical relationship, knowledge of each other's alternatives, the volume of annual trades by each, or the overall degree of competition among buyers

and among sellers. The amount of pressure a buyer or seller can apply in negotiating the bilateral trade price is limited by the amount of risk each is willing to bear that the counterparty will choose to do business elsewhere or decline to transact at all.

44. The incentive to negotiate a price above marginal production costs (*i.e.*, by the seller), or below avoided costs (*i.e.*, by the buyer) can affect the split of the economic benefits of a bilateral transaction between the buyer and the seller, but does not reduce the total economic benefit of a completed transaction. Economic efficiency is not affected by the particular price negotiated between a buyer and seller. Rather, economic efficiency suffers when a buyer's negotiating position leads it to bid a price below the seller's cost and/or a seller's negotiating position leads it to offer a price greater than the buyer's avoided cost and, as a result, an otherwise efficient bilateral transaction does not occur at all.

3.2.3. BIDDING UNDER UNCERTAINTY IN THE SOUTHEAST EEM

45. The incentive to achieve a favorable transaction price, as described above for bilateral transactions today, extends to Energy Exchanges arranged by the Southeast EEM System. However, in the Southeast EEM the Energy Exchange Price is not directly negotiated between a buyer and a seller. Instead, it is calculated from the buyer's bid and the seller's offer for each Energy Exchange arranged by the Algorithm. This introduces uncertainties that should tend to dampen the willingness of buyers and sellers to act upon the incentive for buyer bids and seller offers to deviate from their underlying costs.

3.2.1.3. Enabling of Competition

46. In considering whether or by how much to deviate from cost-based bidding in each 15-minute interval, Participants in the Southeast EEM will confront substantial uncertainty. With the Southeast EEM there is no opportunity to negotiate with one or more potential counterparties; a seller cannot lower its offer when a buyer looks like it might walk away (or vice versa) and there is no ability to revise a bid or offer when it fails to be matched in an Energy Exchange. Each buyer and seller have only one chance to state its bid or offer. The risk of submitting a bid or offer that deviates substantially from costs is material because there is no recourse if a seller offers too high or a buyer bids too low.
47. The expectation is that there will be broad participation in the Southeast EEM, due to its low costs for participation and zero-cost transmission. The intention is to enable robust competition among multiple sellers submitting multiple offers and multiple buyers submitting multiple bids. Participants will not have a clear view of who the other buyers and sellers will be during each interval, or the strength of the incentive of these other parties to be paired in an Energy Exchange, *i.e.*, how close to cost they are likely to be bidding or offering. These factors could make it more difficult for many Participants to infer by how much they could safely deviate from cost-based bids and offers than it is for them to make the same inference today when they negotiate directly with a single counterparty.
48. Because of the competition expected to occur in the Southeast EEM, a lowered bid or increased offer that is matched in one 15-minute interval may not be matched in the next. It generally will be difficult for a seller to predict, for example, whether increasing its offer might cause it to fail to be paired in an Energy Exchange because other sellers make lower offers in that interval. The expectation is that there will be many bids and offers that could change as often as every 15-minutes. If this occurs it is

unlikely that a Participant could estimate the shape of the underlying supply and demand curves at its location so as to accurately and consistently predict whether it would be profitable to deviate from cost-based bidding. In the Southeast EEM there will likely be an incentive for many Participants to bid and offer consistently with their underlying costs.

3.2.2.3. Information Provided by Prior Energy Exchange Prices

49. The information available about Southeast EEM Energy Exchange Prices in prior intervals is unlikely to be of material use in reducing a Participant's uncertainty about the potential to profit by deviating from cost-based bids and offers at its location. This conclusion pertains to both the weighted-average hourly energy prices published at 6:00 AM CPT on the following day,²² and the Energy Exchange Prices a Participant sees for its own transactions in previous intervals or for like-intervals on similar days. Neither of these types of information are likely to provide consistently useful information about the marginal bid or offer at a Participant's location that would be paired in an Energy Exchange. If a buyer knew the likely level of the marginal bid, it would add a small margin to it in submitting its own bids, analogously to how a buyer today would attempt to bid just above its competitors in order to close a bilateral deal at the lowest possible price. Likewise, if a seller knew the likely amount of the marginal offer at its location, it would decrease its own offer to just under this in order to secure the deal at the highest possible profit.
50. The Southeast EEM will publish, with a one-day lag, the weighted-average hourly Energy Exchange Prices from the prior day.²³ The posted weighted-average prices will be calculated over all individual Energy Exchange Prices in the Territory in a given hour. These individual prices are likely to be very unpredictable and, to the best of my understanding, will not be indicative of, or converge on, the marginal bid or offer that cleared at a location. For these reasons, the day-after average hourly prices posted by the Southeast EEM are very unlikely to reduce the uncertainty that likely will serve to encourage cost-based bids and offers.
51. There are three primary drivers of the unpredictability of individual Energy Exchange Prices. The first is the use of split-the-savings pricing for individual Energy Exchanges. Energy Exchange Prices will be calculated separately for each transaction and will vary, even between buyers in the same balancing area, based on the bids and offers for a particular transaction and the transmission loss charges for the NFEETS arranged for that transaction (*See* Equation 1).
52. The second driver of variability in Energy Exchange Prices builds on the first: the Members' decision to operate the Southeast EEM using an Algorithm that will pair buyers and sellers into bilateral transactions so as to maximize the benefits of all Energy Exchanges arranged during each 15-minute

²² Operations Affidavit at P 53.

