MONTHLY AUDIT REPORT ON THE SOUTHEAST ENERGY EXCHANGE MARKET

September 2023

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I. OVERVIEW

This is the Auditor report for the month of September 2023 on the Southeast Energy Exchange Market (SEEM). SEEM is a regional energy market that uses a centralized intra-hour energy exchange to create bilateral trade among its trading participants. It has operated since November 2022 when the initial 18 members began trading. SEEM expanded in late June to include six new members from Florida.[1] September is the third full month of participation by these new members. Trading volumes decreased from 86,000 MWh in August to 66,000 MWh in September. Nonetheless the September trading volumes were substantially above the market-to-date monthly average of 50,000 MWh. This is expected given most months in the MktTD average included months when the footprint was smaller.

SEEM relies on individual transmission segments connecting each member to evaluate and clear trades, including trades spanning multiple segments. Transmission availability on individual segments varied widely. For many segments capacity is available in every interval. For other segments, availability is zero in many intervals. Considering all intervals and segments, seven percent of the time availability was zero. Due to transmission constraints, transmission loss costs, and participant-specific constraints, about 14,000 MWh of potential economic exchanges were left uncleared in September. As explained herein, these are uncleared offers and bids in the same interval where the offer price was less than the bid price by more than the average cost of losses.

SEEM is an automated multi-lateral market that accepts bids and offers from the SEEM members and clears individual bilateral trades every 15 minutes using available transmission capability (ATC) of the SEEM members under a transmission service designed for SEEM called Non-Firm Energy Exchange Transmission Service (NFEETS). The trades are cleared to maximize the trading benefit among all participants. The 15-minute trading extends the prevailing hour-ahead bilateral trading in the region and allows for fuller utilization of the transmission system.

SEEM is governed by the SEEM Membership Board. The automated architecture of SEEM was developed and is operated by Hartigen and who also serves as the SEEM Administrator. Our auditing role is directed by the Membership Board in accordance with elements specified in the Market Rules as developed by the Membership Board and approved by the Federal Energy

[1] The initial 18 members are: Alabama Power Company; Georgia Power Company; Mississippi Power Company; Associated Electric Cooperative, Inc.; Dalton Utilities; Dominion Energy South Carolina, Inc.; Duke Energy Carolinas, LLC; Duke Energy Progress, LLC; Louisville Gas & Electric Company and Kentucky Utilities Company; North Carolina Municipal Power Agency Number 1; PowerSouth Energy Cooperative; North Carolina Electric Membership Corporation; Tennessee Valley Authority; Georgia System Operations Corporation; Georgia Transmission Corporation; Municipal Electric Authority of Georgia; Oglethorpe Power Corporation; and South Carolina Public Service Authority. The Florida member joining in June 2023 are: Seminole Electric Cooperative; Tampa Electric Company; Duke Energy Florida; Florida Power Corporation; TEA Gainesville Regional Utilities; and TEA JEA.

Regulatory Commission (FERC). The results of our auditing are reported to the Membership Board through submission of this Monthly Report. We also have a duty under the Market Rules to respond to inquiries made by regulators and other oversight authorities, including FERC. We received no such inquiries during the period of this report.

The SEEM auditing framework is based on the provisions of the SEEM Market Rules Section VI.D. (Auditing Process). These duties are in four main categories. The first duty is to analyze SEEM input, constraints, and matching results to determine if SEEM operates in accordance with the SEEM Rules (SEEM Rules Sections VI.D.1, VI.D.1.4). This is the main day-to-day auditing work and represents most of the activities reported herein.

A second auditing responsibility is ensuring participants have access to SEEM data in accordance with the SEEM Rules (Sections VI.D.2). Access to SEEM data involves allowing each SEEM participant to review its own bids and offers and to view matches made by the system. We are in receipt of the bid and offer data and have verified that this data is available daily.

A third area of responsibility is to report to the Membership Board regarding (1) the reliability and accuracy of the SEEM System, and (2) any complaints received from a Participant to the Membership Board and to investigate further any such complaint at the Board's direction (SEEM Rules Sections VI.D.3, VI.D.1.5). Section II of this report fulfils our duty to report on the reliability and accuracy of the SEEM system to the Board. Regarding complaints from participants to the Board, we were not directed by the Board to investigate any such complaints during the period of this report.

Finally, we have the duty to respond to written questions from Participants, FERC, NERC, state commissions in the region, Tennessee Valley Authority's Inspector General, and any other applicable regulators that oversee the electric operations of any Member regarding the integrity of the matching process (SEEM Rules Sections VI.D.6). We responded to a single inquiry from a participant concerning the security of confidential SEEM data. We have reported this to the SEEM administrator and are in the process of resolving this inquiry.

In the remainder of the report (Section II), we provide the results of our analysis of the first main area of responsibility: to analyze of input, constraints, and matching results to determine whether SEEM operates in accordance with the SEEM Rules. This is in two main parts. First, we review various daily screens that ensure specific inputs, constraints, and energy exchanges have met certain validation metrics. Second, we review the economic activity in SEEM to provide insight into its functioning and performance.

II. AUDITING RESULTS

In this section, we discuss the results of our monthly auditing. In subsection A, we show the results of our daily screening. In subsection B, we present an overview of the economic activity.

A. Market Operation Screens

We calculate screens, metrics, and other analyses on a daily basis using market data and other data to meet the auditing obligations in the Market Rules. The screens and metrics are developed in accordance with specific Market Rules requirements and are divided into three main categories:

- Verification of bid/offer parameters;
- Evaluation of SEEM matching; and
- Verification of SEEM System Constraints.

The following three subsections describe the screens used for our auditing. Unless otherwise indicated, these screens are calculated daily for all fifteen-minute intervals.

1. Bid/Offer Parameters

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

- Offers (bids) from a participant must have Participant-Specific Constraints identifying at least three other non-affiliated Participants that can be matched as counterparties;
- All offers and bids properly must include a source or sink;
- Each offer and bid must have a delivery interval;
- Bids and offers must be 4 MW increments;
- "All or Nothing Selection" must be indicated; and
- The Network Map must be accurate (monthly).

2. Matching

The following screens are used to audit the SEEM matches:

- Match price must not exceed the bid price and must be greater than the offer price;
- Buyer and seller must be distinct participants;
- Participant-specific constraints must be check for any changes (monthly);
- SEEM benefit calculation must be verified;
- Any maximum offer price declared must bind the transaction; and
- Each match must have a NERC Tag.

3. Constraints

The following screens audit the SEEM constraints.

- Transaction volume must not exceed offer or bid volume;
- The SEEM algorithm must only make energy exchanges that yield positive benefits to both buyer and seller; and
- Transaction volume over each segment must not exceed the segment ATC.

We have data transfer and storage architecture in place to receive data from the SEEM market to support the calculation of these screens. With the exception of screening the network map and the participant-specific constraints, the screens are calculated daily, and we have developed data processing procedures for each of the daily screens. We applied the screens to the September SEEM data and found that in all intervals the screens have indicated that requirements have been met.

For the monthly audit of the network map, we use the initial map developed by Hartigen and the SEEM working groups as a basis for comparing subsequent maps. This map is an electronic file of all sources, sinks, balancing areas, and SEEM transmission segments that comprise the SEEM system. A SEEM segment is an interface between two balancing areas and in many cases is synonymous with the path used by the system. In some cases, the segments are linked together to allow SEEM matches across multiple systems, forming a multi-segment path. The SEEM model allows any number of SEEM segments to be linked in order to find a beneficial trade.

