MONTHLY AUDIT REPORT ON THE SOUTHEAST ENERGY EXCHANGE MARKET

FOR

October 2024

Prepared by:

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I. OVERVIEW

This is the October 2024 Auditor report on the Southeast Energy Exchange Market (SEEM). SEEM is a regional energy market that uses a centralized intra-hour energy exchange to create bilateral trades among its trading participants every 15 minutes. It uses available transmission capability (ATC) of the SEEM members under a transmission service designed for SEEM, called Non-Firm Energy Exchange Transmission Service (NFEETS). It has operated since November 2022 and now has 24 members.[1]

Trading volumes in October were slightly less than 88,000 MWh, higher than the 75,000 MWh in September and higher than the 12-month rolling average of 79,000 MWh. Trading among SEEM members relies on individual transmission path segments connecting the members and trades may span 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, 3 percent of the time availability was zero and 95 percent of the time a segment was available while no cleared transaction utilized it. Overall, this indicates widely available transmission. Due to transmission loss costs, transmission constraints, and participant-specific constraints, about 25,000 MWh of potential economic exchanges were left uncleared in October, which is slightly higher than the level 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 governed by the SEEM Membership Board. The automated architecture of SEEM was developed and is operated by Hartigen, 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 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.

[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 members joining in September 2023 are: Seminole Electric Cooperative; Tampa Electric Company; Duke Energy Florida; Florida Power Corporation; TEA Gainesville Regional Utilities; and TEA JEA.

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). the purpose of Section II of this report is to fulfil our responsibility 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 received no such inquiry in October.

In the remainder of the report (Section II), we provide the results of our analysis of the first main area of responsibility: to analyze 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 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 SEEM data that supports the calculation of these screens. Apart from screening the network map and the participant-specific constraints (described below), the screens are calculated daily, and we have developed data processing procedures for each of the daily screens. We applied the screens to the October 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 so we assume it is accurate. It would not be practicable to replicate this initial map. To monitor the map over time, we use the SEEM model's static path configuration database that is used by the model to assess possible paths associated with the sources and sinks offered and bid in each interval. We save a snapshot of this database and compare it to the path configuration database used at the start of each month. We identify and evaluate any changes. We found no changes in October 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 were several changes to participant-specific constraints among participants in October to temporarily exclude trading partners.

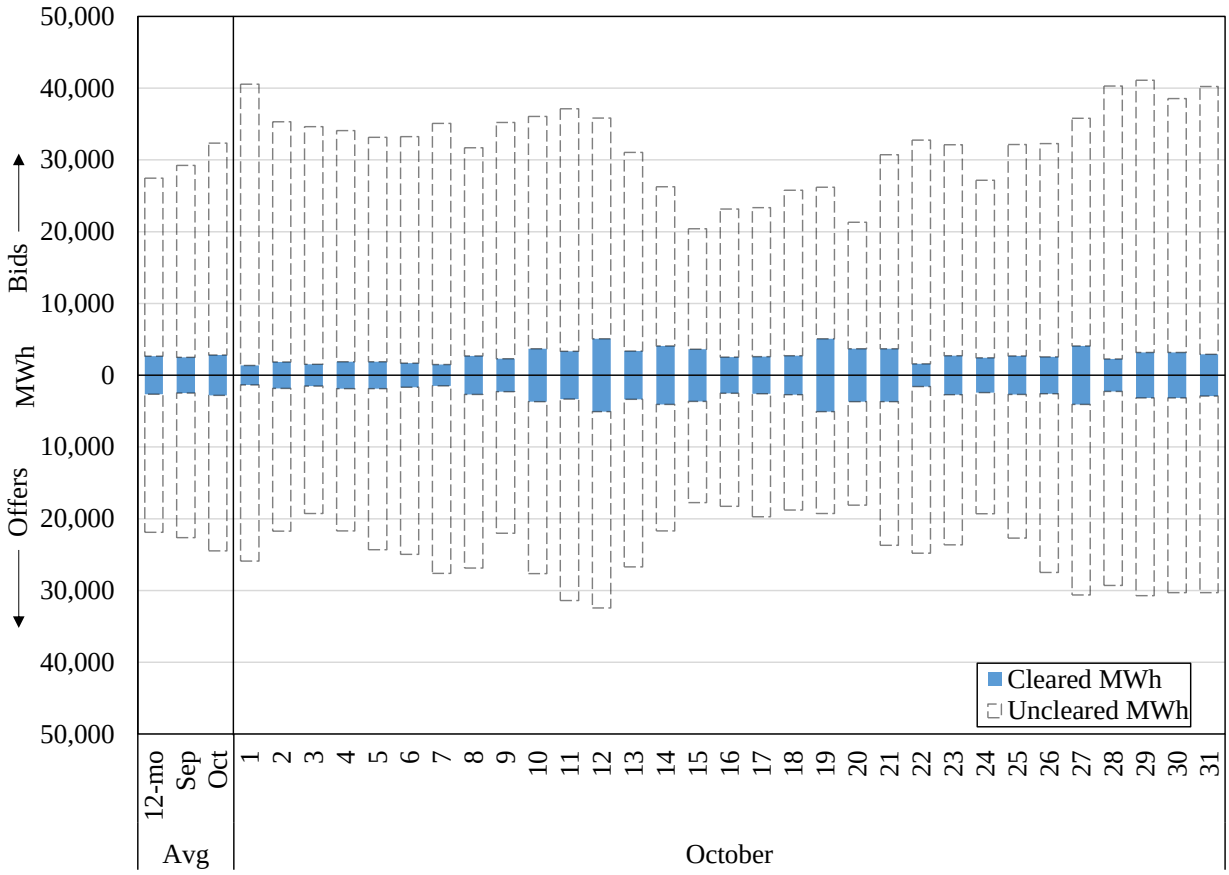
B. Market Activity

In this section, we summarize and discuss SEEM operations and outcomes to illuminate any potential operating or market issues. Our evaluation is in two principal 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 over 88,000 MWh of energy in October, higher than the trailing 12-month average of 79,000 MWh. Figure 1 shows the daily SEEM bids and offers for October. 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.

Figure 1: Daily Bids and Offers
October 2024

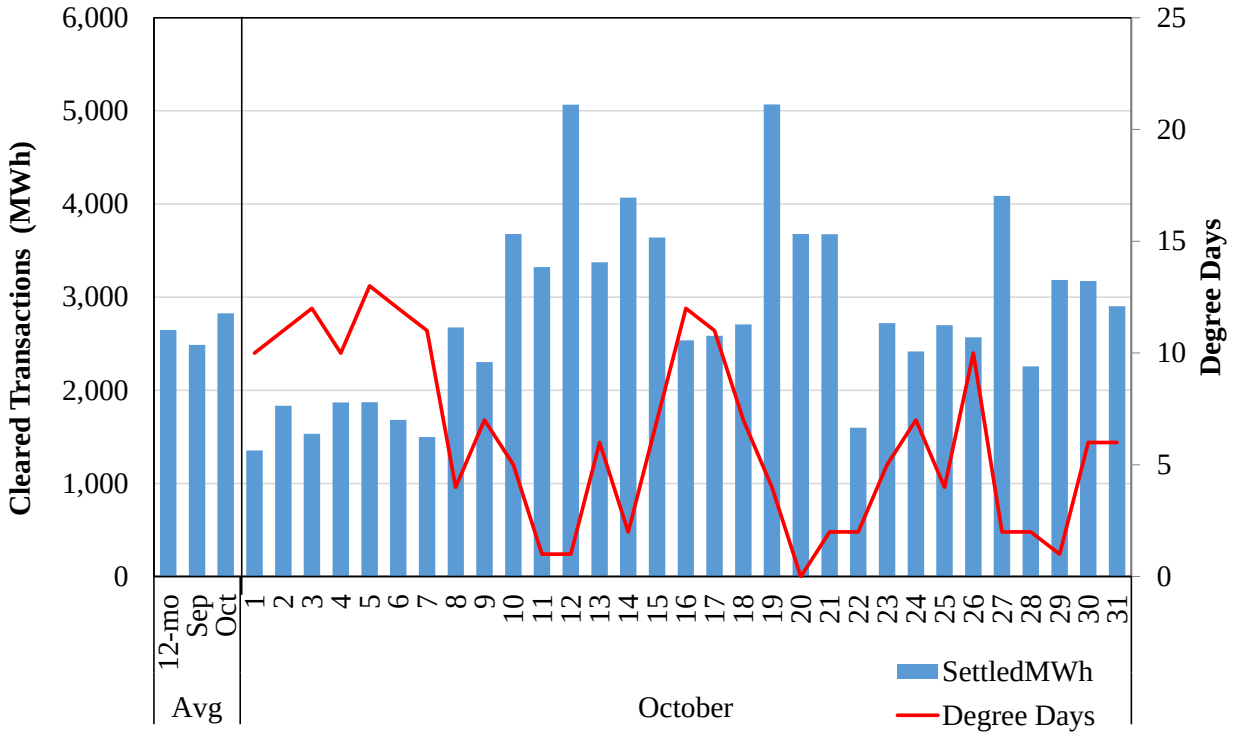


The left side columns show activity relative to the previous month and relative to the 12-month rolling average. As the left-side monthly and the 12-month average bars show, total liquidity

(cleared and uncleared bids and offers) was slightly higher than both the 12-month average and September's level.

The individual days show some variation in offers, bids, and cleared transactions across the month. This variability is better pictured in Figure 2, which shows only cleared transactions and system demand (as measured by Degree Days). Degree Days are common measure of daily temperature levels that measure the demand for cooling and heating.[2]

Figure 2: Cleared Transactions and Demand



The purpose of showing daily volumes together with Degree Days is to evaluate SEEM activity as demand fluctuates. We noticed in previous months SEEM liquidity declining during periods of high demand driven by extreme weather. And so we started tracking monthly statistics to evaluate changes in market activity when underlying system demand changes. We use "Degree Days" as a demand proxy.