²³ When split-the-savings pricing was used for the settlement of pool-based redispatch of economy energy in northeast power pools, the pool-wide settlement price was published and known to market participants. Because this information was available, parties were able to arrange for bilateral contracts to privately appropriate greater benefits (*i.e.*, profits or cost savings) than they would have received by participating in the pool-based redispatch. A similar incentive does not exist to bypass the Southeast EEM, because NFEETs is only available through the Southeast EEM System and the published average price is not an implicit clearing price.

interval. The Algorithm's determination of which bid and offer to pair together as a transaction and the transmission path for the transaction will depend on all of the other bids and offers made in the same interval, all of the counterparty constraints, all transmission loss rates, and all transmission limits. A change in any input could alter which bids the Algorithm matches with which offers and the associated transmission paths. Even small changes in inputs, such as the addition of a counterparty constraint, could cause ripple effects in the Algorithm's determination of the set of Energy Exchanges that maximizes total benefits in an interval.

53. The third driver of variability builds on the first two: the decision to resolve ties and ambiguities in the determination of Energy Exchange matches by using randomized prioritization.^{24, 25} The first anticipated use of randomized prioritization will be to resolve ties, which could occur, for example, if two or more buyers in the same balancing area submitted identical bids but there were insufficient supply offered to allow both bids to be fully matched. If this occurred, the Algorithm would need a way to decide the priority order for matching the identical bids, because the marginal loss charge per megawatt-hour to their balancing authority border would also be identical. Under the Proposal, the Algorithm will use randomization to prioritize the identical bids. For instance, it could randomly deduct very small increments from all but one of the identical bids in order to distinguish their individual priority for being assigned a match.²⁶ The same approach would be used if two or more sellers in the same balancing area were to submit identical offers.
54. Additionally, randomization will be used to determine Energy Exchange matches if different pairings of buyers and sellers yield the same total (maximized) benefit.²⁷ For example, the Algorithm might

²⁴ Operations Affidavit at P 44.

²⁵ Randomization is applied to solve ties and indeterminacies in optimization algorithms in a number of markets. For example, the Nord Pool power market's EUPHEMIA software applies randomization to solve schedule indeterminacy in complex orders and block order ties (Euphemia Public Description: Single Price Coupling Algorithm (12 Oct. 2020), <https://www.nordpoolgroup.com/globalassets/download-center/single-day-ahead-coupling/euphemia-public-description.pdf>). In addition, ELIA, the Belgian transmission system operator, runs a capacity remuneration auction that applies random selection if other tie-breaking rules do not resolve the indeterminacy of multiple solutions with the same social welfare (Elia CRM Design Note: Auction Process (1 Oct. 2019), <https://www.elia.be/-/media/project/elia/elia-site/public-consultations/20191002/crm-design-note---auction-process.pdf>).

²⁶ This description likely simplifies how a software developer might actually resolve a tie with randomization, but to the best of my knowledge the high-level description is conceptually correct.

²⁷ To the best of my knowledge, the extent to which randomization may be used to determine some matches could depend on the particular approach the software contractor takes to the design and implementation of the matching Algorithm and will not be known until the software Algorithm is tested on a realistic model of the full Southeast EEM region, including a reasonable and full set of bids and offers. The Algorithm might terminate and provide whatever matches exist at the point it reaches the desired level of solution accuracy, such as the Mixed Integer Programming Gap ("**MIP Gap**"). Alternatively, the software solution approach for the Southeast EEM System might require heuristics if there are ties (defined for present purposes as identical bids or offers in the same Participating Transmission Provider service area), multiple sets of matches that yield the same total benefits, or for other reasons after taking into account all input and constraint data in attempting to identify a unique,

determine that maximum benefits will result from matching bids B1 and B2 in Participating Transmission Provider area Beta with offers S1 and S2, also in Participating Transmission Provider area Beta, taking into account all inputs and constraints used in the benefit optimization. Bids B1 and B2 are not the same per megawatt-hour and neither are offers S1 and S2. The total benefit per megawatt-hour for this subset of matches is:

$$(2) \quad \text{Total Benefit (\$/MWh)} = (B1 + B2 - S1 - S2) - 2 * (\text{Losses Charges/MWh for Beta})$$

