

**COLORADO RURAL ELECTRIC
ASSOCIATION**

ANNEX PLAN 2021

NOVEMBER 2021

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Annex A Rural Electric Cooperatives

1. Introduction and Background

Electric Cooperatives are locally operated electric utility businesses that provide service to Colorado customers. Electric cooperatives are owned and regulated by their customers and governed by a board of directors elected from the membership of the customers. The board of directors set policies, procedures, and rates that are implemented by the cooperative's professional staff. Electrical cooperatives pride themselves in providing near-cost electric service to members.

Nationally, investor-owned utilities maintain approximately 73% of all customers, municipally owned utilities maintain 14% and cooperatives maintain approximately 13% of all customers.

The establishment of electric cooperatives was the result of a lack of electrical service to rural areas of the United States. In the 1930's rural areas across America were still without electricity – an estimated nine out of ten rural homes were without electricity. Investor-owned utility companies were unwilling to provide service to rural areas throughout the country as it was believed there would be insufficient revenue in rural areas to support the needed infrastructure investments.

The Rural Electrification Administration (REA) was created on May 11, 1935, as part of Franklin Delano Roosevelt's "New Deal", with the primary goal of promoting rural electrification. The Executive Order establishing the REA and the passage of the REA Act a year later marked the first steps in a public-private partnership that has, over the last 85 years, bridged the vast expanse of rural America to bring electric power to businesses and communities willing to organize cooperatively and accept responsibility for the provision of safe, affordable, and reliable electric power.

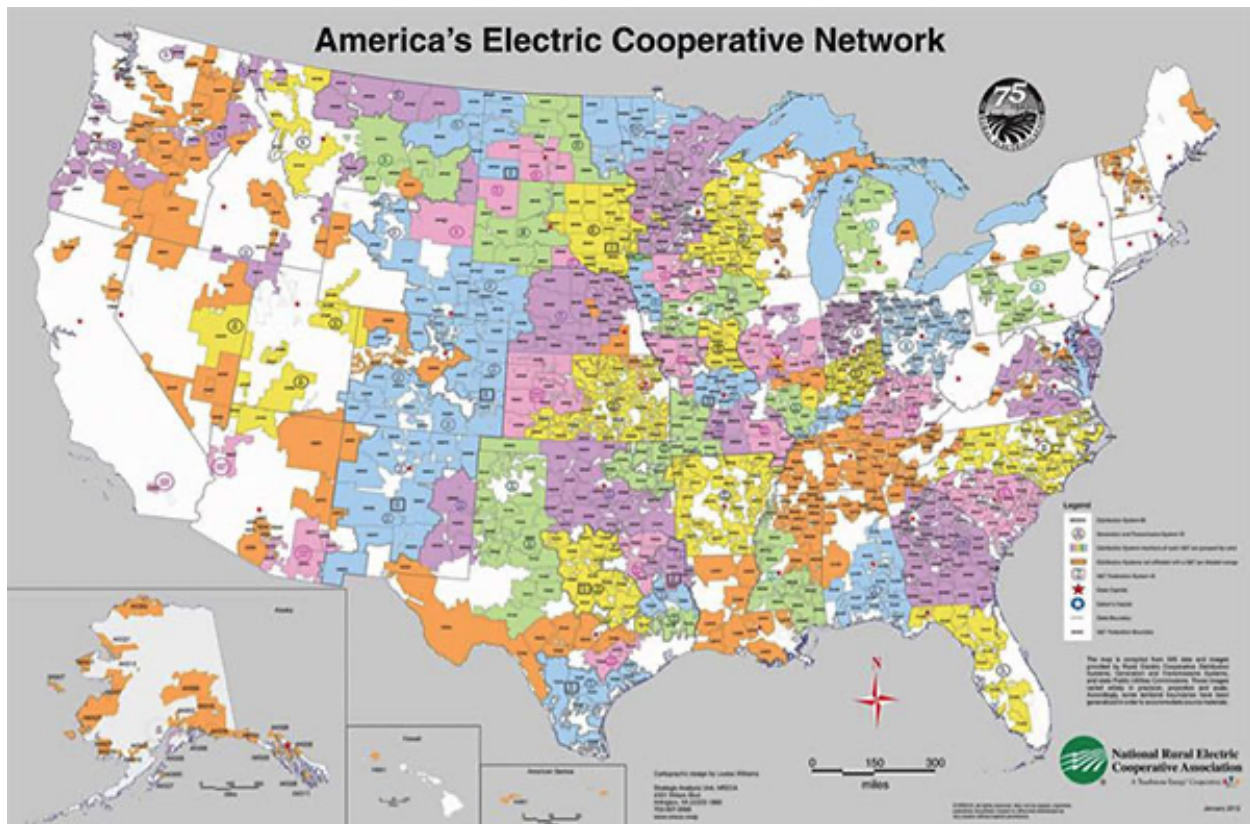
a. America's Electric Cooperative Network

Today more than 900 electric cooperatives power Alaskan fishing villages, dairy farms in Vermont, and the suburbs and exurbs in between, as shown in Figure A-1. Cooperatives in the U.S. account for approximately 5 percent of total utility generation and 10 percent of utility sales to ultimate consumers each year. They provide reliable and technologically advanced service to 42 million Americans while maintaining a unique consumer-focused approach to business. Some of these cooperatives provide generation and transmission, while other are solely distribution cooperatives. Typically, generation and transmission cooperatives serve many distribution cooperatives, who in turn serve consumers.

The original intent of cooperatives was to serve rural areas, so it is no surprise that cooperatives make up a significant portion (42%) of electrical distribution lines. Cooperatives also by their rural nature are more inclined to serve residential customers and not commercial or industrial service sectors. This is evident when comparing cooperatives percentage sales by kWh to municipal and investor-owned providers.

Co-ops are more likely to serve residential customers in rural parts of the U.S. compared to municipal and investor-owned providers. This creates large networks for cooperatives to manage and maintain with fewer customers. When comparing revenue per mile rural electric cooperatives are at a significant economic disadvantage to investor owned or municipal distribution providers.

Figure A-1



b. Colorado Cooperatives

Colorado's electric cooperatives serve communities from ski resorts to irrigated farmland. Colorado's rural electricity needs are served by 22 consumer-owned Rural Electric Cooperatives (REC) throughout the state and 1 generation and transmission cooperative (G&Ts). Generation and transmission cooperatives generate electricity and transmit it to distribution cooperatives. Distribution cooperatives purchase wholesale power, usually from a G&T, and deliver it to members. These cooperatives and their service territories are shown in Figure A-2.

Distribution cooperatives are the foundation of the rural electric network, delivering electricity to retail customers. G&Ts provide wholesale power to distribution coops, either through their own generation or by purchasing power on behalf of the distribution members. G&T serving Colorado is experiencing changes in wholesale power production, anticipating that coal-powered electric generation will be transitioning out, with wind, gas and hydro-electric power plants replacing coal power plants. The transition is expected to result in an increased cost of power to G&Ts, cooperatives, and ultimately, rural customers.

The twenty-two cooperatives participating in this planning effort combine for a total of 79,550 miles of distribution lines serving approximately 724,353 customers in 63 of Colorado's 64 counties. Tri-State Generation and Transmission Association provides electricity to 17 of the 22 cooperatives. The remaining 5 cooperatives receive their power supply from an investor-owned utility or power market.

