

# **WILDFIRE MITIGATION PLAN**

**Butte Electric Cooperative, Inc.**

**DATE: June 15, 2026**

**REVISION: II**

*TEMPLATE PROVIDED BY:*



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# 1 Introduction/Executive Summary

Butte Electric Cooperative, Inc. (BEC) was established in 1940 to provide electricity to its members in the rural areas of its newly formed territory. Since its inception, BEC's focus has been on providing its members with safe, reliable, and affordable electricity. In recent years, BEC's members, as well as areas surrounding BEC's territory, have experienced growth. This growth has occurred in areas that, in the past, were unable to develop for many different reasons, such as terrain, heavy timber, lack of water, rocks, just to name a few. Due to the push into areas that increase the risk of wildfire, the focus on wildfire mitigation has, without question, become a top priority. BEC is committed to taking practical actions to minimize the risk of wildfire occurring from its operations. This Wildfire Mitigation Plan (WMP) lays out the steps BEC is taking to do so.

## 1.1 Purpose of the Wildfire Mitigation Plan (WMP)

The WMP describes the BEC's strategies, programs, and procedures to mitigate the threat of electrical equipment ignited wildfires, and addresses the unique features of its service territory, such as topography, weather, infrastructure, grid configuration, and areas most prone to wildfire risks. This includes the maintenance of its distribution and certain transmission assets as well as the management of vegetation in the ROWs that contain these assets.

BEC's Board of Directors reviews, and approves the Plan as needed, while the Chief Executive Officer is responsible for its overall implementation. The WMP is a living document that will receive regular reassessment as projects and initiatives are completed. Primary responsibility for the operational implementation of the WMP resides with the System Coordinator. The staff of BEC also are responsible for their respective roles and areas to ensure that the operational implementation of the WMP.

## 1.2 Objectives of the WMP

The main objective is to implement an actionable plan to create increased reliability and safety while minimizing the likelihood that BEC's assets may be the origin or contributing factor in the ignition of wildfire. This plan was developed to be consistent with current industry's best management practices and to comply with current South Dakota State law, and National Electric Safety Code (NESC) regulations and guidelines. To help develop the Plan, BEC reviewed the reliability and economics of emerging technologies that had not only the potential to reduce the likelihood of a service interruption but also minimize the risk of ignition from the fault causing the outage.

The secondary objective is to measure, through the annual evaluation of certain performance metrics, the effectiveness of the specific wildfire mitigation strategies. Where a particular action, program component or protocol proves unnecessary or ineffective, BEC will assess whether modification or replacement is suitable.

### 1.3 Butte Electric Cooperative, Inc. Profile and History

BEC was founded in 1940. It is a member owned, not for profit, Cooperative utility. Its service territory covers parts of Butte, Meade, and Lawrence Counties in South Dakota. The Cooperative is governed by a board of directors elected by and representing the membership. To provide fair and balanced representation of the membership the Cooperative's service territory is divided into three districts and three board members are elected for three-year terms from each of the three districts. Under this method of membership representation, each year, at the annual meeting, the membership elects a board member from each district. One of the board of directors' main tasks is to hire a Chief Executive Officer to manage the Cooperative daily business operations. The Chief Executive Officer oversees the implementation and administration of the board's strategic vision and policies, as part of the day-to-day business operations of the Cooperative.

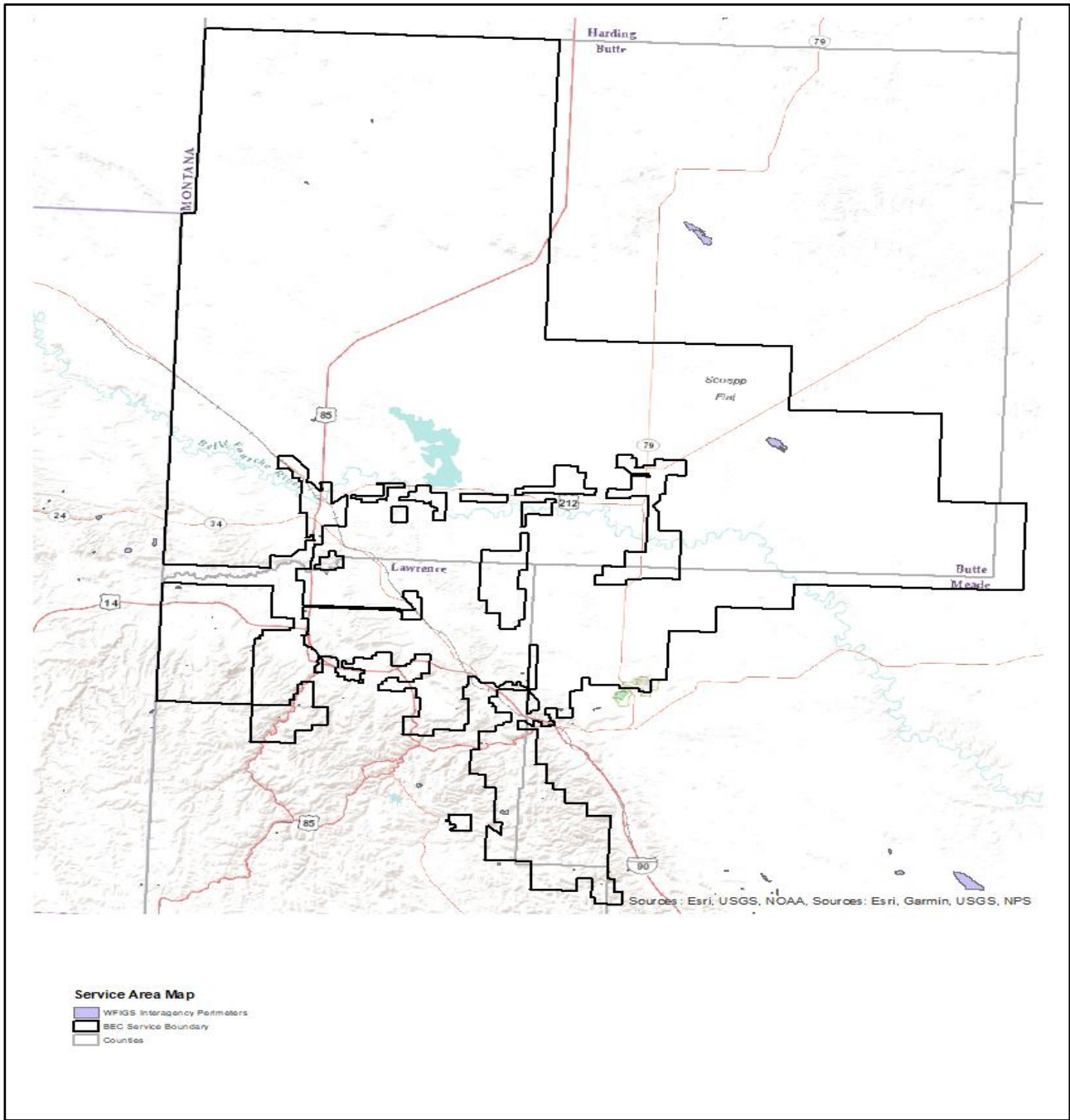
### 1.4 BEC Service Area

The BEC service area covers the northern portions of Lawrence County, the southern portions of Butte County, and the western portions of Meade County. The region's topography ranges from the forested slopes of the Northern Black Hills National Forest in the south to the open prairie lands in the north. Southern areas are characterized by dense timber within the national forest, while the transitional foothills contain a mix of heavily timbered terrain, moderate open spaces, and tree-lined draws. Further north, the landscape shifts to open prairies with few trees, consisting largely of rolling ridges, valleys, and expansive plains.

Interstate 90 traverses the southern portion of the service area. The service territory begins several miles west of Piedmont, SD near I-90, and extends throughout the Black Hills region to the Wyoming state line just east of Beulah, Wyoming. Although Black Hills Energy serves all incorporated towns within this region-including Spearfish, Belle Fourche, Fruitdale, Nisland, Whitewood, Vale, Newell, St. Onge, Deadwood, and Sturgis-growth from these communities has expanded outward, pushing residential development into areas served by BEC. Portions of land once used for timber production or grazing are now being converted into residential neighborhoods.

Many of the developing areas around Spearfish, Whitewood, and Sturgis are expanding into landscapes with elevated wildfire risk due to their vegetation, terrain, and proximity to wildland fuels. push residential developments into areas that are considered at risk for greater impact from wildfires. BEC also provides services to northern portions of Spearfish Canyon, an area known for its steep topography, dense timber, and heavy visitor traffic. While renowned for its scenery, Spearfish Canyon also faces increased vulnerability to wildfire because of these environmental and human-use factors.