[2] According to the US National Weather Service, "Degree days are the difference between the daily temperature mean, (high temperature plus low temperature divided by two) and 65°F. If the temperature mean is above 65°F, we subtract 65 from the mean and the result is ***Cooling Degree Days***. If the temperature mean is below 65°F, we subtract the mean from 65 and the result is ***Heating Degree Days***." For the Figure, we use Degrees Days from

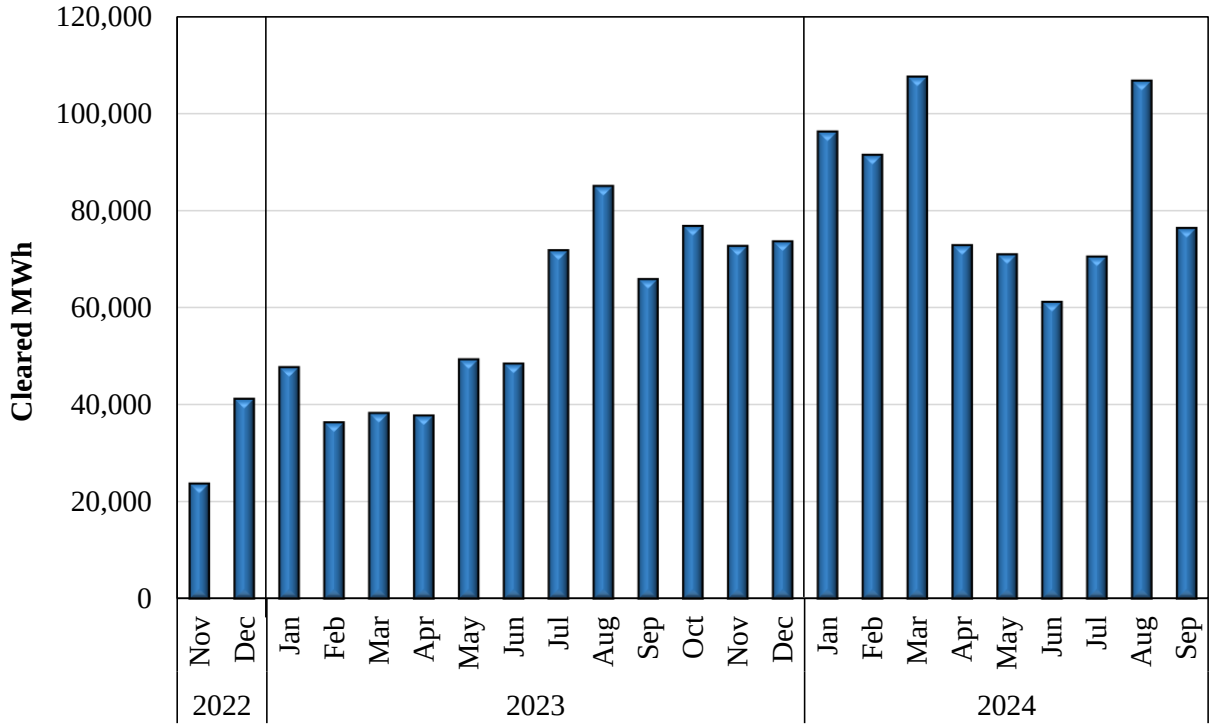
We calculated correlation coefficients[3] between Degree Days and bid/offer activity to assess the relationship. For October, we find a statistically significant *negative* correlation between Degree Days and cleared transactions. This is contrary to economic theory because an increase in DD, means a greater regional demand for power. To experience a lower clearing volume, either demand or supply is removed from the SEEM during higher demand days. In the past 12-months, there has been a statistically significant *negative* correlation between supply offers and DD and a statistically significant positive correlation between bids and DD. This shows that offers tend to decline during higher demand periods, and offsets and increase in bids.

In the three-month period there was also a statistically significant negative correlation between offer volume and price but a statistically insignificant correlation between price and bid volumes. This supports a hypothesis that variation in offer volumes has a stronger impact on prices than bid volumes. This is likely explained by a shift in emphasis in higher demand periods, thus removing capacity from the market, while at the same time increasing activity of buyers who face higher demand for reliability. At present we find no competitive issue and will continue to monitor these relationships.

Figure 3 shows the cleared trades on an historical monthly basis. It shows a variable volume of cleared trades with a notable increase in July 2023 with the addition of Florida participants. The highest volume was September 2024.

[3] The correlation coefficient is a statistic that measures the relationship between two variables (in our case the cleared volumes and Degree Days). A positive correlation coefficient indicates the variables tend to move in the same direction while a negative correlation coefficient indicates the variables tend to move in opposite directions. A correlation coefficient at or close to zero means there is no linear relationship.

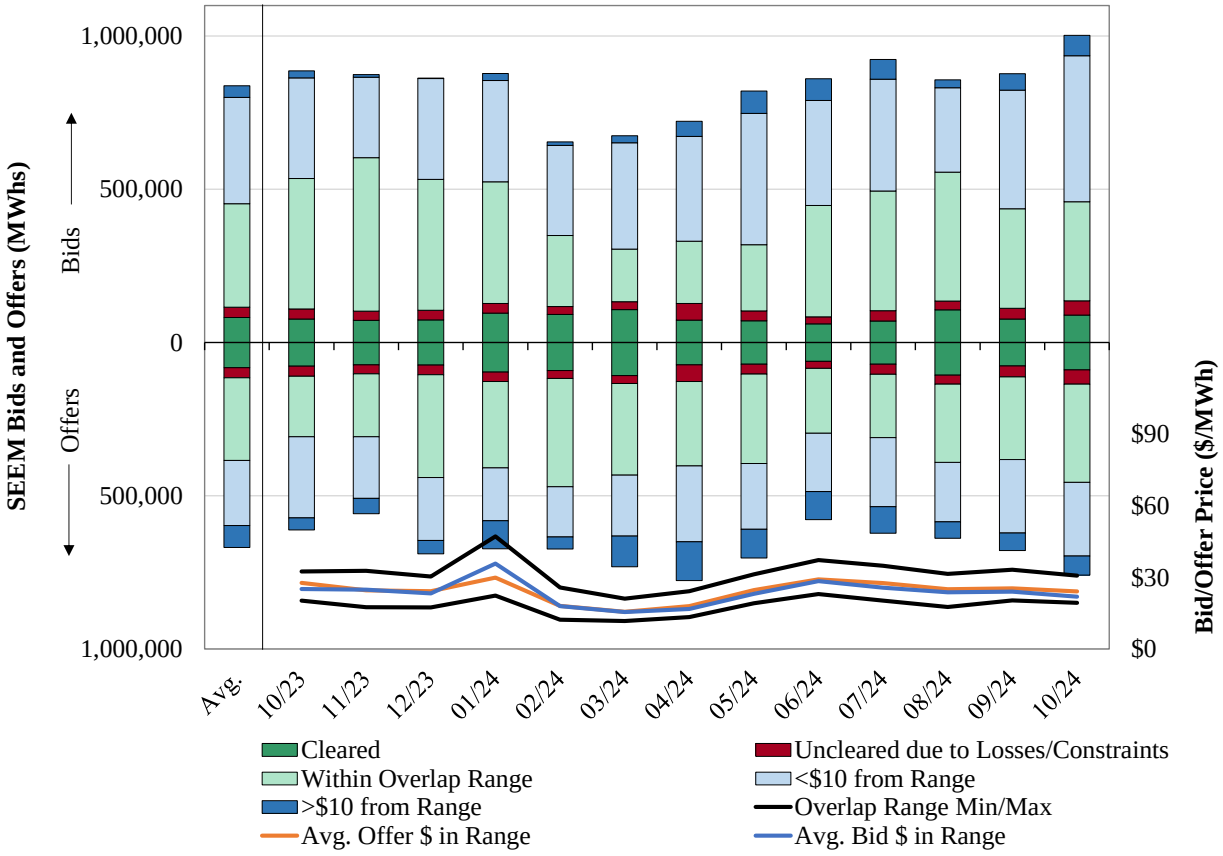
Figure 3: Volume of Cleared Trades
November 2022 - October 2024



Our next evaluation is a monthly comparison of bids, offers, and prices and is shown in Figure 4. It shows the monthly total activity in the SEEM market, including both cleared and uncleared bids and offers. The purpose is to summarize the trends in market liquidity. The dark green bars are the cleared bids and offers. The rest of the bar segments are various categories of uncleared bids and offers:

- The red segment shows uncleared economic bids and offers. These transactions appear to be profitable, but do not clear because of the cost of losses or a constraint (explained more below).
- The light green bars show bids and offers that were not cleared but were within the indicated cleared bid-offer spread – i.e., from the lowest cleared offer to the highest cleared bid. Bids and offers in this group do not clear because there are not sufficient counterparties to clear all of them – i.e., the counterparty bids/offers that could be economic have already been matched to another bid/offer with greater savings.
- 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 – i.e., offers to sell that are >$10 higher than this highest bid or offers to buy energy <$10 less than the lowest supply offer. Participants likely do not expect these to clear.

Figure 4: Bid and Offer Evaluation

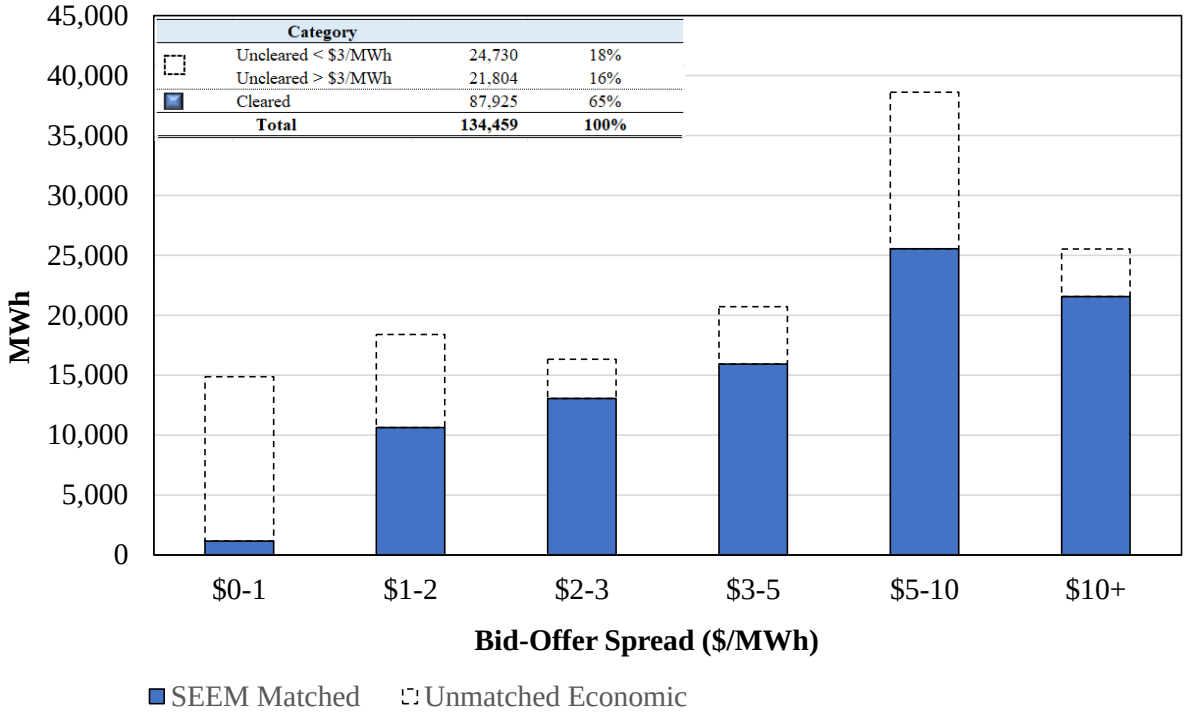


In Figure 4, the total size of the stacked bars (both bids and offers) are an indication of market liquidity. In general, there tends to be more bids (Just under 1,000,000 MWh) than offers (around 700,00 MWh). Since the end of 2023, liquidity declined slightly, even though cleared matches increased significantly in October. If one measures liquidity as the sum of all the bar segments (counting the offer segments below the bar in absolute values), the liquidity is not statistically correlated with cleared trades over the 13-month period.

Like in previous months, our evaluation of uncleared bids and offers found a notable volume of uncleared bids and offers with economic overlap in the sense that in an interval there were uncleared bids whose bid price was 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 5 shows a summary of the cleared and uncleared matches. Each stacked bar shows the SEEM matches (blue bar) and the economic unmatched (transparent bar) at the given bid-offer spread. For example, the first blue bar shows SEEM matches where bids exceed offers by up to $1 – there are very few because that spread

would not pay most transmission loss cost. The transparent box shows considerable uncleared economic bids and offers that did not clear at spreads up to $1.

