UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

NORTH AMERICAN ELECTRIC	**)**	**Docket No. RR10-1-000**
RELIABILITY CORPORATION	**)**	**Docket No. RR13-3-000**

ANNUAL REPORT OF THE NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION ON WIDE-AREA ANALYSIS OF TECHNICAL FEASIBILITY EXCEPTIONS

The North American Electric Reliability Corporation ("NERC") hereby provides the 2023 Annual Report on Wide-Area Analysis of Technical Feasibility Exceptions (the "2023 Annual Report") in compliance with Paragraphs 220 and 221 of the Federal Energy Regulatory Commission's ("FERC" or "Commission") Order No. 706[1] and Appendix 4D of the NERC Rules of Procedure ("ROP"). The 2023 Annual Report covers the period from July 1, 2022, through June 30, 2023.

I. BACKGROUND

In Order No. 706, FERC approved eight Critical Infrastructure Protection ("CIP") Reliability Standards and, among other things, directed NERC to develop a set of conditions or criteria that a registered entity must follow to obtain a Technical Feasibility Exception ("TFE") from specific requirements in the CIP Reliability Standards.[2] The Commission stated that the TFE process must include: mitigation steps, a remediation plan, a timeline for eliminating the use of the TFE unless the registered entity provides appropriate justification, regular review of the

[1] *Mandatory Reliability Standards for Critical Infrastructure Protection*, Order No. 706, 122 FERC ¶ 61,040 (2008) [hereinafter Order No. 706].

[2] *Id.* at P 178.

continued need for the TFE, internal approval by senior managers, and regional approval through the Electric Reliability Organization ("ERO").[3]

Order No. 706 also required that NERC submit an annual report to the Commission that provides a wide-area analysis of the use of TFEs and their effect on Bulk-Power System reliability. The Commission stated:

> The annual report must address, at a minimum, the frequency of the use of such provisions, the circumstances or justifications that prompt their use, the interim mitigation measures used to address vulnerabilities, and efforts to eliminate future reliance on the exception…. [T]he report should contain aggregated data with sufficient detail for the Commission to understand the frequency with which specific provisions are being invoked as well as high level data regarding mitigation and remediation plans over time and by region.[4]

In October 2009, NERC filed amendments to its ROP to implement the Commission's directive in Order No. 706, proposing Section 412 (Requests for Technical Feasibility Exceptions to NERC Critical Infrastructure Protection Reliability Standards)[5] and Appendix 4D (Procedure for Requesting and Receiving Technical Feasibility Exceptions to NERC Critical Infrastructure Protection Reliability Standards). On January 21, 2010, the Commission approved NERC's amended ROP.[6]

On April 8, 2013, NERC filed revisions to Appendix 4D of the ROP to streamline the TFE approval process, reflecting NERC, Regional Entity, and industry experience processing TFE

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3 *Id*. at P 222.

4 *Id*. at PP 220-21.

5 Section 411 in the currently effective ROP (May 2022).

6 *N. Am. Elec. Reliability Corp.*, 130 FERC ¶ 61,050 (2010) [hereinafter January 21 Order], *order on compliance*, 133 FERC ¶ 61,008 (2010) [hereinafter October 1 Order], *order on reh'g*, 133 FERC ¶ 61,209 (2010), *order on compliance*, 135 FERC ¶ 61,026 (2011) [hereinafter April 12 Order]. The Commission requested further information and clarification regarding certain aspects of the TFE process. On April 21, 2010, NERC submitted its compliance filing in response to the January 21 Order. On October 1, 2010, the Commission issued an order accepting NERC's April 2010 filing as partially compliant and directing further changes to the TFE Procedure. *See* October 1 Order. On December 23, 2010, NERC submitted a compliance filing in response to the Commission's October 1 Order, which the Commission subsequently accepted. *See* April 12 Order.

requests since the inception of the program. On September 3, 2013, FERC approved the proposed revisions and directed limited revisions to Appendix 4D, including modifications to: (1) specify a time frame for reporting Material Changes to TFEs upon identification and discovery; and (2) require the annual TFE report to include information on Material Change Reports and TFE expiration dates.[7] NERC submitted a compliance filing consistent with the directives from the September 2013 Order, which the Commission approved on January 30, 2014.[8] Sections 11.2.4 and 13 of Appendix 4D set forth the requirements for the annual TFE report, as modified in accordance with the September 2013 Order.

II. NOTICES AND COMMUNICATIONS

Notices and communications with respect to this filing may be addressed to:[9]

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III. 2023 ANNUAL REPORT

This section provides the TFE information required by Appendix 4D of the ROP. In accordance with Appendix 4D, NERC prepared the 2023 Annual Report in consultation with the

[7] *N. Am. Elec. Reliability Corp.*, 144 FERC ¶ 61,180 at PP 14, 17-18 (2013) [hereinafter September 2013 Order].

[8] *N. Am. Elec. Reliability Corp.*, Docket No. RR13-3-001 (Jan. 30, 2014) (delegated letter order).

[9] Persons to be included on the Commission's service list are identified by an asterisk. NERC respectfully requests a waiver of Rule 203 of the Commission's regulations, 18 C.F.R. § 385.203, to allow the inclusion of more than two persons on the service list in this proceeding.

Regional Entities. The Regional Entities provided regular reports to NERC regarding the types of Covered Assets for which the Regional Entities have approved TFEs.[10] In addition, each Regional Entity provided information on the elements identified in Section 13 of Appendix 4D to be included in the 2023 Annual Report. NERC compiled and analyzed the TFE data provided by the Regional Entities in preparation for the 2023 Annual Report. In addition, NERC's Align tool was used to gather the majority of the evidence for this report.

For the purposes of this report, any reference to the year 2023 refers to the TFE reporting period between July 1, 2022 and June 30, 2023. For the purposes of demonstrating trends, some figures or tables may refer to previous TFE periods, such as 2022 and 2021, that also refer to the periods of July 1, 2021 - June 30, 2022 and July 1, 2020 - June 30, 2021, respectively.

The transition to the CIP cybersecurity Reliability Standards approved in Order No. 791,[11] commonly referred to as the CIP version 5 standards, resulted in a significant decrease in the number of TFEs. This decrease has enabled the Regional Entities to better evaluate the risk and impact of TFEs and gain a more complete understanding of the value of the TFE process compared to the administrative burden it places on registered entities and Regional Entities. NERC continues to consider opportunities to modify or eliminate the current TFE process to reduce that burden in two ways. First, the NERC Align Tool has normalized the tracking of TFEs between regions and greatly enhances the ability of NERC to monitor and report.[12] Second, multiple NERC standards drafting teams are considering ways to remove or minimize the need for TFEs in each requirement.

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[10] Appendix 2 of the ROP defines the term "Covered Asset" as "any BES Cyber Asset, BES Cyber System, Protected Cyber Asset, Electronic Access Control or Monitoring System, or Physical Access Control System that is subject to" a TFE.

[11] *Version 5 Critical Infrastructure Protection Reliability Standards*, Order No. 791, 145 FERC ¶ 61,160 (2013) [hereinafter Order No. 791], *order on clarification and reh'g*, Order No. 791-A, 146 FERC ¶ 61,188 (2014).

[12] NERC initiated the Align Project to advance its risk-based posture through platform alignment across NERC and the Regional Entities. Additional information on Align may be found on the initiative webpage, https://www.nerc.com/ResourceCenter/Pages/Align-SEL.aspx.

IV. Summary of 2023 TFE Data

The following is the summary of the TFE data reported by each Regional Entity for the elements identified in Section 13.1 of Appendix 4D:[13]

1. Frequency of use of the TFE Request process

The frequency of use of the TFE Request process, disaggregated by Regional Entity and in the aggregate for the United States and for the jurisdictions of other Applicable Governmental Authorities, including (A) the numbers of TFE Requests that have been submitted and approved/disapproved during the preceding year and cumulatively since the effective date of this Appendix, (B) the numbers of unique Covered Assets for which TFEs have been approved, (C) the numbers of approved TFEs that are still in effect as of on or about the date of the Annual Report; (D) the numbers of approved TFEs that reached their TFE Expiration Dates or were terminated during the preceding year; and (E) the numbers of approved TFEs that are scheduled to reach their TFE Expiration Dates during the ensuing year.

The data from this reporting period indicates that the number of registered entities that are engaging in the TFE program remains relatively stabilized. Figure 1 shows a breakdown of the number of registered entities with approved TFEs within each region. There are 92 total registered entities with approved TFEs across the ERO Enterprise, a decrease from the 95 registered entities in 2022.

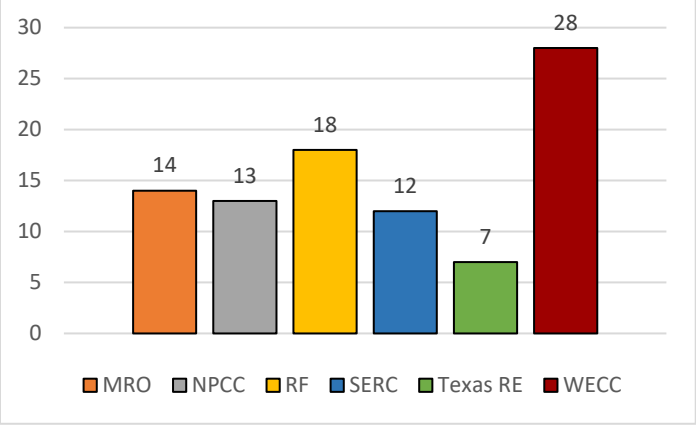


Figure 1: Number of registered entities by Region with approved TFEs as of 6/30/2023

[13] Unless stated otherwise, a table or reference to "2023" refers to the reporting period for this report: July 1, 2022 – June 30, 2023.

Figure 2 depicts the number of registered entities, by Regional Entity, with TFEs over the last three reporting periods. The overall number of registered entities with approved TFEs has remained relatively consistent over the past two reporting periods. Among all six regions, the ERO saw a small net reduction of registered entities with approved TFEs, with WECC and Texas RE each gaining one entity and RF and SERC removing three and two entities, respectively.