Figure A-2

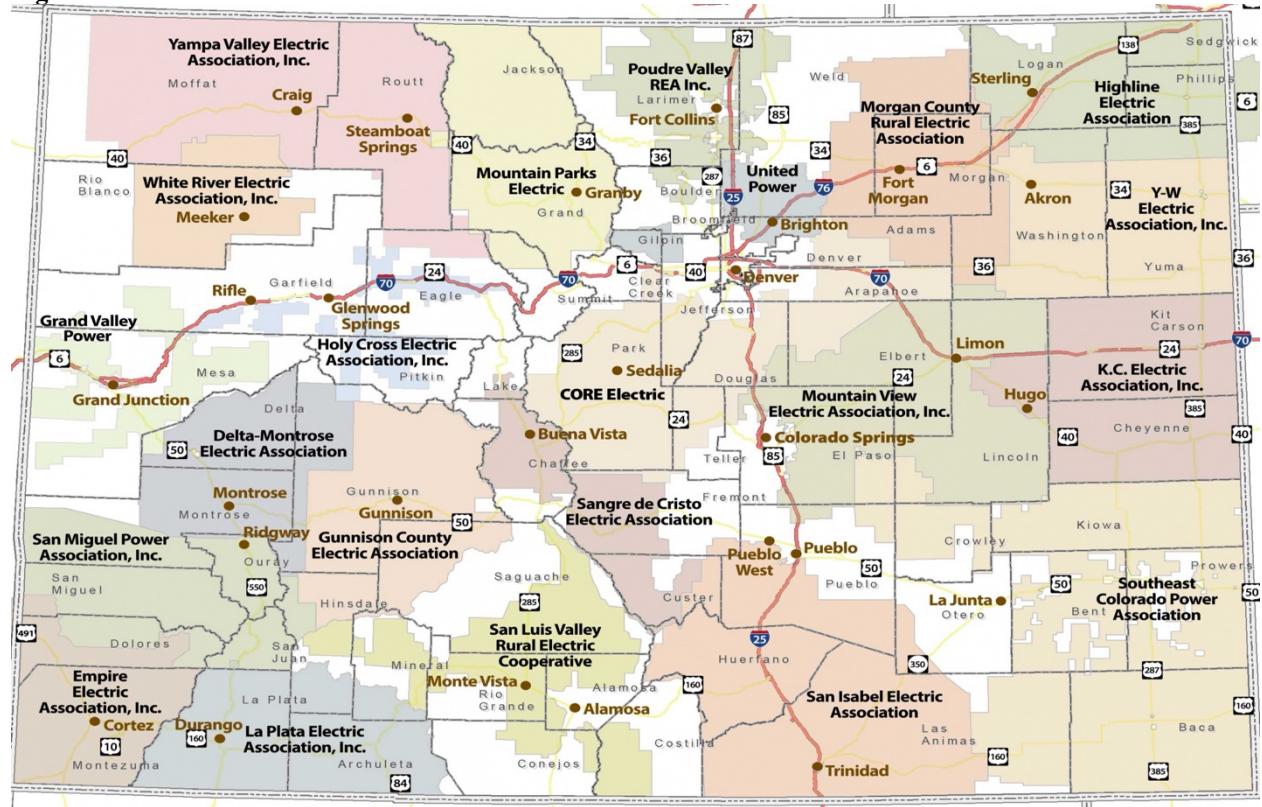


Figure A-3

Cooperative	Counties Served	Meters per mile	Miles of Line	Number of meters
Core Electric	Adams, Arapahoe, Clear Creek, Douglas, Elbert, El Paso, Fremont, Jefferson, Park, Teller	16.38	10,102	166,422
Delta-Montrose Electric Association	Delta, Montrose, Gunnison	10.23	3,331	34,090
Empire Electric Association	Dolores, Montezuma, San Miguel	8.8	1,890.15	16,659
Grand Valley Power INC.	Mesa, Delta, Garfield,	11.73	1,686	19,784
Gunnison County Electric Association	Gunnison, Hinsdale, Saguache	10	1,096	11,206
Highline Electric Association	Phillips, Logan, Sedgwick, Yuma, Washington, Weld, Morgan	2	5,170	10,509
Holy Cross Energy	Garfield, Pitkin, Eagle, Gunnison, Mesa	19.2	3,061	61,156
K.C. Electric Association	Cheyenne, Kit Carson, Lincoln	2.15	3,073	6,593
La Plata Electric Association	La Plata, Archuleta, Mineral, Hinsdale, San Juan	12.57	3,745	47,085
Morgan County Rural Electric Association	Adams, Arapahoe, Logan, Morgan, Washington, Weld	3.09	2,912	8,993
Mountain Parks Electric INC.	Grand, Jackson, Summit, Routt, Larimer	11	1,848	22,037
Mountain View Electric Association INC.	Arapahoe, Crowley, Douglas, Elbert, El Paso, Lincoln, Pueblo, Washington	9.61	6,214	59,738
Poudre Valley Rural Electric Association INC.	Larimer, Weld, Boulder	10.8	4,336	46,921
San Isabel Electric Association INC.	Pueblo, Las Animas, Huerfano, Otero, Fremont, Custer, Costilla	5.27	4,643.76	24,450
San Luis Valley Rural Electric Cooperative INC.	Alamosa, Rio Grande, Costilla, Conejos, Mineral, Hinsdale, Saguache	4.6	2,767	12,821
San Miguel Power Association INC.	Montrose, San Miguel, Dolores, Mesa, San Juan, Hinsdale, Ouray	7.4	1,888	13,971
Sangre de Cristo Electric Association INC.	Chaffee, Custer, Fremont, Lake, Saguache	7.6	1,787	13,629
Southeast Colorado Power Association	Baca, Bent, Cheyenne, Crowley, Kiowa, Las Animas, Lincoln, Otero, El Paso, Powers, Pueblo	1.8	5,738	10,567
United Power INC.	Adams, Broomfield, Weld, Jefferson, Boulder, Gilpin	15.3	6,384	97,704
White River Electric Association	Rio Blanco, Moffat, Garfield	3.31	1,031	3,412
Y-W Electric Association INC.	Yuma, Washington	2.21	3,968	8,787
Yampa Valley Electric Association INC.	Routt, Moffat, Grand, Eagle, Rio Blanco	9.65	2,881	27,819

Information Gathered from 2021 CREA Directory

In addition to providing electric service, electric co-ops support their communities by promoting development and revitalization projects, small businesses, job creation, and other community services.

Cooperative businesses adhere to seven guiding principles:

1. Voluntary and Open Membership -- Cooperatives are voluntary organizations, open to all persons able to use their services and willing to accept the responsibilities of membership, without respect to gender, social, racial, political, or religious affiliation.
2. Democratic Member Control -- Cooperatives are democratic organizations controlled by their members, who actively participate in setting policies and making decisions. The elected representatives are accountable to the membership. In primary cooperatives, members have equal voting rights (one member, one vote) and cooperatives at other levels are organized in a democratic manner.
3. Members' Economic Participation -- Members contribute equitably to, and democratically control, the capital of their cooperative. At least part of that capital is usually the common property of the cooperative. Members usually receive limited compensation, if any, on capital subscribed as a condition of membership. Members allocate surpluses for any or all the following purposes: developing the cooperative, possibly by setting up reserves, part of which at least would be indivisible; benefiting members in proportion to their transactions with the cooperative; and supporting other activities approved by the membership.
4. Autonomy and Independence -- Cooperatives are autonomous, self-help organizations controlled by their members. If they enter into agreements with other organizations, including governments, or raise capital from external sources, they do so on terms that ensure democratic control by their members and maintain their cooperative autonomy.
5. Education, Training, and Information -- Cooperatives provide education and training for their members, elected representatives, managers, and employees so they can contribute effectively to the development of their cooperatives. They inform the public, particularly young people, and opinion leaders, about the nature and benefits of cooperation.
6. Cooperation Among Cooperatives -- Cooperatives serve their members most effectively and strengthen the cooperative movement by working together through local, national, regional, and international structures.
7. Concern for Community -- Focusing on member needs, cooperatives work for the sustainable development of their communities through policies accepted by their members.

c. Colorado Rural Electric Association (CREA)

In Colorado, twenty-six RECs serve residential, commercial, and industrial consumers statewide. There are four that are headquartered outside the state of Colorado that serve multi-state regions, leaving twenty-two that are headquartered in Colorado and serve Colorado consumers. REC service territories are shown on the statewide electric service provided map above in Figure A-2.

CREA is governed by a board of directors made up of one representative from each of Colorado's 22 distribution cooperatives, plus 3 CEOs from Colorado cooperatives, and one member from Tri-State G&T association.

2) Planning Process

Prior to 2010, federal hazard mitigation funding had not generally been available to Colorado rural electric cooperatives. Rural electric cooperatives had been largely unaware of the opportunity available to them. The development of an electric cooperative annex to the 2010 State of Colorado Hazard Mitigation Plan was done in response to the passage of the Disaster Mitigation Act of 2000 (DMA2K).

The annex was developed so rural electric cooperatives would be included as participants in Colorado's Mitigation Plan, making them eligible for FEMA's Hazard Mitigation Grant Program (HMGP). Colorado's Rural Electric Cooperatives participated in the 2021 plan update process. The Colorado Division of Homeland Security & Emergency Management (DHSEM) initiated the planning process in partnership with the rural electric cooperatives across the state. This section highlights specifics of REC participation in that process.

Hazard mitigation activities have been and will continue to be pursued by rural electric cooperatives so future natural disasters will have less impact on electric cooperative business, their customers and ultimately, residents of and visitors to the State of Colorado.