**Figure 1. Service Area**



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## 2 Overview of BEC’s Fire Prevention Strategies

This WMP integrates and interfaces with BEC’s existing operations plans, asset management, and engineering principles, which are themselves subject to change. Future iterations of the WMP will reflect any changes to these strategies and will incorporate new best management practices as they are developed and adopted.

**Table 1** summarizes BEC’s mitigation components with associated programs and activities that support BEC’s ongoing commitment to wildfire prevention and mitigation.

**Table 1. Mitigation Strategies/Activities**

| <b>DESIGN AND CONSTRUCTION</b>  |
|---|
| Strategic undergrounding of distribution lines                                    |
| Field recloser to vacuum-type breaker change-out program – under evaluation       |
| Covered jumpers and animal guards   |
| Avian protection construction standards   |
| Increase overhead wire spacing to reduce wire to wire contact on new construction |
| Substation perimeter fencing for security and protection                          |
| <b>INSPECTION AND MAINTENANCE</b>   |
| Infrared inspections of substation equipment – completed on scheduled maintenance |
| Unmanned Aerial Vehicle (UAV) training for inspections – under evaluation         |
| Tree trimming   |
| Wood pole inspection and testing  |
| Enhanced T&D vegetation right-of-way maintenance                                  |
| Distribution system line patrols and detailed inspections                         |
| T&D system vegetation management program  |
| Increased removal rate of undesirable trees on right-of-way’s                     |
| Enhanced vegetation management prior to fire season                               |
| Enhanced line patrols during fire season – when necessary                         |

**Table 1. Mitigation Strategies/Activities (continued)**

| <b>OPERATIONAL PRACTICES</b>   |
|--|
| Work procedures and Fire Hazard training for persons working in locations with elevated fire risk conditions – safety training     |
| Community outreach/wildfire safety awareness – under evaluation  |
| Contractor/staff safety training and orientation for vegetation management work – safety training                                  |
| Alternate recloser practices during fire weather – only in areas where equipment is available and it is determined to be necessary |
| Fire suppression equipment on worksite during fire season – as needed  |
| Provide liaison to county offices of emergency services (OES) during fire event – as needed  |
| <b>SITUATIONAL AWARENESS</b>   |
| Weather Monitoring in the service area   |
| Utility-owned weather stations   |
| Monitoring active fires in or near service territory – as needed   |
| <b>RESPONSE AND RECOVERY</b>   |
| Coordination with local Department of Emergency Management – as needed   |
| Customer assistance programs for post-disaster recovery – as needed  |
| Line patrols before re-energization  |
| Emergency Restoration Plan   |

### 3 BEC Asset Overview

BEC serves its membership's utility needs from three locations that are strategically located within its territory. The locations are as follows:

**Newell** (Headquarters)  
109 South Dartmouth  
Newell, SD 57760  
Phone: (605) 456-2494

**Spearfish** (western outpost)  
3540 Old Belle Road  
Spearfish, SD 57783  
Phone: (605) 456-2494

**Sturgis** (eastern outpost)  
3575 Hansen Avenue  
Sturgis, SD 57785  
Phone: (605) 456-2494

Each office has a line crew based on premises. All necessary equipment is based at each office. Each office also has a storage yard for all the necessary supplies to either repair or build new, when necessary. The office staff is located at the headquarters. All offices, line crew, and office staff have access to radios for communications around BEC's service territory.

BEC receives its energy from Rushmore Electric Power Cooperative (REPC) in Rapid City, SD. REPC is a paper generation and transmission company. It is owned by BEC and seven other Cooperative's that are mostly in western South Dakota. REPC receives its power from two sources, Basin Electric Cooperative (Basin) out of Bismarck, North Dakota and Western Area Power Authority (WAPA). Basin generates its power from coal, natural gas, wind, solar, and other sources. WAPA generates its power from hydroelectric sources across the western United States.

BEC has 63 miles of transmission line, 760 miles of overhead line, and 590 miles of underground line. The total amount of line is 1,413 miles of line. These numbers are subject to change due to growth and retirement.

BEC has 8 substations that are strategically located around its service territory and 1 substation with WAPA that WAPA controls.

BEC's standard voltage for single phase lines is 120/240V and its standard voltage for three phase lines is 120/208V.

**Table 2** provides a high-level description of BEC's T&D assets.

**Table 2. Asset Overview**

| <b>ASSET CLASSIFICATION</b>     | <b>ASSET DESCRIPTION</b>   |
|---------------------------------|--|
| <b>Transmission Line Assets</b> | Approximately 63 miles of conductor, transmission structures and switches at 69 kilovolts (kV).  |
| <b>Distribution Line Assets</b> | Approximately 760 miles of overhead (OH) and 590 miles of underground (UG) conductor, cabling, transformers, voltage regulators, capacitors, switches, line protective devices operating at or below 7.2 kV.   |
| <b>Substation Assets</b>        | Major equipment such as power transformers, voltage regulators, capacitors, reactors, protective devices, relays, open-air structures, switchgear, and control houses in 8 substation/switchyard facilities and 1 substation with WAPA that WAPA controls. |

## 4 Risk Analysis and Risk Drivers

Besides the normal risks that are inherent to the utility industry, the topography, nature, weather, and urban expansion provide additional risks to BEC.

### 4.1 Fire Risk Drivers Related to Construction and Operations

BEC staff evaluated other utility's fire causes and applied its own field experience to determine the critical potential risk drivers. The categories listed below were identified, based on past experiences by BEC, as having the potential for causing powerline sparks and ignitions:

- Equipment/facility failure.
- Trees and vegetative cover.
- Vehicle impact.
- Standard expulsion fuses.
- Cross-phasing.
- Birds and animals.

### 4.2 Fire Risk Drivers Related to the BEC Service Area

In assessing the risks around BEC's territory all the following fire risk drivers' impact on the potential for wildfire:

- **Topography**

The topography across BEC's territory varies greatly. The Black Hills on the south end of the territory and the foothills areas in the middle both have heavy tree cover, canyons, steep hills, open valleys, rocky ridges, and more. The topography can greatly impede response times in the event of a fire.

The topography north of the foothills consists of river drainage, farmland, and open range land. Certain areas and conditions in these areas may impede response times.

- **Accessibility**

There are areas within BEC's territory that are very easily accessible either by Interstate, highway, or county road. Responding to fires located along these public roadways is not impeded by lack of access.

The areas that are located within the Black Hills National Forest, that do not necessarily have access across forest lands, fall under the jurisdiction of the United States Forest Service and require communications and authorizations from the Forest Service.

Accessing other areas within BEC's territory generally involves cross private property. A rapid response effort involves communications with the landowner or landowner(s) that

are either impacted directly or indirectly. It is also critical to communicate with the local fire department and other first responders.

The open pasture and farmland in the central and northern portions of the territory are easier to access when conditions are dry. The land ownership varies from private, bureau of land reclamation, and state land. There are also areas that are desolate that take time to get to in the event of a fire.

- **Climate**

The Black Hills have a semi-arid climate that is characterized by moderate temperatures with seasonal variations. Summers are warm and dry, while winters are cold and snowy. The Black Hills experience distinct seasons, with spring bringing showers and potential for late-season snow, and fall offering cooler temperatures and leaf changing conditions.

The risk associated with the semi-arid climate of the Black Hills is that the summer will be exceptionally dry. A hot dry summer is also accompanied by lightning storms and high winds. The combination of all three in July, August, and September creates a high-risk environment for fires.

- **Vegetation Types / fuels**

Vegetation in the Black Hills consists mainly of Ponderosa Pine, with some White Spruce, Birch, Quaking Aspen, and assorted varieties of brush, grass, and weeds. Vegetation in the foothills does have some of the same varieties that are in the Black Hills, along with Bur Oak, Elm, Russian Olive, and other related deciduous trees. The Spearfish Creek, Redwater Creek, Belle Fourche River and all related drainages have large cottonwood trees and other assorted deciduous trees along their banks. The farm ground and pastureland extending from the central portion of the territory to the north are covered with crops and a wide variety of grasses, weeds, and small varieties of brush. BEC's territory historically has been rural agriculture and timber. The members of BEC made their living off the land and managed the land accordingly. Livestock grazing, raising feeds for livestock production, and timbering kept the fuel loads under control. These practices helped keep the risks of large-scale wildfires down.

