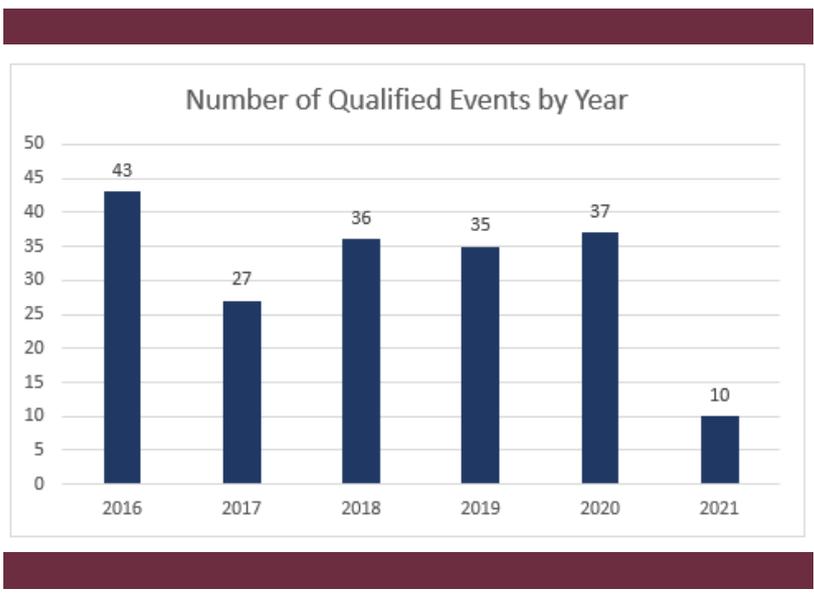




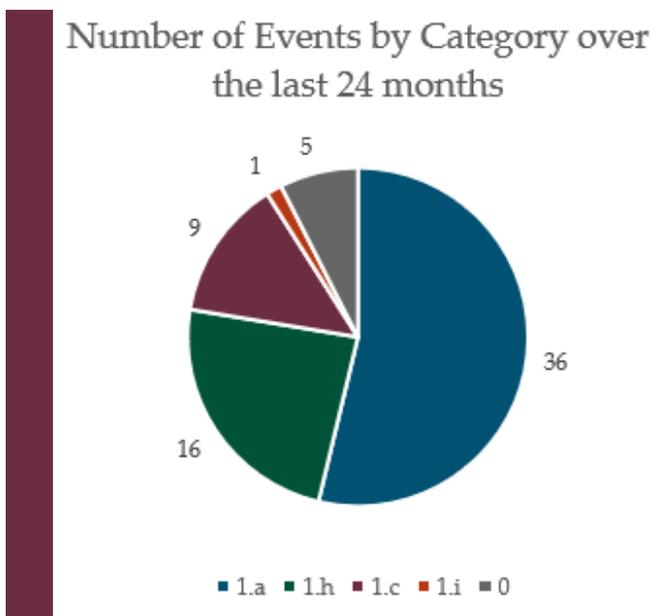
EVENT ANALYSIS TRENDS

The graphics below provide a high-level overview of the Event Analysis (EA) work performed at WECC. Entity participation in this program provides valuable information on the type of events occurring on the Western Interconnection. It can result in lessons learned to share with the industry. The reports submitted to WECC's EA team help to identify overall trends that may pose a reliability risk.

This graphic shows the number of Brief Reports submitted to the ERO Event Analysis Program since 2016. The WECC EA department processes each of these events through the Event Analysis process. Each of the events provides learning opportunities for entities involved in the Event and Performance Analysis Subcommittee (EPAS) closed-door sessions. These events can also lead to Industry Lessons Learned, which can provide benefits to entities across the nation.