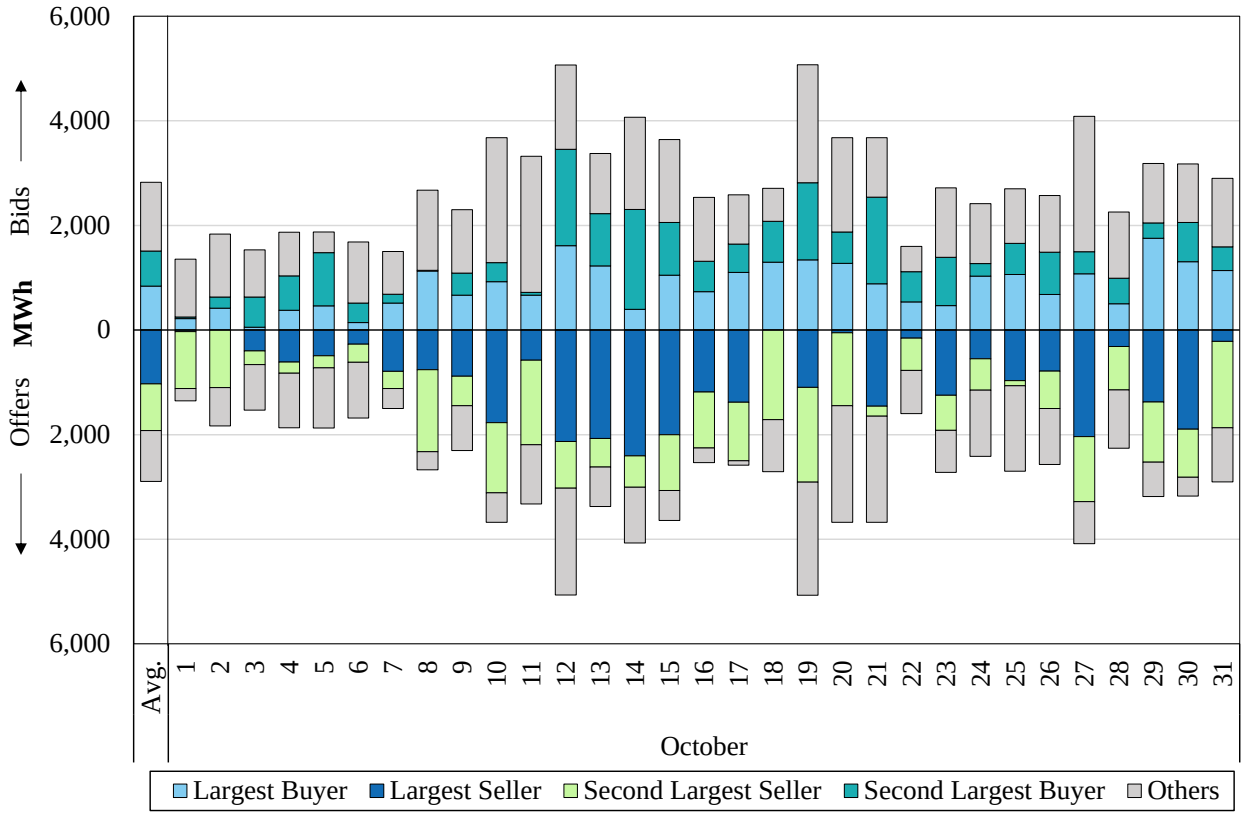
Figure 5: Cleared and Uncleared Economic Matches
October 2024



To understand why economic bids and offers may not have cleared, it is useful to examine the bid-offer spread. Average loss charges are roughly $2 per MWh, although some potential economic matches would incur higher loss costs. Therefore, in the inset table, we divide totals between bid-offer spreads above and below $3 per MWh. Those below $3 are likely to have not cleared because of the costs of losses, well most of those that did not clear at spreads above $3 likely did not clear because of transmission constraints or participant constraints. The inset table also shows that over the entire period, 65 percent of the economic transactions cleared. The costs of transmission losses were likely the most significant factor that prevented transactions from clearing. This is because in each of the periods most of the uncleared economic transactions were those with spreads of less than $3 per MWh.

Figure 6 shows more detail on the matched bids and offers by showing the matches by the largest market 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.

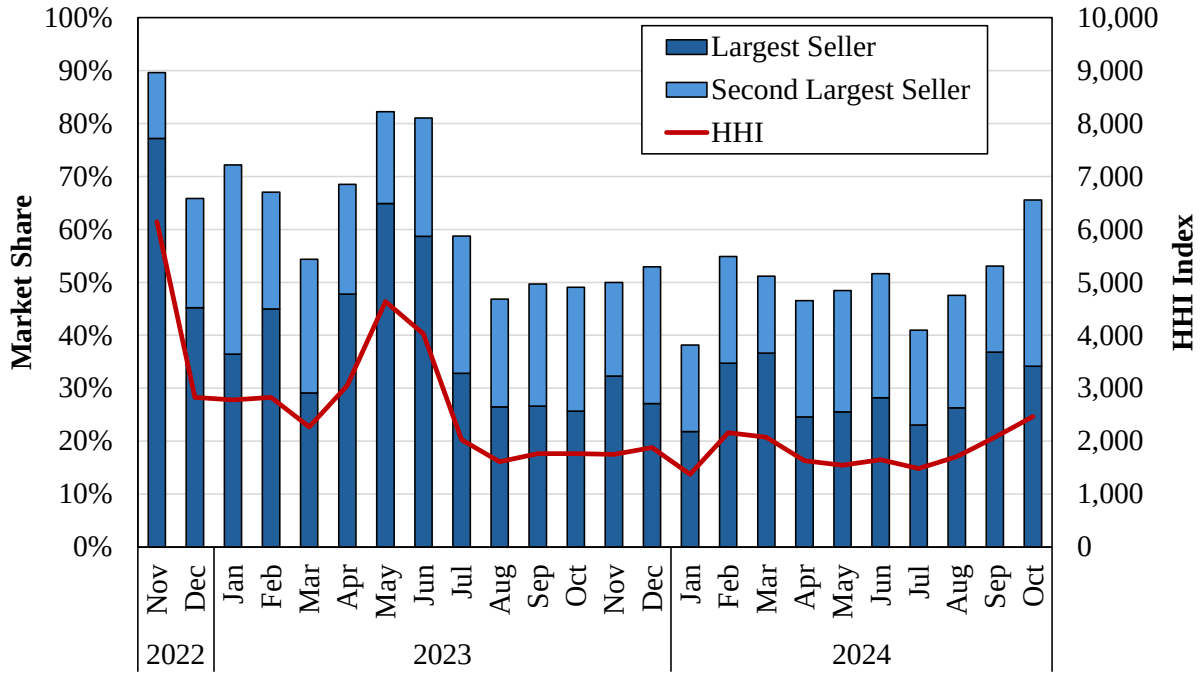
Figure 6: Volumes of Matched Bids and Offers
October 2024



The figure shows certain buyers and sellers comprise significant shares of the transaction activity. For the month, 35 percent of the sales were made by a single seller and 30 percent of the purchases were made by a single buyer.

In the next figures, we present a time series of market shares and concentration. Economists measure market shares to get a general view of the competitiveness of a market. It is not determinative of the existence of market power, but it is useful for an overall view. Figure 7 shows the monthly share of matched transaction of the largest two sellers along with the Herfindahl Hirschmann Index (HHI), defined below. The bars in this figure stack the two top sellers during the month.

Figure 7: Seller Market Share Statistics
November 2022 – October 2024

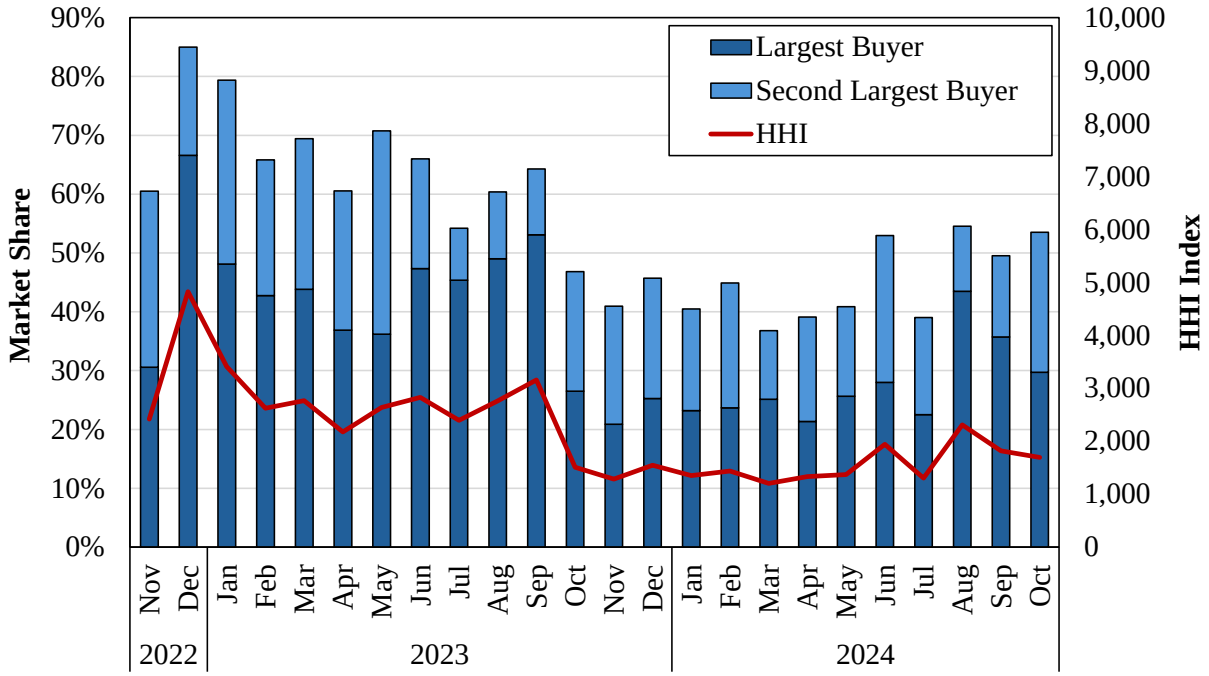


Not surprisingly, the share of the top seller, as well as the share of the top two, declined once the Florida participants fully joined in July 2023. The chart also shows that the HHI has declined. The HHI is a measure of market concentration and is used to determine market competitiveness, often on a relative basis over time or as a result of structural changes like a merger or divestiture. It is calculated by squaring the market share of each firm competing in a market and then summing the resulting numbers. It can range from close to 0 to 10,000, with lower values indicating a less concentrated market. A single-seller monopoly market would have an HHI of 10,000 = 100 x 100. A perfectly competitive market where no firm has an appreciable market share, the HHI is close to zero. The US antitrust agencies (FTC and DOJ) consider markets with:

- HHI greater than 1800 to be highly concentrated;
- one with an HHI between 1000 and 1800 to be moderately concentrated; and
- one with an HHI less than 1000 to be unconcentrated.

The HHI indicates that the SEEM market has been highly concentrated in most months. However, the HHI has come down since October and has remained close to 1800. Although this is close to the highly concentrated range, it has been falling. Figure 8 shows the buyer concentration.