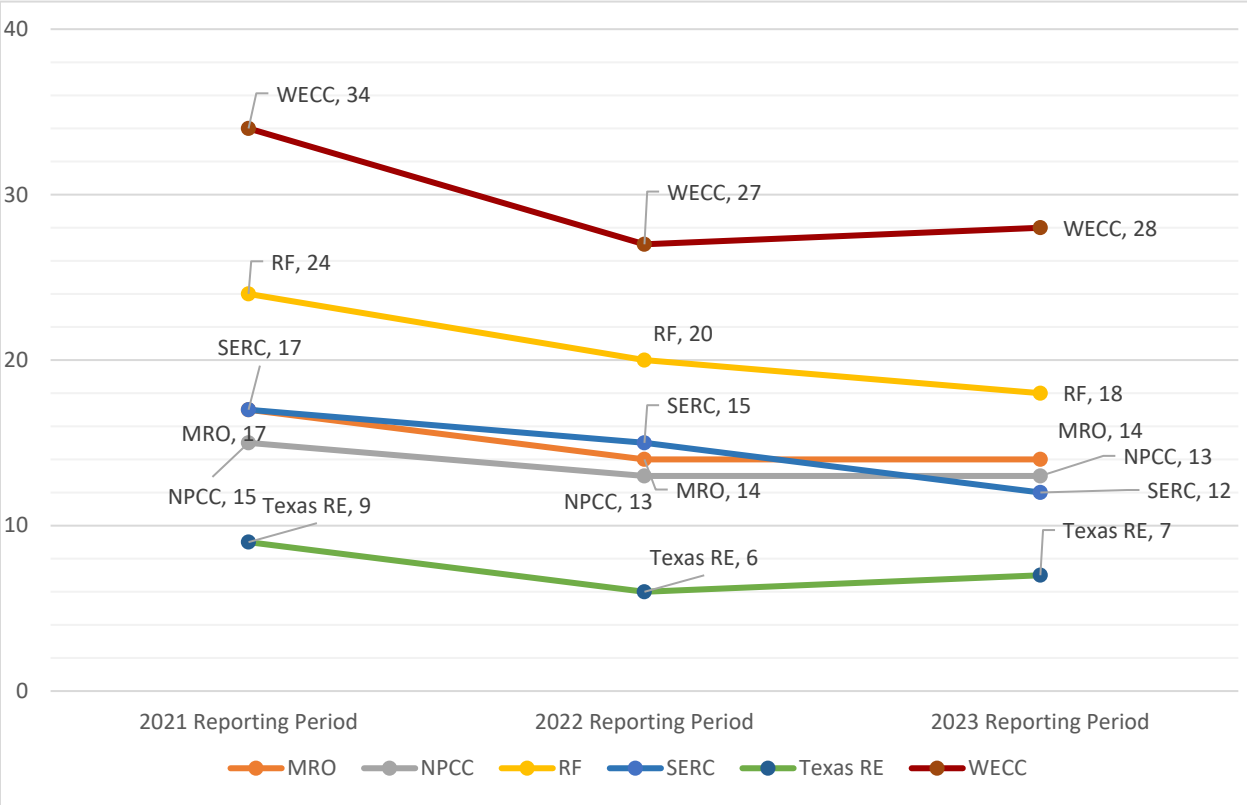


Figure 2: Three Year Trend of registered entities with Approved TFEs

Figure 3 visualizes data on the use of the TFE program for the last three reporting periods. The first set of columns in Figure 3 shows the number of registered entities subject to the CIP Reliability Standards. The CIP Reliability Standards apply to the registered entities designated in

Applicability Section 4.1 of CIP-002-5.1a through CIP-014-3 (e.g., Balancing Authority, certain Distribution Providers, etc.). From an industry-wide perspective, the number of "CIP applicable" entities in the U.S. (i.e., with registrations to which the CIP Reliability Standards apply) has increased from 1525 to 1674. This is due to the increase in registrations for smaller Generator Owner ("GO") and Generator Operator ("GOP") entities.

The second set of columns in Figure 3 depicts the number of CIP applicable registered entities (i.e., those listed in the first column) that report having high or medium impact BES Cyber Systems.[14] There has been no change in the number of entities claiming to have high or medium impact BES Cyber Systems. The third set of columns of Figure 3 shows the number of registered entities with high or medium impact BES Cyber Systems (i.e., those listed in the second column) that have approved TFEs. The deviation of 3.1% from 2022 to 2023 indicates that the industry had little change in the last year in the number of entities with approved TFEs.

[14] During the reporting period, only requirements applicable to high and medium impact BES Cyber Systems were subject to TFEs.

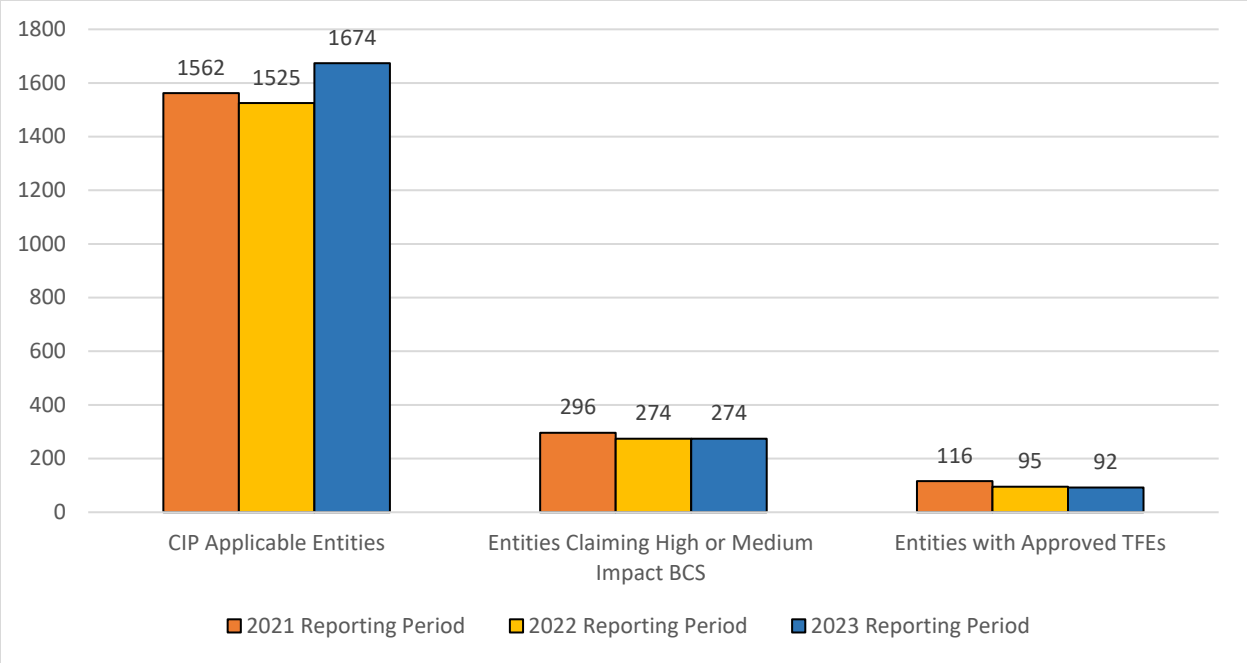


Figure 3: Frequency of TFE Program Use (7/1/2022 to 6/30/2023)

Figure 4 depicts the percentage of CIP applicable registered entities with TFE activity (e.g., submissions of new requests, amendments, terminations, etc.) in the 2021, 2022, and 2023 report years. The numbers demonstrate a decrease in percentage of TFE activity, dropping from an ERO-wide average of 2.62% to 2.21%. NPCC, SERC, and Texas RE saw decreases in TFE activity, while MRO, RF, and WECC saw slightly increased activity.

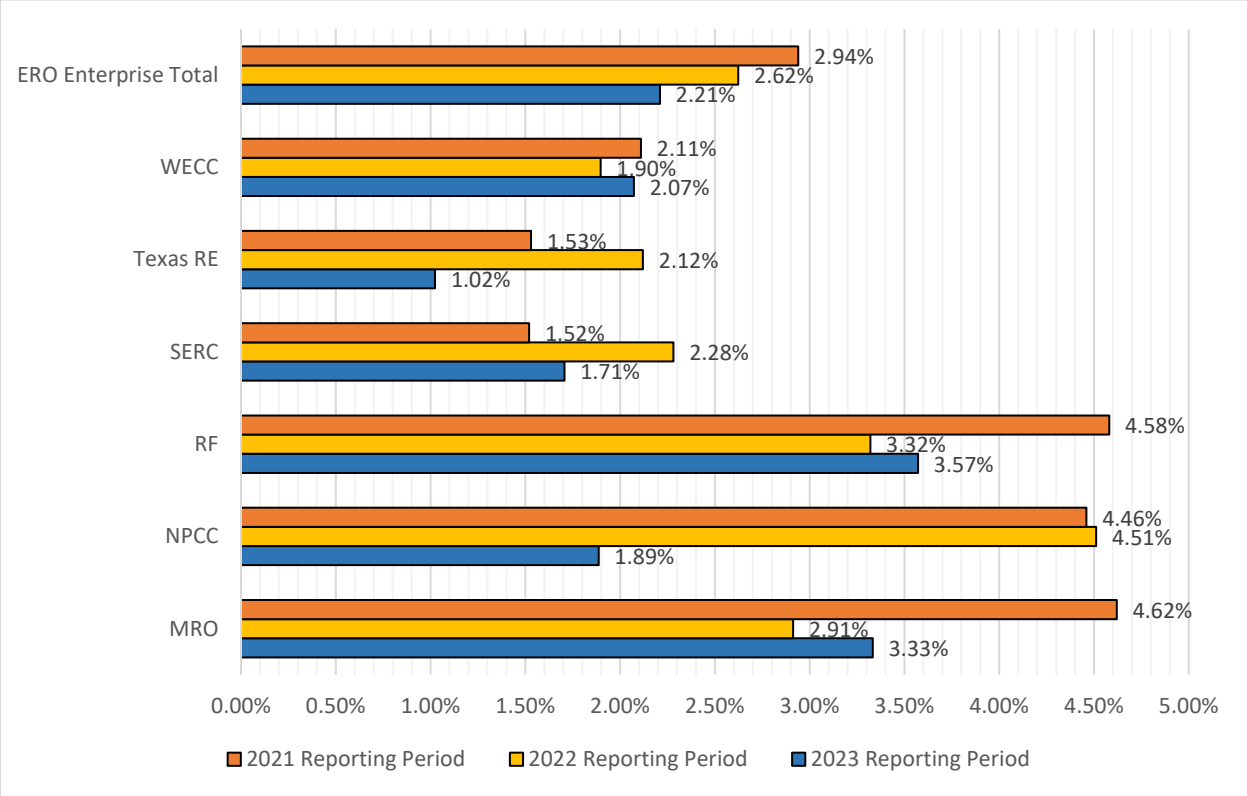
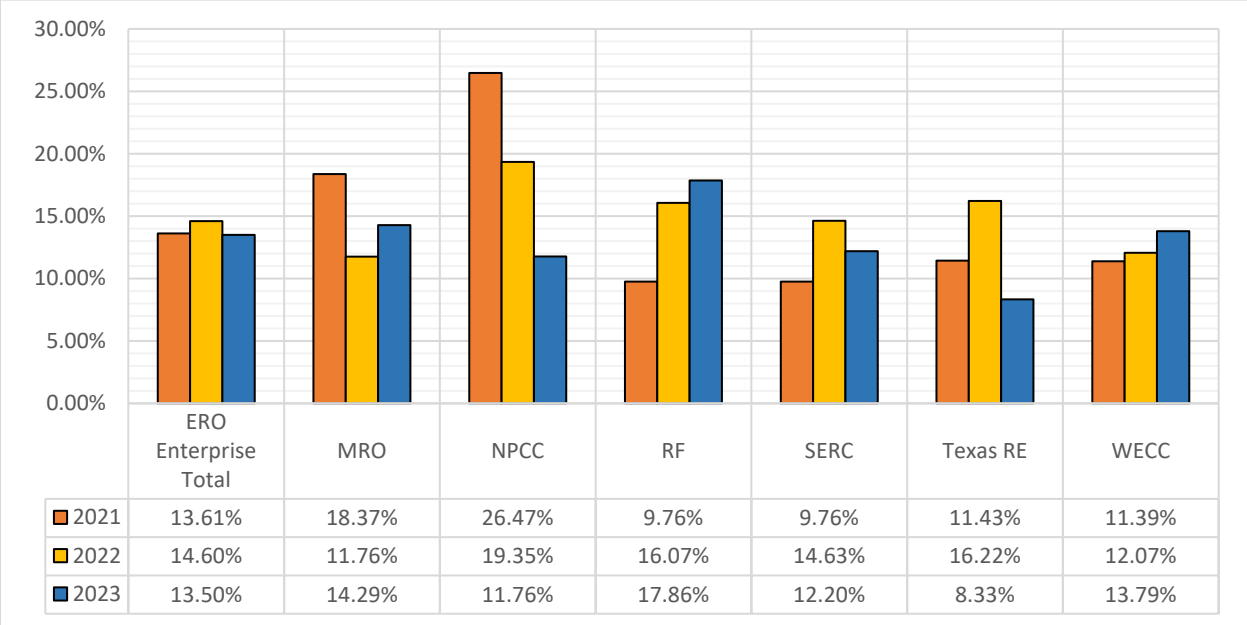