Over the last ten to fifteen years BEC's territory has become more developed with many farms and ranches being developed into homesites or rural acreages. The new residents are not reliant on agricultural practices or timbering for their livelihoods. This has led to increased fuel loads across the territory. Advances in constructions practices, machinery, and vehicles have also allowed residences and rural structures to be constructed in areas that were not possible in the past which in turn has led to powerlines extending into these areas that were uninhabitable due to terrain and access in the past.

Timbering and timber thinning practices in and around the Black Hills National Forest impact the fuel risks associated with wildfire. This can in turn create other risks such as when the trees become overpopulated, which in turn creates the potential for an insect infestation, such as the mountain pine beetle, which ultimately leads to an increased risk of wildfire. These practices can also adversely impact the areas included in and surrounded by BEC's powerline easements.

- **Tree mortality / tree failure**

Old trees, rotten trees, and shallow root trees are potential risk drivers for wildfire. These types of trees combined with high winds pose tremendous risks to power lines and subsequently wildfire risk. These trees can be hidden outside of the easement boundaries or be protected by the landowner.

- **Lightning**

The summer and fall months are particularly susceptible to storms that have a high risk of creating lightning. The semi-arid climate of the Black Hills provides weather conditions that are highly susceptible to the creation of lightning whether moisture is present or not.

- **High Winds**

High winds pose a great risk to BEC's territory. High winds can occur at any time during the year within BEC's territory. High winds can blow over entire trees or branches from outside BEC's defined easement areas and cause a fire. High winds can blow over old or rotten trees as well as young, healthy trees. Consistent moderate to high winds can also pose potential risks to powerlines by blowing over entire trees or branches.

- **Fire Weather**

Fire Weather typically consists of dry conditions, high winds, lightning storms, and high temperatures. These conditions have the highest chance of occurring anytime from late June to early October in BEC's Territory. However, if the conditions are right, they could very well occur anytime during the year. Lightning accounts for approximately three-quarters of the fires in the Black Hills national forest. Humans are the second highest cause of wildfires in the Black Hills national forest.

- **Federal, State, and Local Government Policy**

Government policies can pose either intentional or unintentional risk. Policies that limit the ability of BEC to patrol powerlines, bury power lines, perform maintenance, clear easement rights-of-way, address issues outside the easement rights-of-way, and other policies have the potential to increase the risk of wildfire within BEC's territory.

### 4.3 Key Risk Impacts

Ignitions caused by the risk drivers have many outcomes. The list below outlines some of the worst-case scenarios, the prevention of which is the impetus for the development of this WMP:

- Personal injuries or fatalities to the public, employees, and contractors
- Damage to public and/or private property
- Damage and loss of BEC owned infrastructures and assets
- Impacts on reliability and operations
- Damage claims and litigation costs, as well as fines from governing bodies
- Damage to BEC's reputation and loss of public confidence

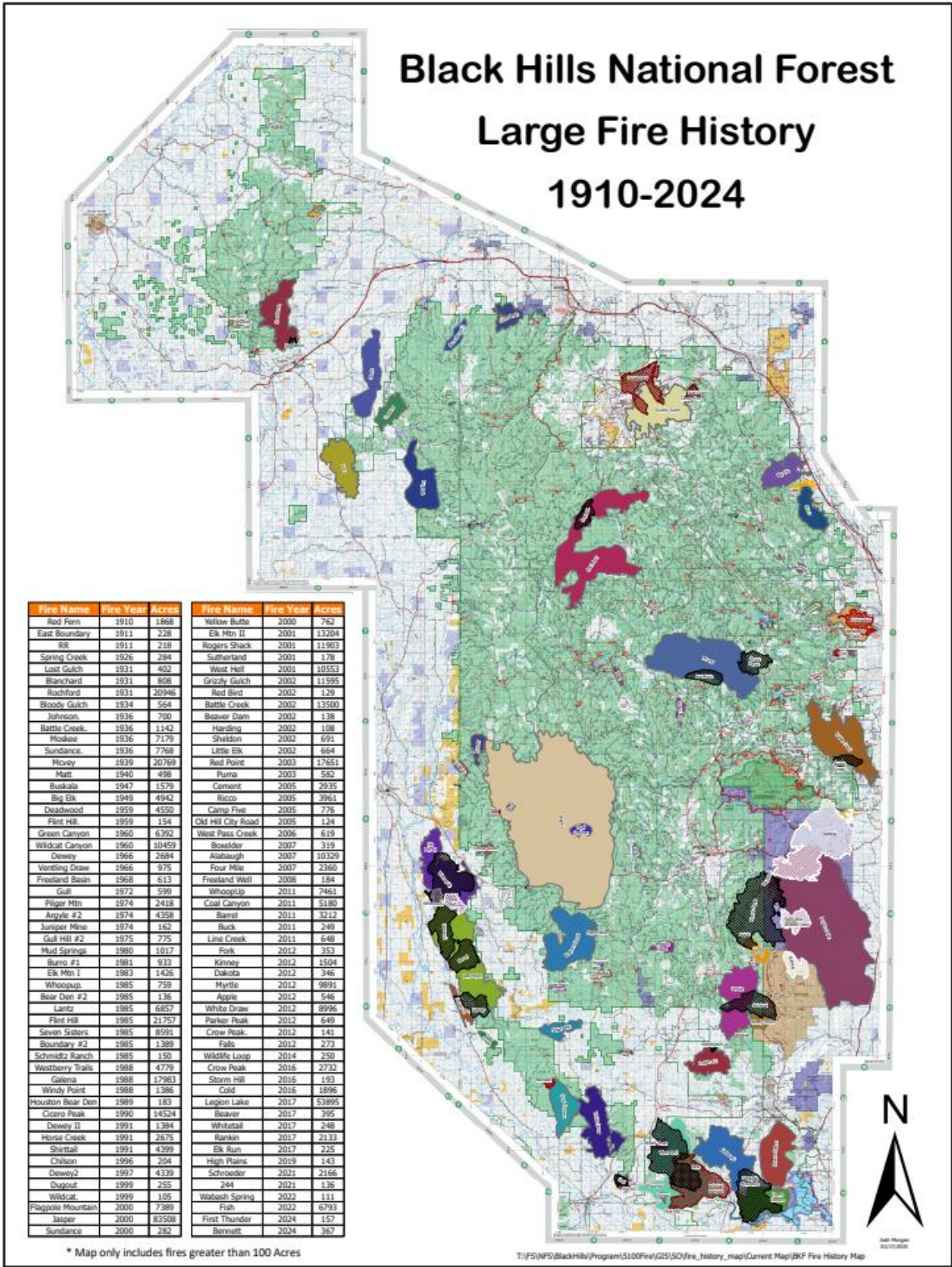
### 4.4 Wildfire History and Outlook

The normal fire season for the Black Hills occurs from May through October. The weather drives this period more than anything else. Dry conditions mixed with high temperatures and high winds increase the risk of wildfires. The Black Hills area, including BEC's territory, has a long history of wildfires.

According to the United States Forest Service (USFS) website, in the last 30 years, the Black Hills National Forest has averaged 92 wildfires per year that have burned 7,507 acres per year. Approximately 70% of fires are caused by lightning and the remainder caused by humans. Fire return intervals range from 10 – 40 + years on the forest, more frequently in the southern end of the Black Hills National Forest.

