NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Vegetation-Related Transmission Outage Report

2019 Annual Report

May 12, 2020

RELIABILITY | RESILIENCE | SECURITY




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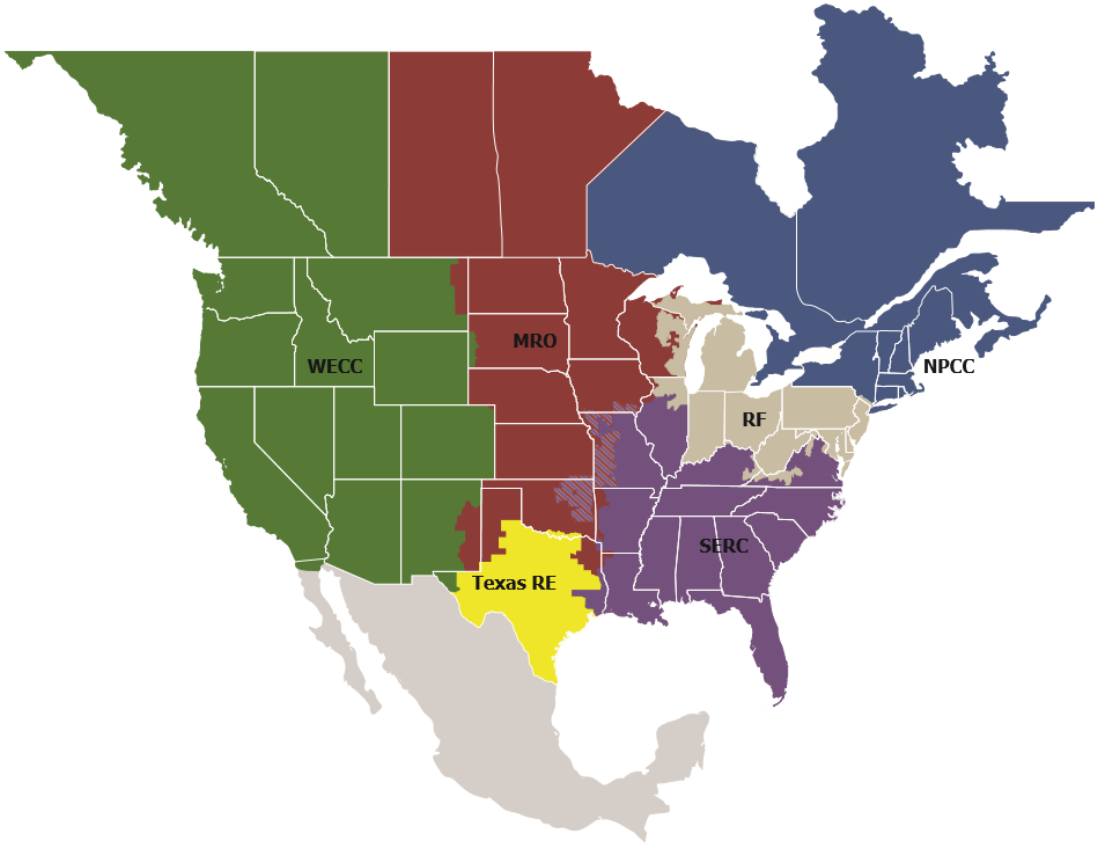
Preface

Electricity is a key component of the fabric of modern society and the Electric Reliability Organization (ERO) Enterprise serves to strengthen that fabric. The vision for the ERO Enterprise, which is comprised of the North American Electric Reliability Corporation (NERC) and the six Regional Entities (REs), is a highly reliable and secure North American bulk power system (BPS). Our mission is to assure the effective and efficient reduction of risks to the reliability and security of the grid.

Reliability | Resilience | Security
Because nearly 400 million citizens in North America are counting on us

The North American BPS is divided into six RE boundaries as shown in the map and corresponding table below. The multicolored area denotes overlap as some load-serving entities participate in one RE while associated Transmission Owners and Operators participate in another.