Figure 4: TFE Activities per Number of CIP Applicable registered entities

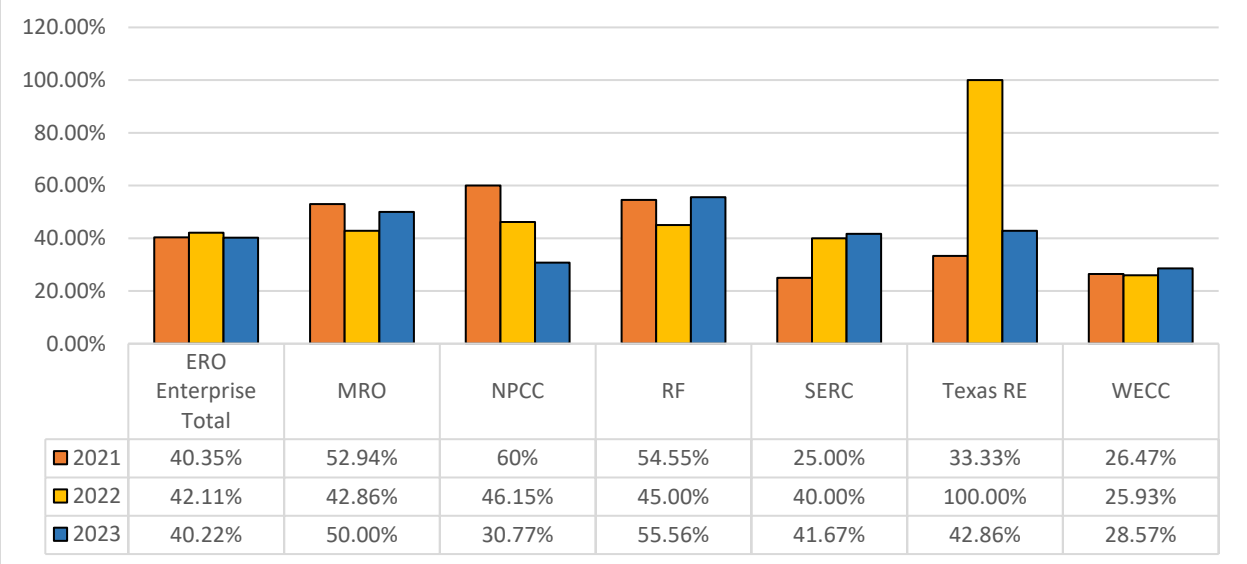
Figure 5 depicts TFE activity by comparing the number of TFE "transactions" (submittals, modifications, terminations, etc.) to the number of registered entities with high or medium impact BES Cyber Systems. From 2021 to 2022, there was a slight increase in TFE activity across four of the six regions. From 2022 to 2023, there was a slight decrease in activity overall of 1.10%, with three of the six regions again reporting increased activity. This increased activity is due to the number of terminations and modifications to existing TFEs. NPCC, SERC, and Texas RE saw decreased activity in 2023.



	ERO Enterprise Total	MRO	NPCC	RF	SERC	Texas RE	WECC
2021	13.61%	18.37%	26.47%	9.76%	9.76%	11.43%	11.39%
2022	14.60%	11.76%	19.35%	16.07%	14.63%	16.22%	12.07%
2023	13.50%	14.29%	11.76%	17.86%	12.20%	8.33%	13.79%

Figure 5: TFE Activity Compared to the Number of registered entities with High or Medium Impact BES Cyber Systems

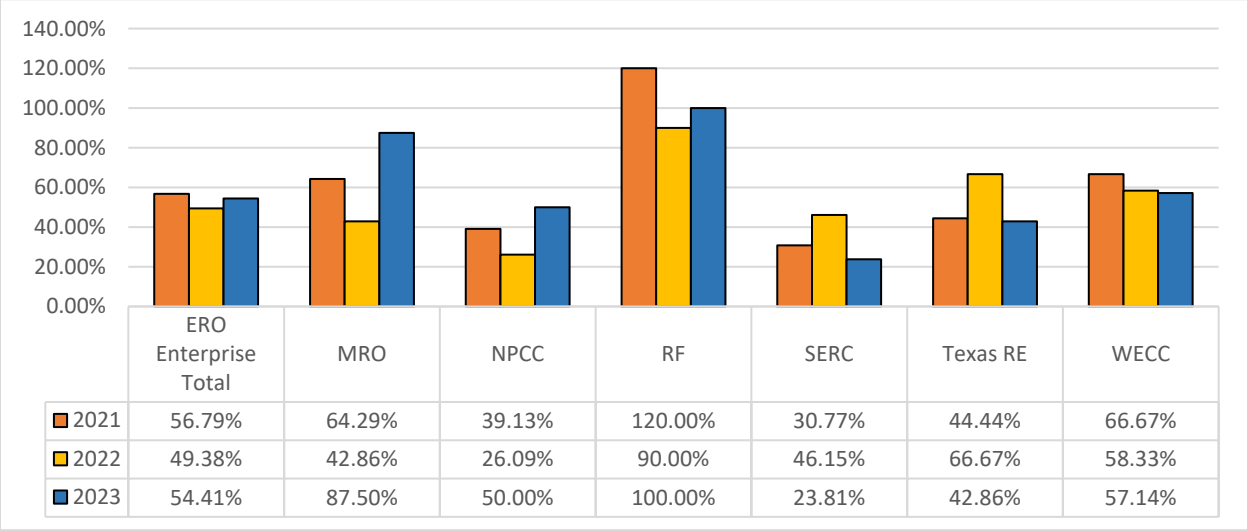
Figure 6 depicts the percentage of registered entities with TFE program activity, compared to the number of registered entities with approved TFEs. It should also be noted that TFE activity includes approvals, disapprovals, terminations, and amendments. This percentage has increased slightly across all regions except for NPCC and Texas RE. It should be noted that there are less than 20 registered entities with approved TFEs in each region, except for WECC. No region experienced an increase greater than 11% as the TFE program activity has remained relatively stable. This means that changes in the number of registered entities with approved TFEs that have TFE activity can have a significant impact on the percentages. Texas RE only has seven entities with approved TFEs. Texas RE has a small number of registered entities with approved TFEs in the region, so any change in activity will have a large impact as seen by the 57% reduction in activity from 2022 to 2023. Overall, the ERO Enterprise experienced a 1.89% decrease due to the decreased number of registered entities with TFE program activity in NPCC and Texas RE.



	ERO Enterprise Total	MRO	NPCC	RF	SERC	Texas RE	WECC
2021	40.35%	52.94%	60%	54.55%	25.00%	33.33%	26.47%
2022	42.11%	42.86%	46.15%	45.00%	40.00%	100.00%	25.93%
2023	40.22%	50.00%	30.77%	55.56%	41.67%	42.86%	28.57%

Figure 6: Percentage of TFE Program Activity per Registered Entity with Approved TFEs

Figure 7 depicts the percentage of registered entities with TFE program activity in 2023, compared to the number of total approved TFEs in 2023. It should be noted that percentages are calculated by taking the number of registered entities with TFE activity and dividing it by the number of approved TFEs in 2023 from each region. It is possible that due to a combination of the kinds of activity, there may be fewer approved TFEs during a reporting period than entities with activity. This could lead to percentages over 100%, such as the 120% seen in 2021 for RF. Overall, the ERO Enterprise noticed an increase in activity. SERC, Texas RE, and WECC saw decreases due to the number of registered entities with activity compared to the number of 2023 approved TFEs. The other regions noticed increases due to more registered entities with activity compared to the number of 2023 approved TFEs.



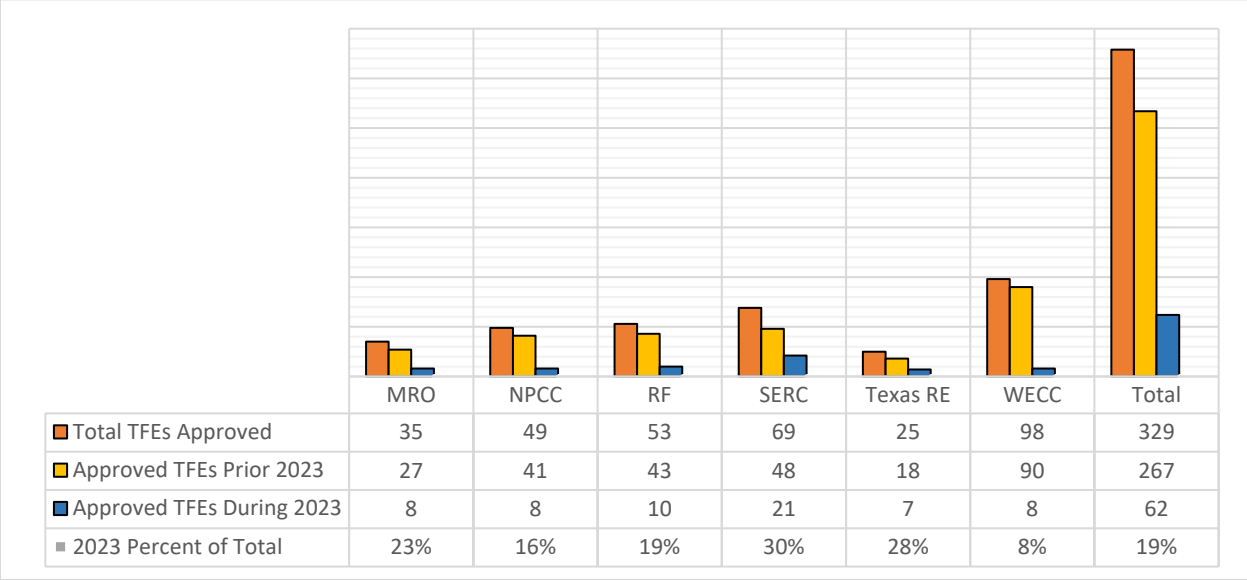
	ERO Enterprise Total	MRO	NPCC	RF	SERC	Texas RE	WECC
2021	56.79%	64.29%	39.13%	120.00%	30.77%	44.44%	66.67%
2022	49.38%	42.86%	26.09%	90.00%	46.15%	66.67%	58.33%
2023	54.41%	87.50%	50.00%	100.00%	23.81%	42.86%	57.14%

Figure 7: Percentage of TFE Program Activity Correlated with Total Approved TFEs

Figure 8[15] depicts the breakout of the 329 ERO Enterprise approved TFEs for each Regional Entity. For instance, the MRO region maintained 27 active TFEs that were approved

[15] Percentages in Figure 8 were rounded to nearest whole number.

prior to 2023 but added or changed 8, bringing the new total to 35, representing 23% of MRO's TFEs were added or amended during the 2023 reporting period. Registered entities in WECC continue to maintain the most total approved TFEs across the Regional Entities, while Texas RE continues to contain the least.