Figure 8: Buyer Market Share Statistics
November 2022 – October 2024

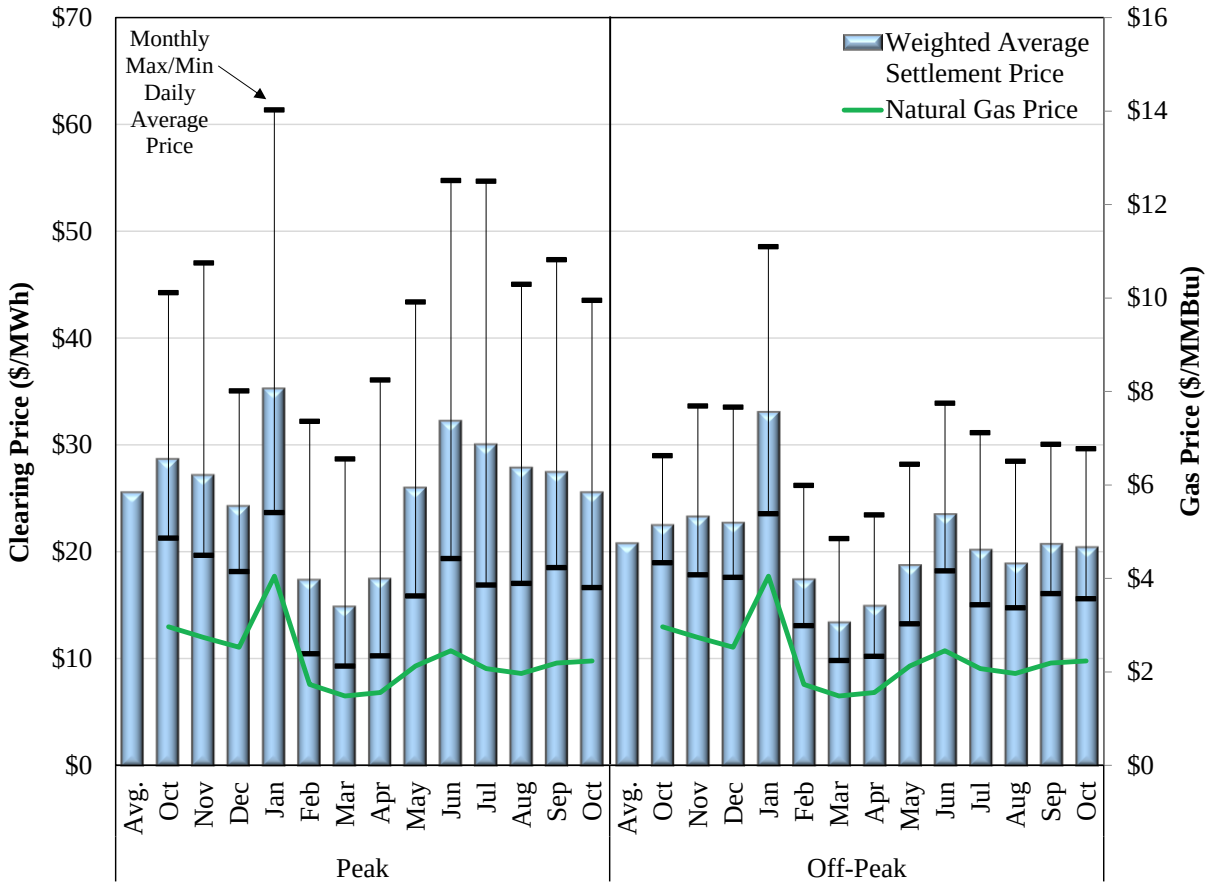


The entry of Florida participants coincided with a decline in buyer concentration. These declines, together with the uptrend in matched trades, are indicative of a market evolving to greater liquidity and competitiveness.

2. Network Usage

In this subsection, we report on the usage of the SEEM network. Figure 9 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. The superimposed lines over the bars show the price spread over each month.

Figure 9: Monthly Clearing Prices and Natural Gas Costs



The figure shows that both peak and off-peak prices declined slightly in October relative to September and were close to the 12-month average. The whisker bars for each month show that the value of transactions can vary significantly, 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. In October, there were 293 segments used in SEEM for which an ATC value was posted, and another 37 segments used for which no ATC is posted (these are segments that were available on an unlimited basis.[4]) There were 64 segments in SEEM not used. We calculate total segment (MWh) usage for the 288 segments that were used during the month. For segments with ATC

[4] It is not unusual for transmission paths to have no ATC value posted, and not just for the SEEM transmission service (NFEETS), but also longer-term service.

values, we report the median, maximum, and minimum ATC values over all intervals for each segment. For these "ATC segments," we are also able to 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 schedule volumes and the ATC statistics, 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 or total MWs cleared on a segment without ATC);

(2) Fully Used, ATC was used up for the interval;[5]

(3) Unavailable, no ATC;[6] and

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

In reporting the usage of each segment, we refer to a "segment-interval" which is an observation in a single interval on one segment. Table 1 shows an excerpt of our statistics. The table displays the segments that had at least 1,000 MWh of transactions scheduled during the month. The full data for all segments is provided in Appendix A. When ATC is listed as "None" this means there was no ATC posted.

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

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

Table 1: Statistics for Most Utilized SEEM Segments

October 2024

Segment	ATC			MWhs	Loading Factor	Partially Used		Fully Used		Unavailable		Uncleared	
	Min	Median	Max			Intervals	%	Intervals	%	Intervals	%	Intervals	%
F/FPC/FPC-SOCO//	0	117	264	29,078	31.84%	660	22%	531	18%	456	15%	1329	45%
S/SC/SOCO-SC//	0	531	1,505	15,509	3.94%	811	27%	78	3%	561	19%	1526	51%
SS/SOCO/FL-SOCO//	125	632	1,074	10,774	2.27%	696	23%	3	0%	0	0%	2277	77%
SS/SOCO/SOCO-SOCO//	43,958	44,230	44,230	7,995	0.02%	420	14%	0	0%	0	0%	2556	86%
SS/SOCO/SOCO-SC//	-34	230	475	7,627	4.49%	479	16%	71	2%	56	2%	2370	80%
SS/SOCO/TVA-SOCO//	703	1,130	1,673	6,421	0.75%	205	7%	0	0%	0	0%	2771	93%
S/CPL/CPLE-DUK//	1,431	5,196	6,913	6,196	0.16%	268	9%	0	0%	0	0%	2708	91%
S/TVA/TVA-SOCO//	0	4,920	4,940	6,165	0.17%	175	6%	0	0%	16	1%	2785	94%
S/TVA/SOCO-TVA//	0	4,266	4,940	6,070	0.19%	215	7%	0	0%	8	0%	2753	93%
SS/SOCO/FL-SC/MULTIPATHALIAS/	-34	225	475	5,992	3.55%	489	16%	26	1%	56	2%	2405	81%
SS/SOCO/SOCO-TVA//	-45	1,282	2,458	5,816	0.60%	227	8%	0	0%	30	1%	2719	91%
S/SC/DUK-SC//	0	1,534	2,889	5,620	0.50%	380	13%	0	0%	18	1%	2578	87%
F/JEA/SOCO-JEA//	0	485	814	5,607	1.66%	876	29%	3	0%	184	6%	1913	64%
S/CPL/CPLE-SC//	0	3,181	3,792	5,269	0.25%	317	11%	0	0%	187	6%	2472	83%
S/SC/CPLE-SC//	0	1,498	3,072	5,066	0.48%	316	11%	0	0%	238	8%	2422	81%
S/DUK/SOCO-SC//	0	1,078	2,220	4,985	0.61%	323	11%	0	0%	281	9%	2372	80%
SS/SOCO/SOCO-DUK//	-4	313	660	4,870	2.16%	355	12%	36	1%	134	5%	2451	82%
SS/SOCO/FL-TVA/MULTIPATHALIAS/	-45	573	1,074	4,075	0.90%	226	8%	0	0%	30	1%	2720	91%
S/DUK/CPLE-SOCO//	0	2,164	2,335	4,048	0.27%	197	7%	0	0%	163	5%	2616	88%
SS/SOCO/SOCO-FL//	35	1,407	2,016	3,768	0.37%	478	16%	0	0%	0	0%	2498	84%
SS/SOCO/DUK-SOCO//	189	824	1,039	3,492	0.59%	125	4%	0	0%	0	0%	2851	96%
S/AECI/TVA-AECI//	0	752	839	3,350	0.62%	173	6%	10	0%	9	0%	2784	94%
S/SCEG/SOCO-SCEG//	0	288	1,254	2,818	1.15%	321	11%	12	0%	998	34%	1645	55%
S/MEAG/SOCO-MEAG//	2,635	3,054	3,235	2,784	0.12%	179	6%	0	0%	0	0%	2797	94%
SS/GTC/SOCO-GTC//	12,981	14,419	15,268	2,708	0.03%	106	4%	0	0%	0	0%	2870	96%
S/TVA/SOCO-AECI//	0	622	622	2,315	0.52%	139	5%	0	0%	20	1%	2817	95%
SS/GTC/FPC-GTC//	0	365	675	2,309	0.84%	108	4%	0	0%	32	1%	2836	95%
S/MEAG/FPC-SC//	None	None	None	2,154	0.00%	240	8%	0	0%	0	0%	2736	92%
F/TEC/FPC-TEC//	0	1,429	2,871	2,059	0.20%	175	6%	0	0%	136	5%	2665	90%
F/TEC/TEC-FPC//	0	2,365	3,381	2,034	0.12%	149	5%	0	0%	32	1%	2795	94%
P/LGEE/TVA-LGEE//	0	1,388	1,424	2,028	0.23%	94	3%	0	0%	32	1%	2850	96%
SS/SOCO/FL-DUK/MULTIPATHALIAS/	-4	282	660	1,820	0.89%	220	7%	12	0%	134	5%	2610	88%
F/FPC/FPC-TEC//	0	1,636	2,911	1,819	0.16%	155	5%	0	0%	112	4%	2709	91%
S/CPL/DUK-CPLE//	0	3,744	6,704	1,767	0.06%	336	11%	0	0%	14	0%	2626	88%
S/TVA/SOCO-LGEE//	0	2,817	2,828	1,727	0.09%	84	3%	0	0%	64	2%	2828	95%
F/FPC/TEC-SOCO//	0	117	264	1,598	1.78%	102	3%	24	1%	464	16%	2386	80%
SS/SOCO/FL-SCEG/MULTIPATHALIAS/	0	65	137	1,561	3.25%	142	5%	56	2%	457	15%	2321	78%
F/FPC/SOCO-FPC//	0	311	475	1,500	0.69%	218	7%	6	0%	201	7%	2551	86%
S/SCEG/CPLE-SCEG//	0	315	390	1,495	0.81%	137	5%	7	0%	520	17%	2312	78%
S/MEAG/SOCO-JEA//	None	None	None	1,460	0.00%	273	9%	0	0%	0	0%	2703	91%
SS/GTC/GTC-SOCO//	20,000	20,000	20,000	1,457	0.01%	37	1%	0	0%	0	0%	2939	99%
F/JEA/JEA-SOCO//	74	390	739	1,326	0.41%	349	12%	0	0%	0	0%	2627	88%
S/DUK/SOCO-CPLE//	0	1,792	2,243	1,313	0.12%	243	8%	1	0%	329	11%	2403	81%
S/CPL/CPLE-SCEG//	0	367	404	1,281	0.52%	112	4%	0	0%	210	7%	2654	89%
S/DUK/CPLE-TVA//	320	692	692	1,181	0.23%	60	2%	0	0%	0	0%	2916	98%
S/DUK/DUK-SOCO//	0	1,996	2,335	1,099	0.08%	98	3%	0	0%	162	5%	2716	91%

The "Uncleared" category indicates that among these most utilized segments, many of them have over 90 percent of their intervals uncleared. There are, however, numerous instances when segments are constrained. A constrained segment is one where either (1) the segment is completely used by SEEM ("Fully Used" column in the table) or (2) ATC is insufficient (less than 4 MW) prior to SEEM matching (the "Unavailable" column in the table).