In past Presidential Disaster Declarations, rural electric cooperatives were affected and included as a part of the public assistance program. Development of this Annex to the State Plan represents a more concerted effort to help electric cooperatives become less vulnerable to natural hazards. Rural electric cooperative service areas do not typically stop at county borders, but typically exist across county lines, in multiple counties and often across state lines as well (see Figure A-2). Therefore, it makes sense to ensure rural electric cooperatives are covered under the Colorado Mitigation Plan because each cooperative would expend an inordinate amount of time participating in multiple local planning efforts.

a. Plan Participants

All twenty-two of Colorado's Rural Electric Cooperatives participated throughout the planning process by participating in a survey of mitigation capabilities, needs, and activities (see below), by reviewing draft of this Annex, and by assisting with the development of mitigation actions. CREA Dale Kishbaugh, Director of Safety & Loss Control, coordinated and facilitated the planning process and communicated the information.

b. REC Survey

During the 2021 planning process, CREA conducted a survey of Colorado rural electric cooperatives regarding their perceptions, past experiences, and concerns regarding the impacts of natural hazards on their utility systems. The survey asked 30 questions ranging from concern that service will be interrupted by natural hazards to how often cooperatives coordinate and plan with local response personnel. The survey was completed by 100% of distribution cooperatives across the state. The responses to the survey are attached at the end of this Annex.

c. Survey highlights include:

- The cooperatives reported to have been impacted by critical electric infrastructure in the past 10 years were: avalanche 6 cooperatives, drought 9 cooperatives, earthquake 1 cooperative, erosion and deposition 8 cooperatives, expansive soils 4 cooperatives, extreme heat 5 cooperatives, fire 20 cooperatives, floods 13 cooperatives, hailstorms 10 cooperatives, landslides 10 cooperatives, lighting 18 cooperatives, precipitation 8 cooperatives, subsidence 2 cooperatives, thunderstorms 14 cooperatives, tornados 11 cooperatives, windstorms 16 cooperatives, and winter weather 20 cooperatives.
- 73% of the cooperatives reported that they are involved with pre-disaster mitigation planning, 55% of the Colorado cooperatives have participated in state exercises for disasters and 55% of the cooperatives do not have a copy of the county emergency management plans.
- The goals of the cooperatives were identified as minimize the loss of life and personal injuries, reduce losses and damages due to natural disasters to infrastructure, Reduce the costs of disasters response and recovery, minimize interruption of essential services, incorporate equity considerations into all mitigation strategies, and wildfire mitigation.
- Assets ranked as being the most critical to the overall REC system were substations, transformers, and transmission and distribution lines.
- The prioritization of different mitigation actions varied widely between REC's.

3) Vulnerability Assessment

As noted in the “Economic Benefits of Increasing Electric Grid Resilience to Weather Outages” published in 2013 by the Executive Office of the President - Severe weather is the single leading cause of power outages in the United States. Outages caused by severe weather such as thunderstorms, hurricanes, and blizzards account for 58% of outages observed since 2002 and 87% of outages affecting 50,000 or more customers (U.S. DOE, Form OE-417). Severe weather can be expected to continue to have a profound impact on rural electric cooperatives across the state. Power outages caused by winter storms, lightning, high winds, flood, wildfire, and tornadoes can have significant economic impacts. These events may force the closure of businesses, schools, and government offices. Homeowners may see food spoiled, move to a temporary shelter, experience flooding inside of their homes, or have their pipes burst all due to the lack of power. A wide range of REC assets and infrastructure are potentially exposed to natural hazards. Survey respondents rated the following assets as being the most critical to overall system integrity: substations, transformers, and transmission and distribution lines. Other assets ranked as being critical included human capital, telecommunications, business systems, networks, and vehicles.

Large-scale power outages due to extreme weather may require state and local governments to open shelter facilities and to care for people displaced from their homes. For events reaching the level of a Presidentially Declared Disaster, FEMA may allow local governments to recover some costs but in smaller events, all the costs are borne by local businesses, communities, and local government.

Power outages caused by weather may make vulnerable populations more vulnerable. People recovering from illnesses, the elderly, children, and low-income populations may be more vulnerable to the impacts of power outages than others. Frequently, initial calls to emergency responders come from hospitals, nursing homes, and other care facilities with a sudden loss of power.

Public agencies are frequently responsible for debris removal and clean-up following a storm or tornado. Police and fire personnel may be tasked with public safety in the event power lines come down and are determined to be dangerous to nearby residents. Colorado rural electric cooperatives have experienced damage in weather related, wildfire, and flooding disasters. Damage to two cooperatives was the result of wildfire in October 2020.

Rural electric cooperatives span the entire state and based on historical public assistance damage data and information collected from rural electric cooperative leadership, cooperatives statewide are vulnerable to natural hazards and storms. Rural electric cooperatives could very well become more vulnerable without mitigation against future damaging disasters.

The top 12 Colorado weather events of the 2010s decade include the following weather events, from 2010 through 2019, were identified by the staffs at all three National Weather Service offices in Colorado as the most severe events.

The top 12 Colorado weather events of the 2010s decade include the following: This does not include the wildfires of 2020.

- 1.) September 2013 Floods
- 2.) 2012 wildfires
- 3.) March 2019 “Bomb Cyclone”
- 4.) May 8, 2017, Denver Hailstorm
- 5.) Winter ’18-19 Avalanches
- 6.) 2013 Wildfires
- 7.) Summer 2018 Hailstorms
- 8.) March 23, 2016, blizzard
- 9.) August 2019 Bethune hailstorm
- 10.) Summer 2012 Heat & Drought
- 11.) June 2015 Berthoud Tornado
- 12.) January 2017 Ice Storm

a. Floods

Flooding has the potential to damage REC buildings and utility infrastructure.

Floods of September 2013 damaged several utilities infrastructure.

Following a few days of light to moderate rains in portions of the state, the clouds unleashed torrents of rain across relatively large portions of the Front Range from the evening of September 11th through much of September 12th.

A very rich, subtropical airmass situated itself over the state through much of this week, but on the evening of September 11th a weak disturbance coincided with the showers and thunderstorms. That resulted in a very slow and almost stationary area of heavy rain along the Front Range. That rainfall, heavy at times, lasted through much of September 12th, before finally decreasing late that night. A few showers and storms occurred in the days that followed, with the last bout of locally heavy rain on Sunday, September 15th.

Rainfall totals through this period reached 6 to 18 inches in many areas of the Front Range, including most of the foothills from around I-70 northward to the Wyoming border, eastern and northern sections of the Denver Metro area, and portions of Teller and El Paso County including western sections of Colorado Springs. The heaviest totals of 12 to 18 inches were widespread through much of Central Boulder County, stretching from Boulder north and west toward Jamestown, Lyons, and into Central Larimer County including the Estes Park area. The vast majority of this rain fell in about 30 hours from the 11th through the 12th. The 24-hour state precipitation record was broken in Fort Carson, Colorado, with a whopping 11.85 inches of rain falling on September 12th. Boulder set a calendar day record rainfall of 9.08 inches, which shattered the previous wettest day of 4.80 inches set on July 31, 1919. Finally, a one-month record of 18.16 inches in September also shattered Boulder's previous all-time monthly record of 9.59 inches set in May of 1995. (*Source: National Weather Service, Colorado weather events for the Decade 2010-2019*)

Disaster events involving flooding and high winds have the potential to significantly limit cooperatives from recovery efforts. 15 of the cooperatives responding to the survey stated that critical assets had been damaged or adversely affected by flooding. 5 rated its potential future impact on their infrastructure as high, with 7 rating it as medium. The flooding event of 2013 caused damage throughout the state and affected cooperative utility infrastructure, making recovery efforts more difficult.

b. Lightning

All the cooperatives responding to the survey stated that lightning had previously damaged or adversely affected their critical assets. 9 rated its potential future impact on their infrastructure as high, with 9 rating it as medium.

All counties are subject to lightning. Lightning remains a certain danger in Colorado. Lightning is a sudden electrical discharge released from the atmosphere that follows a course from cloud to ground, cloud to cloud, or cloud to surrounding air, with light illuminating its path. Lightning's unpredictable nature causes it to be one of the most feared weather elements. Individuals reliant on electricity to meet day-to-day health needs, those reliant on oxygen machines for example, may be impacted more by lightning because of lightning-caused power outages. This group is susceptible to serious injury or death because of lightning-caused power outages.

Based on data from the National Weather Service, lightning causes 2 fatalities and 12 injuries per year in the State of Colorado. In an Average year, about 500,000 lightning flashes hit the ground in Colorado.

In Recent years, Colorado was tied for 7th in the Nation when it comes to lightning fatalities (years 2008-2018). When you look at a longer period, Colorado ranks 4th in the Nation for fatalities (years 1959-2019).
Data from National Weather Service, Colorado Lighting Statistics as compared to other States

c. Wildfire

Colorado has had a devastating history dealing with wildfires. With 20 of the largest wildfires occurring in the last 20 years, and 16 of the top 20 wildfires occurring in the last 13 years, 15 of the top 20 largest wildfires have occurred in the last 9 years, 11 of the top 20 wildfires occurring in the last 5 years, 9 of the top 20 wildfires have occurred the last 3 years and 4 of the top wildfires occurring within the past 3 years. Below is the list of the top 20 wildfires in Colorado.

Rank	Fire	Acre	Year
1	Cameron Peak	208,913	2020
2	East Troublesome	193,812	2020
3	Pine Gulch	139,007	2020
4	Hayman	137,760	2002
5	Spring Creek	108,045	2018
6	High Park	87,284	2012
7	Missionary Ridge	70,285	2002
8	West Fork	58,570	2013
9	416	54,129	2018
10	Papoose	49,628	2013
11	Bridger	25,800	2008
12	Last Chance	45,000	2012
13	Bear Springs	44,662	2001
14	MM 117	42,795	2018
15	Beaver Creek	28,380	2016
16	Bull Draw	36,549	2018
17	Badger Hole (Multiple States)	33,421	2018
18	Grizzly Creek	32,631	2020
19	Logan	32,546	2020
20	Burn Canyon	31,300	2002

Source: Colorado Historical Wildfire Information

Cooperative transmission lines and electrical supply lines serving neighborhoods in the wildland-urban interface are at risk to Colorado's wildfire hazard as are rural communities they serve. Additionally, Colorado residents served by rural electric cooperatives are subject to both wildland fire and to electrical outages caused by fire-impacted electric infrastructure.

