



PUBLIC SERVICE COMPANY OF COLORADO

**WILDFIRE MITIGATION PLAN
2020 ANNUAL REPORT**

Proceeding No. 20A-0300E
June 1, 2021

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I. EXECUTIVE SUMMARY

Public Service Company of Colorado (“Public Service” or the “Company”) submits to the Colorado Public Utilities Commission (“Commission”) this annual Wildfire Mitigation Plan (“WMP” or the “Plan”) Report (the “WMP Report”) for Plan Year 2020, in accordance with Recommended Decision No. R21-0109 in Proceeding No. 20A-0300E (“the WMP Decision”).¹ In accordance with the WMP Decision, this WMP Report serves to update the Commission and stakeholders on the activities and associated costs the Company undertook in calendar year 2020 to support the WMP, and to provide data tracking the Plan’s overall implementation progress and efficacy.

The primary objective of the Company’s approved WMP is to promote public safety through minimizing the risk of the Company’s equipment being a potential source for a wildfire ignition. In developing the Plan, the Company determined three main categories of additional actions could further promote public safety and systematically mitigate the risk of ignition from electrical infrastructure. Those categories include:

Engagement: Increased engagement with local, county, and state entities to facilitate more coordinated planning and mitigation efforts across organizations and ensure our customers, communities, and emergency response responders are aware and informed of the Company’s operations, existing procedures, and WMP;

Technology: Equipment upgrades and increased use of technology, including extreme wind loading conditions analyses and involving an increased collection of Light Detection and Ranging (“LIDAR”) data, to enable the Company to systematically mitigate the risk of electrical infrastructure starting a wildfire, as well as the use of Unmanned Aerial Systems to provide detailed pole top inspections;

Acceleration: Accelerating certain utility practices that mitigate wildfire risk, such as routine pole inspections and replacements, from traditional timeframes to shorter cycles in areas designated as Public Service’s WRZ based on data from the Colorado State Forest Service. This aspect of the Plan will help promote public safety and environmental stewardship in light of the increasing intensity and frequency of wildfires in the state and an expanding wildland-urban interface (“WUI”).

¹ Proceeding No. 20A-0300E, Decision No. R21-0109 (mailed Feb. 26, 2021) (affirmed with modification by Decision No. C21-0237 (mailed Apr. 16, 2021)). Pursuant to Paragraph 96 of the WMP Decision, Public Service is filing this first WMP Report within 45 days of the final Commission decision. Future reports will be filed annually in May.

The primary actions contained in this Plan include:

- Accelerated and enhanced equipment and vegetation inspections and replacements, system protection and wind strength modeling programs, and asset data gathering;
- System protection enhancements;
- Expanded and incremental vegetation management;
- Repair and replacement activities of equipment identified through inspections, system protection and wind modeling programs;
- Metrics, Tracking, and Reporting;
- Community and stakeholder outreach; and,
- Ongoing assessment of other activities for future consideration.

In 2020, the Company further developed, refined, and executed its comprehensive WMP, which included 26 Distribution programs and six Transmission programs. The Company made great progress, as reflected in the overall Wildfire Completion Ratios (“WCRs”) of 1.13 and 0.99, respectively, for two major WMP programs, the System Protection and Repair/Replacement programs. Additionally, the Company completed nearly 100 percent of all Transmission and Distribution vegetation management activities. The Company met 93 percent of its program targets overall and completed nearly 3,700 Distribution pole replacements, 225 Transmission priority defect corrections, nearly 10,000 Unmanned Aerial System (“UAS”) Distribution pole inspections, 58,677 intrusive pole inspections (Transmission and Distribution), 2,900 miles of Transmission Visual Inspections, and 43 Distribution recloser installations. Further, in 2020 the Company came in at 91 percent of its capital spend budgets, overall. The Company will continue to manage its spend and create program efficiencies to obtain cost savings wherever possible.