55. This benefit is the same whether the bids and offers are matched as (B1/S1 and B2/S2) or (B1/S2 and B2/S1). The Algorithm cannot determine how to match the two bids with the two offers based on benefit maximization alone, because two different sets of matches have exactly the same total benefits per megawatt-hour.
56. In these situations, the pairing of bids and offers into Energy Exchanges will be randomized (within the set of alternative pairings that have the same total benefits) because the Energy Exchange Price for each buyer could depend materially on which seller it is paired with, and vice versa. Importantly, even though the Energy Exchange pairing could be partially random in some instances, the Algorithm will ensure there are benefits to each buyer and seller as determined by the bid, offer, and losses charges for the assigned transmission path.
57. With split-the-savings, the price paid by an Energy Exchange buyer or received by a seller will explicitly depend on who their counterparty is. But, in some cases, determination of this counterparty and its associated bid or offer will be randomly determined from among a set of alternatives. Thus, individual Energy Exchange Prices can be the result of randomized Energy Exchange pairings within a set of alternatives that all maximize overall benefits.²⁸
58. For these reasons, Energy Exchange Prices for individual transactions and the weighted-average Energy Exchange Price published with a one-day lag are unlikely to provide information about the marginal bids and offers that were matched in an interval.
59. In this section I have so far discussed why many Participants in the Southeast EEM are likely to bid and offer close to their costs much of the time, although there is an incentive for them to depart from

optimized solution. Counterparty restrictions and minimization of marginal losses will reduce the extent to which randomization could be needed to arrange matches. In order to prevent the selection of heuristics that might incentivize conduct that could reduce benefits, the market rules require randomization to be used to resolve such situations. *See* Operations Affidavit at P 44.

²⁸ Because of the way that Energy Exchange Prices are calculated and the potential impact of randomization on individual prices, the publication of weighted-average split-the-savings prices on the day after trades occur is extremely unlikely to facilitate collusion among sellers or among buyers. This weighted-average price is not a market clearing price or index that could be used for this purpose.

this conduct because of the split-the-savings pricing formula. It is expected that competition will create uncertainty for most Participants about whether or not they will be matched in an Energy Exchange if their bid or offer materially deviates from their costs.²⁹ If a seller increases its offer above its costs, or a buyer decreases its bid below its avoided costs, each participant risks not being matched and not receiving any benefit. This uncertainty will generally increase pressure for bids and offers that do not deviate significantly from costs, and the uncertainty generally will not be reduced by information about Energy Exchange Prices in prior intervals.

3.2.3.3. Situations with Diminished Uncertainty

60. At times there might not be sufficient uncertainty to drive all Participants toward cost-based bidding in the Southeast EEM. If this occurs, efficiency benefits would continue to occur as expected, so long as Participants do not make large errors in determining a reasonable amount by which their bids and offers can deviate from costs, yet still be matched. If a Participant's estimate is reasonably good and it is matched, it would appropriate a greater share of the benefits of its Energy Exchange, but there would be no loss of economic benefits.
61. The competition or uncertainty Participants face may be reduced in certain situations and they might be able to discern that they can likely modify their bids or offers and still be matched.³⁰ The following are two situations in which Participants might face less uncertainty and, hence, be able to deviate from cost-based bidding with limited risk:
 - During intervals in which it is fairly clear that there will be reduced competition at the margin. For example, suppose a party offering supply is fairly certain that its actual marginal costs are low relative to the marginal costs of buyers likely to be bidding in an interval and also low relative to the next most expensive supplier. In this situation the entity might be reasonably sure that it could offer a bit higher than the actual cost of its marginal supply. Load is high relative to supply, so low-cost suppliers will have an incentive to raise their offers above their costs while still ensuring a match.³¹ As long as a reduction in competition at the margin does not lead to such grossly mis-estimated bids and offers that efficient trades fail to be arranged on a regular basis, this conduct is unlikely to materially limit the anticipated benefits of the Southeast EEM.

²⁹ As discussed elsewhere in my affidavit, the Market Rules enable FERC-jurisdictional sellers to limit their Southeast EEM sales so as to comply with limitations imposed in their MBR authorization. It is expected that they will employ Participant constraints to prevent Southeast EEM sales to counterparties or in locations where the Commission has determined that adequate competition may not exist.

³⁰ This type of conduct happens in markets that are considered to be competitive when a supplier that is confident that it will be marginal bids up to its estimate of the level of the next "step" of a supply curve.

³¹ This behavior occurs in every market and is expected to provide less of an advantage to larger buyers and sellers in the Southeast EEM than in bilateral markets today in the Southeast. This is because there are likely to be more buyers and sellers competing with one another in the Southeast EEM due to reduced transaction and transmission costs.

- If a Participant is able to engage in price-discovery. If a buyer or seller makes a relatively large number of bids or offers in approximately the same location during an interval or during like intervals over time, it may be able to determine the approximate magnitude of the marginal accepted bid or offer. For instance, a supplier offering 4 MW blocks at increasing prices would see the price of its highest matched offer.³² Despite this price discovery, however, the Participant will still face uncertainty because of (among other things) the possibility of changes in other Participants' bids and offers in future periods. I would expect rational Participants to be able to determine relatively quickly whether and when they can profit by deviating from cost-based bidding, so that there is unlikely to be a material loss in efficiency from unmatched bids and offers.

62. As long as robust competition occurs as expected in the Southeast EEM, I expect market uncertainty to incent rational Participants to bid and offer close to their underlying costs most of the time. In the Southeast EEM there will likely be an increased incentive for many Participants to bid and offer consistently with their underlying costs. Moreover, in situations with reduced uncertainty, rational Participants should learn the reasonable amount of deviation they can make and still be matched, so that relatively few efficient trades would fail to be arranged. On the whole, the bidding incentives of the Southeast EEM are unlikely to lead to material inefficiency because of the failure to effectuate beneficial trades, *i.e.*, the benefits of the Southeast EEM are unlikely to be materially limited by bidding incentives that could lead to failure to arrange some efficient trades.