MRO	Midwest Reliability Organization
NPCC	Northeast Power Coordinating Council
RF	ReliabilityFirst
SERC	SERC Reliability Corporation
Texas RE	Texas Reliability Entity
WECC	Western Electricity Coordinating Council

Executive Summary

This report summarizes the vegetation-related transmission outages that have been reported to the ERO Enterprise in 2019.

Reliability Standard FAC-003-4 requires that applicable Transmission Owners and Generator Owners submit applicable Sustained Outages caused by vegetation to their REs on a quarterly basis.

In 2019, the REs reported 24 vegetation-related outages due to vegetation contact from outside of the right-of-way (ROW).

There were no additional sustained outages due to vegetation contact from inside the ROW in 2019.

The majority of the outages were caused by weather activities in the area. The registered entities have taken appropriate actions to remediate the issues and minimize reoccurrence.[1]

[1] For more information, refer to Vegetation Management Reports at https://www.nerc.com/pa/comp/CE/Pages/CMEP%20and%20Vegetation%20Reports.aspx

Introduction

The goal of the Transmission Vegetation Management Reliability Standard is "to maintain a reliable electric transmission system by using a defense-in-depth strategy to manage vegetation located on transmission ROWs and minimize encroachments from vegetation located adjacent to the ROW, thus preventing the risk of those vegetation-related outages that could lead to cascading."

FAC-003-4 requires applicable registered entities to manage vegetation located on transmission ROWs and minimize encroachments from vegetation located adjacent to the ROW.

Additionally, the Reliability Standard requires the applicable registered entities to submit all Sustained Outages of applicable lines to their REs on a quarterly basis through Periodic Data Submittals.

Each of the reportable Sustained Outages are categorized in the Reliability Standard as one of the following:

- Category 1A — Grow-ins: Sustained Outages caused by vegetation growing into applicable lines, which are identified as an element of an Interconnection Reliability Operating Limit (IROL) or Major WECC Transfer Path, by vegetation inside or outside of the ROW;
- Category 1B — Grow-ins: Sustained Outages caused by vegetation growing into applicable lines, not identified as an element of an IROL or Major WECC Transfer Path, by vegetation inside or outside of the ROW;
- Category 2A — Fall-ins: Sustained Outages caused by vegetation falling into applicable lines, which are identified as an element of an IROL or Major WECC Transfer Path, from within the ROW;
- Category 2B — Fall-ins: Sustained Outages caused by vegetation falling into applicable lines, not identified as an element of an IROL or Major WECC Transfer Path, from within the ROW;
- Category 3 — Fall-ins: Sustained Outages caused by vegetation falling into applicable lines from outside the ROW;
- Category 4A — Blowing together: Sustained Outages caused by vegetation and applicable lines, which are identified as an element of an IROL or Major WECC Transfer Path, blowing together from within the ROW; and
- Category 4B — Blowing together: Sustained Outages caused by vegetation and applicable lines, not identified as an element of an IROL or Major WECC Transfer Path, blowing together from within the ROW.

The REs submit the aggregated report to NERC.

Sustained Outages in 2019

Registered entities reported 24 Sustained Outages in 2019 that were from vegetation fall-ins from outside the ROW. These outages were largely due to various weather-related events.

Nineteen of the outages were due to storms and heavy rains, three were related to previous weather activities in the area that resulted in saturated soil, and there were no known weather-related issues for two of the reported outages.