In addition, the Company’s Wildfire Mitigation Team developed a series of comprehensive internal training programs (including Fire Prevention Training, Wires Down, and Ignition Reporting) and new equipment and standards training, as well as an Operational wildfire and response plan. The Company also stood up its Wildfire Protection company website, held two virtual town hall meetings, held two virtual stakeholder meetings with Commission Staff, the Office of Consumer Counsel, and other parties to the Wildfire Settlement Agreement in the Company’s 2019 Electric Rate Case, hosted the first annual Colorado Wildfire Utility Summit with eight state electric service

providers, and participated in over 20 county commissioner or community outreach meetings. The Wildfire Mitigation Team also actively engaged with industry partners, including the Electric Power Research Institute and the Edison Electric Institute, in continued collaboration and evaluation of industry best practices, benchmarking, and emerging wildfire technologies and solutions.

II. BACKGROUND AND PURPOSE OF REPORT

The purpose of the Company's approved WMP is to protect public safety through minimizing the risk of the Company's equipment being the potential source of a wildfire ignition. The Plan accomplishes this through enhanced inspections, incremental vegetation management programs, infrastructure or system hardening, situational awareness, training, stakeholder engagement, evaluation of new technologies, and operational practices. These initiatives will enhance overall system reliability and resiliency by reducing the likelihood of outages. The Plan also includes the proactive exploration of existing and emerging wildfire mitigation tools through the implementation of programs in targeted parts of Public Service's system. The Company conducted extensive asset-based risk modeling to identify the highest-risk assets on its system. Using our own data and State data available through the Colorado Wildfire Risk Assessment Portal developed by the Colorado State Forest Service, we have developed the Wildfire Risk Zone ("WRZ"), which is a targeted area where the Company will focus its efforts. This includes approximately 2,100 miles of overhead distribution feeder (out of 9,500 miles total on the system) and 2,900 miles of transmission lines (of nearly 5,000 total). The core components of the Plan include:

- **Repair and Replacement Programs.** These include the following subcategories of work: bare secondary conductor replacement (new), covered conductor installation (new), distribution pole repair/replacement (accelerated), equipment upgrades (cutouts, arresters, etc.) (new), overhead rebuilds of small conductor (new), high priority defect correction (accelerated), and major line rebuilds (accelerated).
- **Inspection, Modeling, and Asset Data Gathering.** This includes the following subcategories of work: Above Groundline ("AGL") inspections (enhanced), Infrared ("IR") inspections (new), overhead secondary open wire quantification (new), overhead inspection (new), pole inspection (distribution) (accelerated), risk modeling development (new), situational awareness tools, structure wind strength reviews, and annual visual inspections (new).
- **Protection Programs.** These include the following subcategories of work: Advanced Distribution Management System ("ADMS") enhanced system protection (new), protection study for feeders (new), recloser communications network (new), substation relay communications upgrade (new), substation relay upgrade for remote non-reclosing (new), and design and install revised protection schemes (new).

- **Expanded Vegetation Management.** This includes: incremental Mountain Hazard Tree (“MHT”) Program actions (enhanced), creating a defensible space around poles (“DSAP”) or pole brushing on equipment poles (new), secondary voltage line clearance (new), and right-of-way (“ROW”) vegetation type conversion (enhanced).
- **Metrics, Tracking, and Reporting.** To measure WMP performance over time, the Company will track and measure multiple metrics. These include Plan and cost performance metrics in addition to a set of metrics designed to measure Plan efficacy, or wildfire risk reduction, over time as programs are implemented.
- **Ongoing Assessment of Other Activities for Future Consideration.** In addition to the core components of the Plan described above, the Company will continue to study new, emerging, and evolving technologies and practices that it will consider for future implementation in conjunction with the Plan. For example, the Company is considering how or when Public Safety Power Shut-Offs (“PSPS”) should be considered within Public Service’s service territory. The Company is also actively studying potential applications for technologies like microgrids, storage, and additional use of drones in strategic locations throughout the WRZ.
- **Community and Development.** As the Company continues to engage with communities and develop the WMP, there will be projects initiated to facilitate both. For example, the Company used third party resources to stand up the website, www.xcelenergywildfireprotection.com, as a means of providing the most up-to-date WMP information to the general public, including announcements of upcoming meetings and access to materials from previous meetings. In addition, software and professional services such as fire experts and advanced risk modeling software will improve the development of the WMP. Community-specific initiatives with non-profit fire protection agencies, as an example, will also be considered and funded through the Community and Development program.