By using this initial map as a basis of comparison, we will take advantage of the lengthy technical process used by SEEM and the SEEM members to develop the map and assume it is accurate. It would not be practicable to replicate this initial map. The SEEM model uses a static path configuration database to retrieve possible paths associated with the sources and sinks offered and bid in each interval. We saved a snapshot of this database and compared it to the path configuration database used at the start of each month. We identify and evaluate any changes. We found no changes in September and therefore we conclude the network map is accurate for the current sources and sinks participating in SEEM.

In a similar fashion, we evaluate changes to participant-specific constraints. These are counterparties and balancing areas acceptable to each participant for trades in SEEM, as well as any maximum price constraints. In each interval SEEM uses a set of participant-specific constraints for all participant bids and offers. We check each participant for any excluded sellers or buyers and any max price constraints and identify any constraints that changed during the month. There was a small number of changes to constraints changing counterparty eligibility. This limited activity was comparable to what we typically see each month. No participants changed any maximum price constraints.

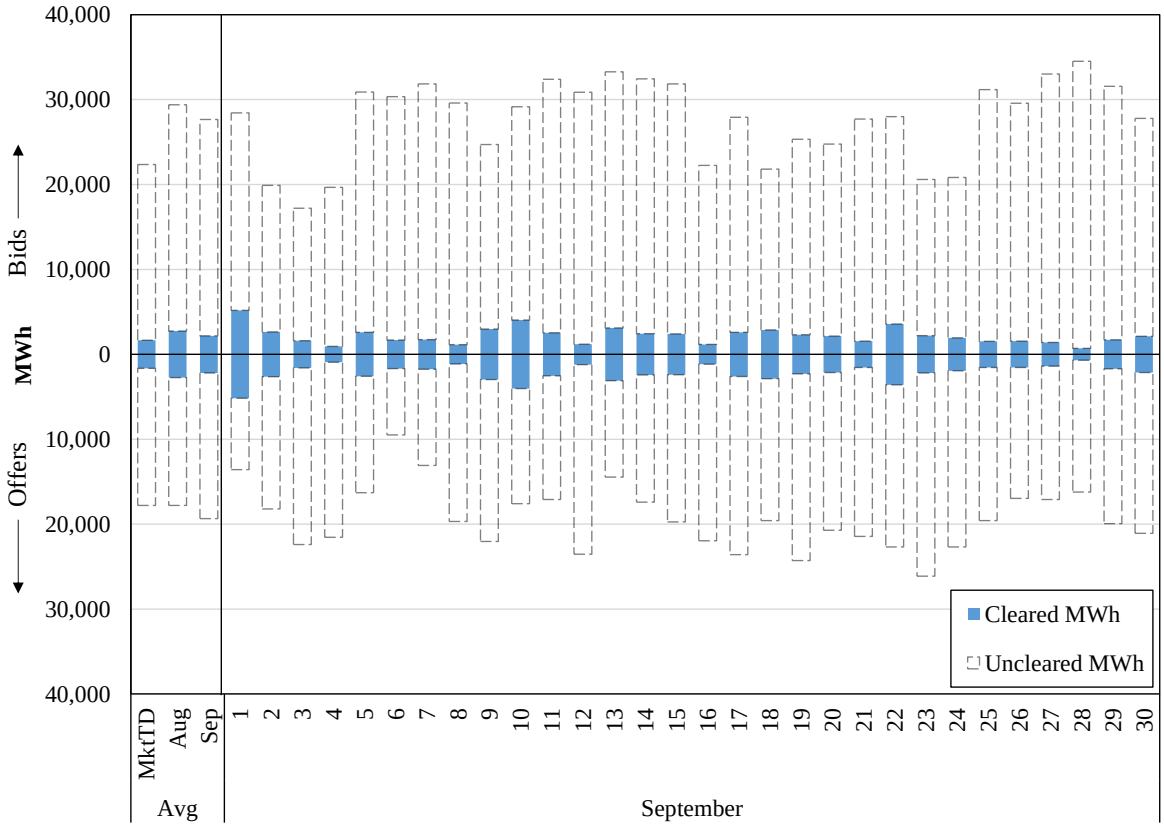
B. Market Activity

In this section, we summarize and discuss SEEM operations and outcomes to illuminate any potential operating or market issues. Our evaluation is in two main areas. First, is an overall review of the market trading, including volumes, prices, and characteristics of participation. Second is an evaluation of network usage, focusing on the key transmission paths and constraints.

1. Market Outcomes

SEEM cleared 66,000 MWh of energy in September, averaging approximately 2,100 MWh per day. Figure 1 shows the daily SEEM bids and offers for September. Each bar represents the daily total MWh volume of SEEM activity. The bids and offers are divided between cleared bids to buy (blue bar above the x axis) and cleared offers to sell (blue bars below the x axis). The transparent bar stacked above the bids and below the offers are the uncleared bids and offers. The left side columns show activity relative to the previous month and relative to the market to date (MktTD). MktTD is the monthly average of all months since SEEM began in November 2022 (i.e., the November 2022 – September 2023 average).

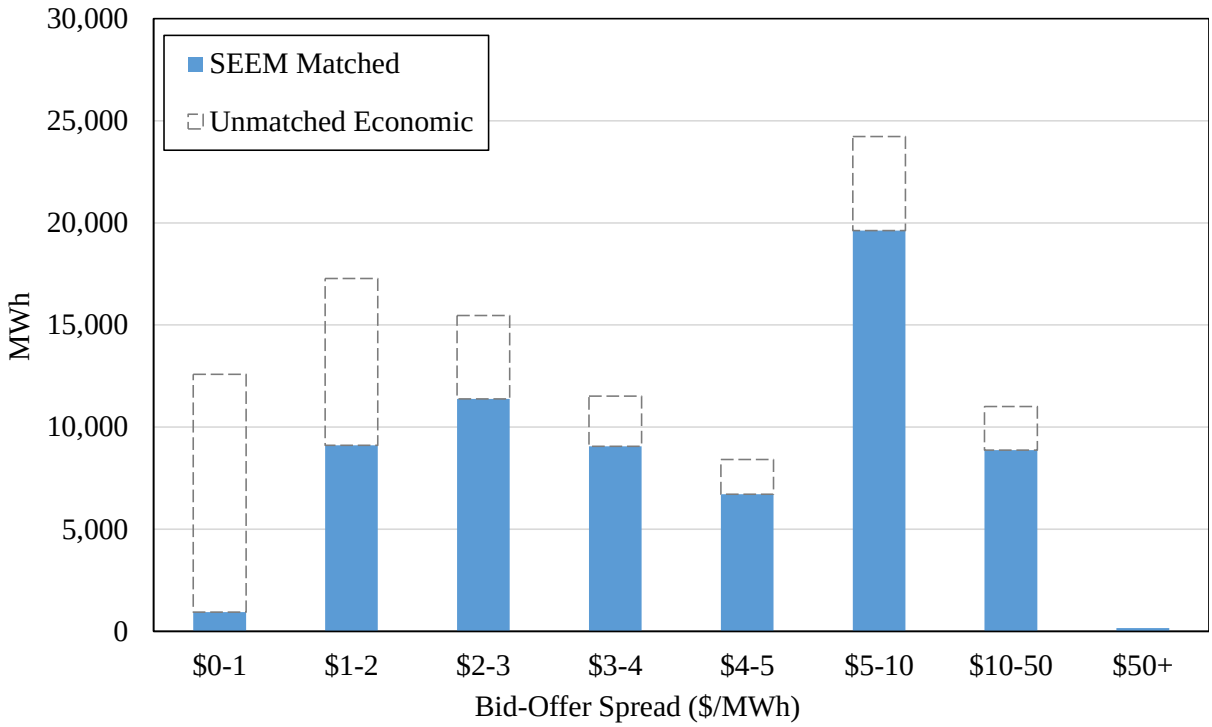
Figure 1: Daily Bids and Offers
September 2023



The average daily bid and offer quantities were lower in September than in August but higher than the MktTD average. This is the first month-to-month decline in cleared volumes since the market opened. The increase relative to MktTD is linked to the new participants that started trading at the end of June. The decrease in September over August interrupts the overall trend of increased participation since the SEEM opening in November 2022. As the left-side monthly and MktTD bars show, total liquidity (cleared and uncleared bids and offers) remained relatively steady.