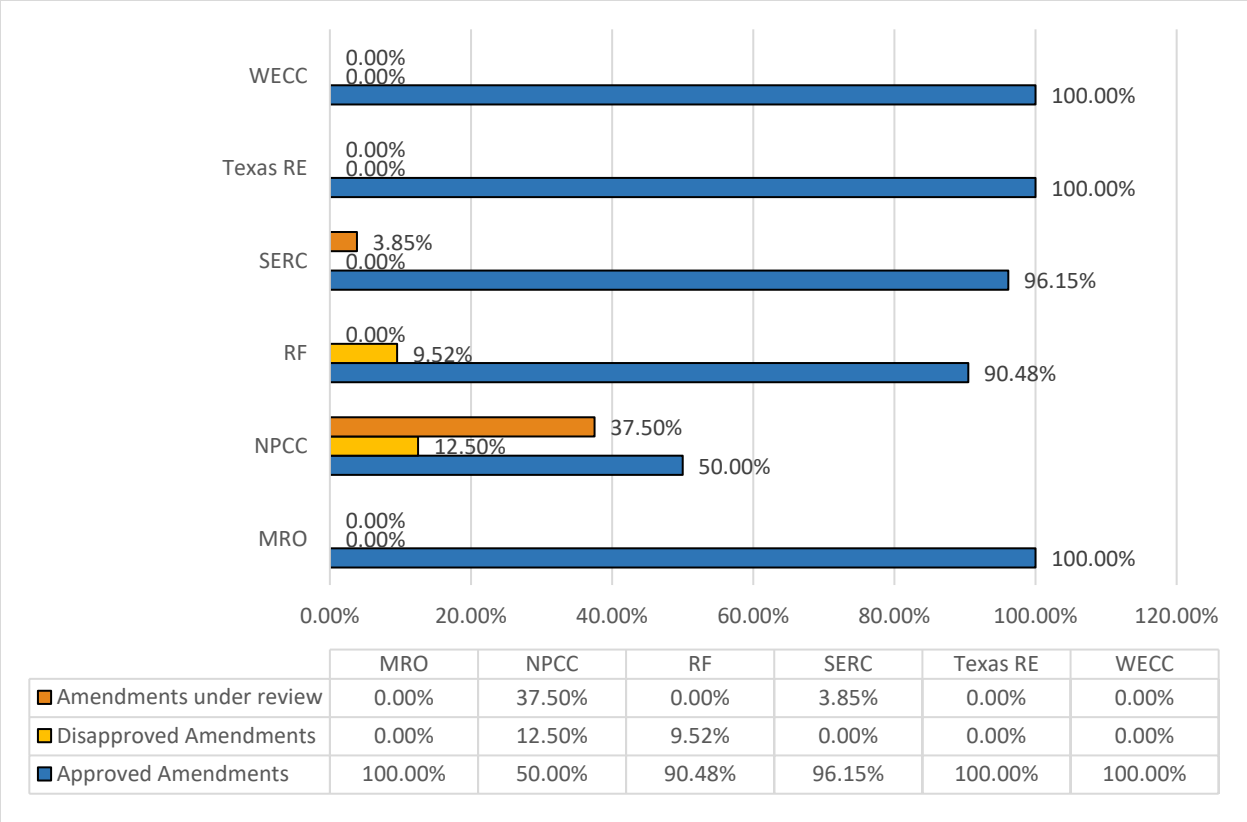


	MRO	NPCC	RF	SERC	Texas RE	WECC	Total
Total TFEs Approved	35	49	53	69	25	98	329
Approved TFEs Prior 2023	27	41	43	48	18	90	267
Approved TFEs During 2023	8	8	10	21	7	8	62
2023 Percent of Total	23%	16%	19%	30%	28%	8%	19%

Figure 8: Total number of Approved TFEs

Registered entities submitted 94 TFE amendments in 2023, a slight decrease from the 104 seen in 2022. The ERO Enterprise noted 87 of the TFE amendments were approved, three were disapproved, and four remain in review as of the end of the reporting period. Figure 9 provides a breakdown of that activity by Regional Entity during the 2023 reporting period. There were three amendments under review in NPCC and one in SERC as of June 30, 2023. As shown below, Regional Entities approved a majority of the amendments submitted, with only NPCC (1) and RF (2) having disapproved amendments in 2023.[16]

[16] NERC notes that some amendments approved during this reporting period originated from a previous reporting period.



	MRO	NPCC	RF	SERC	Texas RE	WECC
Amendments under review	0.00%	37.50%	0.00%	3.85%	0.00%	0.00%
Disapproved Amendments	0.00%	12.50%	9.52%	0.00%	0.00%	0.00%
Approved Amendments	100.00%	50.00%	90.48%	96.15%	100.00%	100.00%

Figure 9: TFE Amendment Activity for the 2023 Reporting Period

Figure 10 depicts the minimum, mean, median, and maximum quantity of TFEs for each registered entity with an approved TFE as of June 30, 2023. As shown below, the ERO Enterprise mean average is 3.80 TFEs per registered entity that has an approved TFE (slightly more than the 3.68 mean average in 2022). The fewest number of TFEs a single registered entity has is one TFE. SERC became the region with the highest mean average at 6.00 average TFEs per registered entity, and RF has the lowest mean average of 2.33 TFEs per registered entity that has an approved TFE.