Wildfire can burn power poles and melts electric lines, making them unable to transmit power until repairs can be made. Depending on the extent of fire damaged electrical infrastructure, repairs could take days or months. Extended repairs have the potential for significant economic impacts to REAs due to lost revenue in addition to the cost of repairs.

Loss of electrical power following a fire some distance away could have an impact on coop customers, even if the customers were not otherwise impacted by a wildland fire. All 22 of the cooperatives responding to the survey stated that critical assets had been damaged or adversely affected by fire in the past. 11 cooperatives rated its potential future impact on their infrastructure as high, with 9 rating it as medium.

d. Windstorms

High winds are an extremely common occurrence in Colorado, and often can result in severe damages. On June 6th, 2020, Washington, Logan and Weld counties experienced severe straight-line winds that snapped several utility poles, knocking out power to several towns and farms. Windstorms can be widespread and highly damaging or result in limited site-specific problems for electric cooperatives. Of the cooperatives that participated in the mitigation survey 8 cooperatives indicated that they have had electrical infrastructure adversely affected/damaged by windstorms. 11 of respondents indicated that windstorms have a high potential to adversely impact electrical infrastructure, with 8 ranking it as medium.

The most vulnerable electrical structures to wind events are overhead utility lines and the poles. Many rural electric utility lines in Colorado are overhead. State-wide there is nearly 79,550 miles of distribution line, all of which can be considered vulnerable to damage from windstorms. To create a system less vulnerable to windstorms, overhead lines need to be converted to underground lines or strengthened to withstand high wind events. To implement such a mitigation effort both FEMA and cooperatives would need to support cost beneficial construction efforts. Cooperatives in very rural parts of the state have a per mile customer rate of less than 5. The statewide average for cooperatives is 8.40 customers per mile this limits the ability to implement a cost benefit strategy.

e. Winter Storm

Winter storms in Colorado typically generate wind in conjunction with precipitation, adding snow drifting to the impacts of winter storms. Damaged power poles and lines, electrical wires, and communication towers are the most prominent winter storm impacts on REC's.

As a result of winter weather, telecommunications and power can be disrupted for days. Heavy snow or accumulated ice can isolate people from assistance or services. Winter storm conditions impact rural electric staff's ability to reach damaged infrastructure. Injury or death to linemen are real threats when these conditions exist. Because winter storms are common in Colorado, vulnerable populations can be significantly impacted. Impacts include inability to get from one location to another because of closed roads, making pharmacies and grocery stores inaccessible. Electrical outages can occur during winter snowstorms and blizzards, limiting or eliminating household heating and cooking capability.

Rural areas tend to be more susceptible to power outages in winter storms and power outages in rural areas tend to be of greater duration than those in more populated areas. Rural locations are more likely to have livestock and farming economic factors, which can be significantly impacted by winter weather.

Electric cooperatives are highly vulnerable to winter storms due to their expansive network across the state and the frequency of winter storms. 100% of electrical cooperative respondents indicated that their electrical infrastructure had been affected and/or damaged by winter storms. When asked what type of impact a winter storm has to potentially damage their infrastructure, 20 cooperatives responded that that winter storms posed a high potential, the highest of all-natural hazards. As noted in the wind vulnerability section, most distribution lines are currently overhead and highly vulnerable to winter storms. Cold temperatures are routine in winter storms and pose additional challenges, putting crews and equipment in danger. Difficult driving conditions come with winter storms, putting repair crews on icy or wind drifted snow roads. Crews are subject to harsh conditions, including extreme cold and wind chills, when repairing utility lines.

4) Capability Assessment

This section profiles the programs and policies currently in use by Colorado Rural Electric Cooperatives to reduce hazard impacts or that could be used to implement hazard mitigation activities. 8 of RECs have conducted a hazard analysis and risk assessment outside of the State Hazard Mitigation Plan in the last 3 years. 12 cooperatives reported participating in mitigation planning with their local jurisdictions, and 19 reported participating in response planning. Only 12 reported participating in state response exercises, but 12 reported having worked with local government during actual hazard events. 10 RECs reported having copies of local government mitigation or response plans; this could be an area to target for improvement in the coming years. The State continues to work with the Rural Electric Cooperatives (RECs) to improve the integration of mitigation practices throughout the state's electrical system. CREA meets and coordinates with the RECs on a recurring basis.

5) Mitigation Strategy

The purpose of the development of an Annex to the Colorado State Mitigation Plan specific to rural electric cooperatives is to create a vision for mitigating future disasters, establish a common set of mitigation goals across the state, identify and prioritize actions, and evaluate the success of such actions over time.

Mitigation measures are actions taken by a REC that either eliminate or reduce the effects of the identified vulnerabilities. Consideration as to which actions are taken include:

- Will the actions reduce the probability of an undesired event occurring?
- What is the cost of implementing actions?
- Is there any enforcement or audit required?

Actions may be prioritized by considering the level of risk reduction, cost, and/or implementation challenges. There is typically a point beyond which taking additional mitigation actions will raise costs without appreciably enhancing the protection afforded.

Goals, objectives, and actions

The mitigation goals, objectives, and actions are connected to the risk assessment and focus on the natural hazards most frequently affecting or damaging critical electrical infrastructure or rated as having a high or medium potential to do so. In addition, these hazards are most likely to result in costs related to critical infrastructure damage or loss of service to consumers. These hazards include:

- Wildfire
- Lighting
- Thunderstorms
- Windstorms
- Winter Weather

Goals

The electric cooperatives support the goals and Mission Statement as detailed in the Colorado Mitigation Plan. During the CREA mitigation strategy workshop the top goals were discussed. The goals and objectives that specifically are relevant to the RECs include:

Goal 1: Wildfire Mitigation

Objective: Reduce the damage to REC critical assets.

Goal 2: Minimize the loss of life and personal injuries

Objective: Educate the members about hazards when natural disasters occur

Goal 3: Reduce losses and damages due to natural disasters to infrastructure

Objective: Strengthen and harden lines where feasible

Goal 4: Minimize interruption of essential services

Objective: Strengthen and harden lines, line patrol, and hazard recognition

Goal 5: Reduce costs of disaster response and recovery

Objective: Strengthen the mutual aid agreements, assist cooperatives when in need of assistance in recovery

Goal 6: Enhance relationships between REC's and local emergency management

Objective: Participate in statewide emergency drills, participate in CREA statewide annual drills

Goal 7: Incorporate equity considerations into all mitigation strategies

Objective: Review cost analysis in future projects

The State of Colorado and CREA will continue to work with cooperatives to:

- Increase awareness of risks and utility infrastructure vulnerabilities to natural hazards
- Establish hazard mitigation goals
- Identify strategies to assist with mitigation implementation
- Establish priorities for the use of cooperative and public resources to mitigate hazards
- Enable cooperatives, as sub-applicants, to seek hazard mitigation funding from the Federal Emergency Management Agency
- Improve recovery efforts related to natural disasters
- Minimize public safety concerns and power supply disruptions to persons served by electric cooperatives

Electric cooperatives provided input into the development of site-specific mitigation strategies included in Table A-2. In addition to these site-specific strategies, through research of best practices, a list of mitigation strategies was developed that could be applied to all electrical cooperatives through support of this plan. This list of actions was revisited during the 2020 update of the Colorado Mitigation Plan to identify the status of the actions and to track progress toward meeting plan goals. Progress made on actions are noted by specific electric cooperative where applicable. Updated priorities are reflected in the mitigation action table. Colorado's RECs have been proactive in working to reduce the vulnerability of their systems and improve their resilience to natural hazards. 100% of survey respondents reported having taken mitigation action(s) to make critical electric infrastructure more resistant to natural hazards. Power lines have been hardened to reduce vulnerability to severe weather, vegetation plans have been updated, and wildfire fuels have been cleared. See Table A-2 below for more details. For the most part, RECs have used their own funding to complete these activities, but several have begun to leverage the FEMA HMGP.