Like in previous months, we evaluated the uncleared bids and offers and found a notable volume of uncleared bids and offers with economic overlap in the sense that in an interval there are uncleared bids whose bid price is greater than some uncleared offer prices in the same interval. Of course, most economic uncleared matches have a small bid-offer spread, and likely are not matched due to transmission losses that render the trade uneconomic. However, there are some economic uncleared matches with substantial spreads. Figure 2 shows a summary of the cleared and uncleared matches. Each stacked bar shows the SEEM matches and the economic unmatched at the given bid-offer spread. For example, the first bar shows SEEM matches where bids exceed offers by up to $1. The shadow boxes show the uncleared economic bids and offers that did not clear at each spread.

Figure 2: Cleared and Uncleared Economic Matches



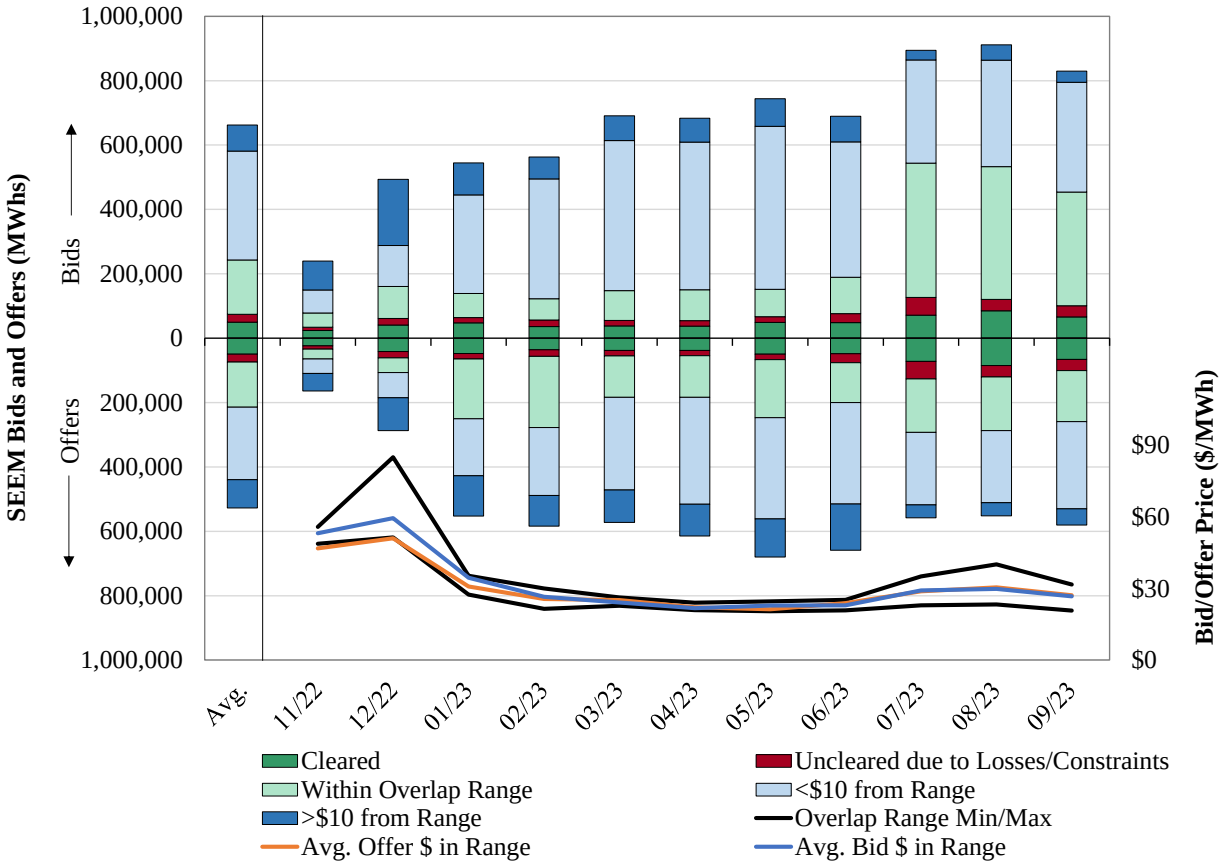
Average loss costs on the SEEM system is about $2/MWh. About 20,000 MWh of bids/offers could settle at a price that could pay the average $2/MWh losses. In August, the amount was

21,000 MWh. Without a complex simulation, there is not a straightforward way to determine why these bids and offers did not clear. Among the possibilities are transmission constraints and the need to use segments that had higher-than-average cost of losses. Counterparty constraints could also explain unmatched bids and offers.

There are also rare instances when transactions are matched but fail to clear the transmission scheduling process. These instances are attributable to occasional delays in approving transmission service requests (TSRs), so the tag is denied for being late. It may also result from insufficient ATC when the TSR is processed. SEEM downloads ATC values from OASIS twice an hour, so it is possible that real-time changes occur that result in insufficient ATC by the time the TSR is submitted. These failed transactions were less than 1/10 percent of the total bid/offered quantities.

Figure 2 shows a monthly comparison of bids, offers, and prices.

Figure 3: Bid and Offer Evaluation



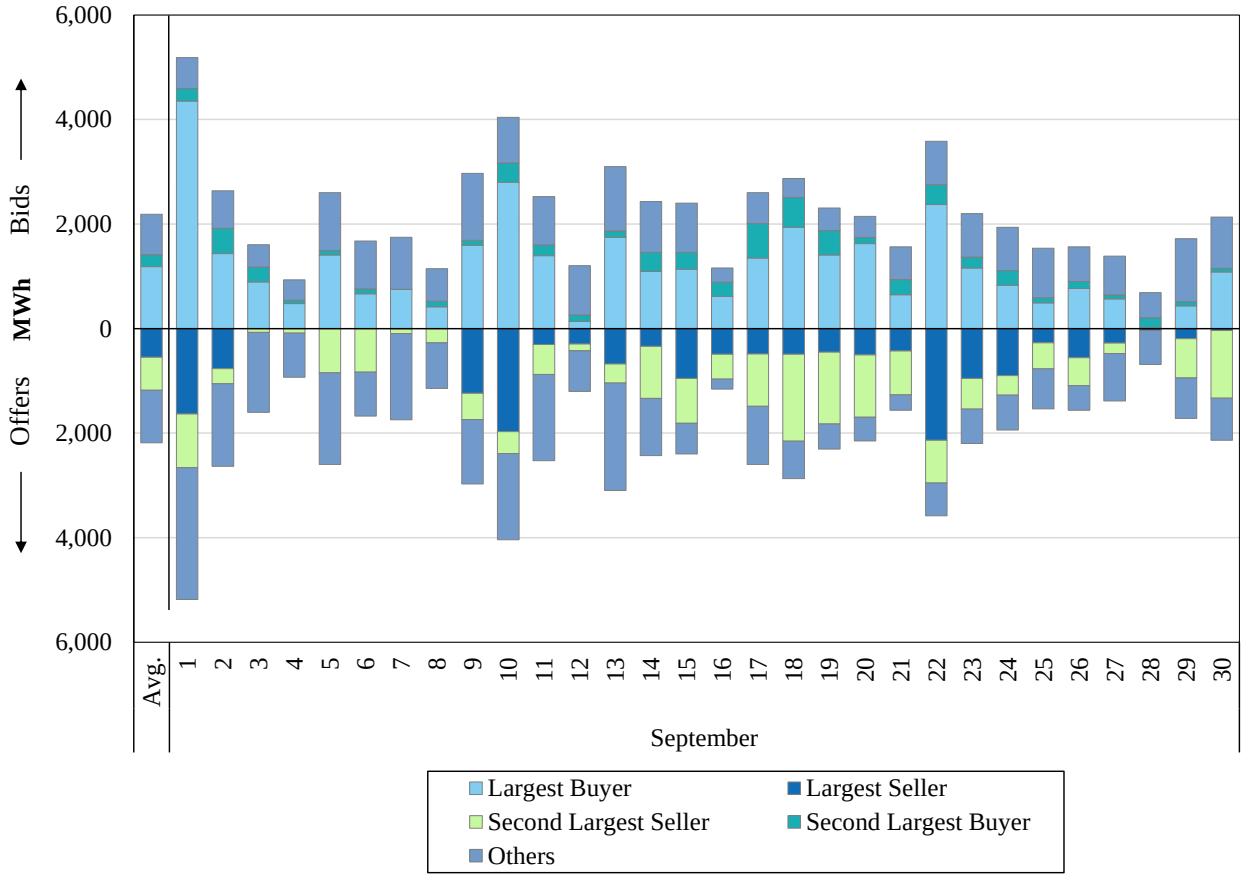
Each bar is divided to show volume of cleared bids/offers (dark green) and various categories of uncleared MW. The red segment shows uncleared economic bids and offers. These are the