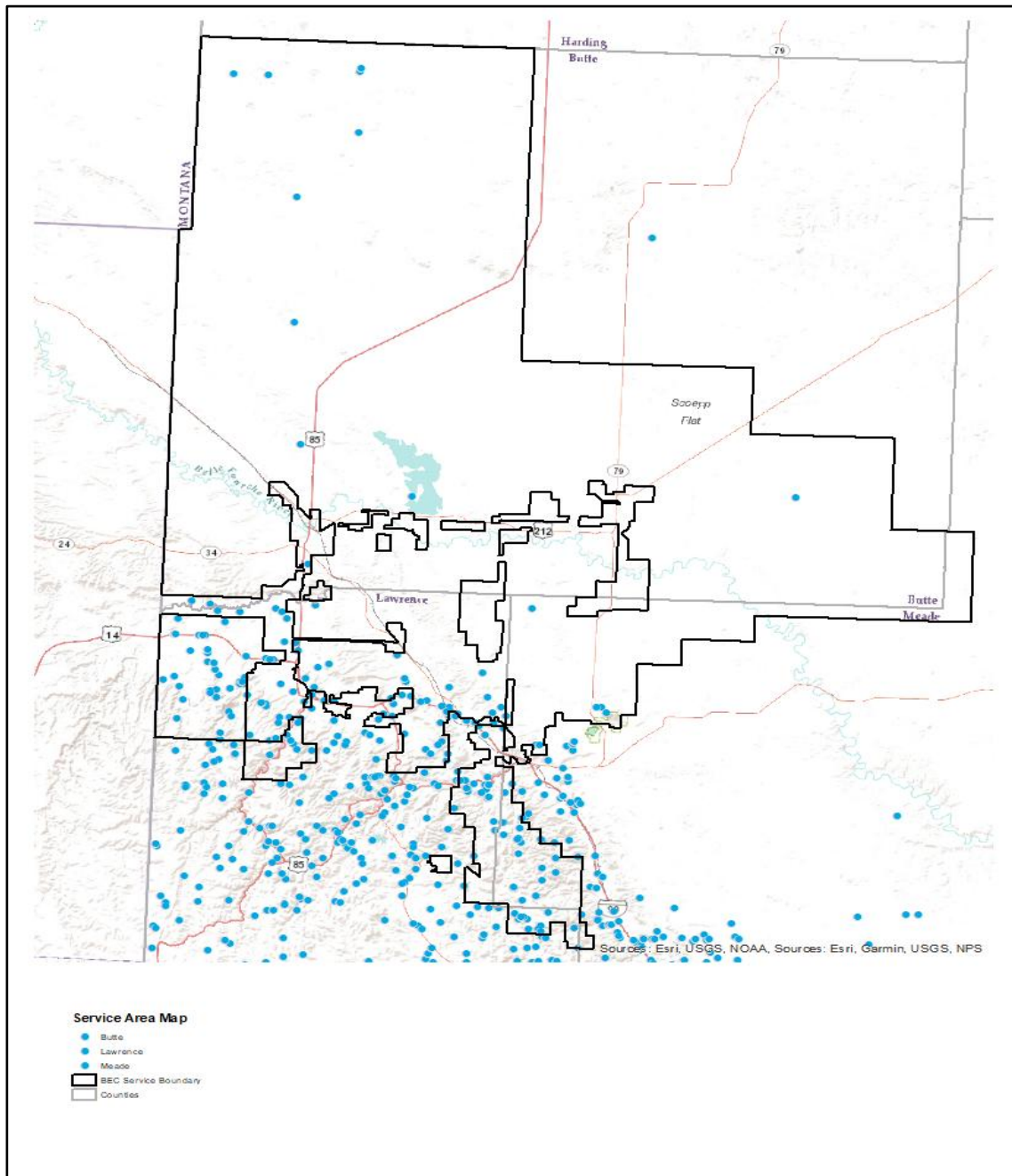
Figure 2.1 is a USFS map showing all the wildfires, over 100 acres, in the Black Hills National Forest from 1910 to 2024. Over half of the wildfires in the Black Hills National Forest that are listed on the map have occurred in the last twenty-five years. During this period depicted by this map, there were nine wildfires on or near the very southern end of BEC's territory. BEC's territory is located on the far northern end of the map below the text, the map only shows the Black Hills National Forest boundary, which is the southern portion of BEC's territory.

Figure 2. Historic Wildfire Incident Locations that are included after the USFS map show the history of wildfires of .1 acre or more that occurred within the BEC territory from 2014 through May 2024. Most of the fires occurred south of Interstate 90 in the far southern portion of BEC's territory.



**Figure 2. Historic Wildfire Perimeters 1910-2024**

**Figure 3. Points of Ignition**



#### 4.4.1 Wildland Urban Interface

The United States Forest Service (USFS) defines the wildland urban interface (WUI) as a place where humans and their development meet or intermix with wildland fuel. Communities that are within 0.5 miles of the zone are included. According to the USDA Forest Service, the land area considered WUI grew by 49.3% in South Dakota from 1990 to 2010, with the number of homes increasing by 31.2%<sup>1</sup>. There are now over 96,660 homes in South Dakota located in the WUI<sup>2</sup>.

The WUI is composed of both interface and intermix communities. The distinction between these is based on the characteristics and distribution of houses and wildland vegetation across the landscape. Intermix WUI refers to areas where housing and wildland vegetation intermingle, while interface WUI refers to areas where housing is in the vicinity of a large area of dense wildland vegetation. **Figure 3** illustrates the distribution of WUI areas in the service area.

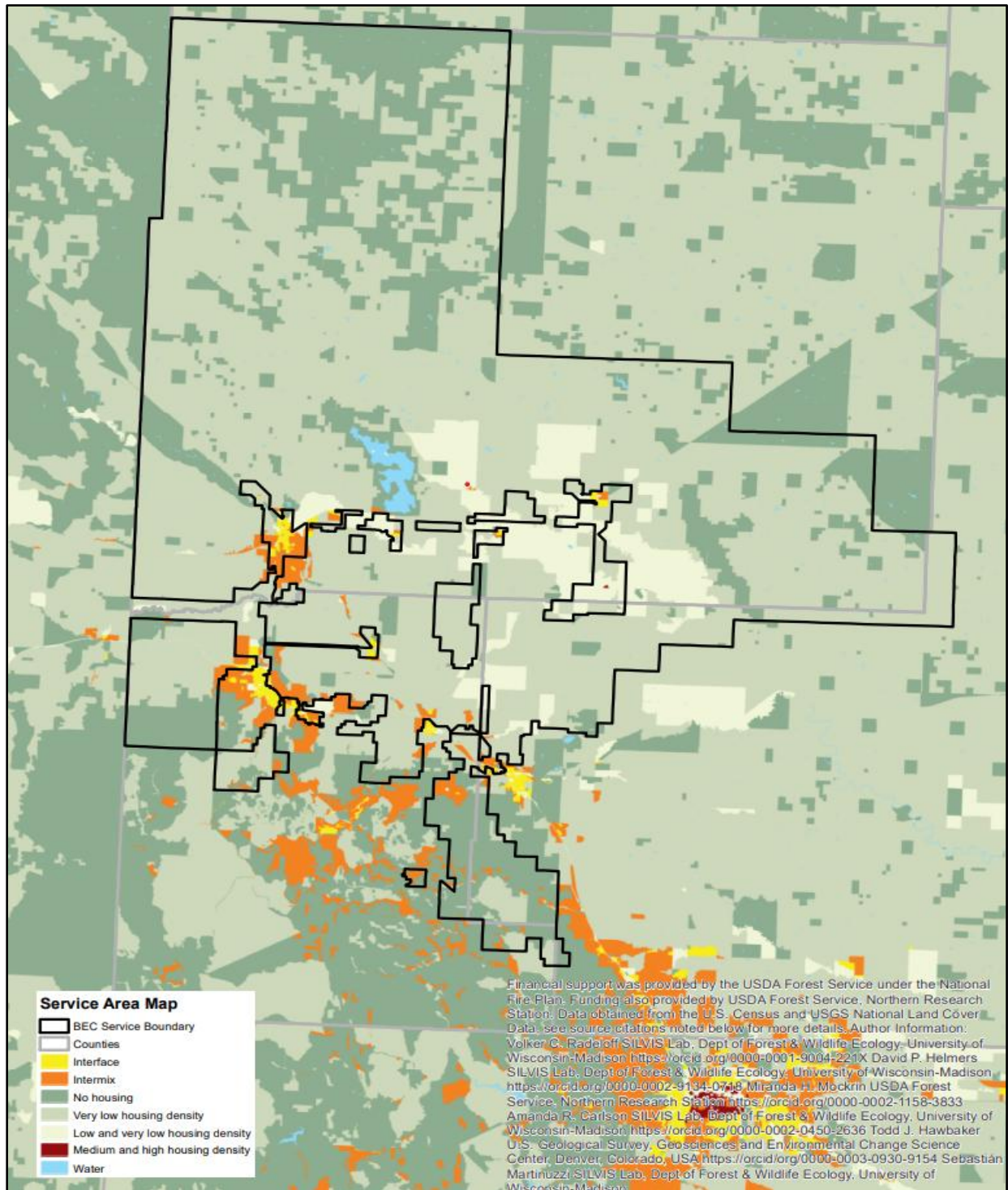
The USFS has established five classes of WUI in its assessment:

- **WUI Intermix:** Areas with  $\geq 16$  houses per square mile and  $\geq 50$  percent cover of wildland vegetation
- **WUI Interface:** Areas with  $\geq 16$  houses per square mile and  $< 50$  percent cover of vegetation located  $< 1.5$  miles from an area  $\geq 2$  square miles in size that is  $\geq 75$  percent vegetated
- **Non- WUI Vegetated (no housing):** Areas with  $\geq 50$  percent cover of wildland vegetation and no houses (e.g., protected areas, steep slopes, mountain tops)
- **Non-WUI (very low housing density):** Areas with  $\geq 50$  percent cover of wildland vegetation and  $< 16$  houses per square mile (e.g., dispersed rural housing outside neighborhoods)

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<sup>1</sup> [https://www.nrs.fs.fed.us/data/wui/state\\_summary/](https://www.nrs.fs.fed.us/data/wui/state_summary/)

**Figure 4. Wildland Urban Interface**



## 4.5 Fire Threat Assessment Mapping

The Wildfire Hazard Potential (WHP) map used in this plan is a raster geospatial dataset produced by the USDA Forest Service, Fire Modeling Institute (FMI)<sup>3</sup>. It is intended to inform evaluations of wildfire risk or prioritization of fuels management needs across large landscapes. The WHP map's objective is to depict the relative potential for wildfire that would be difficult for suppression resources to contain.