Table 2 show the summary usage for all segments. During the month, total segment intervals is the product of all 351 segments and the number of intervals during the month. In October, there

were 1,044,576 segment intervals.[7] The two circumstances (Cases (2) and (3)) when a segment is constrained occurred in more than 34,000 segment-intervals and almost always because the ATC was insufficient to schedule (i.e., ATC < 4 MW) rather than because it is fully used by a SEEM match. The most common case in the data was "Uncleared" (Case 4), where ATC was available or there was no ATC posted, but the segment was not used because no beneficial transactions were cleared by the SEEM model over that segment. These cases represent over 95 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 (3.2 percent of the time). The third most common case was "Partially Used" (Case 1), where the segment was partially used (1.5 percent of the time). Finally, in a small number of intervals, the Segment ATC was "Fully Used" (Case 2), where the segment was completely scheduled in the interval (1,100).

Table 2: Summary of All Segments
October 2024

Segment	Case 1 Partially Used		Case 2 Fully Used		Case 3 Unavailable		Case 4 Uncleared	
	Intervals	%	Intervals	%	Intervals	%	Intervals	%
All Segments	15,848	1.5%	1,010	0.1%	33,374	3.2%	994,344	95.2%

Measuring transmission capacity congestion by adding Case 2 and 3, the percentage of constrained segment intervals was 3.3 percent in October (versus 6.1 percent in September). Overall, these results indicate that transmission was generally available to facilitate economic transactions in the SEEM region. As we discussed above, transmission loss costs were likely the main factor in preventing economic trades from being consummated than transmission constraints.

Further insight into constrained segments can be gained from Table 3. It shows the 20 segments least often available to SEEM. All segments shown reported ATC of 0 in one or more intervals during the month (ATC Min=0). In some intervals there were at least some cleared trades. Like in previous months, these frequently unavailable paths are in many intervals unused when they are available (as indicated by the "Uncleared" column). Overall, the evaluation of individual segments indicates the system is largely unconstrainted for SEEM activity.

[7] The maximum number of segment intervals in a month is (351 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 October, SEEM operated in all intervals.

Table 3: Most Constrained SEEM Segments

October 2024

Segment	ATC				Loading	Partially Used		Fully Used		Unavailable		Uncleared	
	Min	Median	Max	MWhs	Factor	Intervals	%	Intervals	%	Intervals	%	Intervals	%
S/AECI/AECI-TVA//	0	116	670	600	0.58%	67	*2%*	16	*1%*	1,098	*37%*	1795	*60%*
S/MEAG/MEAG-DUK//	0	34	158	52	0.17%	1	*0%*	5	*0%*	1,040	*35%*	1930	*65%*
S/SCEG/SOCO-SCEG//	0	288	1,254	2,818	1.15%	321	*11%*	12	*0%*	998	*34%*	1645	*55%*
S/SCEG/SOCO-SC//	0	480	2,534	2	0.00%	1	*0%*	0	*0%*	990	*33%*	1985	*67%*
S/SCEG/DUK-SCEG//	0	117	201	675	1.06%	110	*4%*	9	*0%*	897	*30%*	1960	*66%*
S/TVA/AECI-CPLW//	0	9	276	28	0.05%	7	*0%*	1	*0%*	660	*22%*	2308	*78%*
S/TVA/AECI-LGEE//	0	9	364	0	0.00%	0	*0%*	0	*0%*	604	*20%*	2372	*80%*
S/TVA/AECI-DUK//	0	9	364	204	0.32%	25	*1%*	6	*0%*	600	*20%*	2345	*79%*
S/TVA/AECI-SOCO//	0	9	364	367	0.58%	37	*1%*	12	*0%*	580	*19%*	2347	*79%*
S/SC/SOCO-SC//	0	531	1,505	15,509	3.94%	811	*27%*	78	*3%*	561	*19%*	1526	*51%*
S/SC/SOCO-CPLE//	0	901	2,532	437	0.07%	88	*3%*	1	*0%*	546	*18%*	2341	*79%*
S/TVA/AECI-TVA//	0	9	364	1	0.00%	1	*0%*	0	*0%*	524	*18%*	2451	*82%*
S/SCEG/CPLE-SCEG//	0	315	390	1,495	0.81%	137	*5%*	7	*0%*	520	*17%*	2312	*78%*
S/SCEG/SOCO-CPLE//	0	632	960	113	0.03%	21	*1%*	0	*0%*	500	*17%*	2455	*82%*
S/SCEG/SC-SCEG//	0	850	3,015	780	0.13%	78	*3%*	5	*0%*	488	*16%*	2405	*81%*
F/FPC/SEC-SOCO/SSO-SOCO/	0	117	264	0	0.00%	0	*0%*	0	*0%*	470	*16%*	2506	*84%*
S/DUK/SOCO-DUK//	0	1,747	2,262	916	0.09%	54	*2%*	0	*0%*	470	*16%*	2452	*82%*
F/FPC/TEC-SOCO//	0	117	264	1,598	1.78%	102	*3%*	24	*1%*	464	*16%*	2386	*80%*
SS/SOCO/DUK-SCEG/MULTIPATHALIAS/	0	65	137	0	0.00%	0	*0%*	0	*0%*	457	*15%*	2519	*85%*
SS/SOCO/FL-SCEG/MULTIPATHALIAS/	0	65	137	1,561	3.25%	142	*5%*	56	*2%*	457	*15%*	2321	*78%*

III. CONCLUSION

We reviewed the operation of SEEM for October 2024. We have developed operational procedures to validate the market rules and constraints of SEEM. All 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 -- October 2024

Segment	ATC				Loading	Partially Used		Fully Used		Unavailable		Uncleared	
	Min	Median	Max	MWhs	Factor	Intervals	%	Intervals	%	Intervals	%	Intervals	%
F/FPC/FPC-SOCO//	0	180	284	25,825	24.62%	911	32%	273	9%	472	16%	1224	43%
SS/SOCO/FL-SOCO//	0	528	1,181	18,192	4.96%	1,085	38%	0	0%	285	10%	1510	52%
F/TEC/TEC-FPC//	942	2,687	3,413	10,490	0.57%	963	33%	0	0%	0	0%	1917	67%
F/JEA/SOCO-JEA//	0	627	847	10,092	2.45%	1,305	45%	0	0%	216	8%	1359	47%
S/TVA/SOCO-TVA//	0	4,097	4,940	9,325	0.33%	348	12%	0	0%	59	2%	2473	86%
SS/SOCO/TVA-SOCO//	0	988	1,673	8,569	1.24%	259	9%	0	0%	175	6%	2446	85%
S/TVA/TVA-SOCO//	0	4,895	4,985	8,413	0.25%	238	8%	0	0%	4	0%	2638	92%
F/FPC/TEC-SOCO//	0	180	284	8,268	7.83%	816	28%	0	0%	464	16%	1600	56%
SS/SOCO/SOCO-SOCO//	0	44,230	44,230	5,932	0.02%	381	13%	0	0%	175	6%	2324	81%
SS/SOCO/FL-TVA/MULTIPATHALIAS/	0	528	1,181	4,796	1.31%	229	8%	0	0%	285	10%	2366	82%
SS/SOCO/SOCO-TVA//	0	1,767	2,837	3,952	0.33%	122	4%	7	0%	193	7%	2558	89%
S/MEAG/SOCO-JEA//	None	None	None	3,720	0.00%	559	19%	0	0%	0	0%	2321	81%
S/SC/SOCO-SC//	0	175	2,084	3,562	1.06%	259	9%	8	0%	1,270	44%	1343	47%
F/TEC/FPC-TEC//	0	1,858	3,141	3,371	0.26%	302	10%	0	0%	48	2%	2530	88%
SS/SOCO/SOCO-FL//	0	1,242	2,058	3,293	0.41%	435	15%	0	0%	285	10%	2160	75%
F/FPC/FPC-TEC//	0	2,177	3,202	3,245	0.23%	298	10%	0	0%	44	2%	2538	88%
SS/SOCO/FL-SC/MULTIPATHALIAS/	-92	197	565	3,087	2.38%	242	8%	12	0%	442	15%	2184	76%
S/MEAG/SOCO-MEAG//	2,723	3,071	3,343	3,069	0.14%	207	7%	0	0%	0	0%	2673	93%
S/CPL/CPLE-DUK//	1,723	5,348	7,128	3,050	0.08%	123	4%	0	0%	0	0%	2757	96%
S/CPL/DUK-CPLE//	0	3,344	7,343	2,403	0.10%	237	8%	0	0%	18	1%	2625	91%
S/DUK/CPLE-SOCO//	0	1,970	2,335	2,378	0.18%	110	4%	0	0%	10	0%	2760	96%
F/FPC/TEC-FPC//	991	2,748	3,462	2,222	0.12%	383	13%	0	0%	0	0%	2497	87%
SS/SOCO/DUK-SOCO//	0	523	998	2,209	0.63%	64	2%	4	0%	301	10%	2511	87%
S/SCEG/SCEG-SOCO//	0	2,341	4,019	2,058	0.13%	240	8%	0	0%	56	2%	2584	90%
SS/GTC/FPC-GTC//	0	356	743	1,671	0.70%	85	3%	0	0%	156	5%	2639	92%
S/DUK/SOCO-CPLE//	0	1,957	2,264	1,519	0.13%	199	7%	3	0%	288	10%	2390	83%
S/MEAG/FPC-TVA//	None	None	None	1,500	0.00%	116	4%	0	0%	0	0%	2764	96%
S/DUK/DUK-SOCO//	0	1,832	2,335	1,407	0.12%	119	4%	2	0%	61	2%	2698	94%
S/CPL/SCEG-CPLE//	0	618	618	1,406	0.35%	172	6%	3	0%	193	7%	2512	87%
S/MEAG/FPC-DUK//	None	None	None	1,352	0.00%	173	6%	0	0%	0	0%	2707	94%
SS/SOCO/FL-DUK/MULTIPATHALIAS/	0	324	650	1,349	0.60%	185	6%	1	0%	300	10%	2394	83%
S/SC/SCEG-SC//	0	2,964	3,248	1,327	0.08%	126	4%	0	0%	4	0%	2750	95%
S/MEAG/MEAG-SOCO//	2,393	2,665	2,942	1,320	0.07%	68	2%	0	0%	0	0%	2812	98%
S/MEAG/FPC-SOCO//	None	None	None	1,297	0.00%	206	7%	0	0%	0	0%	2674	93%
S/AECI/AECI-TVA//	0	167	523	1,239	0.91%	105	4%	11	0%	341	12%	2423	84%
S/TVA/TVA-DUK//	0	357	357	1,229	0.49%	41	1%	0	0%	84	3%	2755	96%
SS/GTC/SOCO-GTC//	13,057	13,741	14,902	1,222	0.01%	68	2%	0	0%	0	0%	2812	98%
F/FPC/SOCO-FPC//	0	256	461	1,121	0.65%	132	5%	20	1%	500	17%	2228	77%
S/SC/DUK-SC//	0	1,116	2,872	1,105	0.15%	93	3%	5	0%	845	29%	1937	67%
S/DUK/SOCO-DUK//	0	1,998	2,264	1,102	0.09%	95	3%	0	0%	197	7%	2588	90%
S/SCEG/SCEG-CPLE//	0	632	856	1,092	0.25%	128	4%	0	0%	78	3%	2674	93%
SS/SOCO/SOCO-DUK//	0	437	1,004	1,085	0.33%	97	3%	10	0%	300	10%	2473	86%
SS/SOCO/SCEG-FL/MULTIPATHALIAS/	0	182	235	1,001	0.86%	139	5%	2	0%	293	10%	2446	85%
S/DUK/TVA-CPLE//	0	692	692	972	0.23%	64	2%	1	0%	202	7%	2613	91%
S/DUK/SOCO-SC//	0	1,433	2,264	934	0.10%	79	3%	0	0%	142	5%	2659	92%
S/DUK/TVA-DUK//	0	692	692	871	0.20%	34	1%	1	0%	113	4%	2732	95%
S/TVA/AECI-SOCO//	0	87	387	834	0.94%	74	3%	3	0%	1,244	43%	1559	54%
SS/GTC/DUK-GTC//	0	390	668	822	0.33%	41	1%	4	0%	54	2%	2781	97%
S/TVA/DUK-TVA//	0	343	343	790	0.33%	42	1%	0	0%	17	1%	2821	98%
SS/SOCO/TVA-FL/MULTIPATHALIAS/	0	889	1,390	785	0.12%	61	2%	0	0%	285	10%	2534	88%
S/CPL/DUK-SCEG//	0	363	584	776	0.29%	77	3%	0	0%	9	0%	2794	97%
S/SCEG/CPLE-SC//	0	377	569	757	0.29%	64	2%	1	0%	38	1%	2777	96%
P/LGEE/LGEE-TVA//	0	1,623	1,623	699	0.06%	66	2%	0	0%	38	1%	2776	96%
F/JEA/JEA-SOCO//	0	515	814	680	0.20%	151	5%	0	0%	114	4%	2615	91%
SS/SOCO/SOCO-SC//	-92	197	620	679	0.50%	44	2%	9	0%	442	15%	2385	83%
S/TVA/LGEE-SOCO//	0	2,648	2,648	627	0.03%	56	2%	0	0%	8	0%	2816	98%
S/TVA/SOCO-DUK//	0	357	357	611	0.25%	40	1%	1	0%	79	3%	2760	96%
S/AECI/TVA-AECI//	0	679	817	582	0.12%	32	1%	0	0%	19	1%	2829	98%
S/TVA/SOCO-AECI//	0	600	600	582	0.17%	32	1%	0	0%	435	15%	2413	84%
SS/SOCO/SCEG-SOCO//	0	182	235	574	0.49%	53	2%	1	0%	293	10%	2533	88%