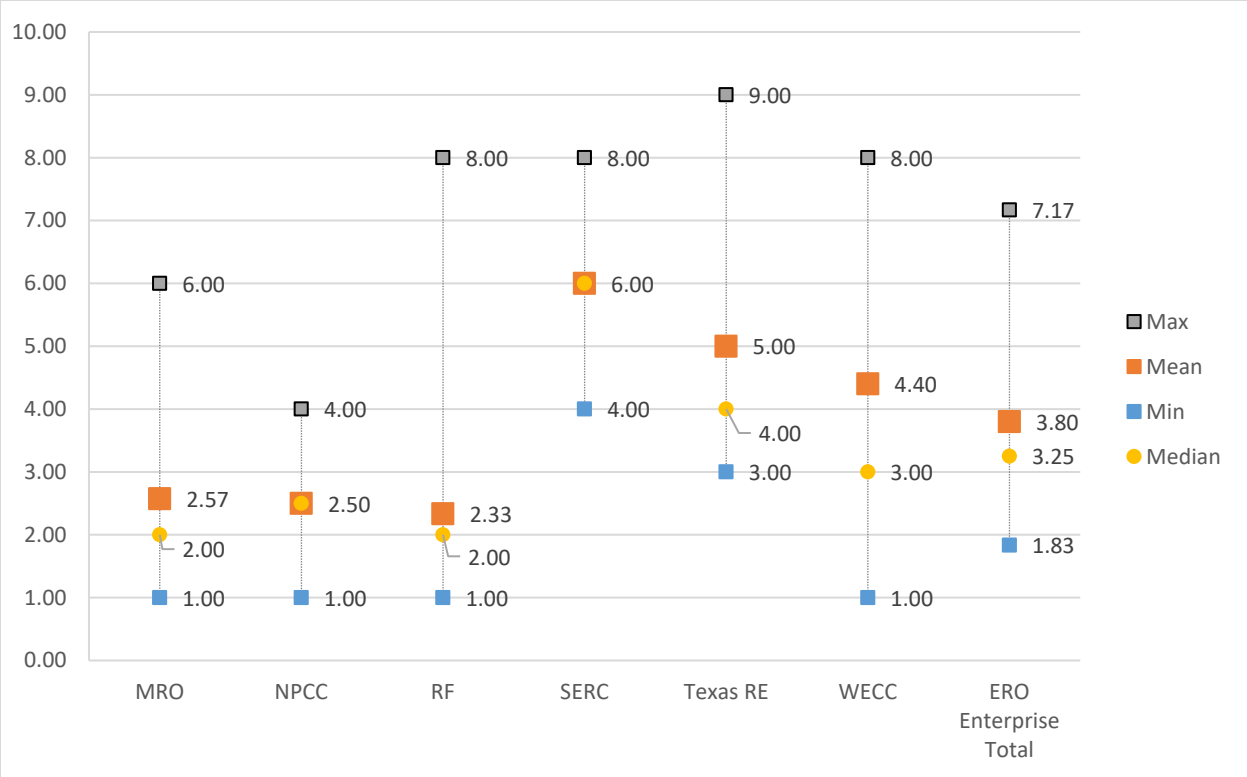


Figure 10: Average TFE Quantity per registered entity with an Approved TFE

2. Categorization of the submitted and approved TFE Requests

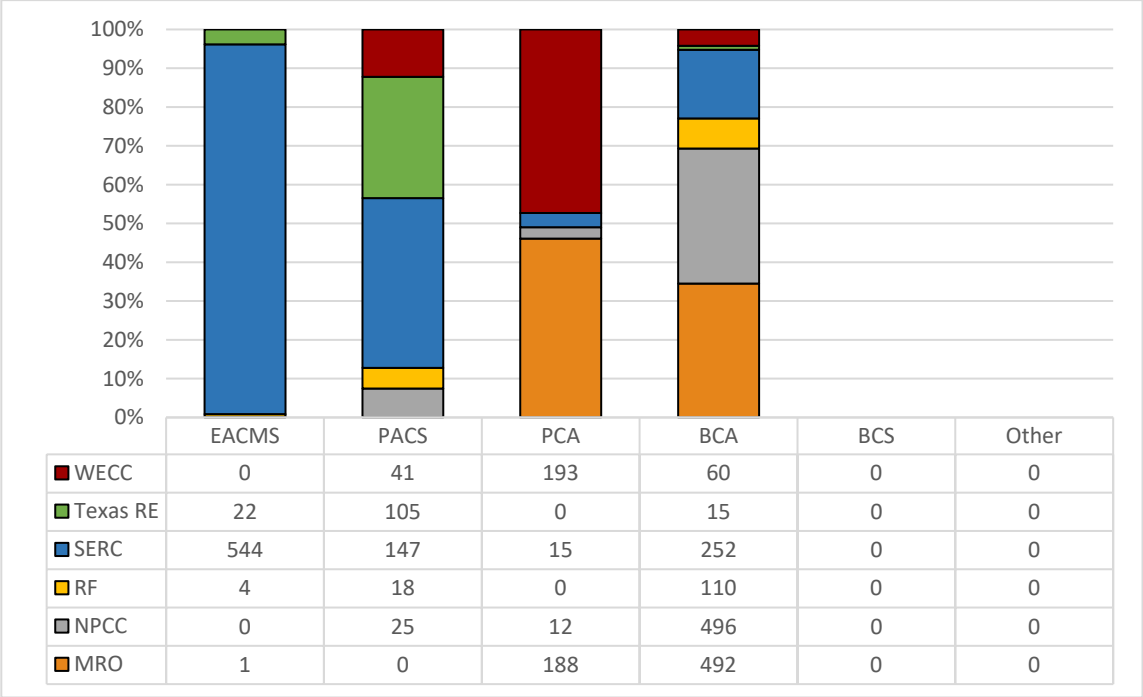
Categorization of the submitted and approved TFE Requests to date by broad categories such as the general nature of the TFE Request, the Applicable Requirements covered by submitted and approved TFE Requests, and the types of Covered Assets that are the subject of submitted and approved TFE Requests.

The total number of unique assets subject to TFEs has continued to decrease since 2019.[17] In 2021, the total number of covered assets subject to TFEs decreased to 11,299. In 2022, the total number of covered assets subject to TFEs continued to decrease to 10,859. In 2023, the total number of covered assets further decreased to 10,500. This decrease is mainly attributable to reductions in assets in RF, SERC, Texas RE and WECC as a result of terminations and amendments to existing TFEs.

Note that there are several new TFEs and amendments currently under review as of June 30, 2023. These requests have a significant number of assets that will be added to these counts in 2024. The ERO Enterprise should expect to see a sizeable increase in the number of assets for the 2024 reporting period.

[17] To better align with the CIP standards, the TFE Task Force in 2019 changed the categorization of the assets within TFEs from "Network Data Communications," "Relays," "Workstation/server," and "Other" to "Electronic Access Control and Monitoring System (EACMS)," "Physical Access Control System (PACS)," "Protected Cyber Asset (PCA)," "BES Cyber Asset (BCA)," "BES Cyber System (BCS)," and "Other." The "Other" category remained for those assets that do not fall into the other categories. For instance, telecommunication modems, protective relays, remote terminal units ("RTUs"), satellite clocks, etc.

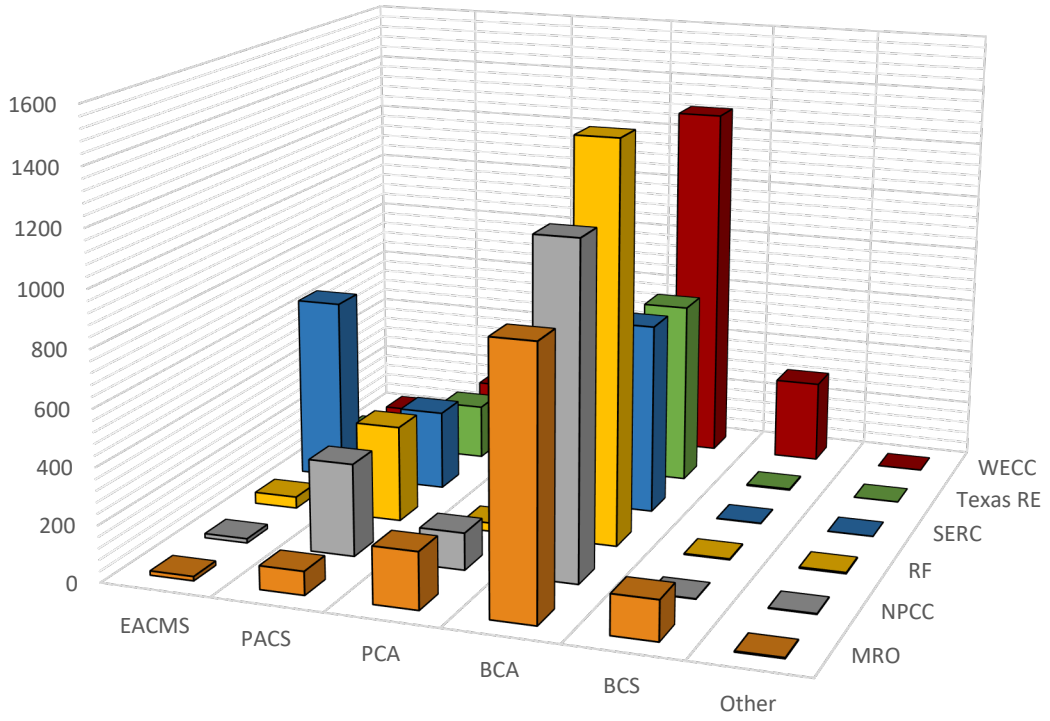
Figure 11 shows the total number of assets within each asset category by Regional Entity for TFEs approved in 2023. This information shows the number of affected assets for all TFEs approved in 2023, including amendments to both older and new TFEs. SERC had a modification to a couple of TFEs that affected a large number of EACMS, PACS, and BCA. For example, one entity in SERC has two TFEs for the same EACMS devices that are technically unable to comply with CIP-007-6 Requirement R5, Parts 5.6 and 5.7; these were originally approved in 2021 and the amendments are for small changes in the total number of assets covered by these TFEs. However, the asset count is the number of devices contained in each TFE overall (about 250 each). There were also a number of TFEs for a separate entity in SERC which significantly reduced the number of PACS devices for CIP-007-6 Requirement R5, Parts 5.1 and 5.6 due to lifecycle replacements. Most regions had amendments or new TFEs that affected predominantly BCA, which is consistent with previous years.



	EACMS	PACS	PCA	BCA	BCS	Other
WECC	0	41	193	60	0	0
Texas RE	22	105	0	15	0	0
SERC	544	147	15	252	0	0
RF	4	18	0	110	0	0
NPCC	0	25	12	496	0	0
MRO	1	0	188	492	0	0

Figure 11: Numbers of 2023 Approved Assets with Asset Categories for Each Regional Entity

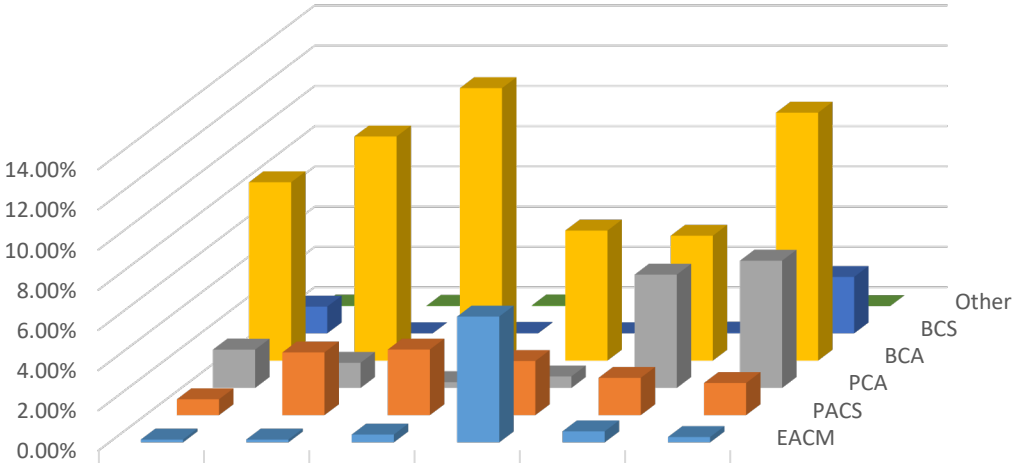
Figure 12 displays the total number of assets within each asset category for all currently active TFEs by region. The consistency across Regional Entities is that BCAs remain the largest asset category.



	EACMS	PACS	PCA	BCA	BCS	Other
MRO	15	83	200	932	140	3
NPCC	15	328	131	1171	1	2
RF	41	343	30	1423	3	4
SERC	658	283	60	680	1	0
Texas RE	58	195	592	653	4	0
WECC	28	168	665	1295	295	0

Figure 12: All Active Count of Assets in Asset Categories for Each Regional Entity

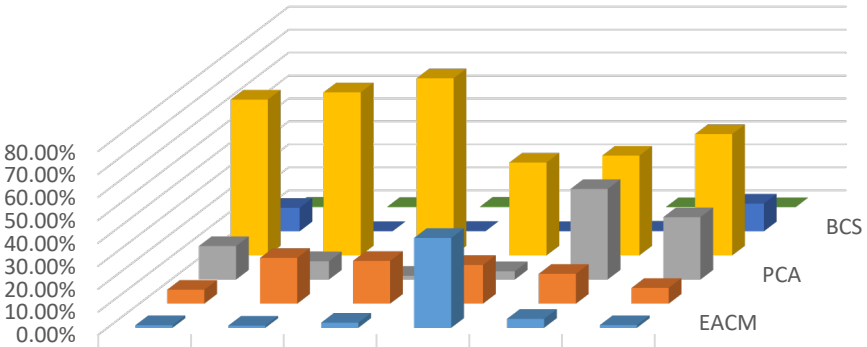
Figure 13 below shows the percentage of assets within each asset category and region compared to the total number of assets covered by TFEs in the entire ERO Enterprise for the 2023 reporting period. Figure 13 is consistent with Figure 11 and Figure 12 with the BCA category accounting for the largest percentage in each region. Due to the amendment of TFEs for EACMS in the SERC region, the percentages of EACMS and BCA are almost identical.



	MRO	NPCC	RF	SERC	Texas RE	WECC
EACM	0.14%	0.14%	0.39%	6.27%	0.55%	0.27%
PACS	0.79%	3.12%	3.27%	2.70%	1.86%	1.60%
PCA	1.90%	1.25%	0.29%	0.57%	5.64%	6.33%
BCA	8.88%	11.15%	13.55%	6.48%	6.22%	12.33%
BCS	1.33%	0.01%	0.03%	0.01%	0.04%	2.81%
Other	0.03%	0.02%	0.04%	0.00%	0.00%	0.00%

Figure 13: Percentage of Assets in each Asset Category by percentage across the ERO Enterprise

Figure 14 shows the total asset allocation broken out by Regional Entity by displaying the proportion of assets covered by TFEs in each region attributed to each category. Consistent with Figure 11, Figure 12, and Figure 13, the BCA category accounts for the largest percentage in each region. In the SERC region, there was a large increase in EACMS which far outpaces the other regions. This increase is due to an amendment to two TFEs for one entity. The original reason for the large number of EACMS in SERC was due to the registered entity determining a need for the TFE during the conversion over to Align; the TFEs were originally approved in 2021.