The WHP-2023 dataset was built upon:

- Spatial vegetation and wildland fuels data from *LANDFIRE 2020* (version 1.4.0). The *LANDFIRE* Fire Behavior Fuel Models layer is a primary input to the FSim Burn Probability (BP) and Fire Intensity Level (FIL) datasets and forms the foundation for WHP.
- Spatial datasets of wildfire likelihood and intensity were generated for the conterminous U.S. with the *Large Fire Simulator* (FSim). FSim simulates the growth and behavior of hundreds of thousands of fire events for risk analysis across large land areas using geospatial data on historical fire occurrence, weather, terrain, and fuel conditions. The effects of large-fire suppression on fire duration and size are also simulated. This research aims to develop a practical method of quantifying geospatial wildfire impacts, including annual probabilities of burning and fire line intensity distributions at any point on the landscape.
- Point locations of past fire occurrence from 1992 through 2020

Areas mapped with higher WHP values represent fuels with a higher probability of experiencing torching, crowning, and other extreme fire behavior under conducive weather conditions. An essential aspect of the WHP method is the use of "resistance to control weights" at the end of the mapping process. This serves to reduce the WHP index in areas with light fuels, such as grass and shrubs. This helps to inform us where forest fuel reduction treatments might be most needed.

On its own, WHP is not an explicit map of wildfire threat or risk, but when paired with spatial data depicting highly valued resources and assets such as communities, structures, or powerlines, it can approximate relative wildfire risk to those resources and assets. WHP is not a forecast or wildfire outlook for any season as it does not include any information on current or forecasted weather or fuel moisture conditions.

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<sup>3</sup> <https://research.fs.usda.gov/firelab/products/dataandtools/wildfire-hazard-potential>

**Figure 5. Wildfire Hazard Potential – National Map**

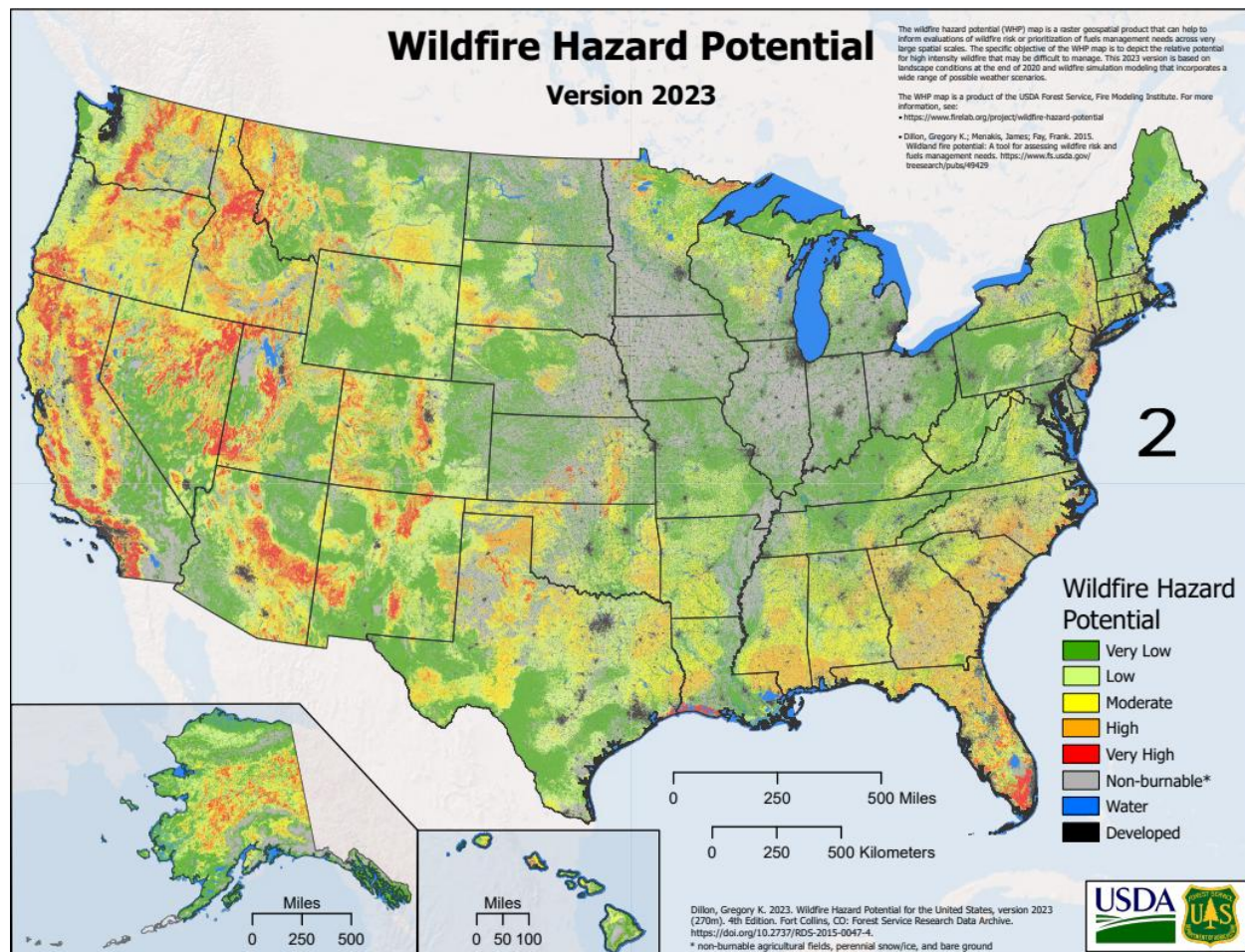
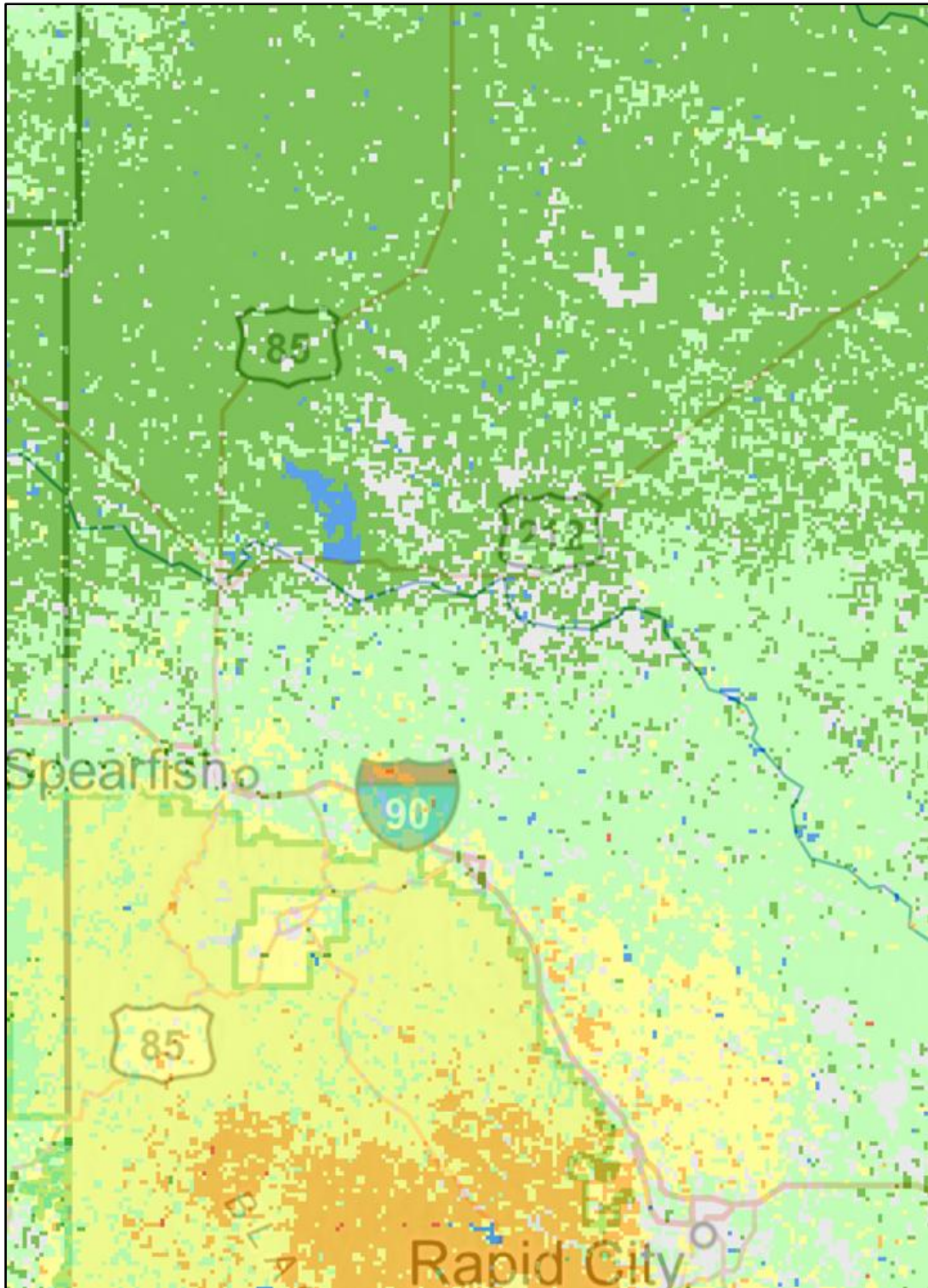