uncleared bids and offers discussed in Figure 2. The light green bars show bids and offers that were not cleared but were within the cleared bid-offer spread - bids that are higher than the lowest cleared bid and offers that are lower than the highest cleared offer. The bid-offer spread is shown in the black lines in the bottom panel of the figure. These did not clear because potential trades with economic bids or offers were cleared to other counterparties.

The light blue bars show bids/offers within $10 of the overlap range ($10 or less outside the cleared bid-offer range). The dark blue bars show bids/offers greater than $10 of the overlap range – participants likely do not expect these to clear.

Figure 4 shows more detail on the matched bids and offers by showing the matches by market largest participants. Like the prior figure, the bars above the x axis are cleared bids and the bars below are cleared offers. The bars in this figure are divided by the top two participants and then all the rest.

Figure 4: Volumes of Matched Bids and Offers
September 2023



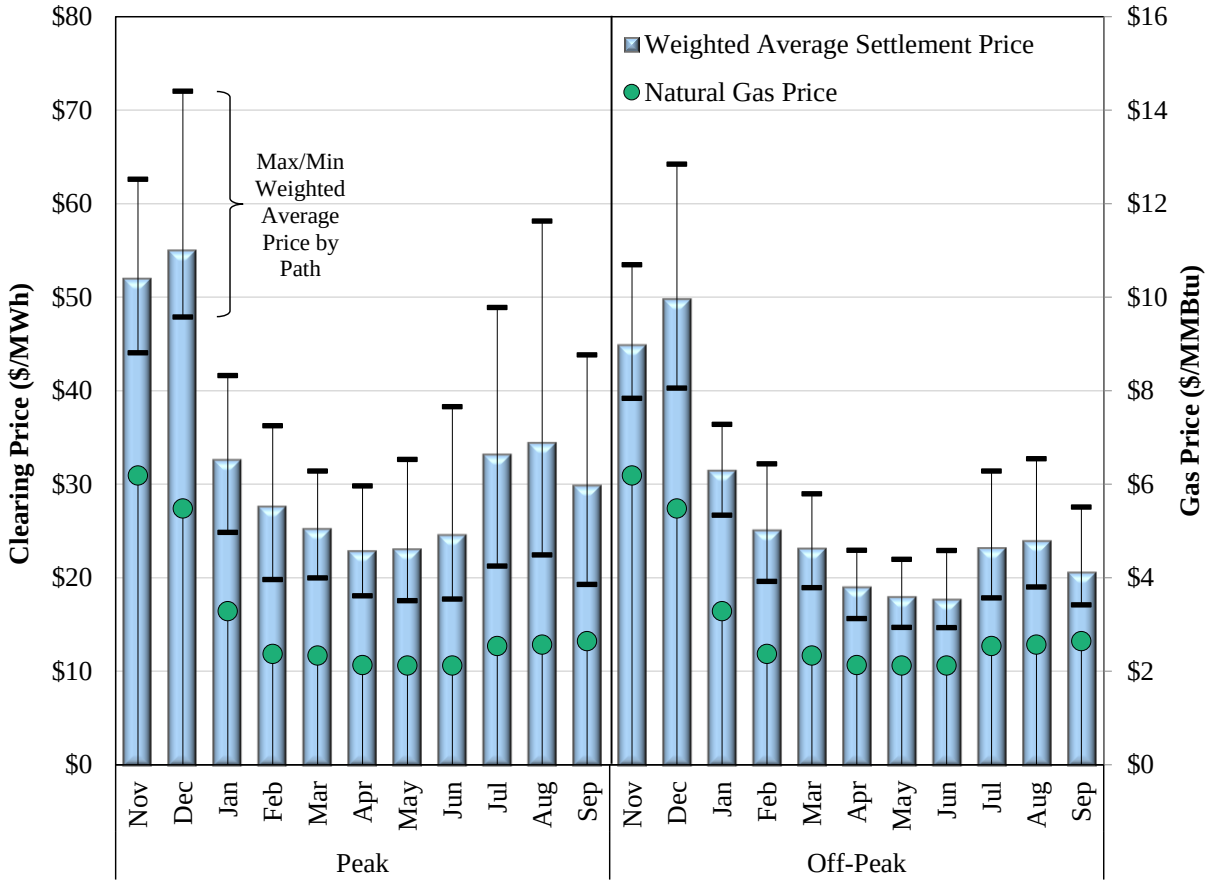
The figure shows certain buyers and sellers comprise significant shares of the transaction activity. Twenty-six percent of the sales were made by a single seller and 53 percent of the purchases were

made by a single buyer. With the addition of new participants these concentration statistics have fallen since June.

2. Network Usage

In this subsection, we report on the usage of the SEEM network. Figure 5 shows monthly SEEM clearing prices, natural gas costs, and average daily minimum and maximum prices in peak and off-peak hours during the month. The figure shows that prices are correlated with natural gas costs, which is the marginal fuel in many hours and strongly influences the value of power in many hours. The figure also shows a price spread that is caused by differences in location.

Figure 5: Monthly Clearing Prices and Natural Gas Costs



We evaluate the price spreads in more detail in the following two figures. Figure 4 shows the average daily peak-hour prices for September and the prices on the highest-priced and lowest-priced paths for each day. Figure 7 is the same figure but for off-peak hours. The figures shown in the left column are the September prices compared to the previous month. It shows the average prices are slightly lower than the prices in August and lower than the average prices since market opening.