Table A-2 Rural Electric Cooperative Mitigation Strategies

Strategy #	Hazard(s) of Concern	Mitigation Measures	Project Location	Responsible Party	Priority Rank	Projected Timetable	Progress Since 2011
1	Wildfire Mitigation	Vegetation Management, Pole Replacement, & Cross Arm Enhancement, & Wildfire mitigation	Statewide	Cooperative, USFS, County, State	High	Ongoing	Cooperatives have individually assessed and implemented plans to reduce wildfire exposure. Cooperatives have implemented vegetation management plans, increased member education, and identified and replaced high priority poles.
2	Minimize the Loss of Life and Personal Injuries	Weather Monitoring	Statewide	Cooperative, County, State	High	Ongoing	Cooperatives have individually assessed and implemented plans that identify hazards. Cooperatives communicate the status of outages through social media, texts, and other platforms to inform members about outages. Cooperatives have taken measures to educate members of what to do during outages.
3	Reduce the Losses and Damages due to Natural Disasters to Infrastructure	Hot Spot Identification	Statewide	Cooperative	High	Ongoing	Cooperatives have individually assessed their systems to identify vulnerable or weak spots in the system. Cooperative's patrol and inspect lines to identify areas for improvement. Cooperatives also test poles for integrity and safety.
4	Minimize Interruption of Essential Services	Harden Communications, Facility Backup Generation, Remote Facility Control	Statewide	Cooperative	High	Ongoing	Cooperatives have individually taken steps to improve outage duration. Cooperatives participate in mutual aid

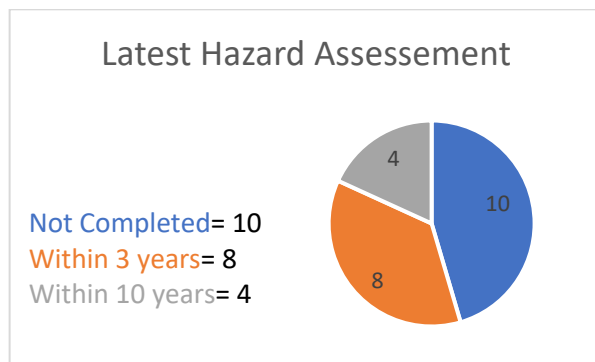
							programs for times when the cooperatives resources are strained.
5	Reduce Costs of Disaster Response and Recovery	Strengthen lines, put lines underground where feasible	Statewide	Cooperative	High	Ongoing	Cooperatives have participated with CREA (trade association) in disaster aid, recovery, and implementing a statewide communication plan for disaster assistance.
6	Enhance Relationships between REC's and Local Emergency Management	Participation in Local and Emergency Management Exercises	Statewide	Cooperative, County, State	High	Ongoing	CREA (trade Association) has developed relationships with State Emergency resources. CREA is a member of the COEM and attends meetings and participates with Emergency managers throughout the state.
7	Incorporate Equity Considerations into All Mitigation Strategies	Maintenance Programs	Statewide	Cooperative	High	Ongoing	Cooperatives have individually assessed their systems for ways to improve the reliability of service. Some cooperatives have placed overhead lines underground, some cooperatives have replaced overhead lines with tree wire, some cooperatives have implemented the use of drones to identify areas that need improvements.

Survey Results:

Questions 1-12 specific cooperative information. Examples: how many meters, Counties served, Consumers per mile of line.

Question 13

Has the cooperative conducted a hazard analysis and risk assessment?



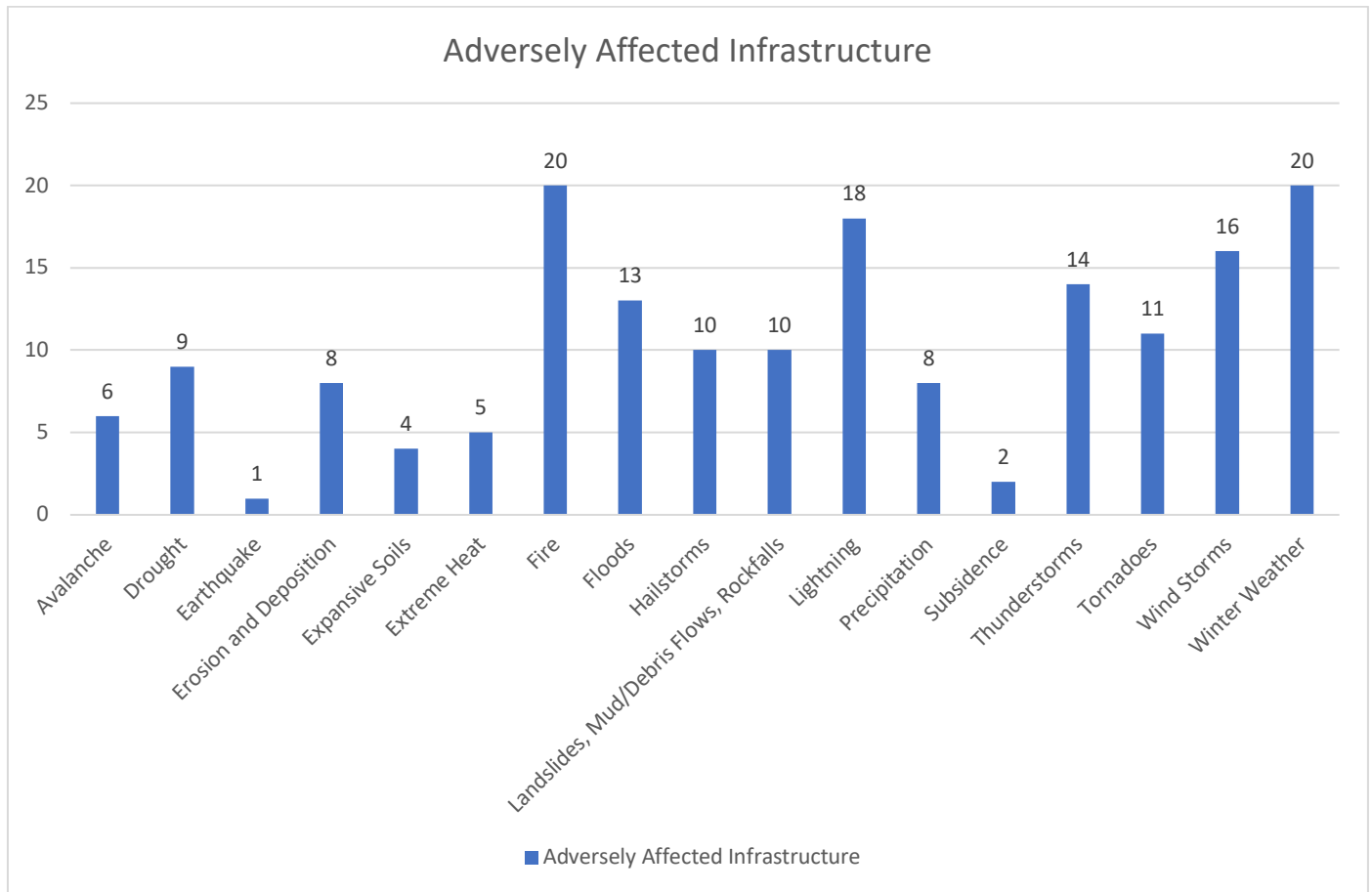
Question 14

Check all the hazards that apply to the cooperative.



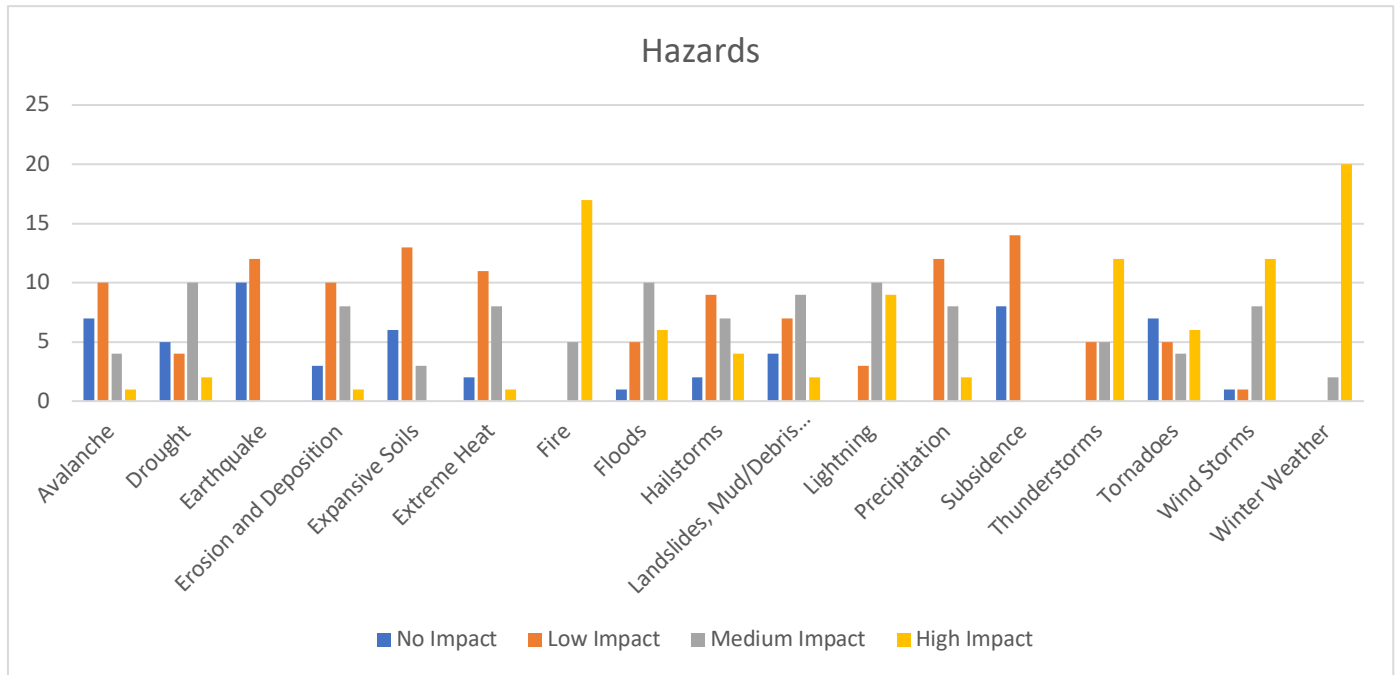
Question 15

Which of the following natural hazards adversely affected/damaged critical infrastructure in the cooperative service territory?