Figure 5, above, illustrates Wildfire Hazard Potential on a national scale, while Figure 6 on the next page shows the general service territory of BEC. According to the map legend BEC’s territory is primarily dark green mainly to the north portion of the territory providing for “Very Low” Wildfire Hazard Potential. The middle portion of the territory is primarily light green which indicates “Low” Wildfire Hazard Potential. The southern portion of the territory has primarily yellow which indicated “Moderate” Wildfire Hazard potential for BEC’s territory. The map is periodically updated by the United States Forest Service showing the wildfire hazard potential, which can be found at USFS research website at [www.research.fs.usda.gov](http://www.research.fs.usda.gov). Figure 6 is an enlarged view of BEC’s territory showing the more granular view of the wildfire hazard potential for the general area of BEC’s territory. Another source to be aware of is the US Drought monitor map depicted on the map below Figure 6. The University of Nebraska generates this map. Current maps can be found at [www.droughtmonitor.unl.edu](http://www.droughtmonitor.unl.edu).

**Figure 6. Wildfire Hazard Potential Detail Map**

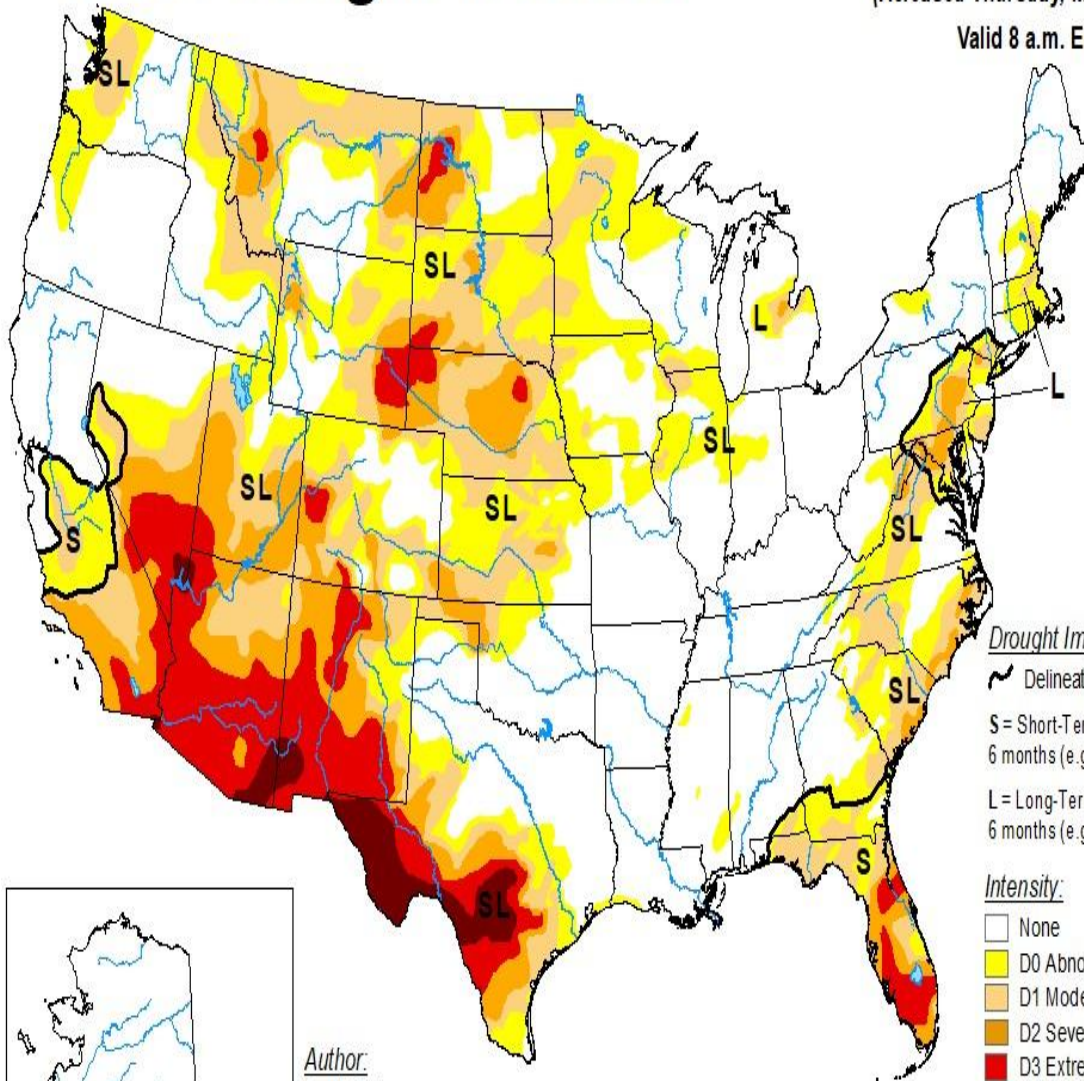


# U.S. Drought Monitor

May 6, 2025

(Released Thursday, May 8, 2025)

Valid 8 a.m. EDT



Drought Impact Types:

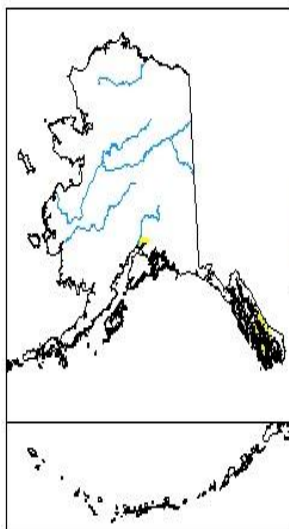
~ Delineates dominant impacts

S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)

L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)

Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought



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The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>



[droughtmonitor.unl.edu](https://droughtmonitor.unl.edu)

## 5 Wildfire Prevention Strategy and Programs

BEC incorporates wildfire prevention strategies and programs, along with safety strategies and programs into its business practices to minimize the risks of its assets causing wildfires. The two areas that are a focus of BEC's wildfire mitigation practices are its transmission and distribution systems. The following tools and practices help with those two areas

### 5.1 Situational Awareness Tools

Situational Awareness is the understanding of the working environment, which creates a foundation for successful decision making and the ability to predict how it might change due to a range of factors. Situational assessment is the process by which current operating conditions are determined.