III. SUMMARY OF WMP METRICS REPORTING AND TRACKING

The WMP Decision directs the Company to track and annually report on a series of Key Performance Indicators, or “KPIs,” during the three-year term of the deferred accounting mechanism authorized for WMP costs, as well as report on a series of metrics throughout the duration of the WMP.²

Given the timing of Proceeding No. 20A-0300E, which was largely adjudicated over the course of 2020, Public Service did not have the necessary internal processes and procedures in place to track the full scope of KPIs and metrics set forth in the WMP Decision for Plan Year 2020, and thus the KPIs and one of the metrics set forth in the WMP Decision were not required for 2020.³ Accordingly, the tracking and reporting requirements for 2021 and 2022, which will apply to future WMP Reports, are more comprehensive than those the Company is required to report on in this 2020 WMP Report. That said, as explained in more detail below, the Company is providing additional reporting for 2020 where it has actual or estimated data that it can provide.

² Decision No. R21-0109, ¶¶ 94-96.

³ Decision No. R21-0109, ¶ 94

IV. KEY PERFORMANCE INDICATORS

The WMP Decision approves and adopts the following KPIs:⁴

- **Vegetation Management Maintenance Cycle:** During each of the calendar years 2021 and 2022 Public Service will maintain vegetation around all distribution and transmission assets in the Company's identified WRZ on at least a 90 percent completion of cycle basis. The Company will provide annual reporting on this metric, including its progress on achieving the 90 percent targets.
- **Work Completion:** During each of the calendar years 2021 and 2022, Public Service will complete 90 percent of its scheduled work annually as proposed in the Company's WMP. The Company will provide annual reporting on this metric, including its progress on achieving this target.
- **Work Completion Ratio (WCR):** During the calendar years 2021 and 2022, Public Service will complete system hardening Repair/Replacement and System Protection programs to the percent of actual spend as compared to budget, across the entire WRZ, equal to or exceeding 0.900 and report the actual WCR by county in the WRZ. If the WCR is less than 0.900 then the Company will report WCR by system hardening program repaired or replaced for each county within the WRZ.

If these metrics are not achieved in a particular program year, the Company will provide detailed testimony and/or evidence explaining why it did not achieve the applicable target(s) at the time or times the Company seeks base rate cost recovery for distribution WMP costs and/or transmission WMP capital.

⁴ Decision No. R21-0109, ¶ 94.

V. METRICS REPORTING

Additionally, the WMP Decision directs the Company to report on the following specific metrics for each calendar year as part of its annual reporting:⁵

- A. Number of ignitions associated with electric overhead power lines within the WRZ;
- B. Number of downed transmission and distribution wires within the WRZ;
- C. Number of Red Flag Warning Days in Colorado;
- D. Communities or areas which experienced Red Flag Warnings and the dates they occurred;
- E. Total number of wildfires in the Company's service territory;
- F. Annual WCR for 2021 and 2022, as set forth in paragraph 94 of the WMP Decision;⁶
- G. Annual budgeted and planned distribution and transmission spend by WMP program for each county in the WRZ;
- H. Total actual annual distribution and transmission investment by WMP program for each county in the WRZ;
- I. Balances and monthly detail of the deferred accounts authorized in the WMP Decision;
- J. Company's progress on executing equipment upgrades, major line rebuilds, small conductor replacement, covered conductor, and overhead rebuilds with a summary of work completed and remaining work to be completed; and,
- K. Percentage on-cycle vegetation management activities for transmission and distribution assets in WRZ.

⁵ Decision No. R21-0109, ¶ 95.

⁶ While the WMP Decision does not require the Company to provide this metric for calendar year 2020, the Company is providing certain WCR reporting for informational purposes.

In the following sections, the Company provides information regarding each of these required metrics.