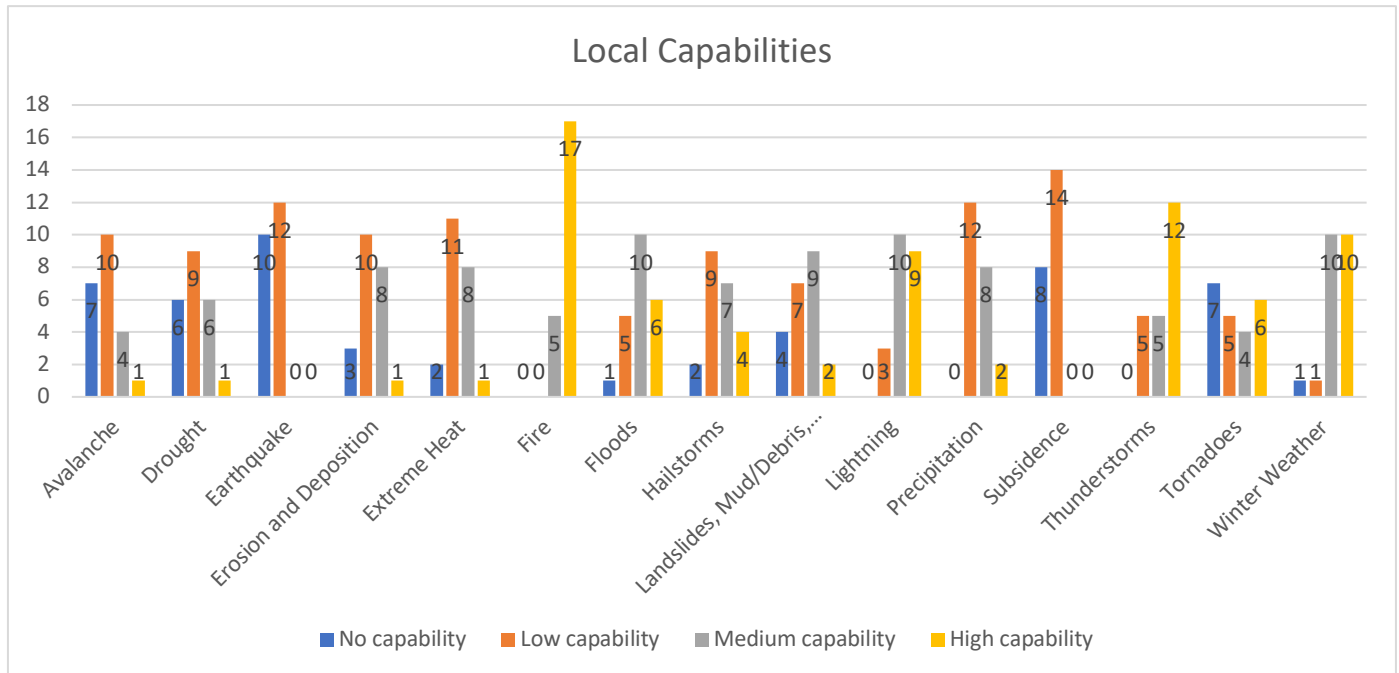
Question 16

What is the potential impact of natural hazards to the critical infrastructure in the cooperative service territory?



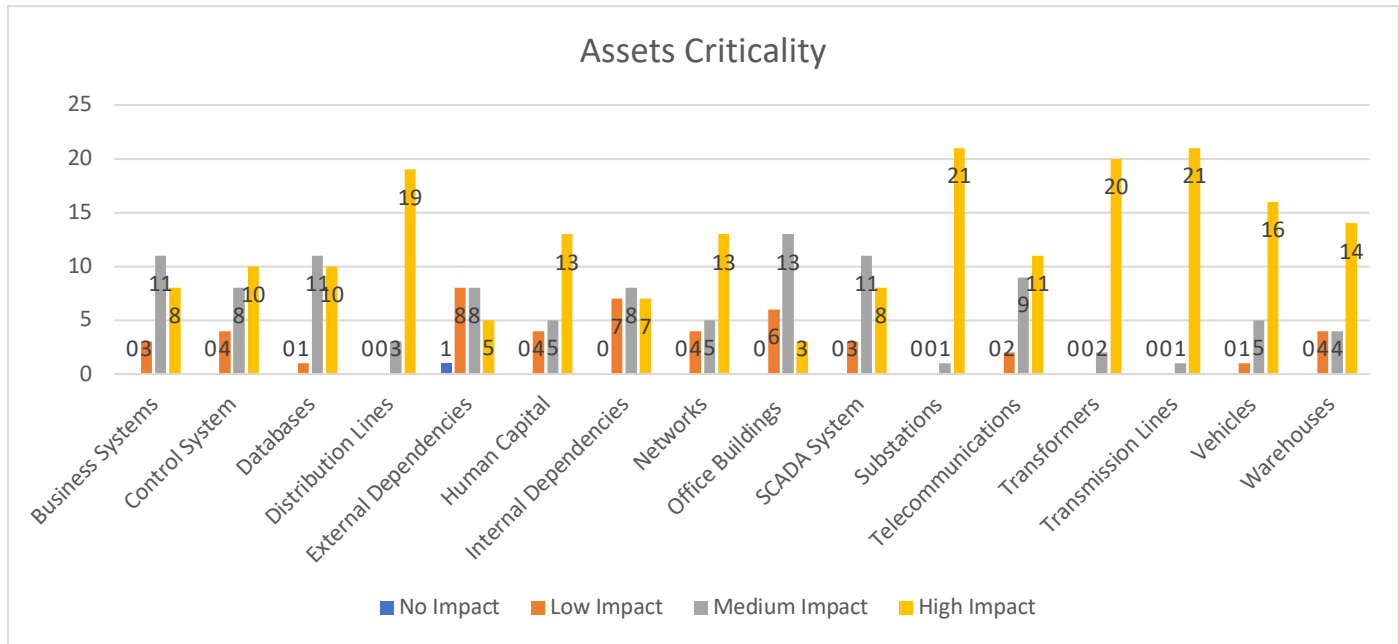
Question 17

What level of local capability exists to contend with the hazard in your cooperative service territory?



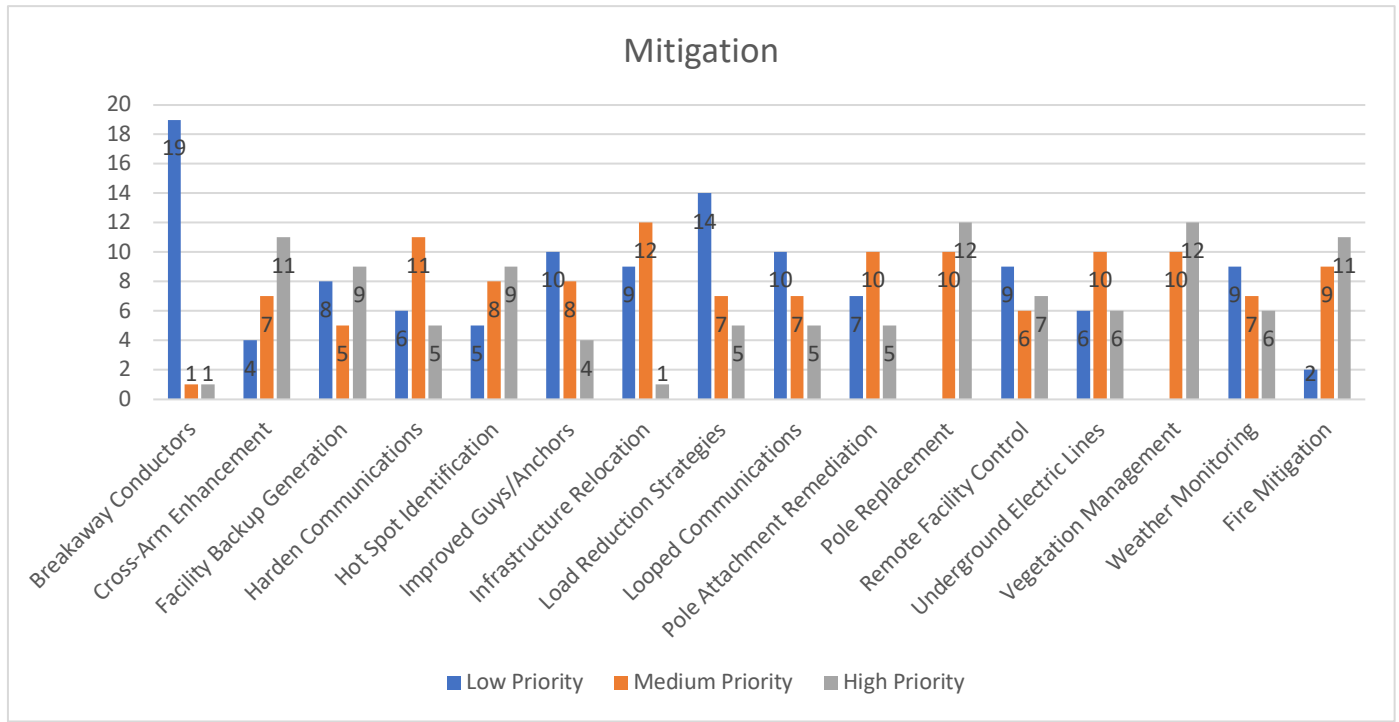
Question 18

Please review the following list of potential assets to the electric infrastructure. Please rate the criticality of each type of infrastructure to the overall system: Low, Medium, or High.