3.3 RELIABILITY AND RESOURCE ADEQUACY IMPACTS

63. The Southeast EEM design includes rules to address potential adverse consequences that could reduce its overall benefits. These rules are intended to avoid shifts in the share of transmission costs paid by native-load customers or increases in energy costs for non-NFEETS customers.
64. The Southeast EEM System will not arrange a bilateral trade if there is insufficient transmission to support the transaction. However, transmission limits calculated for a simplified transmission representation are approximations of the actual transmission constraints that may be encountered on the full transmission system during real-time system operation. The transmission limit approximations make assumptions about the sources and sinks of incremental trades, but the additional trades scheduled in the Southeast EEM might differ materially from these assumptions. As a result, Energy Exchanges have the potential to be infeasible even though the NFEETS arranged by the Southeast EEM Algorithm to support them is based on information about within-hour transmission availability provided by each Participating Transmission Provider.

³² Buyers and sellers with fewer Energy Exchanges will have less information about the likely magnitude of marginal bids and offers than larger buyers and sellers. This will benefit buyers and sellers that participate in the Southeast EEM frequently and in larger megawatt quantities. However, the informational advantage of larger buyers and sellers will be less than in the current bilateral market, because the reduction in transaction costs is expected to increase participation in the market and will increase the ability of small Participants to engage in price discovery.

65. The Southeast EEM Agreement states that NFEETS is non-firm transmission service with the lowest curtailment priority.³³ NFEETS schedules will not cause curtailment of previously arranged point-to-point or network transmission service, because all of those reservations will have higher priority. The intention is that no customers, other than those using NFEETS, will bear any consequences due to scheduling Energy Exchanges based on transmission availability approximations.³⁴ Participating Transmission Providers will not incur higher energy costs to serve native load customers because they will not redispatch supply to avoid curtailing NFEETS.³⁵
66. Additionally, the Members do not expect there to be material changes in transmission service charges due to providing NFEETS at zero cost. In the example I used above, \$6/MWh is the tariff rate the transmission service provider charges to recover the revenue requirement of its transmission facilities; it is not a variable cost incurred to effectuate the Southeast EEM transaction. Hence, if that charge is not collected when NFEETS is used, it does not constitute a failure to recover direct variable costs from NFEETS customers. Furthermore, NFEETS utilizes transmission that would otherwise go unused; in the absence of NFEETS, no transmission revenue would be paid to the Participating Transmission Provider for use of this transmission.
67. As discussed in Attachment B: Overview Affidavit (“**Overview Affidavit**”), the Southeast EEM has the potential, albeit a limited one, to affect the share of the transmission revenue requirement paid by the native load customers of the Participating Transmission Providers.³⁶ This could occur if the availability of NFEETS were to cause a decrease in point-to-point transmission service reservations. Participating Transmission Provider revenues from point-to-point service are not expected to change materially, however, because NFEETS cannot be relied on to serve firm load and because of the minimal contribution of short-term wheeling revenues to the Participating Transmission Providers’

³³ Market Rules, Section II.

³⁴ Transmission availability will be directional, and the scheduling of NFEETS will not assume the availability of counterflow. Thus, if an Energy Exchange in one direction were to become infeasible, there would not be a decrease in counterflow that could impair the feasibility of Energy Exchanges in the opposite direction. For the same reason, if the parties to an Energy Exchange failed to execute their transaction, it would not impair the feasibility of other Energy Exchanges scheduled at the same time by the Algorithm.

³⁵ NFEETS is unlikely to be curtailed once a 15-minute transaction has begun due to the time required to invoke Transmission Loading Relief (“**TLR**”) procedures. If a reliability issue occurred within a 15-minute interval the automatic generation control (“**AGC**”) of a balancing authority area would automatically respond to maintain inter-control area interchange schedules. Some automatic generation adjustment could occur instead of curtailment of NFEETS. However, for the buyer and seller balancing areas, the adjustment would likely be a return to the use of supply resources that were replaced by the Energy Exchange, so there would be no net loss of benefits for native load customers in these balancing areas. Within-interval AGC adjustments could impact the energy costs of customers in balancing authority areas providing wheeling for the transactions, but such cost impacts would likely be more than offset by the benefits these customers receive from the Southeast EEM.

³⁶ Overview Affidavit at P 23.

recovery of their transmission revenue requirement.³⁷ To the extent there is some small decrease in revenues from point-to-point service, native load customers would pay a larger share of the transmission revenue requirement through charges for network service. At the same time, the Southeast EEM is expected to reduce energy costs for native load customers, so any increase in network service transmission rates would be roughly balanced by expected benefits from decreases in their energy costs.³⁸

3.4 CONCLUSIONS

68. The Southeast EEM can reasonably be expected to facilitate an on-going increase in the economic benefits from bilateral trading in the Southeast EEM Territory, as measured by a reduction in the variable cost of serving load. The anticipated benefits stem from a reduction in transaction costs and the elimination of transmission service costs for NFEETS, which facilitate efficiency gains from bilateral transactions that would not otherwise occur. On the whole, the bidding incentives of the Southeast EEM are unlikely to materially limit the expected benefits because there is unlikely to be a material failure to effectuate beneficial trades. Additionally, the Southeast EEM should not result in payment of energy costs by non-NFEETS customers or an allocation of transmission costs to native-load customers that are not balanced by the benefits they are expected to receive from the Southeast EEM.