Figure 6: Average SEEM Clearing Prices: System-Wide and by Path
Peak Hours – September 2023

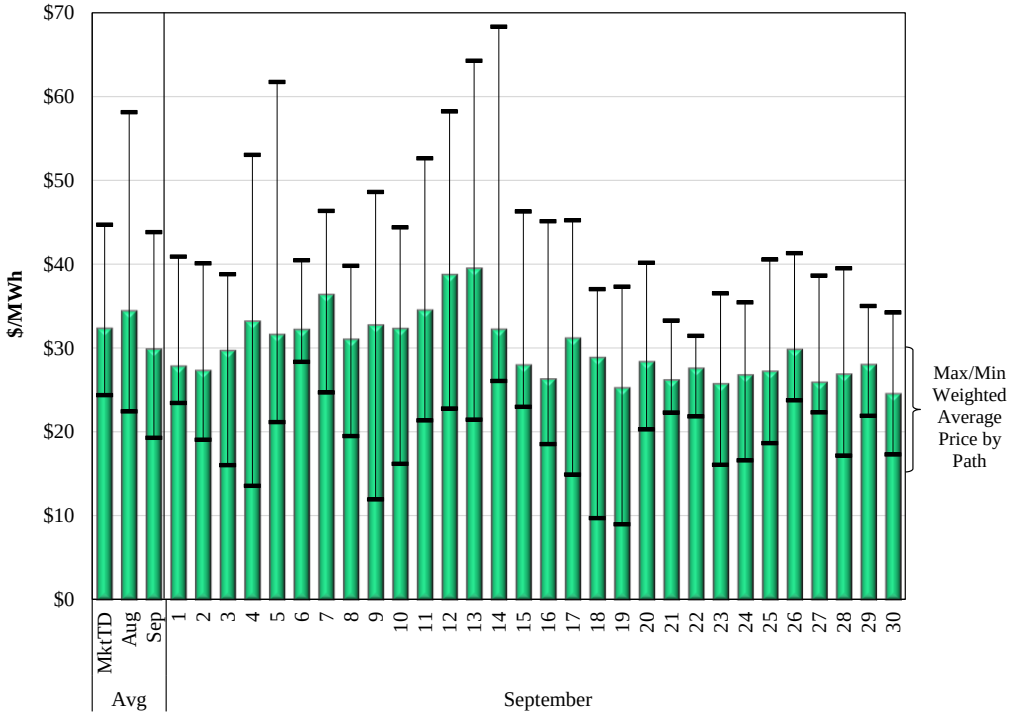
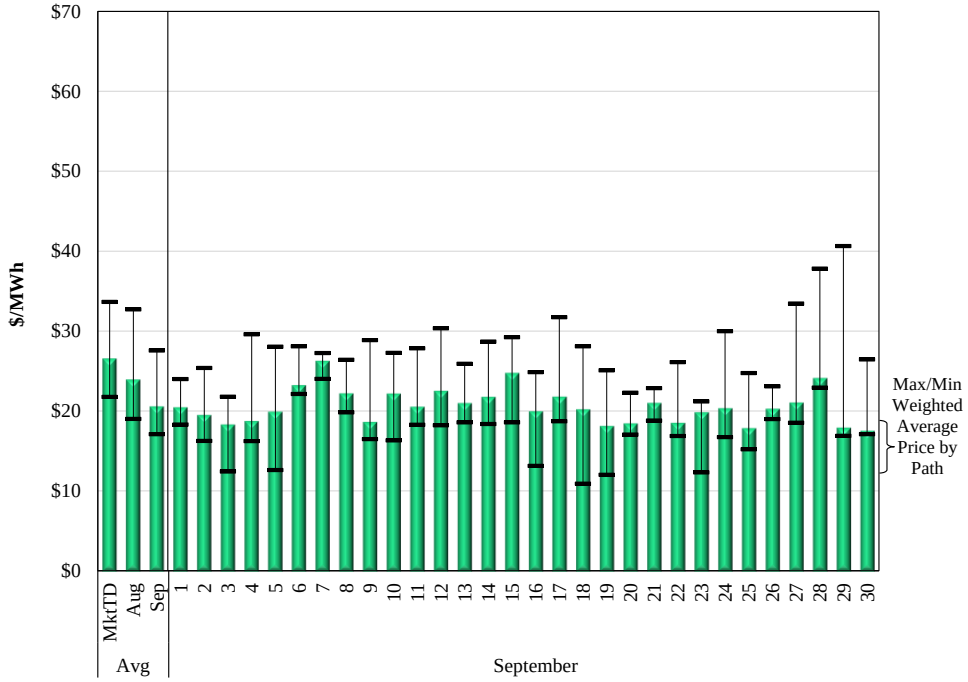


Figure 7: Average SEEM Clearing Prices: System-Wide and by Path
Off-Peak Hours – September 2023



The two figures show that the value of transactions can vary significantly by path, mainly because transmission constraints can contribute to higher prices between different locations. If a constraint prevents higher total flows between two (beneficial trading) areas, the average transaction price will be higher than if sufficient transmission capability was available to allow all beneficial trades to clear between the areas.

Accordingly, we evaluate SEEM transactions by path segments. SEEM trades among participants using ATC. We gathered ATC and trading statistics for all SEEM segments available to the model. There are 240 unique segments used in SEEM. We evaluated data including the median, maximum, and minimum ATC values over all intervals for each segment, as well as the total MWh that cleared over each segment. We calculate a "loading factor" based on the scheduled transactions and ATC on the segment during each 15-minute interval. It is the portion of the path used in that interval relative to the maximum amount that could have been used based on the ATC.

In addition to the ATC and schedule volumes, we also calculate how each segment was utilized by interval during the month, *to wit*, the interval was either:

(1) Partially used (MWs cleared were less than ATC);

(2) Fully Used, ATC was used up for the interval;[2]

(3) Unavailable, no ATC;[3] and

(4) Uncleared (no schedules on the segment).

In reporting the usage of each segment, we refer to a "segment-intervals" which is an observation in a single interval on one segment. Table 1 shows an excerpt of our statistics. The table displays the 29 segments that had more than 1,000 MWh of transactions scheduled during the month. The full data for all segments with at least 20 MWh scheduled during the month is provided in Appendix A.

[2] ATC less the MW schedule was less than 4 MW (i.e., no additional SEEM transaction could be cleared).

[3] ATC was less than 4 MW at the start of the interval.