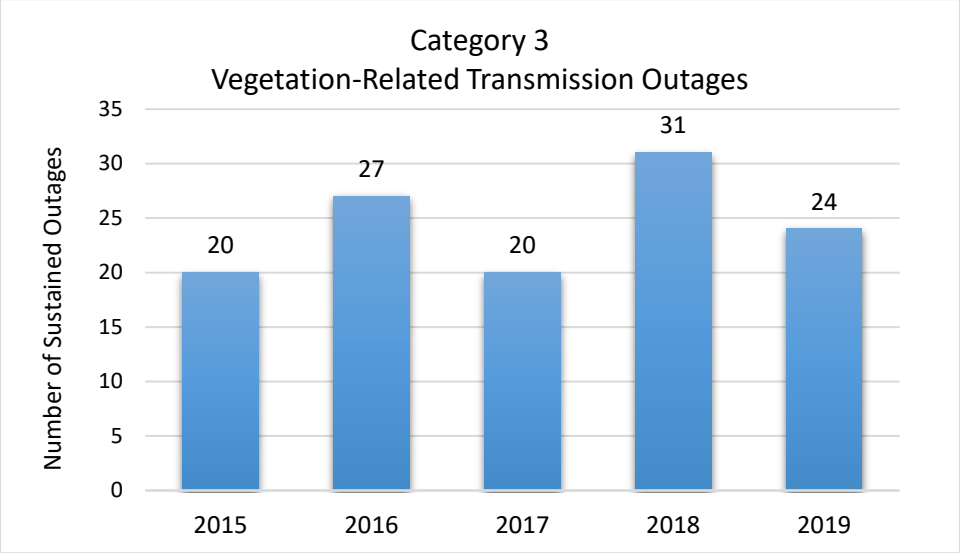


Figure 1: Five-Year Vegetation-Related Sustained Outages from Outside the ROW

The majority of the outages happened on 230 kV transmission lines, which are the most common voltage class in the United States.

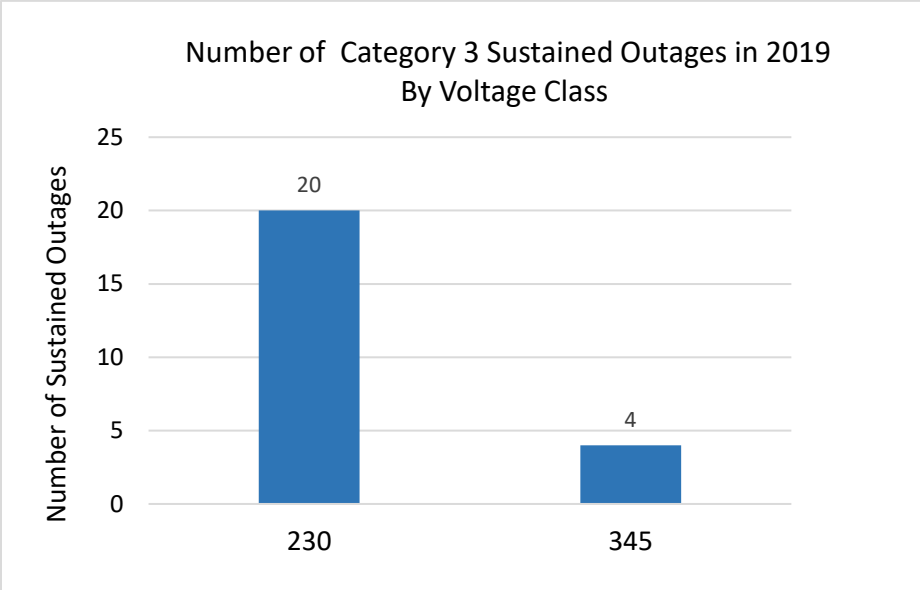


Figure 2: Vegetation-Related Sustained Outages by Voltage Class and Outage Category in 2019

Over 60 percent of the 2019 reported Category 3 outages occurred within SERC's footprint due to the RE's warmer climate, vegetation type, and longer growth season.