BEC's System Operators rely on various resources to monitor evolving fire weather and climatological conditions that may lead to fire events. Sources for weather information include, but are not limited to the following:

- **USFS-Wildland Fire Assessment System (WFAS):** For immediate and short-term situational awareness, mapping tools from the USFS-WFAS help determine daily and short-term forecasted risks, with daily or weekly fire weather status maps produced as needed to assess PNW wildfire conditions. (<https://www.wfas.net/index.php/fire-danger-rating-fire-potential--danger-32/fire-danger-subsets-fire-potential--danger-55>)
- **The National Weather Service (NWS):** The NWS provides on-line predictive fire weather forecasting tools in the form of a current fire-weather outlook, 2-day, and a 3–8-day outlook. ([https://www.spc.noaa.gov/products/fire\\_wx/](https://www.spc.noaa.gov/products/fire_wx/))
- **NOAA Weather and Hazards Data Viewer:** This on-line map provides historic or real-time surface observations including wind speed and direction, wind gust, dew point, relative humidity, and sea level pressure collected from remote automated weather stations (RAWS). Extreme-weather alerts such as fire weather watch, high wind watch, and red flag warning are provided from this resource. (<https://www.wrh.noaa.gov/map/?wfo=psr>)
- **BEC Weather Stations and other sources:** BEC has installed its own weather stations at its outpost in Sturgis and headquarters in Newell to provide weather data pertinent to its service area. BEC also receives weather data pertinent to its service area from the South Dakota School of Mines and South Dakota State University Extension Service Weekly Climate, Weather, and Fire/Fuels Discussions publication.

### 5.2 Recloser Operational Practices

Since 2004, BEC has been systematically upgrading reclosers across its system through its approved work plans. At present, approximately 56% of BEC's sectionalizing devices are electronic, while the remaining 44% are non-electronic. Among the electronic devices, some can be remotely configured to operate in a "one-shot" mode, while others require on-site adjustment. Certain non-electronic reclosers can also be manually set to "one-shot," although

some legacy devices do not have this capability. BEC does not currently utilize non-expulsion fuses on its system.

During periods of elevated wildfire risk, including Red Flag Warning days, BEC monitors conditions and evaluates whether activating available “one-shot” settings would reduce the potential for ignition. When conditions warrant, BEC may implement “one-shot” operation on devices capable of being safely configured in this mode.

Over time, BEC will continue upgrading protective devices through future work plans as equipment reaches the end of its service life or requires modernization. These upgrades will enhance system responsiveness and operational flexibility during heightened wildfire-risk conditions.

### 5.3 Public Safety Power Shutoffs

A Public Safety Power Shutoff (PSPS) preemptively de-energizes power lines during high wind events combined with hot and dry weather conditions. BEC views any kind of Public Safety Power Shutoff (PSPS) as a last resort due to the potential negative impacts that such a plan would have in the event of a fire.

When considering de-energization, BEC communicates and coordinates efforts with local first responders, city, county, state, and federal officials. Communicating with all the impacted entities helps take into consideration all the impacts on fire response, water supply, public safety, impacts on members, the elderly, the infirm, and emergency response needs as they develop within BEC’s territory.

BEC considers the external risks and potential consequences of de-energization while striving to meet its main priority of protecting the communities and members we serve. They include, but are not limited to:

- Potential loss of water supply to fight wildfires due to loss of production wells and pumping facilities.
- Negative impacts to emergency response and public safety due to disruptions to the internet and mobile phone service during periods of extended power outages.
- Loss of key community infrastructure and operational efficiencies that occur during power outages.
- Medical emergencies for members of the community require powered medical equipment or refrigerated medication. Additionally, the lack of air conditioning can negatively impact medically vulnerable populations.
- Negative impacts on medical facilities and services.
- Traffic congestion resulting from the public evacuation in de-energized areas can lengthen response times for emergency responders.
- Negative economic impacts on the members of the community and businesses when local businesses are forced to close during an outage.

- The inability to open garage doors or motorized gates during a wildfire event can lead to injuries and fatalities.

The risks and potential consequences of initiating a PSPS are significant and extremely complex. Based on the above considerations, BEC reserves the option of implementing a PPS when conditions dictate. While BEC believes the risks of implementing a PPS far outweigh the chances of its electric overhead distribution system igniting a catastrophic wildfire, the PPS provides a last resort tool and another mitigation option in a potential crisis.

On a case-by-case basis, BEC has historically and will continue to consider de-energizing a portion of its system in response to a known public safety issue or response to a request from an outside emergency management/response agency. Any de-energizing of the lines is performed in coordination with local first responders, city, county, state, and federal officials.

#### 5.4 Red Flag Warning Operational Protocols

RFWs are issued by the NWS when critical fire weather conditions are forecast or met and are intended to call attention to limited weather conditions of importance that may result in extreme wildfire risk.

When the System Operators receive notice that an RFW has been issued, the following protocols are implemented. Work in areas of elevated wildfire risk is performed only when the following conditions are met:

- Activities are under the direct observation of the crew foreman or site lead,
- When the crew can maintain adequate communication,
- Local weather conditions, terrain, and surrounding vegetation would permit crews to extinguish a fire resulting from the work being performed,
- Crew has fire suppression equipment accessible in the immediate area of work that would facilitate an immediate response to an ignition, and
- Crews will be alert for fires while working or traveling and immediately report fires or signs of fire to the operations center as soon as feasible.

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## 6 Infrastructure Inspections and Maintenance

Recognizing the hazards of equipment that operate high voltage lines, BEC maintains a formal inspection and maintenance program for distribution, transmission, and substation equipment which plays an essential role in wildfire prevention. BEC currently patrols its system regularly and is increasing the frequency of inspections in high-risk areas.

**Table 3** summarizes the inspection schedule for all assets, while the following sections outline inspection practices for the utility.

**Table 3. Inspection Program Summary**

| ASSET CLASSIFICATION     | INSPECTION TYPE                  | FREQUENCY     |
|--------------------------|----------------------------------|---------------|
| Transmission             | Routine Safety Patrol Inspection | Every 2 years |
|                          | Detailed Inspection              | Every 3 years |
|                          | Wood Pole Test and Treatment     | Every 3 years |
|                          | UAV Inspections                  | Every 3 years |
| Overhead Distribution    | Routine Safety Patrol Inspection | Every 3 years |
|                          | Detailed Inspection              | Every 3 years |
|                          | Wood Pole Test and Treatment     | Every 8 years |
| Underground Distribution | Routine Safety Patrol Inspection | Every 3 years |
| Substation               | Routine Inspection               | Monthly       |
|                          | Detailed Inspection              | Annually      |
|                          | Infrared Inspection              | Annually      |

## 6.1 Definition of Inspection Levels

1. **Routine Safety Patrol Inspection:** A simple visual inspection of applicable utility equipment and structures designed to identify obvious structural problems and hazards. Routine Safety Patrol Inspections may occur as specific tasks or as part of other BEC activities.
2. **Detailed Inspection:** Individual equipment and structures are carefully examined visually and through routine diagnostic testing as appropriate. If practical and useful information can be gathered, equipment may be opened, and the condition rated and recorded.
3. **Wood Pole Inspection:** Pole Inspections include movement of soil, taking samples of each wood pole, above and below ground, for analysis, and/or using more sophisticated diagnostic tools beyond visual inspections.

## 6.2 Routine Safety Patrol Inspections

Routine Safety Patrol Inspections consist of crews making simple visual inspections on a scheduled basis, as was outlined in Table 3. Crews look for the following types of issues:

- Low clearance of primary conductor, secondary wires, and service drops.
- Excessive splicing.
- Objects too close to electric lines.
- Encroachments.
- Physical damage to facilities.
- Deterioration of facilities.
- Bird nests or other bird or animal issues.
- Other issues that may not be listed.

## 6.3 Detailed Inspections of Transmission and Distribution Lines

Detailed Inspections consist of crews making detailed inspections on a scheduled basis, as was outlined in Table 3. Crews look for the following types of issues:

- Mechanical damage.
- Loose hardware.
- Guy wire and anchor conditions.
- Disconnects and fuse holder condition.
- Other issues that may not be listed.

## 6.4 Wood Pole Testing and Treatment

To maintain BEC wood poles, a third-party company is contracted to inspect poles. The goal is to inspect approximately 8.3% of the system each year. Wood pole inspections are carried out on a planned basis to determine whether they have degraded below the National Electric Safety Code (NESC) design strength requirements with safety factors.

The inspections and tests on all poles are completed to meet the interval recommended in RUS Bulletin 1730B-121. Circuits are identified, mapped, and scheduled for inspection and testing using the latest industry standards and practices. Poles suspected of deficiencies are subjected to intrusive inspection to determine and identify problems such as rot, decay, or insect damage. All poles are subjected to intrusive inspections and testing every 10 years. Based on the results of the intrusive test, poles that don't pass are either removed entirely or if possible, steps are taken, such as wood treatments, to remedy any noted deficiencies.