A. & B. NUMBER OF IGNITIONS & NUMBER OF DOWNED TRANSMISSION AND DISTRIBUTION WIRES WITHIN THE WRZ

Each year, Public Service develops and manages programs to maintain and improve the performance of its transmission and distribution assets. The information derived through these efforts is used to assist in analyzing and further hardening the system to prevent facilities from failing and mitigating the risk of wildfire and other public safety hazards. Among other things, the Company uses its Outage Management System (“OMS”), which is a common method for utilities to track electric outage data. In the context of its WMP, Public Service has developed a methodology for reviewing the thousands of entries of OMS data to search for instances of actual and potential downed wires as well as ignition events.

The Company has also developed a separate process for field personnel to report on downed power lines and ignition events. This effort is referred to as “Wires Down & Ignition” reporting and covers both distribution and transmission lines. Public Service field personnel that respond to reports of equipment issues and outages have received supplemental training on how to document any observed incidents of abnormal wires conditions and ignition events. These responders, such as linemen and troublemen, not only complete the appropriate repairs, but they also complete a Wires Down & Ignition Reporting Form, which is collected for further analysis. The information collected includes any evidence of ignition, fire, or displaced conductor. In the fall of 2020, the Company implemented software such that the forms could be created electronically. The following table lists the information the Company has collected based on the three methods described above.

Table 1

2020 Ignitions and Wires-Down Events		
	Downed Wires	Ignitions
Distribution	457	642
Transmission	3	5
Total	460	647

C. NUMBER OF RED FLAG WARNING DAYS IN COLORADO

The primary metric for monitoring fire-related weather is tracking Red Flag Warnings. A Red Flag Warning is issued when a combination of temperature, humidity, and wind are expected to combine to produce an increased risk of fire danger. The National Weather Service, which is part of the National Oceanic and Atmospheric Administration, is the primary source of wildfire warning information.⁷ The National Weather Service provides daily updates to Red Flag Warnings as well as Fire Weather Watches. Public Service has meteorologists on staff that are responsible for providing and tracking this information.

As part of the Company's routine utility operations, and in connection with wildfire mitigation and response efforts, the Company monitors and tracks Red Flag Warning days in Colorado, as well as the communities or areas which experienced Red Flag Warnings and the dates they occurred. The following table shows the number of Red Flag Warning days in Colorado in 2020 and related weather tracking metrics.

⁷ See https://www.weather.gov/bou/RFW_Definitions.

Table 2

2020 Red Flag Warning Days and Other Weather Tracking													
2020	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2020 total
Red Flag Warnings (RFW)	2	0	7	6	13	18	8	8	4	15	4	0	85
RFW Issued for the Day Ahead	0	0	1	0	4	3	f	2	1	3	0	0	17
Day Ahead Fire Weather Watch (FWW)	0	0	2	5	7	9	1	5	0	5	3	0	37
2-day ahead FWW	0	0	1	0	1	2	1	1	0	1	0	0	7
Storm Prediction Center (SPC) Elevated Fire Danger	2	0	9	7	12	20	9	11	9	13	8	0	100
SPC Elevated Fire Danger Issued for the Day Ahead	2	0	7	5	9	14	5	7	6	6	5	0	66
Total fire danger days (RFW and/or Elevated Fire Danger)	3	0	9	8	17	22	10	12	9	16	8	0	114
No advance notice of fire danger	1	0	3	2	5	6	4	5	3	8	3	0	40

D. COMMUNITIES AFFECTED BY RED FLAG WARNINGS

Community information is gathered from National Weather Service fire zones.⁸ Company meteorologists track which zones are impacted by Red Flag Warning days, and then compile a list of the communities that are within those zones. For a list of the communities affected by Red Flag Warnings and the dates they occurred please see Attachment A.

⁸ See https://www.weather.gov/media/pimar/FireZone/co_firezone.pdf.