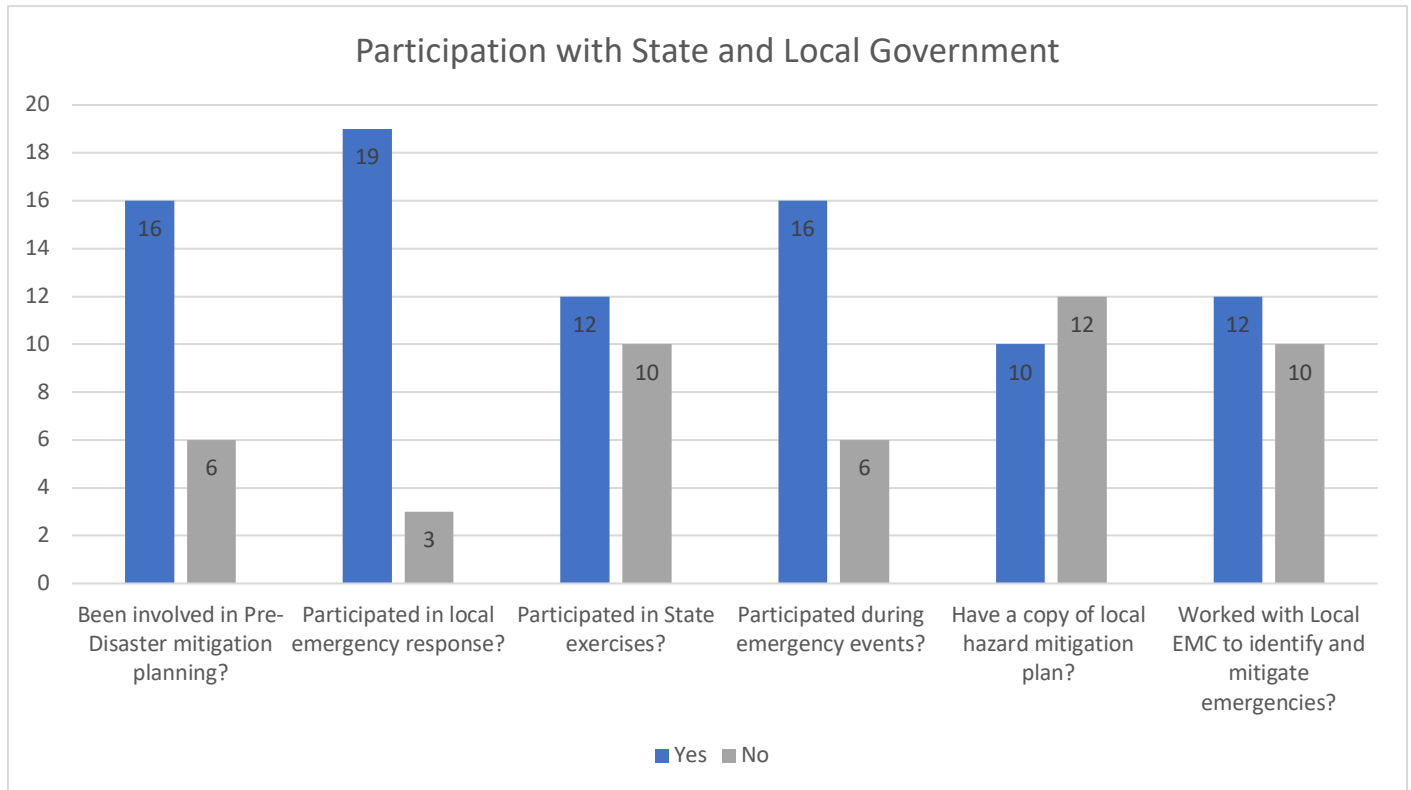
Question 21

Has the rural electric cooperative taken mitigation actions(s) to make critical electric infrastructure more resistant to natural hazards? If so, please indicate actions taken.



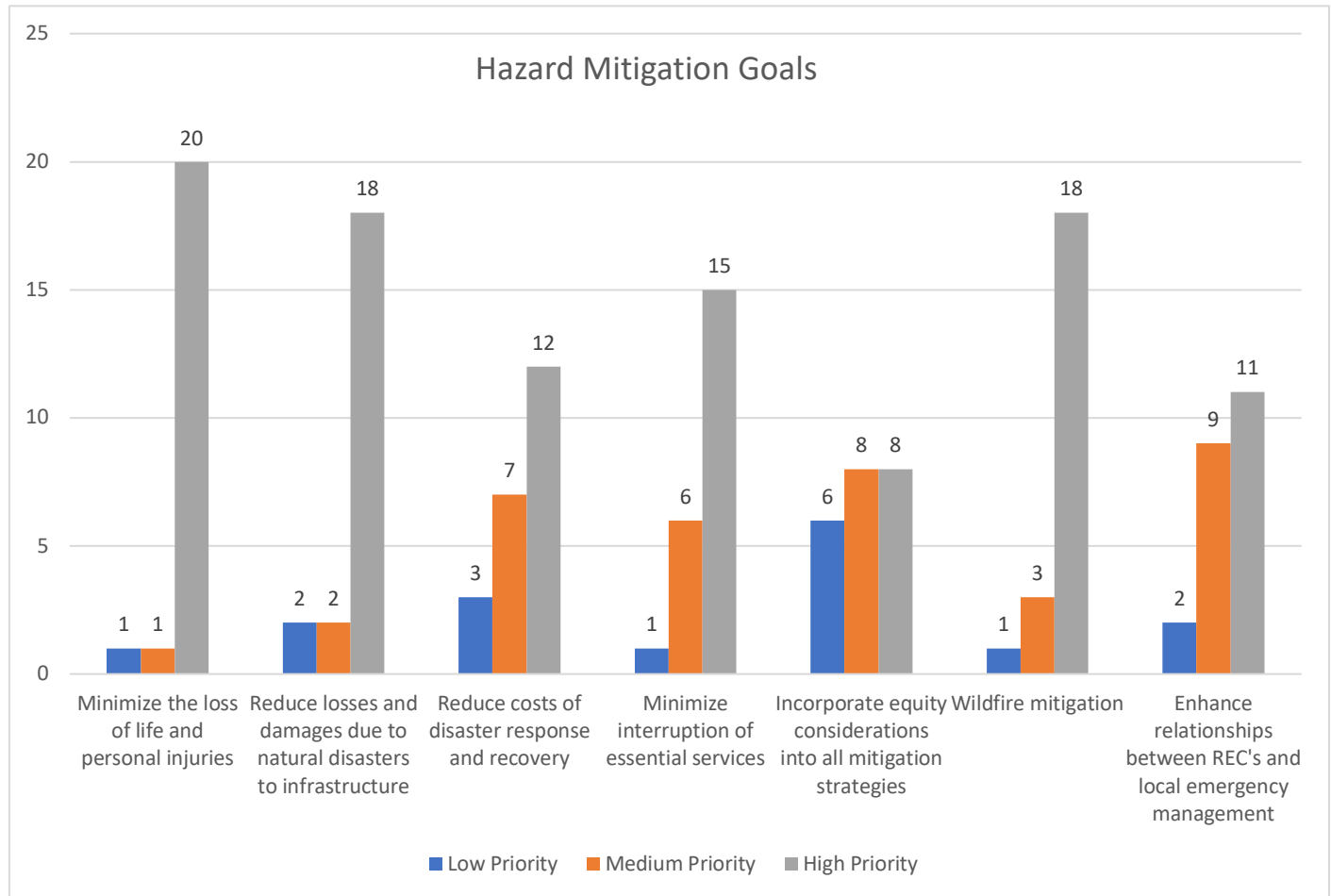
Question 22-28

22. Has your organization been involved with local pre-disaster mitigation planning in your local jurisdiction(s) representing the cooperative service territory?



Question 29

Please rate the goals of the hazard mitigation plan.