Appendix A (continued)

Segment	ATC			MWhs	Loading Factor	Partially Used		Fully Used		Unavailable		Uncleared	
	Min	Median	Max			Intervals	%	Intervals	%	Intervals	%	Intervals	%
S/CPL/CPLE-SCEG//	91	363	584	545	0.20%	51	2%	0	0%	0	0%	2829	98%
S/SCEG/SOCO-SCEG//	0	0	1,442	497	0.39%	53	2%	0	0%	2,078	72%	749	26%
S/SCEG/SCEG-SC//	0	1,355	3,666	492	0.05%	55	2%	0	0%	28	1%	2797	97%
S/DUK/CPLE-TVA//	0	692	692	451	0.10%	17	1%	0	0%	7	0%	2856	99%
S/MEAG/DUK-JEA//	None	None	None	416	0.00%	78	3%	0	0%	0	0%	2802	97%
S/MEAG/MEAG-JEA//	0	200	280	405	0.32%	66	2%	0	0%	117	4%	2697	94%
SS/GTC/SCEG-GTC//	0	99	129	372	0.51%	35	1%	2	0%	36	1%	2807	97%
S/SCEG/CPLE-SOCO//	138	377	569	348	0.13%	29	1%	1	0%	0	0%	2850	99%
S/DUK/DUK-CPLE//	0	2,403	4,486	348	0.02%	35	1%	0	0%	158	5%	2687	93%
S/CPL/TVA-DUK//	0	276	276	346	0.22%	22	1%	0	0%	556	19%	2302	80%
S/DUK/CPLW-CPLE//	0	673	1,144	346	0.07%	22	1%	0	0%	176	6%	2682	93%
S/MEAG/SCEG-JEA//	None	None	None	343	0.00%	90	3%	0	0%	0	0%	2790	97%
SS/SOCO/SOCO-SCEG//	0	39	137	330	0.96%	11	0%	29	1%	447	16%	2393	83%
S/TVA/TVA-CPLW//	0	276	276	294	0.19%	16	1%	0	0%	669	23%	2195	76%
S/TVA/AECI-TVA//	0	103	387	290	0.31%	29	1%	0	0%	1,204	42%	1647	57%
S/DUK/SOCO-SCEG//	0	127	159	285	0.33%	41	1%	8	0%	85	3%	2746	95%
SS/SOCO/FL-SCEG/MULTIPATHALIAS/	0	39	137	285	0.83%	29	1%	13	0%	447	16%	2391	83%
SS/SOCO/DUK-FL/MULTIPATHALIAS/	0	512	998	280	0.08%	45	2%	0	0%	301	10%	2534	88%
S/CPL/SC-CPLE//	0	1,705	3,285	274	0.02%	22	1%	0	0%	195	7%	2663	92%
S/CPL/CPLE-SC//	0	1,602	4,150	260	0.02%	15	1%	0	0%	146	5%	2719	94%
SS/GTC/SOCO-JEA//	None	None	None	255	0.00%	27	1%	0	0%	0	0%	2853	99%
S/SCEG/DUK-SCEG//	0	86	305	232	0.49%	42	1%	0	0%	1,384	48%	1454	50%
S/MEAG/FPC-MEAG//	0	76	234	230	0.40%	43	1%	2	0%	101	4%	2734	95%
S/CPL/DUK-TVA//	0	276	276	221	0.14%	9	0%	0	0%	598	21%	2273	79%
S/DUK/CPLE-CPLW//	0	454	454	221	0.08%	9	0%	0	0%	103	4%	2768	96%
S/TVA/CPLW-TVA//	0	276	276	221	0.14%	9	0%	0	0%	617	21%	2254	78%
S/SCEG/CPLE-SCEG//	0	377	485	220	0.11%	29	1%	0	0%	695	24%	2156	75%
S/SC/SOCO-CPLE//	0	960	2,512	205	0.03%	16	1%	1	0%	872	30%	1991	69%
S/SC/CPLE-SOCO//	0	3,389	3,932	203	0.01%	10	0%	0	0%	8	0%	2862	99%
SS/GTC/FPC-SOCO//	None	None	None	190	0.00%	18	1%	0	0%	0	0%	2862	99%
S/DUK/SOCO-TVA//	0	692	692	188	0.04%	6	0%	0	0%	15	1%	2859	99%
S/SC/SOCO-SCEG//	0	946	2,437	185	0.03%	26	1%	0	0%	746	26%	2108	73%
S/SCEG/SOCO-CPLE//	0	632	871	185	0.06%	33	1%	0	0%	967	34%	1880	65%
S/MEAG/TVA-JEA//	None	None	None	180	0.00%	28	1%	0	0%	0	0%	2852	99%
S/DUK/DUK-SC//	0	1,426	2,697	179	0.02%	38	1%	0	0%	96	3%	2746	95%
SS/GTC/TVA-GTC//	0	240	446	179	0.10%	15	1%	0	0%	24	1%	2841	99%
SS/SOCO/SC-SOCO//	0	95	411	176	0.21%	7	0%	0	0%	285	10%	2588	90%
S/SCEG/SC-SCEG//	0	1,203	6,075	151	0.01%	24	1%	0	0%	291	10%	2565	89%
SS/GTC/JEA-GTC//	0	356	743	149	0.06%	33	1%	0	0%	156	5%	2691	93%
SS/GTC/MEAG-GTC//	8,649	9,015	9,549	139	0.00%	8	0%	0	0%	0	0%	2872	100%
S/MEAG/MEAG-GTC//	2,551	2,906	3,406	139	0.01%	8	0%	0	0%	0	0%	2872	100%
S/DUK/DUK-TVA//	0	692	692	137	0.03%	13	0%	1	0%	96	3%	2770	96%
S/MEAG/JEA-MEAG//	0	76	243	137	0.24%	32	1%	0	0%	101	4%	2747	95%
S/SC/CPLE-SC//	0	1,428	3,159	133	0.02%	11	0%	2	0%	749	26%	2118	74%
F/FPC/SOCO-TEC//	0	256	461	126	0.07%	5	0%	17	1%	500	17%	2358	82%
S/DUK/TVA-SC//	0	692	692	111	0.02%	10	0%	0	0%	56	2%	2814	98%
SS/GTC/GTC-TVA//	0	595	714	104	0.03%	3	0%	0	0%	98	3%	2779	96%
S/MEAG/FPC-GTC//	None	None	None	98	0.00%	18	1%	0	0%	0	0%	2862	99%
SS/GTC/FPC-SC//	None	None	None	98	0.00%	10	0%	0	0%	0	0%	2870	100%
SS/GTC/MEAG-JEA//	None	None	None	98	0.00%	18	1%	0	0%	0	0%	2862	99%
SS/GTC/GTC-SOCO//	20,000	20,000	20,000	95	0.00%	3	0%	0	0%	0	0%	2877	100%
S/SCEG/SOCO-DUK//	0	729	942	92	0.02%	12	0%	0	0%	40	1%	2828	98%
SS/GTC/FPC-DUK//	None	None	None	90	0.00%	11	0%	0	0%	0	0%	2869	100%
S/MEAG/SOCO-FPC//	None	None	None	88	0.00%	18	1%	0	0%	0	0%	2862	99%
SS/GTC/TVA-JEA//	None	None	None	84	0.00%	18	1%	0	0%	0	0%	2862	99%
S/SCEG/DUK-CPLE//	0	123	305	80	0.09%	7	0%	1	0%	160	6%	2712	94%
SS/GTC/SOCO-SC//	None	None	None	78	0.00%	9	0%	0	0%	0	0%	2871	100%
S/DUK/DUK-SCEG//	0	127	159	78	0.09%	7	0%	0	0%	45	2%	2828	98%
S/CPL/DUK-SC//	0	1,133	3,236	76	0.01%	8	0%	0	0%	170	6%	2702	94%
SS/SOCO/SCEG-TVA/MULTIPATHALIAS/	0	182	235	76	0.07%	10	0%	0	0%	293	10%	2577	89%

Appendix A (continued)