4. MARKET POWER

69. The Southeast EEM will enable all jurisdictional Participants to abide by any market power mitigation measures ordered by the Commission in approving their MBRs. As described in more detail in the Operations Affidavit, the Southeast EEM System will include tools to enable compliance with price caps and counterparty trading restrictions ordered by the Commission.³⁹ This will enable Participants to ensure their Energy Exchange sales arranged by the Southeast EEM System comply with their MBR approvals. The Proposal thus encompasses the mitigation measures ordered to address the potential for market power in the current bilateral markets in the Southeast. No Participant could exercise

³⁷ Overview Affidavit at P 23.

³⁸ Overview Affidavit at P 9. “When sales are made, a significant portion of the margin from the sale will be credited back to customers, which helps to achieve net cost savings. Most utilities use a mechanism such as a fuel adjustment clause to pass back credits to customers for purchases and sales. Other utilities, such as TVA, pass back the savings from sales by lowering base revenue requirements instead.”

³⁹ Operations Affidavit at P 40. In addition to enabling Participant-specific constraints, the Algorithm will implement price caps imposed on Southern Company after Energy Exchanges have been determined. If the Algorithm calculates a price for a trade in which Southern Company is the seller that exceeds its price cap for the buyer, the Energy Exchange Price will be set equal to the price cap.

market power in the Southeast EEM unless it already could exercise market power in today's hourly bilateral market.

70. Taking the current bilateral market as a starting point, including the mitigation measures imposed on jurisdictional Participants, the Proposal aims to reduce barriers inhibiting 15-minute bilateral trades. The Proposal is expected to attract robust participation by buyers and sellers in the Southeast, due to its low transaction cost and the provision of zero-cost, non-pancaked NFEETS. Also, the Southeast EEM System will arrange these zero-cost bilateral trades using the available transmission of multiple Participating Transmission Providers spanning the broad Southeast EEM Territory, further encouraging competition. The Southeast EEM's pairing of zero-cost, non-pancaked transmission service with automated 15-minute trading is intended to engage willing buyers and sellers in the market, thereby fostering competition.
71. Additionally, the Southeast EEM is a voluntary, residual market, in effect ruling out the possibility of one or more Participants exercising horizontal market power as defined by the Commission.⁴⁰ Under the Proposal, no load-serving entity should ever be in the position of having to buy power in the Southeast EEM in order to serve its load. The Market Rules do not absolve each load-serving entity from having a reliable plan to serve its load prior to the intra-hour execution of the Algorithm. The Southeast EEM is a residual market intended to produce benefits by enabling load-serving entities to purchase lower cost supply to substitute for the higher cost supply they would otherwise use to serve their load. Also, because the NFEETS arranged by the Southeast EEM System is the lowest priority transmission service, load-serving entities cannot rely on arranging Energy Exchanges to reliably serve their customers. In addition, participation in the Southeast EEM is entirely voluntary (*i.e.*, there is no must-offer requirement for sellers),⁴¹ so even if NFEETS were available, a load-serving entity could not rely on supply being available if it were unable to serve its load. Because a load-serving entity must be able to serve its load without relying on purchases arranged through the Southeast EEM, it should always have an alternative to purchasing power through the Southeast EEM. For this reason, the prices load-serving entities (*i.e.*, buyers) will pay for Energy Exchanges will be capped at their avoidable cost. Moreover, both generators and loads will continue to have the option to settle imbalances under the existing approved Participating Transmission Provider OATTs.⁴² Because the Southeast EEM is a voluntary, residual market it does not appear to be possible for a seller to raise

⁴⁰ The Commission distinguishes between vertical and horizontal market power. Vertical market power is defined as "issues relating to whether the seller and its affiliates have transmission market power or whether they can erect other barriers to entry" and is mitigated, with respect to transmission, by the existence of a Commission-approved OATT (Order No. 697, FERC Stats. & Regs. ¶ 31,252 at 227). Horizontal market power is tested jointly through pivotal supplier analysis based on annual peak demand and market analysis tests applied on a season basis (Order No. 816, 153 FERC ¶ 61,065 at 3).

⁴¹ Additionally, there is no requirement for load-serving entities to purchase energy through the Southeast EEM.

⁴² The voluntary aspect of the Southeast EEM is a distinguishing feature in comparison with the CAISO EIM in regard to the potential for the exercise of market power. Transmission service providers that have joined the CAISO EIM have modified their OATTs to pass through the EIM clearing prices as charges for customer imbalances. The fact that transmission customers have no alternative to paying EIM prices for imbalances supports non-discriminatory open access in the EIM but is also one of the reasons why the EIM has had to consider the potential for the exercise of market power and includes a process for offer mitigation.

prices above competitive levels for a sustained period of time through the exercise of horizontal market power, i.e., through physical or economic withholding. For the same reason, it does not appear to be possible for buyers to exercise horizontal market power in order to consistently lower prices below competitive levels.