	MRO	NPCC	RF	SERC	Texas RE	WECC
EACM	1.09%	0.91%	2.22%	39.12%	3.86%	1.14%
PACS	6.05%	19.90%	18.60%	16.83%	12.98%	6.85%
PCA	14.57%	7.95%	1.63%	3.57%	39.41%	27.13%
BCA	67.88%	71.06%	77.17%	40.43%	43.48%	52.84%
BCS	10.20%	0.06%	0.16%	0.06%	0.27%	12.04%
Other	0.22%	0.12%	0.22%	0.00%	0.00%	0.00%

Figure 14: Percentage of Assets by Type in each Region

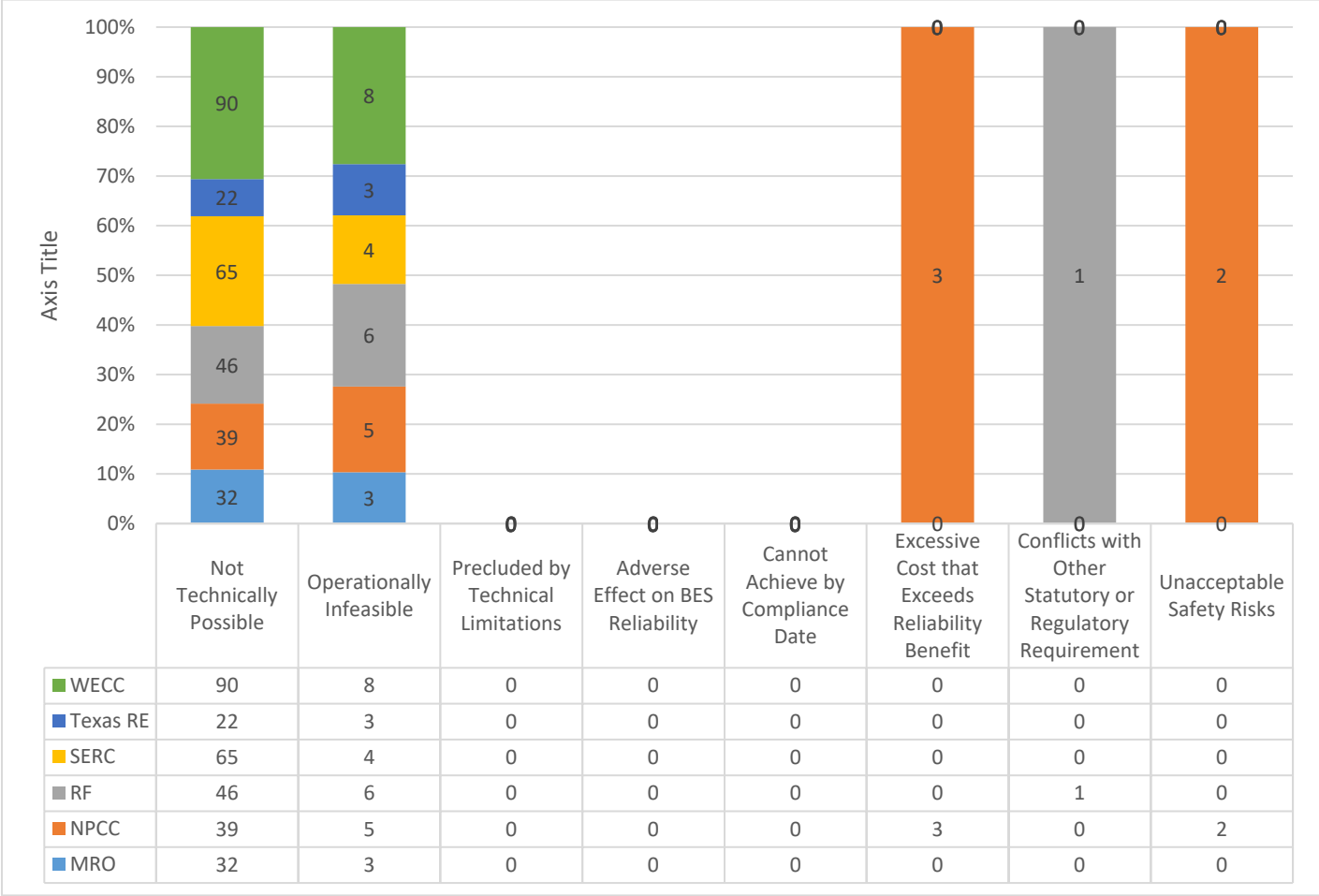
3. Categorization of the circumstances or justification

Categorization of the circumstances or justifications on which the approved TFEs to date were submitted and approved, by broad categories such as the need to avoid replacing existing equipment with significant remaining useful lives, unavailability of suitable equipment to achieve Strict Compliance in a timely manner, or conflicts with other statutes and regulations applicable to the registered entity.

The following are criteria that a registered entity may use to request a TFE:

- Not technically possible
- Operationally infeasible
- Precluded by technical limitations
- Adverse effect on bulk electric system reliability
- Cannot achieve by compliance date
- Excessive cost that exceeds reliability benefit
- Conflicts with other statutory or regulatory requirement
- Unacceptable safety risks

With the conversion to Align it is possible to provide a breakdown of the justification for the 329 approved TFEs in the ERO Enterprise. Figure 15 shows the breakdown by region for each type of justification. The majority of TFEs are approved for justifications of "not technically possible" (294) and "operationally infeasible" (29). There are only three TFEs approved for "excessive cost that exceeds reliability benefit," two for "unacceptable safety risks," and one for "conflicts with other statutory or regulatory requirement." There are no TFEs approved for the justifications of "precluded by technical limitations," "adverse effect on BES reliability," and "cannot achieve by compliance date."



	Not Technically Possible	Operationally Infeasible	Precluded by Technical Limitations	Adverse Effect on BES Reliability	Cannot Achieve by Compliance Date	Excessive Cost that Exceeds Reliability Benefit	Conflicts with Other Statutory or Regulatory Requirement	Unacceptable Safety Risks
WECC	90	8	0	0	0	0	0	0
Texas RE	22	3	0	0	0	0	0	0
SERC	65	4	0	0	0	0	0	0
RF	46	6	0	0	0	0	1	0
NPCC	39	5	0	0	0	3	0	2
MRO	32	3	0	0	0	0	0	0

Figure 15: Justification for Approved TFEs by Region and Type

4. Categorization of the compensating measures and mitigating measures implemented and maintained

Categorization of the compensating measures and mitigating measures implemented and maintained by registered entities pursuant to approved TFEs, by broad categories of compensating measures and mitigating measures and by types of Covered Assets.

The ERO Enterprise continues to evaluate the extent and effectiveness of compensating measures documented in TFE requests. Align allows ERO Enterprise staff to view justifications and the compensating measures used to address each TFE. This is an improvement on the previous method of collecting this data as it is all located in one location and can be viewed without needing

to request the information from the Regions. The registered entities accomplish the majority of compensating or mitigating measures by compliance with requirements in related CIP Standards. As most TFEs relate to the same types of assets, the registered entities are applying similar mitigation measures for each of the TFEs to address the known risks.

5. TFE rejection or disapproval

> *For each TFE Request that was rejected or disapproved, and for each TFE that was terminated, but for which, due to exceptional circumstances as determined by the Regional Entity, the TFE Termination Date was later than the latest date specified in Section 5.2.6, or 9.3, as applicable, a statement of the number of days the registered entity was not subject to imposition of findings of violations of the Applicable Requirement or imposition of Penalties or sanctions pursuant to Section 5.3.*

In 2023, there were six TFEs that were disapproved. Of these, there was one each in MRO, NPCC, SERC, and WECC, and there were two in RF. The disapproved TFEs consisted of three new TFEs and three amended TFEs. Of the new TFE disapprovals, two were for CIP-007-6 Requirement R5, Part 5.1 and one for was CIP-007-6 Requirement R5, Part 5.6. Among the three amended TFE disapprovals were two for CIP-007-6 Requirement R4, Part 4.3 and one for CIP-007-6 Requirement R5, Part 5.7. The reasons behind the disapprovals varied: submitted a TFE for the wrong requirement; submitted a superseding Material Change Request ("MCR") before the first MCR request was approved; discrepancies in asset counts; request by an entity that a TFE be disapproved; and accidently created a new TFE instead of amending an existing TFE.

6. Compliance Audit results and findings concerning the implementation and maintenance of compensating measures and mitigating measures

> *A discussion, on an aggregated basis, of Compliance Audit results and findings concerning the implementation and maintenance of compensating measures and mitigating measures, and the implementation of steps and the conduct of research and analyses to achieve Strict Compliance with the Applicable Requirements, by registered entities in accordance with approved TFEs.*

Appendix 4D of NERC's ROP is part of the Compliance Monitoring and Enforcement Program ("CMEP") that forms the framework for Regional Entities to review and audit TFE requests. During a compliance monitoring engagement, the Regional Entity would not evaluate the registered entity on a particular requirement from the applicable Reliability Standard for which a TFE was accepted and approved but instead would evaluate the registered entity against the alternative compliance obligations assumed by the registered entity (i.e., compensating and mitigating measures).

All Regional Entities continue to conduct compliance monitoring engagements where applicable approved TFEs are within the determined scope. Typically, during a compliance monitoring engagement of a registered entity, TFEs will be reviewed as applicable (i.e., based on relevant factors such as quantity, locations, etc.). Reviews include interviewing subject matter experts specifically about TFEs and sampling evidence pertaining to a TFE's mitigating and compensating measures, among other things. Regional Entities continue to report that registered entities are managing and maintaining their TFEs within the procedural requirements of Appendix 4D. Regional Entities and registered entities continue to handle TFEs consistent with the CMEP framework.