Plan Process Documentation

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2021 Safety & Loss Control Seminar Agenda

Tuesday, July 20, 2021

8:00 - 8:30 am	Dale Kishbaugh - <i>Welcome & CREA Update</i>
8:30 - 9:15 am	Daniel Beveridge - <i>Colorado State Forest Service - Vegetative Control Practices</i>
9:15 - 9:30 am	Break
9:30 - 10:30 am	Chuck Marting - <i>Colorado Mobile Drug Testing</i>
10:30 - 12:00 pm	Daniel Greer - <i>Eclipse-DOT</i>
12:00 - 1:00 pm	Lunch - <i>Sponsored by Golight Inc. & Irby</i>
1:00 - 2:30 pm	Vendor Meet & Greet
2:30 - 3:30 pm	Jay, Chet & Andrew - <i>Makita Chainsaw Safety</i>
3:30 - 4:30 pm	Darrin Davenport - <i>Federated Update</i>

Wednesday, July 21, 2021

8:00 - 8:45 am	Mark Thompson - <i>DHSEM - FEMA Hazard Mitigation Grant Opportunities for REC's</i>
8:45 - 9:45 am	Dr Clark Ruzicka - <i>Healthy Posture</i>
9:45 - 10:15 am	Trish Makousky - <i>Irby FR Clothing Wear & Care</i>
10:15 - 11:30 am	Awards & Roundtable Discussion

INTRODUCTION

After evaluating the state's risk to hazards, the planning process transitioned to identifying potential strategies that reduce or eliminate those risks. The State Hazard Mitigation Team (SHMT) undertook three important tasks after examining the updated risk assessment.

- First, they evaluated the mitigation strategy goals and objectives from the 2013 State Plan for their effectiveness, continued relevance, and to identify any potential gaps.
- Secondly, state agencies that were responsible for actions identified in the 2013 State Plan were asked to review and indicate if the actions were ongoing, completed, deferred, or deleted, as well as provide information related to how they were implemented.
- Finally, members of the SHMT identified new strategies to improve capabilities and mitigate risks identified in the statewide as well as local risk assessments, so that mitigation priorities are based upon loss reduction.

This mitigation strategy was also developed to be compliant with the relevant provisions of the Emergency Management Accreditation Program (EMAP); see Section 8, Page 8-30.

MITIGATION GOALS AND OBJECTIVES

In general, when a jurisdiction decides that certain risks are unacceptable and certain mitigation actions may be achievable, the development of goals and objectives takes place. Mitigation goals and objectives help to explain what should occur, using increasingly more narrow descriptors.

Initially, broad-based goals are developed, which are long-term general statements. From these goals, objectives are then defined to help guide the resulting mitigation actions that will accomplish the goals.

At the SHMT workshops during the State Plan update, the 2013 goals and objectives were reviewed and refined. Through this process, the SHMT determined that some goals and objectives should remain the same, while others were updated or merged. Additional new goals and objectives were also crafted by the SHMT, to better align with other state planning efforts. As opposed to ranking the goals, as was done in 2013, the SHMT decided there was limited value in doing that for this update.

Table 5-1 below includes the 2018 mitigation goals for the State of Colorado. Corresponding letters beneath each goal relate to mitigation objectives that are applicable to achieving that goal. A list of associated objectives follows. [Roman numerals after each goal are for identification purposes only.]

TABLE 5-1 STATE OF COLORADO 2018 MITIGATION GOALS

State of Colorado Hazard Mitigation Goals & Objectives
Minimize the loss of life and personal injuries from all-hazard events (I)
A, D, F, G, H



Hazard Mitigation Meeting Agenda
September 15, 2021
10:00 am - 4:00 pm

Speakers:
Dale Kishbaugh, CREA
Mark Thompson, CDHSEM

Topics

- Introduction - Mitigation Goals & Objectives
- DHSEM Hazard Mitigation Grant Opportunities
- Local Mitigation Plan Review Tool
- Local Mitigation Capabilities Tracker for Local and State Plan Updates
- October 2010 CREA Natural Hazards Mitigation Plan
- State of Wyoming Hazard Mitigation Template



Hazard Mitigation Meeting

Location: United Power - Carbon Valley Service Center

Date: September 15, 2021

Time: 10:00 am - 4:00 pm

	Name	Email	Cooperative	Attendee Signature
1	Dale Kishbaugh	dkishbaugh@coloradorea.org	CREA	<i>Dale Kishbaugh</i>
2	Kent Singer	ksinger@coloradorea.org	CREA	
3	Tim Coleman	tc Coleman@coloradorea.org	CREA	
4	Geoff Hier	ghier@coloradorea.org	CREA	
5	John Stacker	jstacker@gcca.coop	GCEA	<i>John Stacker</i>
6	Shawn McKibben	smckibben@slvrec.com	SLVREC	<i>Shawn McKibben</i>
7	Quinn Oliver	qoliver@slvrec.com	SLVREC	<i>Quinn Oliver</i>
8	Holly Woodings	hwoodings@unitedpower.com	UP	<i>Holly Woodings</i>
9	Nate Towne	ntowne@mpei.com	MPEI	<i>Nate Towne</i>
10	Dan Finner	d.finner@mpei.com	MPEI	<i>Dan Finner</i>
11	Darryl Stewart	DarrylStewart@stsa.com	STEA	<i>Darryl Stewart</i>
12	John A. Cramer	JCramer@yeca.com	YVEA	<i>John A. Cramer</i>
13	Butch Crawford	Crawford@myelectric.coop	SDCEA	<i>Butch Crawford</i>
14	Matrusz Penna	matrusz.penna@dmca.com	DMEA	<i>Matrusz Penna</i>
15	Trenton Webber	twebber@lpea.coop	LPEA	<i>Trenton Webber</i>
16	Jeremy Eldridge	jeldridge@pvrea.coop	PVREA	<i>Jeremy Eldridge</i>
17	Freddie Sampson	fsampson@wrea.coop	WREA	<i>Freddie Sampson</i>
18	Jules B. Sully	jules.b.sully@era.coop	EEA	<i>Jules B. Sully</i>
19	Mark Thompson	mark.thompson@state.us	BHSC	<i>Mark Thompson</i>
20	Alex J. Mendez	amendez@core.coop	CORE	<i>Alex J. Mendez</i>
21	Yvette Archuleta	yarchuleta@coloradorea.org	CREA	<i>Yvette Archuleta</i>
22	Kent Singer	ksinger@coloradorea.org	CREA	<i>Kent Singer</i>
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2021 Hazard Mitigation Plan Update

1. Cooperative Name

2. Does your cooperative wish to participate on the CREA hazard Mitigation plan?

☐ Yes

☐ No

3. Name of person completing survey.

4. Title

5. Phone Number

6. Email address

November 13, 2021

NOI Deadline

<p style="text-align: center;">NOTICE OF INTENT - PRE-APPLICATION ELIGIBILITY WORKSHEET</p> <p style="text-align: center;">FOR THE FEMA BUILDING RESILIENT INFRASTRUCTURE AND COMMUNITIES (BRIC), HAZARD MITIGATION GRANT PROGRAM (HMGP) AND FLOOD MANAGEMENT ASSISTANCE (FMA) GRANT PROGRAMS</p> <p style="text-align: center;">MITIGATION <big>PROJECT</big> PROPOSALS</p> <p style="text-align: center;">(Refer to FEMA's Hazard Mitigation Assistance Guidance for Eligible Projects)</p>
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Applicant/Organization: _____

Proposed Activity Title: _____

Applicant Type: ☐ State Agency ☐ Tribal Government ☐ Local Government ☐ Special District

Primary Contact: _____

Primary Contact Title: _____

Address: _____

City: _____ County: _____ Zip: _____

Phone #: _____

FAX # _____

Email Address: _____

Alternate Contact: _____

Alternate Contact Title: _____

Phone #: _____

Email Address: _____

If a Tribal or local government is the proposed applicant, does the Tribal or local government have a current FEMA approved, locally adopted multi-hazard mitigation plan (HMP) OR if a state agency or private nonprofit organization is the proposed applicant, is the proposed project located totally within a jurisdiction with a FEMA approved, locally adopted hazard mitigation plan? ☐ No ☐ Yes
If unsure, please check with the County or City Emergency Manager. If yes, name of plan:

Current expiration date of the HMP: _____

If no, is the local jurisdiction developing or updating a local hazard mitigation plan? ☐ Yes ☐ No ☐ Not Applicable

Proposed Project: ☐ Acquisition ☐ Elevation ☐ Relocation ☐ Mitigation Reconstruction ☐ Retrofit ☐ Floodproofing ☐ Saferoom/Shelter
☐ Stabilization and Restoration ☐ Utility and Infrastructure Protection ☐ Flood Control ☐ Codes and Standards ☐ Warning Systems
☐ Wildlife Mitigation ☐ Education and Awareness ☐ Feasibility, Engineering, and Design Studies ☐ Microgrid ☐ Generator
☐ Landslide Mitigation ☐ Planning Related Activities ☐ Other C&CB Activities ☐ Partnerships ☐ Evacuation ☐ Windstorm
☐ Other _____

Primary Hazard: ☐ Avalanche ☐ Debris Flow ☐ Earthquake ☐ Erosion ☐ Flood ☐ Landslide
☐ Lightning ☐ Wildfire ☐ Wind ☐ Winter Weather ☐ Other: _____

Secondary Hazard: ☐ Avalanche ☐ Debris Flow ☐ Earthquake ☐ Erosion ☐ Flood ☐ Landslide
☐ Lightning ☐ Wildfire ☐ Wind ☐ Winter Weather ☐ Other: _____