72. The Southeast EEM will enable application of market power mitigation measures required today for bilateral trades in the Southeast, per the MBRs of jurisdictional Participants. Taking the current bilateral market as a starting point, the Southeast EEM is designed to eliminate barriers to increased competition for 15-minute trades. Additionally, the Southeast EEM is a voluntary, residual market, in effect ruling out the possibility of one or more Participants exercising horizontal market power.

5. MARKET MANIPULATION

73. Manipulative use of the Southeast EEM will be prohibited by Commission Order No. 670 and the regulations it established. In this order, the Commission defines market manipulation as:

- 1) The use of any device, scheme, or artifice to defraud;
- 2) Making untrue statements of a material fact or omitting to state a material fact necessary in order to make the statements made, in light of the circumstances under which they were made, not misleading; or
- 3) Acts, practices or courses of business that operate or would operate as a fraud or deceit upon any entity.⁴³

74. The Commission has provided examples of typical types of market manipulation but elsewhere cautions that it is not possible to list every type of manipulation because the determination of manipulation is a fact-specific inquiry.⁴⁴ The examples are:

- Gaming of market rules, which is defined as market conduct that circumvents or takes unfair advantage of market rules or conditions in a deceptive manner, thereby harming the functioning of a market and potentially other market participants or consumers.
- Cross-market manipulation, which occurs when a party trades in one market or product with the intention of moving the prices in that market in a direction that benefits its position in a related market or product.⁴⁵

⁴³ Order No. 670, *Prohibition of Energy Market Manipulation*, FERC Stats. & Regs. ¶ 31,202 (2006).

⁴⁴ FERC Staff White Paper on Anti-Market Manipulation Enforcement Efforts Ten Years after EPCA 2005 (2016) (Enforcement Staff White Paper on Manipulation), available at <https://www.ferc.gov/legal/staff-reports/2016/marketmanipulationwhitepaper.pdf>.

⁴⁵ Recent examples include making uneconomic trades in a market for which an index is calculated, for the purpose of affecting the settlement price of related transactions that settle using the index price or making uneconomic sales or purchases in the day-

- Misrepresentations, which are distinguished by the submission of false information to market operators or index publishers or even by the omission of a material fact such that the information provided is materially misleading.⁴⁶

The Commission's findings on market manipulation emphasize that it often includes the execution of riskless or low-risk transactions for the purpose of receiving a collateral benefit.

75. To evaluate the potential for the Southeast EEM to provide new opportunities for possible market manipulation I consider whether:

- A Participant might be able to unfairly obtain zero-cost NFEETS and thereby profit at the potential expense of the efficiency benefits realized by the Southeast EEM, the benefits realized by other Participants, or the transmission costs paid by electricity customers; or
- A Participant might be able to profit from manipulation of the average hourly Energy Exchange Prices published daily and monthly.

76. I consider the potential for these two types of possible market manipulation because the Southeast EEM differs from today's bilateral energy markets in the Southeast due to the publication of an average price for bilateral trades and by providing access to zero-cost transmission.

5.1 PROTECTION AGAINST POTENTIALLY UNFAIR ACCESS TO NFEETS

77. The Proposal includes the requirement for every bid and offer into the NFEETS to be able to be matched with at least three possible counterparties, all of whom are unaffiliated ("**3 eligible counterparty requirement**").⁴⁷ This requirement was added to the Proposal after I considered questions raised by Commission staff during a conference call.

5.1.1. POSSIBLE CONDUCT ADDRESSED BY THE 3 ELIGIBLE COUNTERPARTY REQUIREMENT

78. The 3 eligible counterparty requirement helps to address certain potential bidding strategies. Without the 3 eligible counterparty requirement it would appear to be possible for a pair of Participants (*i.e.*, a buyer and a seller) to bid and offer into the Southeast EEM in a manner inconsistent with their underlying costs in order to obtain priority access to NFEETS. This conduct would combine use of the counterparty constraints with an uneconomic bid and an uneconomic offer in order to cause the Algorithm to place high priority on matching the buyer and seller in an Energy Exchange. Because the Algorithm will be seeking to maximize the benefits of the Southeast EEM trades arranged for each

ahead market of an ISO to change the settlement price for a related product (*i.e.*, financial transmission rights). See *Barclays Bank PLC*, 144 FERC ¶ 61,041 (2013) and *Constellation Energy Commodities Grp., Inc.*, 138 FERC ¶ 61,168 (2012).

⁴⁶ Order No. 670, *Prohibition of Energy Market Manipulation*, FERC Stats. & Regs. ¶ 31,202 at P 41 (2006).

⁴⁷ Pursuant to the Market Rules, a seller submitting an offer must toggle its counterparty restrictions so that it is able to sell to at least three buyers, and vice versa. Operations Affidavit at P 39.

interval, the buyer and seller could cause it (in the absence of the 3 eligible counterparty requirement) to either pair the buyer's high bid with the seller's low offer or arrange no trade for either party.