Table 1: Most Utilized SEEM Segment Statistics

Segment	ATC			MWhs	Loading Factor	Partially Used		Fully Used		Unavailable		Uncleared	
	Min	Median	Max			Intervals	%	Intervals	%	Intervals	%	Intervals	%
SS/SOCO/TVA-SOCO//	351	1,117	1,424	20,661	0.025644	686	*24%*	0	*0%*	0	*0%*	2194	*76%*
S/TVA/TVA-SOCO//	0	2,895	3,000	14,956	0.007404	454	*16%*	0	*0%*	21	*1%*	2405	*84%*
S/CPL/CPLE-DUK//	848	4,729	6,520	12,439	0.004064	625	*22%*	0	*0%*	0	*0%*	2255	*78%*
S/DUK/CPLE-SOCO//	0	2,017	2,335	12,122	0.008766	616	*21%*	1	*0%*	4	*0%*	2259	*78%*
F/TEC/TEC-FPC//	97	1,408	2,613	9,662	0.009711	994	*35%*	0	*0%*	0	*0%*	1886	*65%*
P/LGEE/LGEE-TVA//	0	1,623	1,623	8,070	0.007468	380	*13%*	7	*0%*	26	*1%*	2467	*86%*
SS/SOCO/DUK-SOCO//	2	780	1,049	8,041	0.014987	276	*10%*	2	*0%*	18	*1%*	2584	*90%*
F/FPC/TEC-FPC//	146	1,455	2,662	7,554	0.007337	825	*29%*	0	*0%*	0	*0%*	2055	*71%*
S/TVA/LGEE-SOCO//	0	2,648	2,648	6,933	0.003696	325	*11%*	0	*0%*	21	*1%*	2534	*88%*
F/JEA/SOCO-JEA//	0	572	800	6,848	0.017739	887	*31%*	0	*0%*	44	*2%*	1949	*68%*
SS/SOCO/FL-SOCO//	286	388	727	4,735	0.015642	406	*14%*	0	*0%*	0	*0%*	2474	*86%*
S/DUK/TVA-DUK//	0	692	692	4,195	0.010074	147	*5%*	2	*0%*	249	*9%*	2482	*86%*
S/TVA/TVA-DUK//	0	333	333	4,088	0.017973	130	*5%*	0	*0%*	133	*5%*	2617	*91%*
F/FPC/FPC-SOCO//	0	0	207	3,020	0.134936	234	*8%*	0	*0%*	2,400	*83%*	246	*9%*
SS/SOCO/SOCO-SOCO//	43,156	43,556	43,556	2,122	0.000068	125	*4%*	0	*0%*	0	*0%*	2755	*96%*
F/FPC/TEC-SOCO//	0	0	207	2,108	0.094187	179	*6%*	0	*0%*	2,400	*83%*	301	*10%*
S/CPL/CPLE-SC//	362	2,323	4,319	1,922	0.001155	103	*4%*	0	*0%*	0	*0%*	2777	*96%*
S/SCEG/SCEG-SOCO//	944	2,593	5,108	1,724	0.000904	190	*7%*	0	*0%*	0	*0%*	2690	*93%*
S/DUK/DUK-SOCO//	0	1,850	2,335	1,465	0.001194	159	*6%*	0	*0%*	42	*1%*	2679	*93%*
F/JEA/JEA-SOCO//	292	450	591	1,381	0.004128	284	*10%*	0	*0%*	0	*0%*	2596	*90%*
S/CPL/DUK-CPLE//	1,083	3,888	7,273	1,284	0.000449	177	*6%*	0	*0%*	0	*0%*	2703	*94%*
F/TEC/FPC-TEC//	0	2,351	3,242	1,248	0.000748	128	*4%*	0	*0%*	36	*1%*	2716	*94%*
F/FPC/FPC-TEC//	0	2,389	3,282	1,228	0.000724	127	*4%*	0	*0%*	32	*1%*	2721	*94%*
SS/GTC/SOCO-GTC//	12,712	13,293	14,186	1,216	0.000127	70	*2%*	0	*0%*	0	*0%*	2810	*98%*
S/MEAG/DUK-MEAG//	0	138	231	1,112	0.011661	80	*3%*	4	*0%*	1	*0%*	2795	*97%*
SS/GTC/DUK-GTC//	0	589	660	1,111	0.002873	45	*2%*	2	*0%*	16	*1%*	2817	*98%*
S/CPL/CPLE-SCEG//	0	412	412	1,109	0.003785	72	*3%*	2	*0%*	2	*0%*	2804	*97%*
S/SC/CPLE-SOCO//	157	3,466	3,799	1,071	0.000447	21	*1%*	0	*0%*	0	*0%*	2859	*99%*
SS/SOCO/SCEG-SOCO//	0	202	208	1,016	0.007404	75	*3%*	4	*0%*	6	*0%*	2795	*97%*

These statistics indicate that among these most utilize segments, ATC remains available for SEEM trades. For example, many of the top paths have over 90 percent of their intervals uncleared. There are, however, numerous instances when segments are constrained. A constrained segment is one where either ATC is insufficient (less than 4 MW) prior to SEEM matching, or the segment is completely used by SEEM in at least one interval during the hour.

Table 2 show the summary usage for all segments. During the month, total segment intervals is the product of all 240 segments and the number of intervals during the month. In September, there were 691,200.[4] The two circumstances (Cases (2) and (3)) when a segment is constrained occur in over 49,000 segment-intervals and almost always because the ATC is insufficient to schedule (i.e., ATC < 4 MW) rather than because it is filled by a SEEM match. The most common case in the data was "Uncleared" (Case 4), where ATC was available, but the segment was not used because no beneficial transactions were cleared by the SEEM model over the intervals. These cases represent 630,522 segment intervals or 91 percent of all segment-intervals. The second most common case was case "Unavailable" (Case 3), where ATC was not sufficient to clear any SEEM transactions (49,718 or 7 percent). The third most common case was "Partially Used" (Case 1),

[4] The maximum number of segment intervals in a month is (240 segments x 4 intervals x 24 hours x #days in the month). This is the maximum because occasionally the system requires shutting down for short periods to perform upgrades and other patches. In September, SEEM operated in all intervals.

where the segment was partially used (10,885 or 1 percent). Finally, in a small number of intervals, the Segment ATC was "Fully Used" (Case 2), where the segment was completely scheduled in the interval (75).

Table 2: Summary of All Segments

Segment	Partially Used		Fully Used		Unavailable		Uncleared	
	Intervals	%	Intervals	%	Intervals	%	Intervals	%
All Segments	10,885	1.6%	75	0.0%	49,718	7.2%	630,522	91.2%

Further insight on constrained segments can be gained from Table 3. It shows the segments most often unavailable to SEEM (i.e., unavailable at least 20 percent of the intervals). Like in previous months, paths that are unavailable due to no ATC, are generally unused when they are available.

One measure of transmission capacity constraints remained about the same between August and September -- the percentage of constrained segment intervals (8 percent in August and 7 percent in September).

Table 3: Most Constrained SEEM Segments

Segment	ATC					Partially Used		Fully Used		Unavailable		Uncleared	
	Min	Median	Max	MWhs	Loading Factor	Intervals	%	Intervals	%	Intervals	%	Intervals	%
F/JEA/SEC-JEA/SSN-JEA/	0	0	0	0	N/A	0	0%	0	0%	2,880	100%	0	0%
F/FPC/FPC-SOCO//	0	0	207	3,020	0.134936	234	8%	0	0%	2,400	83%	246	9%
F/FPC/GVL-SOCO//	0	0	207	0	0.000000	0	0%	0	0%	2,400	83%	480	17%
F/FPC/SEC-SOCO/SSN-SOCO/	0	0	207	0	0.000000	0	0%	0	0%	2,400	83%	480	17%
F/FPC/SEC-SOCO/SSO-SOCO/	0	0	207	0	0.000000	0	0%	0	0%	2,400	83%	480	17%
F/FPC/TEC-SOCO//	0	0	207	2,108	0.094187	179	6%	0	0%	2,400	83%	301	10%
S/TVA/DUK-CPLW//	0	255	276	0	0.000000	0	0%	0	0%	1,249	43%	1631	57%
S/TVA/CPLW-DUK//	0	276	276	0	0.000000	0	0%	0	0%	1,245	43%	1635	57%
S/TVA/AECI-CPLW//	0	122	276	16	0.000187	4	0%	0	0%	1,237	43%	1639	57%
S/TVA/CPLW-AECI//	0	214	276	15	0.000141	1	0%	0	0%	1,209	42%	1670	58%
S/TVA/CPLW-LGEE//	0	276	276	0	0.000000	0	0%	0	0%	1,189	41%	1691	59%
S/TVA/CPLW-SOCO//	0	276	276	0	0.000000	0	0%	0	0%	1,173	41%	1707	59%
S/TVA/CPLW-TVA//	0	276	276	0	0.000000	0	0%	0	0%	1,173	41%	1707	59%
S/CPL/CPLW-TVA//	0	276	276	0	0.000000	0	0%	0	0%	1,163	40%	1717	60%
S/TVA/LGEE-CPLW//	0	264	276	604	0.005171	59	2%	0	0%	1,149	40%	1672	58%
S/TVA/SOCO-CPLW//	0	264	276	0	0.000000	0	0%	0	0%	1,149	40%	1731	60%
S/TVA/TVA-CPLW//	0	264	276	22	0.000189	2	0%	0	0%	1,149	40%	1729	60%
S/CPL/TVA-CPLW//	0	236	276	0	0.000000	0	0%	0	0%	1,148	40%	1732	60%
S/CPL/DUK-TVA//	0	276	276	15	0.000123	1	0%	0	0%	1,116	39%	1763	61%
S/CPL/TVA-DUK//	0	268	276	642	0.005354	64	2%	1	0%	1,116	39%	1699	59%
S/SCEG/SOCO-SCEG//	0	289	2,003	115	0.000393	17	1%	0	0%	1,043	36%	1820	63%
S/MEAG/MEAG-SC//	0	6	83	15	0.000849	1	0%	2	0%	1,032	36%	1845	64%
S/AECI/TVA-AECI//	0	325	833	357	0.001564	28	1%	0	0%	1,031	36%	1821	63%

III. CONCLUSION

We reviewed the operation of SEEM for September 2023. We have developed operational procedures to validate the market rules and constraints of SEEM. All of our screens have been validated and we conclude the SEEM operated within the rules and constraints. We also have evaluated the SEEM outcomes and have not identified significant operating issues.