E. TOTAL NUMBER OF REPORTED WILDFIRES IN THE COMPANY'S SERVICE TERRITORY

The Company actively monitors wildfires throughout the State of Colorado. In 2020, actual fire information was collected from a variety of sources, including:

- Indji Watch, a multiple hazard monitoring tool;⁹
- InciWeb, an interagency all-risk incident information management system;¹⁰
- Colorado Division of Homeland Security and Emergency Management, Department of Natural Resources, and National Forest Service;
- National Oceanic and Atmospheric Administration;
- Internal monitoring or reports from other Xcel Energy operational areas, control centers, individual field workers, security operations, enterprise command center, or meteorology;
- Local law enforcement reports; and,
- Social media, news outlets, or other media sources.

Public Service utilizes those sources to determine if any wildfires have the potential to impact its assets. The Company has guidelines for wildfire monitoring, initial decision making, initial notification, classification, and communication. Once an initial notification is received, wildfires are not actively monitored unless they are within 30 miles¹¹ or have the potential to encroach Company assets in less than 96 hours. Attachment B to this WMP Report provides the actual fires tracked in 2020, as derived from the sources listed above. These were wildfires that were close enough to Company assets to warrant some form of notification and subsequent monitoring.

⁹ Indji Watch is a cloud-based risk mitigation tool designed specifically to aid utility grid operators by giving them greater insights into environmental threats approaching their assets. Indji Watch allows the operator to be proactive in making better informed decisions on natural hazards that potentially threaten their utility operations.

¹⁰ InciWeb is an interagency all-risk incident information management system. The web-based program provides information for wildland fire emergencies and prescribed fires, but can also be used for other natural disasters and emergency incidents such as earthquakes, floods, hurricanes, tornadoes, etc. The system was developed with two primary missions: 1) provide the public a single source of incident related information; and 2) provide a standardized reporting tool for the public affairs community. Official announcements include evacuations, road closures, news releases, maps, photographs, and basic information and current situation about the incident.

¹¹ In 2021, the Company refined its monitoring process to only track wildfires that are within 10 miles of Company assets.

F. ANNUAL WCR FOR 2020

While not required by the WMP Decision for calendar year 2020, the following table provides information regarding the Company’s annual WCR. As provided in the WMP Decision, the WCR is calculated by dividing the percentage of annual work completed as compared to scheduled work, by the percentage of annual actual capital spend as compared to budget by program.

Table 3

2020 WCR by Program Area (Capital)	WCR (% Complete / % Budget)	Weight by Program Area Budget	Weighted WCR (% Complete / % Budget by Program Area)*
Protection			1.13
Design/Construct Revised Protection Schemes	1.3	64%	
Protection Study for Feeders	1.8	2%	
Recloser Communications Network	1.8	7%	
Substation Relay Upgrade	0.6 ¹²	27%	
Replacement			0.99
High Priority Defect Corrections	0.7 ¹³	16%	
Major Line Rebuilds	1.0	11%	
Pole Replacement	1.0	73%	
*There may be differences between the product of the individual program weight and WCR amounts due to rounding			

¹² The WCR for Substation Relay Upgrades was 0.6 due to not meeting the 2020 original project target. The Company further refined scoping for 2020 and therefore focused primarily on engineering, which resulted in approximately 65 percent of the year-end installation goal being shifted to future years.

¹³ The WCR for High Priority Defect Corrections was also under 0.9 due to coming in slightly under target and the spend being higher than forecasted. This was predominantly driven by the Company experiencing outage constraints and permitting delays, as well as cost increases due to higher constructions costs.

G. & H. ANNUAL BUDGETED/PLANNED AND ACTUAL DISTRIBUTION & TRANSMISSION SPEND

The following tables provide information on the Company's budgeted/planned and actual WMP spending for calendar year 2020. The Company's 2020 spend by county and 2020 investment by county can be found in Attachments C and D respectively.