79. As part of this strategy, the buyer and seller would agree in advance on the approximate Energy Exchange Price that the Algorithm would calculate for their trade and on their bid and offer prices. For instance, they might agree that the Energy Exchange Price for their transaction, excluding charges for transmission losses, should be \$20/MWh and that the buyer will bid \$38/MWh and the seller will offer \$2/MWh.⁴⁸
80. The buyer and seller would also "toggle off" all other counterparties except for each other to remove the risk of their uneconomic bid or offer being paired with an unintended counterparty. If this were to occur, they might lose money at the Energy Exchange Prices for these unintended trades. Because of the counterparty toggles, the benefit-maximizing Algorithm's only alternative would be to match the buyer and seller with each other, and it would do so if transmission were available. In the example, the buyer and seller would receive priority access to NFEETS for a \$20/MWh bilateral trade so long as their bid and offer are sufficiently extreme in relation to competing bids and offers and transmission is available.
81. Without the 3 eligible counterparty requirement, Participants might attempt to use this device to effectuate pre-arranged bilateral trades in the Southeast EEM.⁴⁹ The conduct could lead the Algorithm to arrange for a set of Energy Exchanges that has lower actual economic benefits than could have been achieved in the alternative. The buyer's high bid might misrepresent how much it is actually willing to pay, and the seller's low offer might misrepresent the price at which it is willing to sell in order to create a transaction that appears to create large benefits; neither may be actually willing to transact at the offer and bid they make.⁵⁰
82. Several factors would limit use of this strategy even in the absence of the 3 eligible counterparty requirement. First, it would require cooperation between a buyer and seller that trust one another. This is not a difficult hurdle to overcome for a repeated deal, though, because cheating on the agreement would be immediately detected. Second, the potential savings from avoiding the payment for non-firm OATT service is likely not large enough to justify the risk of paying substantial fines and legal fees if the conduct were detected by the Commission's Office of Enforcement and determined to be problematic. Third, the strategy could not be used to schedule energy needed to serve load because available transmission might not be available to support the trade in some intervals, even though by offering high and bidding low the two parties would be scheduled if any available transmission were available to support the transaction. Fourth, the counterparty restrictions necessary to eliminate the

⁴⁸ If negative offers were permitted, the bid and offer could be even more extreme than in this example. For instance, if the agreed-upon Energy Exchange Price were \$20/MWh, the seller could offer -\$20/MWh and the buyer could bid \$60/MWh.

⁴⁹ This conduct could be effectuated with or without "all or nothing" bids and offers. *See* Operations Affidavit at P 42.

⁵⁰ If more extreme bids and offers were necessary to ensure priority access to NFEETS and there were a floor on negative offers, the buyer and seller could utilize a side-deal similar to a contract for differences. In addition to the buyer paying the seller the Energy Exchange Price, there would be an additional payment from the seller to the buyer (or vice versa) to achieve the agreed-upon net per megawatt-hour trade price.

risk of loss-making trades (*i.e.*, instead of the desired trade) would apply to all bids and offers made by the buyer or seller during the 15-minute interval. In intervals when this strategy is used, the buyer and seller would be forfeiting the potential to benefit from additional Energy Exchanges. A related point is that by negotiating the trade price in advance, either the buyer or the seller could be missing the opportunity to realize higher benefits through an Energy Exchange arranged according to the intended functioning of the Southeast EEM. Fifth, the counterparty restrictions used for the strategy would make it relatively easy to identify in the Electric Quarterly Reports (“EQRs”), as these would show relatively large and likely repeated Energy Exchanges between the two parties and no additional Southeast EEM trades for either of them in the same interval. If the intended trade were not large and repeated, the effort of engaging in the strategy would likely exceed the benefits to the two parties.

5.1.2. 3 ELIGIBLE COUNTERPARTY REQUIREMENT

83. The Proposal includes the requirement for every bid and offer into the Southeast EEM to be able to be matched with at least three possible Participants, all of whom are non-affiliated.⁵¹ The purpose of this rule is to make the conduct described in the prior section risky and difficult to implement, thereby deterring attempts to submit misleading information to obtain free transmission through the Southeast EEM.⁵²
84. With the 3 eligible counterparty requirement, an attempt to cause the Algorithm to provide free transmission for a buyer and seller would need the cooperation of six non-affiliated Participants at the same time. Arranging for cooperation among six unaffiliated parties in a strategy with relatively low benefits and possibly very high costs would likely be extremely difficult. This conclusion applies without regard to whether all six of the parties were simultaneously attempting to cause the Algorithm to provide zero-cost transmission for their trades, or a subset were passively playing the role of counterparty in order to facilitate the execution of the strategy by others. In either case it would be very difficult to coordinate communication about the intervals in which the strategy was being attempted and the bids and offers required of each of the parties. The coordination would leave a discoverable paper or electronic trail. Trust would be difficult to maintain because of the incentive of each party to betray the others to avoid detection or possible legal action.
85. The 3 eligible counterparty restriction would also deter a second possible type of market conduct that could be attempted by buyers who may buy from a mitigated seller subject to a price cap under its MBR approval. The buyer in this case could bid so as to obtain priority access to NFEETS in order to pay no more than the price cap set in the relevant MBR. This device could be possibly profitable

⁵¹ Operations Affidavit at P 39.