This graphic breaks down the events received between June 10, 2019, through June 9, 2021, by cause category. There are five category levels included in the EA Program; each level designates an increase in event severity. A positive note is that each of the events reported over this time has been a category 1 event with the lowest severity. A description of each of the event categories follows:

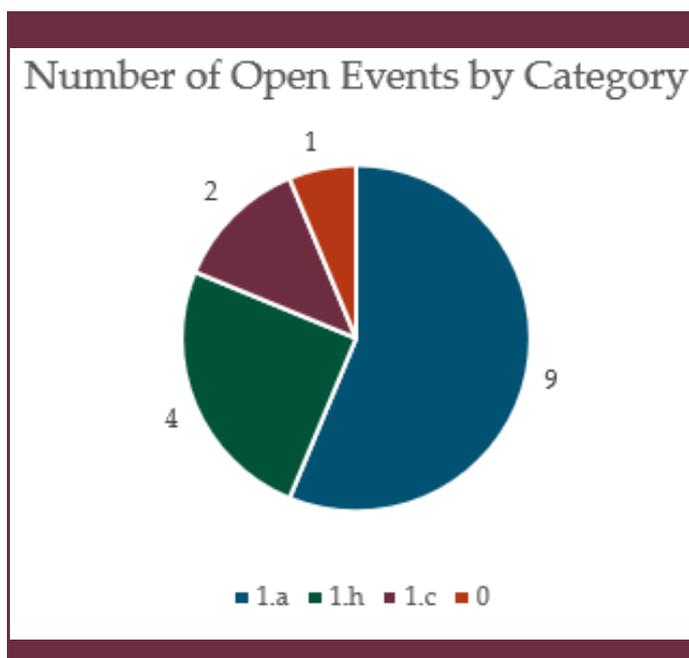


- Category 1.a: An unexpected outage, that is contrary to design, of three or more BES Facilities caused by a common disturbance.
- Category 1.c: Failure or misoperation of a BES RAS.
- Category 1.h: Loss of monitoring or control at a Control Center such that it significantly affects the entity's ability to make operating decisions for 30 continuous minutes or more.
- Category 0: Does not meet any of the criteria for defined categories, but the event includes interesting aspects that may be beneficial to industry. They are provided voluntarily by entities or requested by WECC EA staff.



EVENT ANALYSIS TRENDS

This graphic represents the number of open events WECC EA staff is currently working on as of June 9, 2021. The existing process includes a review by WECC EA/SA staff and an industry review during a closed session meeting with WECC's EPAS. These reviews provide learning opportunities for all involved. WECC staff commonly work with the entity to provide answers to questions brought up during these reviews. WECC staff has a goal to process Brief Reports through the EA Process and provide a final Cause Code Assignment Process report to the reporting entity within 120 days from the date of the event.



WECC performs a causal analysis of each event submitted using the Cause Code Assignment Process (CCAP). Each cause code involved with this approach is comprised of three parts. The highest, most general level is the A code, with the B and C codes providing more granularity to the cause code. This graphic includes level A codes for events from January 1, 2017, to June 9, 2021.

Here are the different descriptions of the A cause codes:

A1 - Design/Engineering

A2 - Equipment Failure

A3 - Individual Human Performance

A4 - Management/Organization

A5 - Communication

A6 - Training

A7 - Other

AN - No Causes Found

AX - Overall Configuration

AZ - Information to determine cause less than adequate

From the Pie chart, we see the most common are the AZ codes, representing events where the exact primary cause code was not able to be identified. There are many explanations for this code. In many causes, after an exhaustive event investigation, there are still unknowns. In these cases, the CCAP report provided to the entity will include many contributing causes codes, but ultimately a key piece of information remained unknown, so this code must be assigned.



EVENT ANALYSIS TRENDS

We also see a high number of A1 codes that capture issues with Engineering and Design, as well as A4 codes, which capture shortcomings with Management and Organizational. Many times the A4 code will identify something lacking in a process or procedure. This provides opportunities to revise and improve processes and procedures moving forward. The purpose of providing the entity with a CCAP report is to provide an unbiased third-party review of the event, identifying possibilities for improvement.