Segment	ATC				Loading	Partially Used		Fully Used		Unavailable		Uncleared	
	Min	Median	Max	MWhs	Factor	Intervals	%	Intervals	%	Intervals	%	Intervals	%
S/MEAG/GTC-JEA//	None	None	None	75	0.00%	15	1%	0	0%	0	0%	2865	99%
SS/GTC/FPC-MEAG//	None	None	None	75	0.00%	15	1%	0	0%	0	0%	2865	99%
SS/GTC/FPC-SCEG//	None	None	None	73	0.00%	14	0%	0	0%	0	0%	2866	100%
S/SC/DUK-CPLE//	3,040	3,636	3,847	73	0.00%	6	0%	0	0%	0	0%	2874	100%
S/TVA/LGEE-DUK//	257	357	357	72	0.03%	14	0%	0	0%	0	0%	2866	100%
S/MEAG/MEAG-DUK//	0	58	191	70	0.19%	6	0%	2	0%	604	21%	2268	79%
S/MEAG/SCEG-FPC//	None	None	None	69	0.00%	21	1%	0	0%	0	0%	2859	99%
S/TVA/AECI-DUK//	0	82	357	69	0.08%	12	0%	0	0%	1,300	45%	1568	54%
S/MEAG/TVA-FPC//	None	None	None	67	0.00%	9	0%	0	0%	0	0%	2871	100%
S/DUK/SCEG-CPLE//	0	649	650	66	0.02%	8	0%	0	0%	193	7%	2679	93%
SS/GTC/SOCO-SCEG//	None	None	None	62	0.00%	10	0%	0	0%	0	0%	2870	100%
S/SCEG/DUK-SOCO//	0	125	305	62	0.07%	2	0%	3	0%	8	0%	2867	100%
S/SCEG/SOCO-SC//	0	0	2,725	62	0.01%	7	0%	2	0%	1,528	53%	1343	47%
S/MEAG/SOCO-DUK//	None	None	None	56	0.00%	6	0%	0	0%	0	0%	2874	100%
SS/SOCO/SC-FL/MULTIPATHALIAS/	0	95	411	53	0.06%	11	0%	0	0%	285	10%	2584	90%
S/MEAG/FPC-SCEG//	None	None	None	52	0.00%	41	1%	0	0%	0	0%	2839	99%
S/SCEG/SC-CPLE//	0	632	856	49	0.01%	7	0%	0	0%	78	3%	2795	97%
S/MEAG/DUK-FPC//	None	None	None	48	0.00%	13	0%	0	0%	0	0%	2867	100%
S/SC/SC-SOCO//	0	3,172	3,882	48	0.00%	8	0%	0	0%	122	4%	2750	95%
S/TVA/AECI-CPLW//	0	1	276	46	0.06%	5	0%	0	0%	1,524	53%	1351	47%
S/SCEG/SCEG-DUK//	137	729	942	45	0.01%	15	1%	0	0%	0	0%	2865	99%
S/DUK/SCEG-TVA//	0	649	650	36	0.01%	10	0%	0	0%	80	3%	2790	97%
S/MEAG/SCEG-TVA//	None	None	None	33	0.00%	8	0%	0	0%	0	0%	2872	100%
S/SC/DUK-SOCO//	118	3,389	3,665	31	0.00%	7	0%	0	0%	0	0%	2873	100%
SS/GTC/SOCO-TVA//	None	None	None	30	0.00%	5	0%	0	0%	0	0%	2875	100%
S/MEAG/MEAG-FPC//	0	200	280	30	0.02%	9	0%	0	0%	117	4%	2754	96%
S/DUK/SCEG-DUK//	0	649	650	27	0.01%	5	0%	0	0%	119	4%	2756	96%
S/DUK/TVA-SCEG//	0	127	159	27	0.03%	1	0%	1	0%	2	0%	2876	100%
S/MEAG/SC-MEAG//	47	67	97	26	0.05%	3	0%	0	0%	0	0%	2877	100%
SS/GTC/JEA-DUK//	None	None	None	22	0.00%	6	0%	0	0%	0	0%	2874	100%
S/TVA/DUK-SOCO//	0	343	343	22	0.01%	5	0%	0	0%	13	0%	2862	99%
SS/SOCO/TVA-SC/MULTIPATHALIAS/	-92	197	620	20	0.01%	3	0%	0	0%	442	15%	2435	85%
SS/GTC/GTC-JEA//	19	839	1,315	19	0.00%	3	0%	0	0%	0	0%	2877	100%
SS/GTC/DUK-JEA//	None	None	None	18	0.00%	5	0%	0	0%	0	0%	2875	100%
S/SCEG/DUK-SC//	0	110	305	16	0.03%	2	0%	0	0%	891	31%	1987	69%
SS/GTC/SC-GTC//	21	49	191	15	0.03%	2	0%	0	0%	0	0%	2878	100%
S/SC/DUK-SCEG//	0	3,585	3,847	15	0.00%	5	0%	0	0%	44	2%	2831	98%
S/MEAG/SOCO-SCEG//	None	None	None	14	0.00%	14	0%	0	0%	0	0%	2866	100%
S/MEAG/MEAG-TVA//	0	129	151	14	0.02%	2	0%	0	0%	32	1%	2846	99%
S/SC/SOCO-DUK//	0	1,945	2,632	14	0.00%	1	0%	1	0%	847	29%	2031	71%
S/MEAG/SOCO-TVA//	None	None	None	13	0.00%	13	0%	0	0%	0	0%	2867	100%
S/MEAG/SC-JEA//	None	None	None	12	0.00%	2	0%	0	0%	0	0%	2878	100%
SS/SOCO/TVA-SCEG/MULTIPATHALIAS/	0	39	137	12	0.04%	1	0%	0	0%	447	16%	2432	84%
S/DUK/SC-DUK//	0	1,518	2,901	10	0.00%	1	0%	0	0%	242	8%	2637	92%
S/MEAG/JEA-SOCO//	None	None	None	9	0.00%	3	0%	0	0%	0	0%	2877	100%
S/DUK/SCEG-SOCO//	0	649	650	8	0.00%	4	0%	0	0%	66	2%	2810	98%
S/MEAG/JEA-TVA//	None	None	None	6	0.00%	3	0%	0	0%	0	0%	2877	100%
S/TVA/SOCO-CPLW//	0	276	276	6	0.00%	1	0%	0	0%	684	24%	2195	76%
S/MEAG/JEA-DUK//	None	None	None	4	0.00%	2	0%	0	0%	0	0%	2878	100%
SS/GTC/JEA-SC//	None	None	None	4	0.00%	1	0%	0	0%	0	0%	2879	100%
SS/GTC/JEA-SCEG//	None	None	None	4	0.00%	1	0%	0	0%	0	0%	2879	100%
S/CPL/SC-SCEG//	0	363	584	4	0.00%	1	0%	0	0%	2	0%	2877	100%
S/DUK/SC-CPLE//	0	2,099	2,901	4	0.00%	1	0%	0	0%	222	8%	2657	92%
S/MEAG/JEA-SCEG//	None	None	None	3	0.00%	2	0%	0	0%	0	0%	2878	100%
S/MEAG/MEAG-SCEG//	0	4	13	1	0.03%	0	0%	1	0%	1,152	40%	1727	60%
SS/GTC/GTC-GTC//	25,409	25,722	25,935	0	0.00%	0	0%	0	0%	0	0%	2880	100%
SS/GTC/GTC-MEAG//	9,194	9,690	9,999	0	0.00%	0	0%	0	0%	0	0%	2880	100%
S/SC/CPLE-DUK//	3,523	3,734	4,330	0	0.00%	0	0%	0	0%	0	0%	2880	100%
S/CPL/SC-DUK//	1,690	3,729	4,530	0	0.00%	0	0%	0	0%	0	0%	2880	100%
F/FPC/FPC-FPC/FPC-FPCS/	1,606	2,731	3,478	0	0.00%	0	0%	0	0%	0	0%	2880	100%

Appendix A (continued)