Appendix A

SEEM Path Usage

Segment	ATC			MWhs	Loading Factor	Partially Used		Fully Used		Unavailable		Uncleared	
	Min	Median	Max			Intervals	%	Intervals	%	Intervals	%	Intervals	%
SS/SOCO/TVA-SOCO//	351	1,117	1,424	20,661	0.025644	686	24%	0	0%	0	0%	2194	76%
S/TVA/TVA-SOCO//	0	2,895	3,000	14,956	0.007404	454	16%	0	0%	21	1%	2405	84%
S/CPL/CPLE-DUK//	848	4,729	6,520	12,439	0.004064	625	22%	0	0%	0	0%	2255	78%
S/DUK/CPLE-SOCO//	0	2,017	2,335	12,122	0.008766	616	21%	1	0%	4	0%	2259	78%
F/TEC/TEC-FPC//	97	1,408	2,613	9,662	0.009711	994	35%	0	0%	0	0%	1886	65%
P/LGEE/LGEE-TVA//	0	1,623	1,623	8,070	0.007468	380	13%	7	0%	26	1%	2467	86%
SS/SOCO/DUK-SOCO//	2	780	1,049	8,041	0.014987	276	10%	2	0%	18	1%	2584	90%
F/FPC/TEC-FPC//	146	1,455	2,662	7,554	0.007337	825	29%	0	0%	0	0%	2055	71%
S/TVA/LGEE-SOCO//	0	2,648	2,648	6,933	0.003696	325	11%	0	0%	21	1%	2534	88%
F/JEA/SOCO-JEA//	0	572	800	6,848	0.017739	887	31%	0	0%	44	2%	1949	68%
SS/SOCO/FL-SOCO//	286	388	727	4,735	0.015642	406	14%	0	0%	0	0%	2474	86%
S/DUK/TVA-DUK//	0	692	692	4,195	0.010074	147	5%	2	0%	249	9%	2482	86%
S/TVA/TVA-DUK//	0	333	333	4,088	0.017973	130	5%	0	0%	133	5%	2617	91%
F/FPC/FPC-SOCO//	0	0	207	3,020	0.134936	234	8%	0	0%	2,400	83%	246	9%
SS/SOCO/SOCO-SOCO//	43,156	43,556	43,556	2,122	0.000068	125	4%	0	0%	0	0%	2755	96%
F/FPC/TEC-SOCO//	0	0	207	2,108	0.094187	179	6%	0	0%	2,400	83%	301	10%
S/CPL/CPLE-SC//	362	2,323	4,319	1,922	0.001155	103	4%	0	0%	0	0%	2777	96%
S/SCEG/SCEG-SOCO//	944	2,593	5,108	1,724	0.000904	190	7%	0	0%	0	0%	2690	93%
S/DUK/DUK-SOCO//	0	1,850	2,335	1,465	0.001194	159	6%	0	0%	42	1%	2679	93%
F/JEA/JEA-SOCO//	292	450	591	1,381	0.004128	284	10%	0	0%	0	0%	2596	90%
S/CPL/DUK-CPLE//	1,083	3,888	7,273	1,284	0.000449	177	6%	0	0%	0	0%	2703	94%
F/TEC/FPC-TEC//	0	2,351	3,242	1,248	0.000748	128	4%	0	0%	36	1%	2716	94%
F/FPC/FPC-TEC//	0	2,389	3,282	1,228	0.000724	127	4%	0	0%	32	1%	2721	94%
SS/GTC/SOCO-GTC//	12,712	13,293	14,186	1,216	0.000127	70	2%	0	0%	0	0%	2810	98%
S/MEAG/DUK-MEAG//	0	138	231	1,112	0.011661	80	3%	4	0%	1	0%	2795	97%
SS/GTC/DUK-GTC//	0	589	660	1,111	0.002873	45	2%	2	0%	16	1%	2817	98%
S/CPL/CPLE-SCEG//	0	412	412	1,109	0.003785	72	3%	2	0%	2	0%	2804	97%
S/SC/CPLE-SOCO//	157	3,466	3,799	1,071	0.000447	21	1%	0	0%	0	0%	2859	99%
SS/SOCO/SCEG-SOCO//	0	202	208	1,016	0.007404	75	3%	4	0%	6	0%	2795	97%
SS/SOCO/SC-SOCO//	102	401	552	971	0.003220	17	1%	0	0%	0	0%	2863	99%
S/SC/CPLE-SC//	0	1,646	3,244	851	0.000717	82	3%	0	0%	10	0%	2788	97%
S/AECI/AECI-TVA//	0	419	858	831	0.002985	70	2%	0	0%	587	20%	2223	77%
S/TVA/AECI-SOCO//	0	304	387	746	0.004431	68	2%	0	0%	233	8%	2579	90%
SS/SOCO/SOCO-FL//	203	1,023	1,507	715	0.001015	111	4%	0	0%	0	0%	2769	96%
SS/SOCO/DUK-FL/MULTIPATHALIAS/	2	727	1,049	650	0.001308	97	3%	0	0%	18	1%	2765	96%
S/CPL/TVA-DUK//	0	268	276	642	0.005354	64	2%	1	0%	1,116	39%	1699	59%
S/SCEG/CPLE-SOCO//	42	475	699	636	0.001864	33	1%	0	0%	0	0%	2847	99%
S/DUK/CPLW-CPLE//	0	369	1,212	614	0.002284	62	2%	0	0%	194	7%	2624	91%
S/TVA/LGEE-CPLW//	0	264	276	604	0.005171	59	2%	0	0%	1,149	40%	1672	58%
S/TVA/LGEE-DUK//	0	333	333	520	0.002286	72	3%	0	0%	133	5%	2675	93%
SS/SOCO/TVA-FL/MULTIPATHALIAS/	203	918	1,333	503	0.000780	59	2%	0	0%	0	0%	2821	98%
S/SCEG/CPLE-SCEG//	0	475	656	473	0.001428	41	1%	0	0%	22	1%	2817	98%
SS/GTC/SCEG-GTC//	55	111	114	446	0.005853	38	1%	3	0%	0	0%	2839	99%
S/DUK/TVA-CPLE//	0	692	692	414	0.001035	52	2%	0	0%	388	13%	2440	85%
SS/SOCO/SCEG-FL/MULTIPATHALIAS/	0	202	208	399	0.002908	72	3%	0	0%	6	0%	2802	97%
SS/GTC/GTC-SOCO//	20,000	20,000	20,000	368	0.000026	14	0%	0	0%	0	0%	2866	100%
S/MEAG/MEAG-SOCO//	2,516	2,669	2,984	366	0.000190	28	1%	0	0%	0	0%	2852	99%
S/AECI/TVA-AECI//	0	325	833	357	0.001564	28	1%	0	0%	1,031	36%	1821	63%
SS/GTC/FPC-GTC//	0	231	456	349	0.002021	26	1%	0	0%	4	0%	2850	99%
S/CPL/SCEG-CPLE//	0	632	632	343	0.000761	84	3%	0	0%	9	0%	2787	97%
S/SC/SOCO-SC//	0	1,835	2,431	322	0.000257	49	2%	0	0%	32	1%	2799	97%
S/DUK/CPLE-TVA//	334	692	692	302	0.000632	20	1%	0	0%	0	0%	2860	99%
S/DUK/SOCO-DUK//	0	1,985	2,264	284	0.000247	39	1%	0	0%	254	9%	2587	90%
S/TVA/DUK-AECI//	0	333	333	267	0.001548	19	1%	0	0%	585	20%	2276	79%
S/SCEG/SOCO-CPLE//	0	672	1,105	265	0.000578	46	2%	0	0%	87	3%	2747	95%