⁵² The Members considered other alternatives for deterring the identified conduct. These were rejected largely because they would be complicated to implement. For example, if there were a rule limiting the frequency with which counterparty constraints could be changed, there also would need to be an approval process for exceptions. The Operations Team (*See* Operations Affidavit at P 5) intentionally proposed that changes to counterparty constraints could be made at any time for any reason in order to accommodate the entry of new Participants, changes in the creditworthiness of counterparties, changes to enabling agreements, and any other reasons that a Participant might need or want to change its counterparty constraints that have not been identified at this time. The 3 eligible counterparty requirement was adopted because of its simplicity in comparison to creating a process to review and validate off-cycle requests to change counterparty constraints.

during intervals when the capped price is below the buyer's avoided cost and Energy Exchange Prices are likely to be high. At these times the buyer could bid high, in order to increase its chance of being matched, and then toggle its counterparty restrictions so that it could only be matched with the mitigated seller. The possibly deceptive element of this conduct is that it would bid high to create the appearance of benefits, although it might not actually be willing to pay its bid price. In this way it could try to arrange for an Energy Exchange at the lower capped price, rather than risk being matched with a non-mitigated seller and paying a higher Energy Exchange Price. This device is risky because there is no guarantee that the mitigated seller will offer energy in the interval in which the buyer wishes to purchase. It also will be deterred by the 3 eligible counterparty restriction and other limitations described above.

5.2 PROTECTION AGAINST POSSIBLE MANIPULATION OF THE AVERAGE EXCHANGE PRICE

86. The Southeast EEM, as proposed, is very unlikely to offer opportunities for cross-market manipulation. The Southeast EEM-wide weighted-average hourly trade price, which will be published at 6:00 AM CPT on the following day, conceivably could be used as a reference price for the settlement of related contracts in the future (*e.g.*, contracts for differences).⁵³ However, it is very unlikely that Participants or financial market traders would choose to settle contracts based on the weighted-average Energy Exchange Price because it is calculated across the large Southeast EEM region and for this reason is not reflective of the actual market price for energy at any location.
87. Additionally, it would be extremely difficult for a Participant to bid or offer so as to materially impact the published Southeast EEM weighted-average hourly trade price. As previously discussed, the Southeast EEM does not appear to be vulnerable to the exercise of horizontal market power by either buyers or sellers, *i.e.*, to does not appear to be vulnerable to physical or economic withholding. Further, it would likely be extremely difficult to affect the weighted-average hourly trade price through other means in an attempt to profit on the settlement of related contracts. The published price is the weighted average of all individual Energy Exchanges arranged during an hour, each of which is separately calculated. A Participant would need to be able to affect the Energy Exchange Price for a large MWh volume of Energy Exchange transactions in four different intervals in order to impact the published average hourly price. Additionally, as previously discussed, the Energy Exchange Price for each transaction would depend on the bid or offer of the counterparty, which would not be predictable. Suppose, for example, that a large Participant were to attempt to change the weighted-average trade price by modifying its bids or offers for a large MWh volume of trades. This strategy would be unattractive from the start because in order to be sure to be matched in trades and thereby affect the

⁵³ To the best of my knowledge, there is currently no exchange-traded energy product or market trading hub at a location within the Southeast EEM. S&P Global Market Intelligence publishes average day-ahead monthly on peak prices "Into Southern." This is a proxy hub price "[f]or locations where there is little or no market data available." Proxy hub prices are estimated based on estimated statistical relationships to prices at established market hubs. See S&P Global Platts Methodology and specification guide: M2MS – Power methodology at 5 (May 2018), https://www.spglobal.com/platts/plattscontent/_assets/_files/en/our-methodology/methodology-specifications/m2ms_power_methodology.pdf.

weighted-average price, the Participant would likely need to make loss-taking bids or offers. Further, the Participant would need to be able to physically source or sink the large volume of energy transacted in the trades it makes to attempt to move the price.

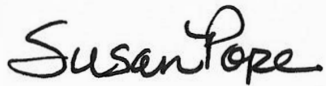
88. Other possibilities for conduct that might be considered to be market manipulation seem to be even more unlikely. The Southeast EEM includes rules to prevent wash trades, even though it is not clear how they could occur or could benefit a Participant. Also, Participating Transmission Providers might misrepresent their available transmission when they report it, at least hourly, to the Southeast EEM System. However, it is not apparent how an affiliate seller could consistently benefit from this strategy because of the way Energy Exchange Prices are calculated, and it would entail a blatant violation of the Commission rules requiring the separation of transmission operations from generation functions.⁵⁴
89. The 3 eligible counterparty requirement effectively deters the potential for Participants to attempt to unfairly increase their priority for receiving NFEETS. Additionally, it is unlikely that the published weighted average Energy Exchange price would be used for the settlement of contracts or could be manipulated. No other new avenues for possible market manipulation are apparent to me at this time.
90. This completes my affidavit.

⁵⁴ *Final Rulemaking, Standards of Conduct for Transmission Providers*, 74 Fed. Reg. 54,463 (2009) (to be codified at 18 CFR pt. 358).

VERIFICATION OF SUSAN L. POPE

Pursuant to 18 U.S.C. § 1746 (2020), I state under penalty of perjury that the foregoing testimony is true and correct to the best of my knowledge, information, and belief.

Executed this 10th day of February 2021.

A handwritten signature in black ink that reads "Susan Pope". The signature is written in a cursive style with a large, looped "S" and a distinct "P".

Susan L. Pope
FTI Consulting, Inc.
Managing Director