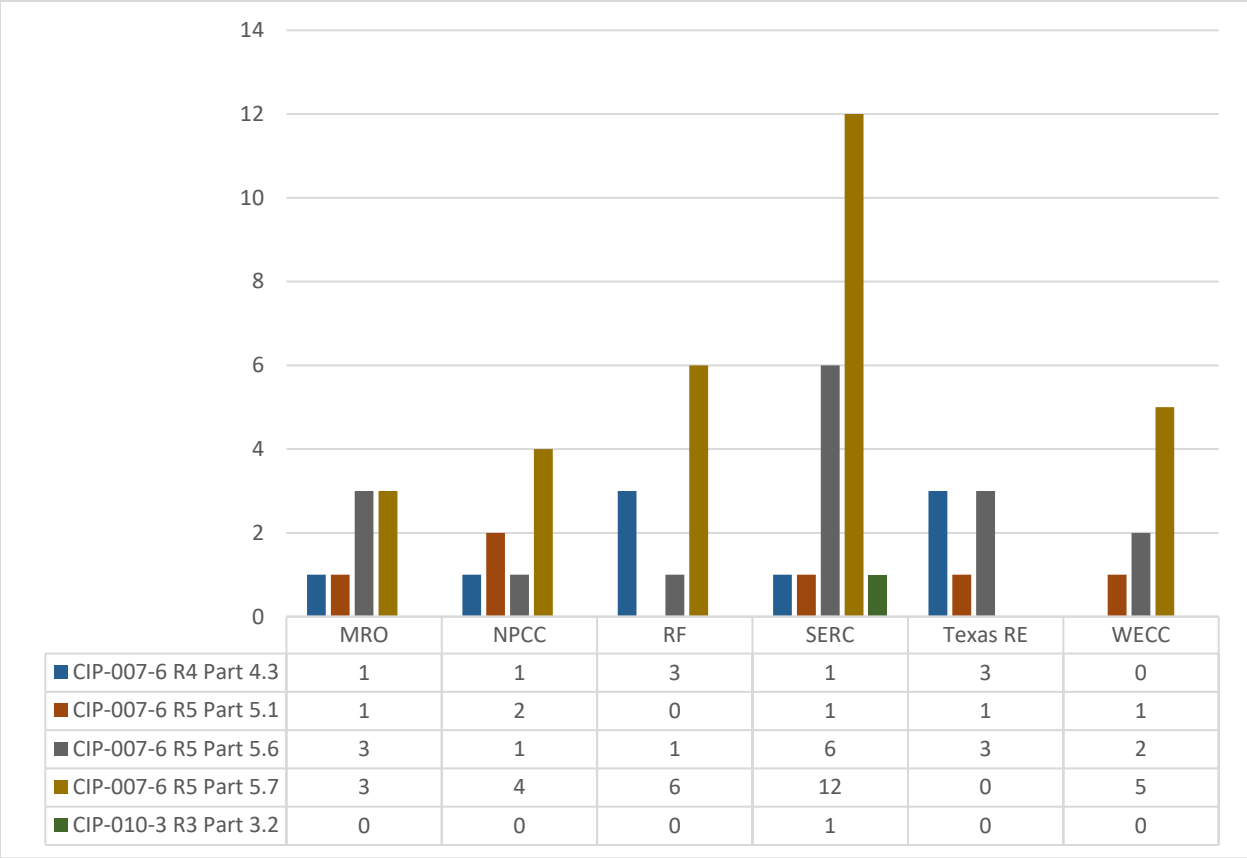
7. Assessments of impacts on the reliability of the BES

> *Assessments, by Regional Entity (and for more discrete areas within a Regional Entity, if appropriate) and in the aggregate for the United States and for the jurisdictions of other Applicable Governmental Authorities, of the Wide-Area impacts on the reliability of the Bulk Electric System of approved TFEs in the aggregate, including the compensating measures and mitigating measures that have been implemented.*

The ERO Enterprise TFE Task Force, comprised of subject matter experts from each Regional Entity and NERC, reviews TFE requests to verify sufficiency and consistency of the requests' disposition. In addition, the ERO Enterprise TFE Task Force verifies the TFEs are

available for review. The ERO Enterprise performs the review when initially submitted or modified and during compliance monitoring engagements. The ERO Enterprise TFE Task Force reports that the use of TFEs has not had an adverse impact on BES reliability. The members of the ERO Enterprise TFE Task Force reported similar experiences (among different regions) with the execution and management of the TFE process and the manner in which it impacted BES reliability. Additionally, the TFE Task Force reports that a large majority of registered entities have implemented multiple compensating and mitigating measures for Covered Assets. In general, the mitigating and compensating measures implemented for approved TFEs in lieu of strict compliance with applicable CIP Reliability Standards have accomplished the stated alternate compliance objectives. As a result, the level of BES security achieved through the TFE process is comparable to strict compliance with the applicable Reliability Standards.

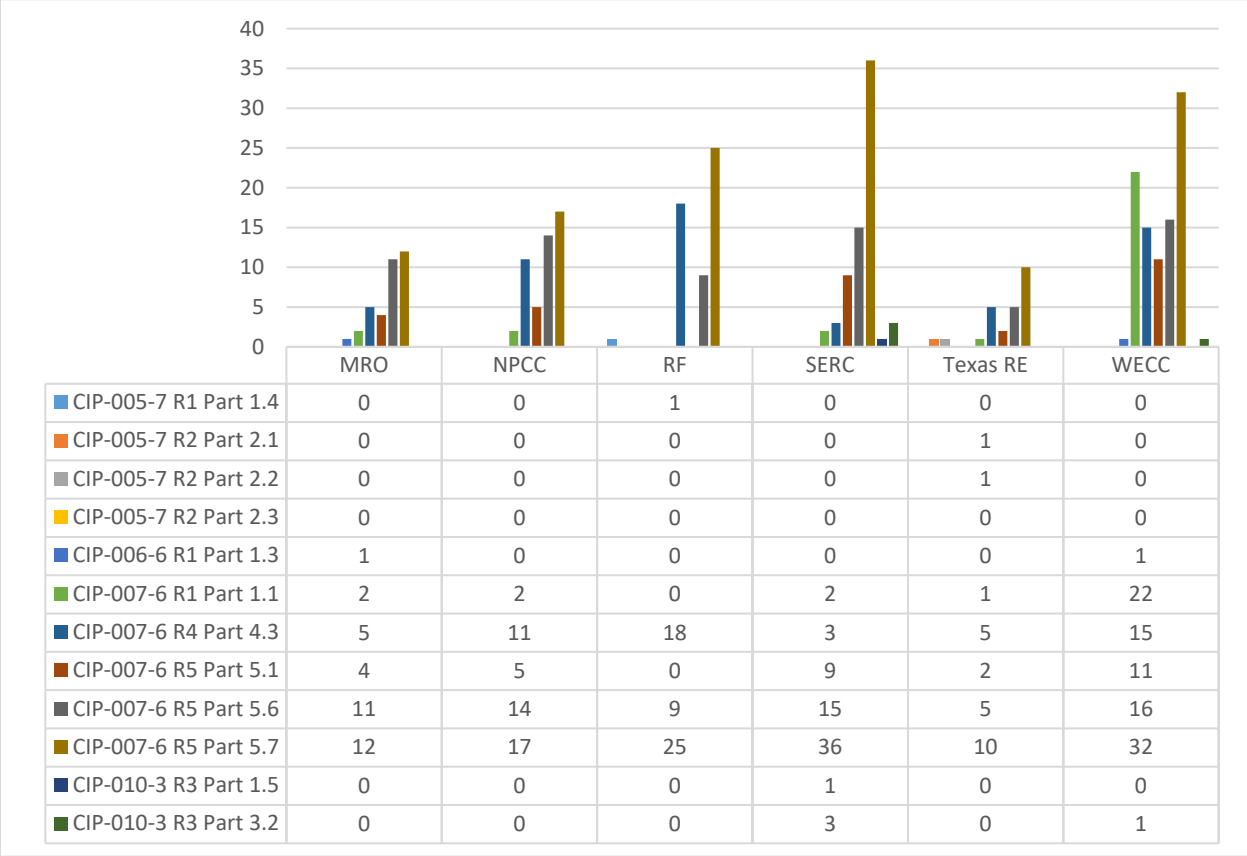
Figure 16 shows, by region, the number of TFEs for each requirement that registered entities submitted to the Regional Entities in 2023. The largest number of approved TFEs in 2023 were for CIP-007-6 Requirement R5 Part 5.7. In contrast, CIP-010-3 Requirement R3, Part 3.2 only has one TFE.



	MRO	NPCC	RF	SERC	Texas RE	WECC
CIP-007-6 R4 Part 4.3	1	1	3	1	3	0
CIP-007-6 R5 Part 5.1	1	2	0	1	1	1
CIP-007-6 R5 Part 5.6	3	1	1	6	3	2
CIP-007-6 R5 Part 5.7	3	4	6	12	0	5
CIP-010-3 R3 Part 3.2	0	0	0	1	0	0

Figure 16: 2023 Approved TFE Breakout per Requirement and Part

Figure 17 demonstrates the same breakdown by Reliability Standard and requirement as Figure 16, but includes all active TFEs, not just those from 2023. Again, the majority of the approved TFEs are for CIP-007-6 Requirement R5, Parts 5.6 and 5.7. In contrast, CIP-005-7 Requirement R2, Parts 2.1 and 2.2, and CIP-010-3 Requirement R1 Part 1.5 only have one TFE each.



	MRO	NPCC	RF	SERC	Texas RE	WECC
CIP-005-7 R1 Part 1.4	0	0	1	0	0	0
CIP-005-7 R2 Part 2.1	0	0	0	0	1	0
CIP-005-7 R2 Part 2.2	0	0	0	0	1	0
CIP-005-7 R2 Part 2.3	0	0	0	0	0	0
CIP-006-6 R1 Part 1.3	1	0	0	0	0	1
CIP-007-6 R1 Part 1.1	2	2	0	2	1	22
CIP-007-6 R4 Part 4.3	5	11	18	3	5	15
CIP-007-6 R5 Part 5.1	4	5	0	9	2	11
CIP-007-6 R5 Part 5.6	11	14	9	15	5	16
CIP-007-6 R5 Part 5.7	12	17	25	36	10	32
CIP-010-3 R3 Part 1.5	0	0	0	1	0	0
CIP-010-3 R3 Part 3.2	0	0	0	3	0	1

Figure 17: All Active TFE Breakout per Requirement and Part

8. Efforts to eliminate future reliance on TFEs

Discussion of efforts to eliminate future reliance on TFEs.

In the past, the value of a TFE was the safe harbor it provides when a registered entity could not achieve strict compliance to certain Reliability Standards. As referenced in Order No. 706, TFEs are rooted in the problem of legacy equipment and the economic considerations involved in the replacement of such equipment before the end of its useful life.[18] As registered entities increasingly move away from legacy equipment, the value of the TFE program, as currently constructed, is diminishing in comparison to the program's administrative burden. The decrease in the number of approved TFEs and the total assets covered by TFEs has allowed the level of effort required of the registered entity and Regional Entity to maintain and administer a TFE to decrease as well. Additionally, the migration of TFE data from the Regions to the Align tool has made the analysis of this data less burdensome. ERO Enterprise CMEP processes regularly assess general compliance with the CIP Reliability Standards and evaluate compensating and mitigating measures. The ERO Enterprise would likely find additional efficiency by reviewing TFEs in the context of the rest of the registered entity's compliance program, rather than separately. As the overall numbers dwindle, this may become an attractive option.