Appendix A (continued)

Segment	ATC				Loading	Partially Used		Fully Used		Unavailable		Uncleared	
	Min	Median	Max	MWhs	Factor	Intervals	%	Intervals	%	Intervals	%	Intervals	%
S/DUK/SOCO-CPLE//	0	2,016	2,264	256	0.000222	63	2%	0	0%	402	14%	2415	84%
S/MEAG/SOCO-MEAG//	2,752	3,067	3,220	242	0.000110	27	1%	0	0%	0	0%	2853	99%
SS/GTC/TVA-GTC//	70	293	336	213	0.001046	13	0%	0	0%	0	0%	2867	100%
SS/SOCO/FL-SC/MULTIPATHALIAS/	24	222	412	207	0.001267	38	1%	2	0%	0	0%	2840	99%
S/MEAG/FPC-MEAG//	0	51	214	198	0.005441	16	1%	8	0%	222	8%	2634	91%
S/MEAG/TVA-MEAG//	31	67	203	186	0.003092	16	1%	3	0%	0	0%	2861	99%
F/FPC/SOCO-FPC//	0	268	473	168	0.000990	34	1%	0	0%	436	15%	2410	84%
SS/SOCO/SOCO-DUK//	43	791	961	168	0.000313	23	1%	0	0%	0	0%	2857	99%
SS/SOCO/FL-SCEG/MULTIPATHALIAS/	3	119	149	164	0.001975	38	1%	0	0%	3	0%	2839	99%
S/SC/DUK-SC//	685	2,341	2,955	163	0.000098	43	1%	0	0%	0	0%	2837	99%
S/SCEG/DUK-SCEG//	0	325	426	160	0.000700	34	1%	0	0%	44	2%	2802	97%
SS/GTC/JEA-GTC//	0	231	456	155	0.000898	37	1%	0	0%	4	0%	2839	99%
S/DUK/DUK-SC//	0	1,220	2,464	117	0.000135	35	1%	0	0%	71	2%	2774	96%
S/SCEG/SOCO-SCEG//	0	289	2,003	115	0.000393	17	1%	0	0%	1,043	36%	1820	63%
SS/SOCO/FL-DUK/MULTIPATHALIAS/	43	387	727	113	0.000382	13	0%	1	0%	0	0%	2866	100%
S/SCEG/SCEG-CPLE//	448	672	1,105	112	0.000231	39	1%	0	0%	0	0%	2841	99%
SS/GTC/GTC-JEA//	58	772	984	103	0.000195	12	0%	0	0%	0	0%	2868	100%
S/MEAG/JEA-MEAG//	0	51	214	102	0.002803	8	0%	10	0%	222	8%	2640	92%
SS/GTC/GTC-DUK//	5	466	605	91	0.000297	10	0%	0	0%	0	0%	2870	100%
S/MEAG/MEAG-JEA//	2	169	213	85	0.000735	23	1%	0	0%	12	0%	2845	99%
S/MEAG/SCEG-MEAG//	12	23	24	84	0.005254	9	0%	10	0%	0	0%	2861	99%
S/MEAG/MEAG-DUK//	0	104	178	82	0.001191	13	0%	0	0%	48	2%	2819	98%
S/DUK/SOCO-SCEG//	0	262	263	75	0.000414	9	0%	0	0%	45	2%	2826	98%
S/DUK/DUK-SCEG//	0	262	263	70	0.000391	24	1%	0	0%	69	2%	2787	97%
S/TVA/AECI-DUK//	0	206	333	69	0.000447	9	0%	0	0%	313	11%	2558	89%
S/SCEG/SCEG-DUK//	582	684	789	64	0.000130	9	0%	0	0%	0	0%	2871	100%
S/TVA/SOCO-AECI//	0	600	600	62	0.000180	9	0%	0	0%	65	2%	2806	97%
SS/SOCO/TVA-SCEG/MULTIPATHALIAS/	3	119	149	62	0.000747	4	0%	1	0%	3	0%	2872	100%
S/DUK/CPLE-DUK//	0	3,110	4,524	58	0.000030	3	0%	0	0%	213	7%	2664	93%
S/CPL/SCEG-DUK//	412	632	632	55	0.000122	3	0%	0	0%	0	0%	2877	100%
S/DUK/SCEG-SOCO//	11	664	664	43	0.000092	6	0%	0	0%	0	0%	2874	100%
S/MEAG/GTC-MEAG//	1,719	1,991	2,185	40	0.000028	2	0%	0	0%	0	0%	2878	100%
SS/GTC/GTC-MEAG//	9,646	9,921	9,999	40	0.000006	2	0%	0	0%	0	0%	2878	100%
SS/SOCO/SOCO-SCEG//	3	119	149	40	0.000482	4	0%	0	0%	3	0%	2873	100%
S/DUK/TVA-SC//	0	692	692	38	0.000086	7	0%	0	0%	152	5%	2721	94%
S/TVA/DUK-TVA//	0	333	333	35	0.000182	1	0%	0	0%	465	16%	2414	84%
SS/SOCO/SC-FL/MULTIPATHALIAS/	102	401	552	34	0.000114	5	0%	0	0%	0	0%	2875	100%
S/CPL/SC-CPLE//	0	1,717	2,946	33	0.000027	8	0%	0	0%	11	0%	2861	99%
S/SC/SOCO-CPLE//	0	2,148	2,618	33	0.000021	9	0%	0	0%	13	0%	2858	99%
S/DUK/TVA-SCEG//	0	262	263	30	0.000170	3	0%	0	0%	102	4%	2775	96%
SS/GTC/SC-GTC//	39	152	209	28	0.000245	1	0%	0	0%	0	0%	2879	100%
S/DUK/DUK-TVA//	0	692	692	25	0.000053	1	0%	0	0%	33	1%	2846	99%
S/TVA/DUK-SOCO//	0	333	333	25	0.000116	1	0%	0	0%	221	8%	2658	92%
S/MEAG/MEAG-FPC//	2	169	213	25	0.000216	3	0%	0	0%	12	0%	2865	99%
S/DUK/CPLW-DUK//	0	345	1,166	22	0.000086	2	0%	0	0%	275	10%	2603	90%
S/TVA/TVA-CPLW//	0	264	276	22	0.000189	2	0%	0	0%	1,149	40%	1729	60%
S/DUK/SCEG-DUK//	0	663	664	21	0.000050	3	0%	0	0%	244	8%	2633	91%
S/SCEG/DUK-CPLE//	220	325	427	21	0.000090	3	0%	0	0%	0	0%	2877	100%
F/FPC/SOCO-TEC//	0	250	473	20	0.000126	3	0%	0	0%	568	20%	2309	80%