Segment	ATC				Loading	Partially Used		Fully Used		Unavailable		Uncleared	
	Min	Median	Max	MWhs	Factor	Intervals	%	Intervals	%	Intervals	%	Intervals	%
S/MEAG/GTC-MEAG//	1,222	1,755	2,120	0	0.00%	0	0%	0	0%	0	0%	2880	100%
F/FPC/TEC-FPC/TEC-FPCS/	991	2,582	3,301	0	0.00%	0	0%	0	0%	0	0%	2880	100%
S/SCEG/SC-DUK//	549	729	942	0	0.00%	0	0%	0	0%	0	0%	2880	100%
P/LGEE/TVA-LGEE//	483	1,423	1,424	0	0.00%	0	0%	0	0%	0	0%	2880	100%
F/JEA/SEC-JEA/SSN-JEA/	462	487	487	0	0.00%	0	0%	0	0%	0	0%	2880	100%
F/SEC/SEC-JEA/SSN-JEA/	462	637	637	0	0.00%	0	0%	0	0%	0	0%	2880	100%
F/SEC/TEC-FPC//	401	605	729	0	0.00%	0	0%	0	0%	0	0%	2880	100%
F/FPC/SEC-FPC/SSO-FPC/	375	572	1,041	0	0.00%	0	0%	0	0%	0	0%	2880	100%
F/FPC/SEC-FPC/SSO-FPCS/	375	572	1,041	0	0.00%	0	0%	0	0%	0	0%	2880	100%
F/SEC/SEC-FPC/SSO-FPC/	375	572	1,041	0	0.00%	0	0%	0	0%	0	0%	2880	100%
F/FPC/SEC-TEC/SSN-TEC/	344	858	1,276	0	0.00%	0	0%	0	0%	0	0%	2880	100%
F/SEC/TEC-SEC/TEC-SSO/	330	529	729	0	0.00%	0	0%	0	0%	0	0%	2880	100%
F/TEC/TEC-SEC/TEC-SSO/	330	529	729	0	0.00%	0	0%	0	0%	0	0%	2880	100%
F/FPC/TEC-SEC/TEC-SSN/	328	1,024	1,464	0	0.00%	0	0%	0	0%	0	0%	2880	100%
F/SEC/JEA-SEC/JEA-SSN/	160	637	637	0	0.00%	0	0%	0	0%	0	0%	2880	100%
F/FPC/SEC-SEC/SSO-SSN/	148	696	895	0	0.00%	0	0%	0	0%	0	0%	2880	100%
F/FPC/SEC-TEC/SSO-TEC/	148	696	895	0	0.00%	0	0%	0	0%	0	0%	2880	100%
F/SEC/JEA-FPC//	142	637	637	0	0.00%	0	0%	0	0%	0	0%	2880	100%
F/FPC/SEC-GVL/SSN-GVL/	141	230	338	0	0.00%	0	0%	0	0%	0	0%	2880	100%
F/FPC/TEC-GVL//	141	230	338	0	0.00%	0	0%	0	0%	0	0%	2880	100%
F/FPC/SEC-GVL/SSO-GVL/	140	227	338	0	0.00%	0	0%	0	0%	0	0%	2880	100%
S/SCEG/CPLE-DUK//	138	377	569	0	0.00%	0	0%	0	0%	0	0%	2880	100%
S/CPL/SCEG-DUK//	115	618	618	0	0.00%	0	0%	0	0%	0	0%	2880	100%
F/FPC/GVL-SEC/GVL-SSN/	97	329	442	0	0.00%	0	0%	0	0%	0	0%	2880	100%
S/DUK/TVA-SOCO//	84	692	692	0	0.00%	0	0%	0	0%	0	0%	2880	100%
F/SEC/SEC-TEC/SSO-TEC/	48	696	729	0	0.00%	0	0%	0	0%	0	0%	2880	100%
F/TEC/SEC-FPC/SSO-FPC/	48	696	729	0	0.00%	0	0%	0	0%	0	0%	2880	100%
F/TEC/SEC-TEC/SSO-TEC/	48	696	729	0	0.00%	0	0%	0	0%	0	0%	2880	100%
F/FPC/GVL-FPC//	42	327	446	0	0.00%	0	0%	0	0%	0	0%	2880	100%
F/FPC/GVL-FPC/GVL-FPCS/	42	327	446	0	0.00%	0	0%	0	0%	0	0%	2880	100%
F/JEA/JEA-SEC/JEA-SSN/	42	518	518	0	0.00%	0	0%	0	0%	0	0%	2880	100%
SS/GTC/GTC-FPC//	19	839	1,315	0	0.00%	0	0%	0	0%	0	0%	2880	100%
S/MEAG/SCEG-MEAG//	14	21	27	0	0.00%	0	0%	0	0%	0	0%	2880	100%
F/FPC/FPC-GVL//	0	229	337	0	0.00%	0	0%	0	0%	4	0%	2876	100%
F/FPC/FPC-SEC/FPC-SSN/	0	1,018	1,464	0	0.00%	0	0%	0	0%	4	0%	2876	100%
F/FPC/GVL-SOCO//	0	172	284	0	0.00%	0	0%	0	0%	464	16%	2416	84%
F/FPC/GVL-TEC//	0	325	448	0	0.00%	0	0%	0	0%	40	1%	2840	99%
F/FPC/SEC-FPC/SSN-FPC/	0	355	840	0	0.00%	0	0%	0	0%	418	15%	2462	85%
F/FPC/SEC-FPC/SSN-FPCS/	0	355	840	0	0.00%	0	0%	0	0%	418	15%	2462	85%
F/FPC/SEC-SOCO/SSN-SOCO/	0	180	284	0	0.00%	0	0%	0	0%	464	16%	2416	84%
F/FPC/SEC-SOCO/SSO-SOCO/	0	180	284	0	0.00%	0	0%	0	0%	464	16%	2416	84%
F/FPC/SOCO-FPC/SOCO-FPCS/	0	256	461	0	0.00%	0	0%	0	0%	500	17%	2380	83%
F/FPC/SOCO-GVL//	0	175	317	0	0.00%	0	0%	0	0%	500	17%	2380	83%
F/FPC/SOCO-SEC/SOCO-SSN/	0	256	461	0	0.00%	0	0%	0	0%	500	17%	2380	83%
F/JEA/SEC-SOCO/SSN-SOCO/	0	524	637	0	0.00%	0	0%	0	0%	114	4%	2766	96%
F/JEA/SOCO-SEC/SOCO-SSN/	0	502	746	0	0.00%	0	0%	0	0%	178	6%	2702	94%
F/SEC/FPC-JEA//	0	637	637	0	0.00%	0	0%	0	0%	48	2%	2832	98%
F/SEC/FPC-SEC/FPC-SSN/	0	1,017	1,464	0	0.00%	0	0%	0	0%	4	0%	2876	100%
F/SEC/SEC-FPC/SSN-FPC/	0	562	979	0	0.00%	0	0%	0	0%	80	3%	2800	97%
S/CPL/CPLW-DUK//	0	600	1,318	0	0.00%	0	0%	0	0%	212	7%	2668	93%
S/CPL/CPLW-TVA//	0	276	276	0	0.00%	0	0%	0	0%	708	25%	2172	75%
S/CPL/DUK-CPLW//	0	530	530	0	0.00%	0	0%	0	0%	19	1%	2861	99%
S/CPL/SCEG-SC//	0	618	618	0	0.00%	0	0%	0	0%	1	0%	2879	100%
S/CPL/TVA-CPLW//	0	276	276	0	0.00%	0	0%	0	0%	547	19%	2333	81%
S/DUK/CPLE-DUK//	0	3,264	5,517	0	0.00%	0	0%	0	0%	25	1%	2855	99%
S/DUK/CPLE-SC//	0	1,891	2,705	0	0.00%	0	0%	0	0%	55	2%	2825	98%
S/DUK/CPLE-SCEG//	0	127	159	0	0.00%	0	0%	0	0%	2	0%	2878	100%
S/DUK/CPLW-DUK//	0	665	1,144	0	0.00%	0	0%	0	0%	118	4%	2762	96%
S/DUK/CPLW-SC//	0	684	1,144	0	0.00%	0	0%	0	0%	93	3%	2787	97%
S/DUK/CPLW-SCEG//	0	127	159	0	0.00%	0	0%	0	0%	45	2%	2835	98%

Appendix A (continued)

Segment	ATC				Loading	Partially Used		Fully Used		Unavailable		Uncleared	
	Min	Median	Max	MWhs	Factor	Intervals	%	Intervals	%	Intervals	%	Intervals	%
S/DUK/CPLW-SOCO//	0	715	1,243	0	0.00%	0	0%	0	0%	24	1%	2856	99%
S/DUK/CPLW-TVA//	0	692	692	0	0.00%	0	0%	0	0%	77	3%	2803	97%
S/DUK/DUK-CPLW//	0	454	454	0	0.00%	0	0%	0	0%	133	5%	2747	95%
S/DUK/SC-CPLW//	0	399	454	0	0.00%	0	0%	0	0%	842	29%	2038	71%
S/DUK/SC-SCEG//	0	127	159	0	0.00%	0	0%	0	0%	9	0%	2871	100%
S/DUK/SC-SOCO//	0	1,778	2,335	0	0.00%	0	0%	0	0%	82	3%	2798	97%
S/DUK/SC-TVA//	0	692	692	0	0.00%	0	0%	0	0%	131	5%	2749	95%
S/DUK/SCEG-CPLW//	0	408	454	0	0.00%	0	0%	0	0%	888	31%	1992	69%
S/DUK/SCEG-SC//	0	649	650	0	0.00%	0	0%	0	0%	23	1%	2857	99%
S/DUK/SOCO-CPLW//	0	454	454	0	0.00%	0	0%	0	0%	225	8%	2655	92%
S/DUK/TVA-CPLW//	0	454	454	0	0.00%	0	0%	0	0%	63	2%	2817	98%
S/MEAG/DUK-MEAG//	0	105	222	0	0.00%	0	0%	0	0%	58	2%	2822	98%
S/MEAG/MEAG-SC//	0	0	10	0	0.00%	0	0%	0	0%	2,784	97%	96	3%
S/MEAG/TVA-MEAG//	0	57	154	0	0.00%	0	0%	0	0%	4	0%	2876	100%
S/SC/CPLE-SCEG//	0	2,180	4,742	0	0.00%	0	0%	0	0%	30	1%	2850	99%
S/SC/SC-CPLE//	0	2,271	4,118	0	0.00%	0	0%	0	0%	74	3%	2806	97%
S/SC/SC-DUK//	0	3,713	4,275	0	0.00%	0	0%	0	0%	22	1%	2858	99%
S/SC/SC-SCEG//	0	5,708	9,285	0	0.00%	0	0%	0	0%	8	0%	2872	100%
S/SC/SCEG-CPLE//	0	1,942	3,072	0	0.00%	0	0%	0	0%	62	2%	2818	98%
S/SC/SCEG-DUK//	0	3,065	3,248	0	0.00%	0	0%	0	0%	48	2%	2832	98%
S/SC/SCEG-SOCO//	0	2,682	3,099	0	0.00%	0	0%	0	0%	124	4%	2756	96%
S/SCEG/SC-SOCO//	0	3,522	6,075	0	0.00%	0	0%	0	0%	56	2%	2824	98%
S/TVA/AECI-LGEE//	0	83	387	0	0.00%	0	0%	0	0%	1,280	44%	1600	56%
S/TVA/CPLW-AECI//	0	276	276	0	0.00%	0	0%	0	0%	989	34%	1891	66%
S/TVA/CPLW-DUK//	0	276	276	0	0.00%	0	0%	0	0%	617	21%	2263	79%
S/TVA/CPLW-LGEE//	0	276	276	0	0.00%	0	0%	0	0%	705	24%	2175	76%
S/TVA/CPLW-SOCO//	0	276	276	0	0.00%	0	0%	0	0%	617	21%	2263	79%
S/TVA/DUK-AECI//	0	343	343	0	0.00%	0	0%	0	0%	397	14%	2483	86%
S/TVA/DUK-CPLW//	0	276	276	0	0.00%	0	0%	0	0%	618	21%	2262	79%
S/TVA/DUK-LGEE//	0	343	343	0	0.00%	0	0%	0	0%	121	4%	2759	96%
S/TVA/LGEE-AECI//	0	600	600	0	0.00%	0	0%	0	0%	356	12%	2524	88%
S/TVA/LGEE-CPLW//	0	276	276	0	0.00%	0	0%	0	0%	653	23%	2227	77%
S/TVA/LGEE-TVA//	0	2,648	2,648	0	0.00%	0	0%	0	0%	36	1%	2844	99%
S/TVA/SOCO-LGEE//	0	1,752	2,648	0	0.00%	0	0%	0	0%	147	5%	2733	95%
S/TVA/TVA-AECI//	0	600	600	0	0.00%	0	0%	0	0%	356	12%	2524	88%
S/TVA/TVA-LGEE//	0	1,513	2,648	0	0.00%	0	0%	0	0%	160	6%	2720	94%
SS/GTC/GTC-DUK//	0	275	631	0	0.00%	0	0%	0	0%	212	7%	2668	93%
SS/GTC/GTC-SC//	0	232	385	0	0.00%	0	0%	0	0%	44	2%	2836	98%
SS/GTC/GTC-SCEG//	0	21	70	0	0.00%	0	0%	0	0%	280	10%	2600	90%
SS/SOCO/DUK-SCEG/MULTIPATHALIAS/	0	39	137	0	0.00%	0	0%	0	0%	463	16%	2417	84%
SS/SOCO/DUK-TVA/MULTIPATHALIAS/	0	517	998	0	0.00%	0	0%	0	0%	301	10%	2579	90%
SS/SOCO/SC-DUK/MULTIPATHALIAS/	0	95	382	0	0.00%	0	0%	0	0%	300	10%	2580	90%
SS/SOCO/SC-SCEG/MULTIPATHALIAS/	0	39	128	0	0.00%	0	0%	0	0%	447	16%	2433	84%
SS/SOCO/SC-TVA/MULTIPATHALIAS/	0	95	411	0	0.00%	0	0%	0	0%	285	10%	2595	90%
SS/SOCO/SCEG-DUK/MULTIPATHALIAS/	0	176	235	0	0.00%	0	0%	0	0%	308	11%	2572	89%
SS/SOCO/TVA-DUK/MULTIPATHALIAS/	0	437	975	0	0.00%	0	0%	0	0%	300	10%	2580	90%
SS/SOCO/DUK-SC/MULTIPATHALIAS/	-92	188	574	0	0.00%	0	0%	0	0%	458	16%	2422	84%
SS/SOCO/SCEG-SC/MULTIPATHALIAS/	-92	155	235	0	0.00%	0	0%	0	0%	450	16%	2430	84%