During quarterly meetings, the ERO Enterprise TFE Task Force focuses on TFE management, administrative processes, and approaches to making the processes more effective and efficient for the Regional Entities and registered entities. The ERO Enterprise TFE Task Force has stated that there may be opportunities to retain the same awareness and risk mitigation of the TFE program while reducing the administrative burden. For example, the ERO Enterprise could allow a registered entity to maintain the exception without prior approval, provided that the

[18] Order No. 706 at P 157.

registered entity could demonstrate during compliance monitoring engagements that: (i) the exception is reasonable; and (ii) the registered entity implemented appropriate mitigation measures in lieu of strict compliance. As NERC considers alternatives to the TFE program as presently constituted, it will consult with Commission staff. NERC will seek Commission approval for any proposed changes to the NERC ROP. Additionally, current standards drafting teams may propose changes to the TFE language as found in currently approved CIP Reliability Standards.

9. Material Change Reports

Data and information regarding Material Change Reports, including the number of Material Change Reports filed annually and information regarding the types of circumstances or events that led to Material Changes, as well as any additional information NERC believes would be useful.

When registered entities modify the information associated with approved TFEs, the registered entity submits updates to the relevant Regional Entity via an MCR. An MCR requires approval by the Regional Entity, which can then refer to the updated, current data during compliance monitoring activities (e.g., Compliance Audits, Spot Checks, Self-Certifications, etc.). Figure 18 shows the percentage of amendments per approved TFEs within each region. The majority of requested changes occur for asset count changes and administrative updates, such as changing the primary contact's information. The 2023 average across the ERO Enterprise is 29.23%, when calculated as an average across the percentage of each region. This means that for a little under one-third of the TFEs, a registered entity submitted an MCR to modify an approved TFE. For comparison, this is a slight decrease from 2022, in which 34.57% of TFEs had a registered entity submit an MCR to modify an approved TFE.

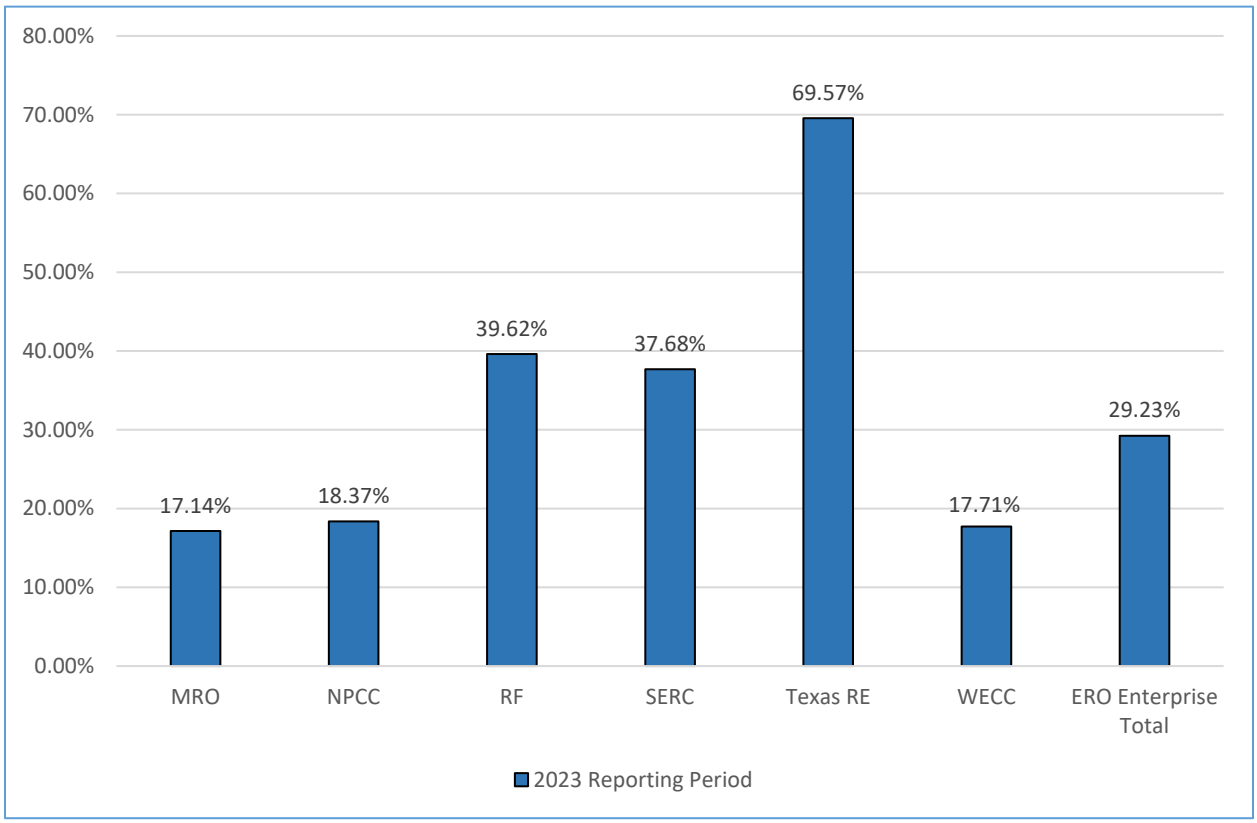


Figure 18: TFE Amendments to Approved TFEs per Regional Entity

10. Additional information about TFEs and their TFE Expiration Dates

Additional information about TFEs and their TFE Expiration Dates, including the number of TFEs by expiration year and CIP Standard requirement, the percentage of currently approved TFEs without TFE Expiration Dates, and the number of new TFEs approved without expiration dates annually.

In its September 2013 Order, the Commission directed NERC to provide additional information in the annual TFE reports related to TFEs with and without expiration dates. As reported previously, most TFEs do not have expiration dates. During the TFE 2023 reporting period, twenty-eight (28) TFEs were terminated, all of which were for requirements in CIP-007-6. Of these 28 TFEs, twelve were terminated for CIP-007-6 Requirement R5, Part 5.7; eight for CIP-007-6 Requirement R5, Part 5.6; five for CIP-007-6 Requirement R4, Part 4.3; two for CIP-

007-6 Requirement R5, Part 5.1; and one for CIP-007-6 Requirement R1, Part 1.1. The majority of these terminations were due to lifecycle replacements of equipment which are now capable of meeting these requirements.

In addition, four TFEs are scheduled to expire in the future, unless further amended by the registered entity. Figure 19 shows the breakdown of TFEs with future expiration dates. The vast majority of approved TFEs have no planned expiration date.

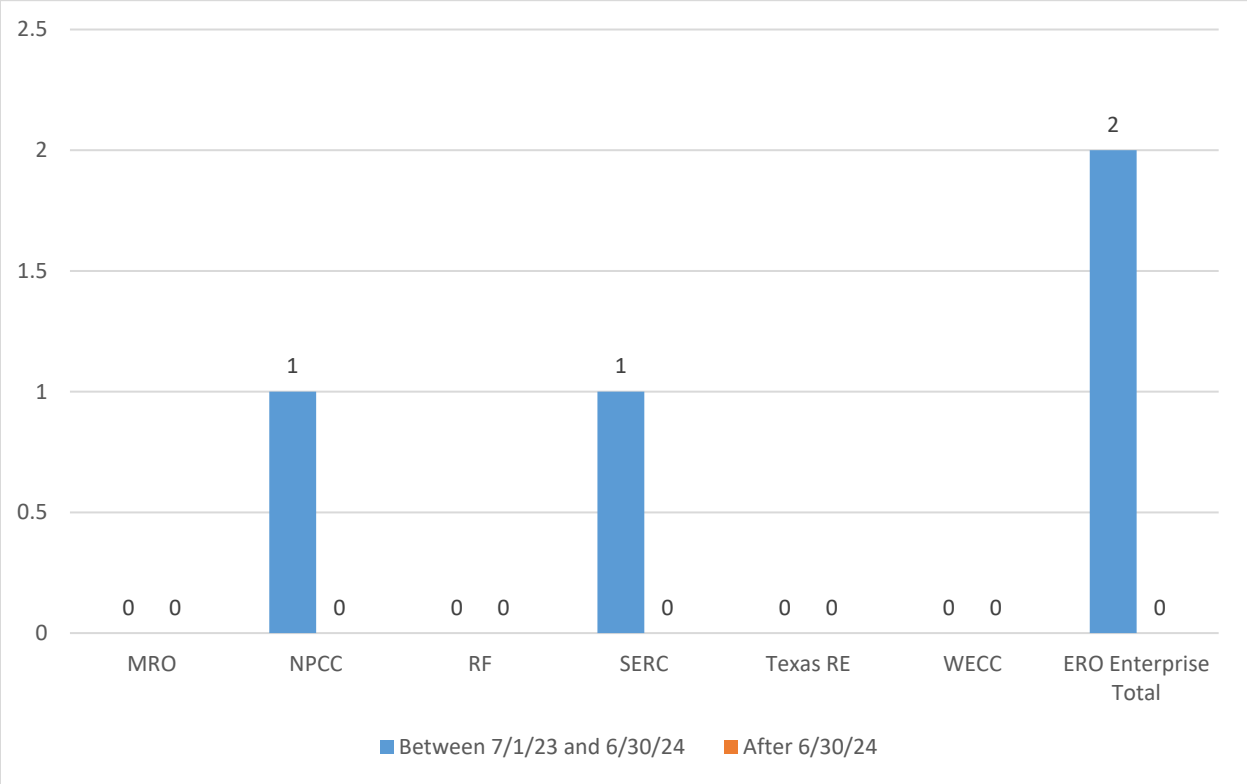


Figure 19: TFEs to Expire in Future

11. Consistency in Review, Approval, and Disapproval of TFE Requests

Appendix 4D, Section 11.1 of the NERC ROP requires that NERC and the Regional Entities collaborate to assure "consistency in the review, approval and disapproval of TFE Requests. . . ." Also, as noted above, Section 11.2.4 of Appendix 4D requires that NERC submit

with each Annual TFE Report certain information concerning the manner in which Regional Entities have made determinations to approve or disapprove TFE requests. The scope document for the ERO Enterprise TFE Task Force describes activities and deliverables that support this effort:

- Review Regional Entities' processes and performance in administering TFE Requests and Material Change Reports;
- Evaluate whether the administration of TFE activities among the Regional Entities yields consistent results;
- Assess compensating and mitigating measures described in TFEs for quality and sufficiency;
- Review approved and disapproved TFE Requests or Material Change Reports for consistency; and
- Monitor approved TFEs throughout their life cycle to determine whether they remain necessary and effective.

NERC and the ERO Enterprise TFE Task Force will continue to collaborate on these actions in 2023 and 2024. Additionally, NERC and the ERO Enterprise TFE Task Force continue to rigorously review the TFE data throughout the year in an effort to present the best information and analysis possible to FERC.

V. CONCLUSION

For the foregoing reasons, NERC respectfully requests that the Commission accept the 2023 Annual Report.

Respectfully submitted,

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