Table 4 – 2020 Budgeted and Actual Investment

2020 Actual Compared to Budget Investment (\$ million)								
Business Unit	Budget		Actuals		Variance %		Variance	
	O&M	Capital Expenditures	O&M	Capital Expenditures	O&M	Capital Expenditures	O&M	Capital Expenditures
Distribution	\$7.825	\$55.590	\$5.020	\$50.002	36%	10%	(\$2.805)	(\$5.589)
Transmission	\$2.096	\$16.838	\$0.583	\$16.107	72%	4%	(\$1.514)	(\$0.731)
Total	\$9.921	\$72.429	\$5.602	\$66.109	44%	9%	(\$4.319)	(\$6.320)

Table 5 – 2020 Budgeted and Actual Investment by Program Area

2020 Actual Investment Compared to Budget by Program (\$ million)								
Business Unit	Budget		Actuals		Variance %		Variance	
	O&M	Capital Expenditures	O&M	Capital Expenditures	O&M	Capital Expenditures	O&M	Capital Expenditures
Community and Development	\$0.973	\$0.000	\$0.063	\$0.000	94%	0%	(\$0.910)	\$0.000
Inspection / Modeling	\$5.052	\$0.790	\$1.951	\$2.826	61%	258%	(\$3.101)	\$2.036
Protection	\$0.690	\$9.236	\$0.141	\$5.054	80%	45%	(\$0.549)	(\$4.182)
Repair and Replace	\$1.410	\$62.402	\$1.524	\$58.229	8%	7%	\$0.114	(\$4.174)
Vegetation Management	\$1.796	\$0.000	\$1.923	\$0.000	7%	0%	\$0.127	\$0.000
Total	\$9.921	\$72.429	\$5.602	\$66.109	44%	9%	(\$4.319)	(\$6.320)

I. BALANCES AND MONTHLY DETAIL OF THE DEFERRED ACCOUNTS

The deferral of WMP costs, including costs incurred in 2019 and 2020 beyond what is currently included in Public Service’s base rates, began on January 1, 2021, therefore there is no information to report on this topic for calendar year 2020. Public Service will provide this information in future WMP Reports.

J. COMPANY'S PROGRESS

The table below provides the Company's progress on executing equipment upgrades, major line rebuilds, small conductor replacement, covered conductor installation, and overhead rebuilds, with a summary of work completed and remaining work to be completed.

Table 6

Progress on System Protection and Replacement Projects						
Project	T/D/G	2019 Completed	2020 Completed	2021 Target	Total	Units
High Priority Defect Correction	T	72	225	211	508	Defects
Major Line Rebuilds	T	NA	E&P ¹⁴ for 2 circuits	33	33	Miles
Pole Replacement	D	2,305	3,697	4,480	10,482	Poles
Recloser Installation	D	NA	43	13	56	Reclosers
Relay Upgrade	D	Engineering	7	23	30	Relays
Bare Secondary Conductor Replacement	D	NA	NA	38	38	Miles
Small Conductor Replacement	D	NA	NA	60	60	Miles
Covered Conductor	D	NA	NA	17	17	Miles
Equipment Upgrades	D	NA*	NA*	NA*	NA*	Count

*Equipment Upgrades in 2019 and 2020 occurred with new pole replacements and in the specific cases and were not tracked separately as individual pieces of equipment. In 2021 the program is being evaluated for additional tracking and reporting for work to begin in Q3 2021.

¹⁴ “E&P” stands for Engineering & Procurement.

K. VEGETATION MANAGEMENT ACTIVITIES IN WRZ

The table below provides the percentage of on-cycle vegetation management activities for transmission and distribution assets in the WRZ.

Table 7

Program	2020 YE Goal	2020 YE Actual	Status
DSAP	1,500 poles	1,467 poles	98% of pole target
Dist. Secondary Clearance	16 Distribution Maintenance Areas (“DMAs”) (~Circuits) on 2020 work plan in WRZ	Completed secondary voltage clearing on all 16 DMA projects	100% of applicable projects
Dist. MHT / Enhanced MHT (“EHMT”)	MHT: 962 miles	MHT: 964	100%
	EMHT: 324 miles	EMHT:324	
Trans. MHT / EMHT	MHT: 554	MHT: 554	100%
	EMHT:196	EMHT: 196	
Trans. ROW Conversion	No goal set	26 acres	N/A