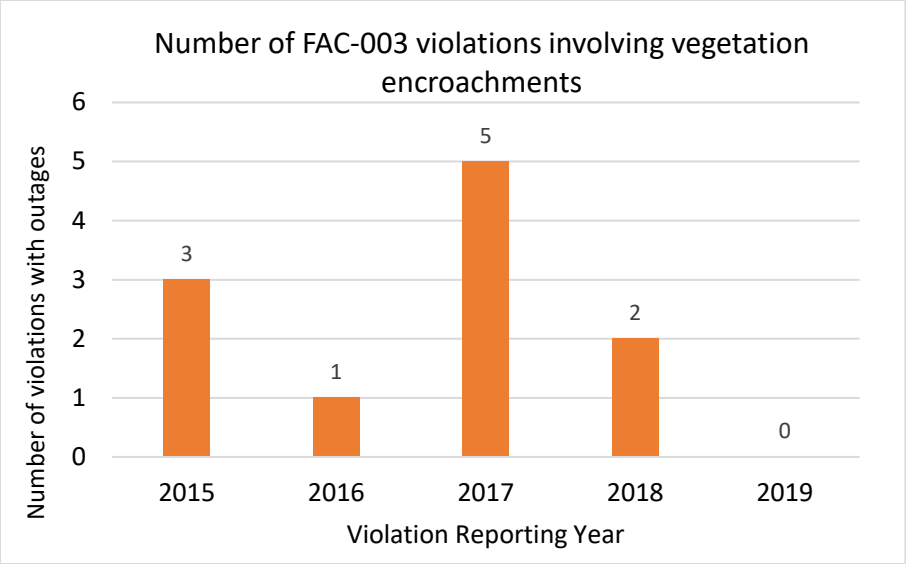


Figure 3: Five-Year Vegetation-Related Sustained Outages Resulting in FAC-003 Violation

There were no reported outages from vegetation encroachment in 2019.

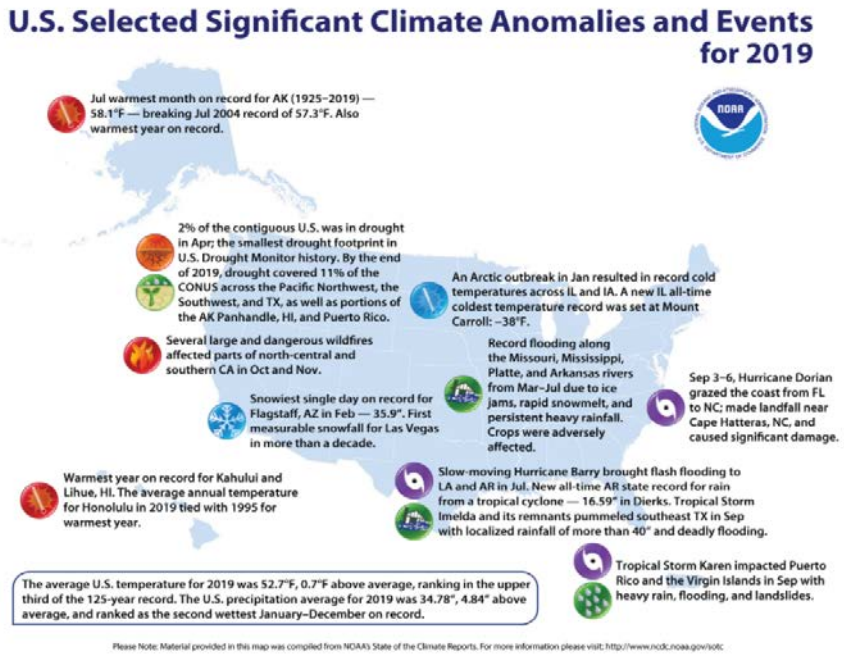


Figure 4: 2019 Selected Significant Climate Anomalies and Events[2]

[2] National Oceanic and Atmospheric Administration, National Centers for Environmental Information, *National Climate Report – Annual 2019*, available at https://www.ncdc.noaa.gov/sotc/national/201913

FAC-003 remains an area of focus for the 2020 ERO Enterprise Compliance Monitoring and Enforcement Implementation Plan.[3]

[3] For 2020 ERO Enterprise Compliance Monitoring and Enforcement Implementation Plan, visit http://www.nerc.com/pa/comp/Reliability%20Assurance%20Initiative/2020%20ERO%20CMEP%20Implementation%20Plan%20V%201.0.pdf

Conclusion

The ERO Enterprise will continue to monitor and review all reported vegetation related outage issues and work with various internal and external groups to identify and mitigate risk.