## 6.5 Substation Inspections

BEC substations are inspected by employees monthly. Qualified personnel will use prudent care while performing inspections following all required safety rules to protect themselves, other workers, the public, and the system's reliability. Third party inspections occur every six months for climate control, annually for minor maintenance matters, and every three to four years for major maintenance matters.

The substation inspection involves a thorough look at the system to confirm that there are no structural or mechanical deficiencies, hazards, or tree trimming requirements. Individual pieces of equipment and/or structures receive careful visual examination and routine diagnostic tests as appropriate. All deficiencies are noted and scheduled for repair.

## 6.6 Prioritization of Repairs

BEC considers and prioritizes maintenance work by assessing the most urgent needs. The inspector will document the overhead and underground systems' condition, recording defects, deterioration, violations, safety concerns, or any other factors requiring attention on the inspection records. The inspection should focus on any hazards that could affect the system's integrity or the safety of line workers and the public.

Inspection data (overhead & underground) will be prioritized and issued as follows:

**Priority # 1 – Immediate hazard:** Conditions that may affect the integrity of the system or present a hazard to workers or the public. **Priority #1** tags will be responded to **immediately** and appropriate action taken until the hazardous condition is remedied.

**Priority # 2 – non-emergency repair condition:** Conditions that require maintenance that can be scheduled to maintain the integrity of the system. Priority #2 tags will be prioritized by urgency and will be scheduled to have appropriate repairs

made to correct the condition within two years where practicable. If the Priority Level 2 issue is in a High-Risk zone and poses a potential fire risk, correction of the deficiency will occur within 6 months.

**Priority # 3 – non-emergency repair condition:** Conditions that do not present a situation that could jeopardize the safety of the system, line workers and the public. Priority #3 tags will be submitted by the inspector with the time interval recommended. In the judgment of the Work and Asset Management Department, work will be scheduled to be completed within five years.

## 7 Vegetation Management (VM)

Since nearly 15% of all outages involve trees, keeping the lights on requires more than a lineman — it depends on coordinated vegetation management to maintain safe clearances and ensure electricity can move reliably throughout the system. BEC's Vegetation Management (VM) program supports safe, dependable electric infrastructure, protects public and workers' safety, and reduces wildfire risk.

The program minimizes service interruptions caused by overgrown or encroaching vegetation while balancing environmental stewardship with system reliability. BEC maintains approximately 823 miles of overhead right-of-way (ROW), which includes routine inspection of poles, conductors, and hardware, along with proactive management of vegetation that could contact energized equipment. Although BEC values the natural landscape, trimming or removal is sometimes necessary to maintain safety, reliability, and affordability, and to comply with board policies and the National Electric Safety Code (NESC).

Contracted tree-trimming crews conduct regular VM work, including clearing vegetation ahead of maintenance, upgrades, or construction. Crews trim trees and vegetation around energized lines, utility poles, and pad-mounted transformers to maintain required clearances, while considering current and future tree health and symmetry while working within the limitations set forth in easement or ROW documents. During all VM activities, BEC works to minimize impacts on desirable plant life, benefiting adjacent landowners, improving roadway safety, and supporting wildlife that rely on these corridors for habitat and foraging.

### 7.1 Vegetation to Conductor Clearance

BEC has an operational and management responsibility and is required by State and Federal Agencies to maintain the right of way, under or around its power lines. BEC will meet the minimum standards for conductor clearances from vegetation to provide safety for the public and utility workers, reasonable service continuity and fire prevention.

Vegetation management (VM) operations are scheduled to ensure all lines are cleared of vegetation hazards on a 3-to-5-year timeline. At the time that contractors are trimming and cutting trees, contractors aim to achieve the optimal clearance specifications described below, subject to any easement restrictions:

- 10' minimum total width for overhead secondary routes.
- 10' minimum total width for underground routes of all types.
- 15' minimum total width for overhead single-phase routes.
- 20' minimum total width for overhead multi-phase and single-phase routes constructed on cross arms.
- 40' minimum total width for transmission line routes.

Contractors provide maps and general photographs when work is completed. BEC crews document activities on BEC’s lineman software program.

## 7.2 Vegetation Trimming Standards

BEC’s contractors follow American National Standards Institute (ANSI) A300 concepts and utility directional pruning, which supports proper pruning/tree health while achieving and maximizing the pruning cycle. The VM program was developed with RUS, ANSI A300, ANSI C2, National Electrical Safety Code (NESC), and FAC 003-4 standards in mind.

Work performed to the above guidelines provides reasonable service continuity, public safety, and guards against wildfire damage caused by supply conductors. Consideration is given to the impact of pruning on power line reliability, individual tree condition, and tree aesthetics. BEC also provides advance notice to impacted landowners regarding any cutting/trimming activities.

## 7.3 VM Trimming and Inspection Schedule

BEC’s personnel and contractors perform annual, ground-based inspections of clearances and hazard tree identification for BEC’s ROWs and easements. BEC contracts full-time tree trimming crews for year-round vegetation management work. Proactive maintenance during routine operations and prompt action during emergency events maintain system reliability, a safe work environment, and reduce fire danger. Scheduled patrols ensure all lines are inspected for vegetation hazards and systematically trimmed. On-going, year-round field patrols identify targeted areas for vegetation pruning or removal and ensure compliance with state and federal regulatory requirements.

**Table 4** illustrates the vegetation inspection and trimming cycle for the various circuits based on the nominal voltage.

**Table 4. Vegetation Management Schedules**

| ASSET CLASSIFICATION               | OPERATION TYPE                                      | FREQUENCY   |
|------------------------------------|---|---|
| 230 kV Overhead Transmission       | Inspection – BEC currently has NO 230 kV line – n/a | Annually - (n/a currently)<br>NERC Standard FAC-003-4 |
|                                    | Trimming – BEC currently has NO 230 kV line – n/a   | Annually - (n/a currently)<br>NERC Standard FAC-003-4 |
| 69 kV Overhead Transmission        | Trimming  | Every 3 years   |
|                                    | Mid-cycle Trimming                                  | Every 3 years   |
| 72 & 14.4 kV Overhead Distribution | Trimming  | Every 3 years   |
|                                    | Mid-cycle Trimming                                  | Every 3 years   |

**7.3.1 Hazard Trees**

A subset of Danger Trees<sup>4</sup>, A Hazard Tree is defined as any tree or portion of a tree that is dead, rotten, decayed, or diseased and which may fall into or onto the overhead lines or trees leaning toward transmission and distribution facilities. These trees are sometimes located beyond the easement or ROW. Any tree that is located outside of the ROW and is deemed a hazard tree will be removed or topped to make conductors safe.

A hazard tree will have one or more of the following characteristics:

- Dead or dying - dead or dying trees located within the BEC right-of-way will be removed and dead or dying trees located outside the BEC right-of-way may be removed depending on the height of tree and the direction of the lean and permission from the appropriate landowner or government agency.
- Leaning trees - trees that have such a lean toward the right-of-way that they cannot be trimmed without removing the tops and slanting the tree back. Removal depends on height and species of the tree and direction of the lean and permission from the appropriate landowner or government agency.

<sup>4</sup> As defined by ANSI 300 Part 7 standards

## 7.4 Controlling Incompatible Vegetation

In addition to the annual patrols by BEC field staff observing and reporting on incompatible uses and encroachments, BEC makes efforts to educate public and private landowners about incompatible vegetation that can pose risks if planted under or near conductors. BEC's website provides guidance on "Right Tree/Right Place", as well as answers to tree trimming frequently asked questions.

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## 8 Fire Mitigation Construction

BEC has been burying distribution line underground line for many years. One of the goals of burying distribution line is to reduce the risk of wildfires. BEC has also gone to polymer crossarms to replace worn wood crossarms and in new construction to help reduce the risk of wildfire. BEC has also started replacing old non-electric equipment with electronic equipment to gain efficiencies in operation and reduce the risk of wildfire.

### 8.1 Avian Protection Program

During line inspections, BEC crews inspect and cover up areas that may be impacted by Avian activities.

### 8.2 Emerging Technologies

BEC has researched new technologies and best management practices. BEC has also applied for grant funding to upgrade its sectionalization equipment. BEC may incorporate these technologies or practices into its ongoing construction and maintenance programs based on the outcome success of its grant requests. These technologies include, but are not limited to non-expulsion fuses, thermal imaging cameras, UAV asset inspection, electronic reclosers.

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## 9 Emergency Response

BEC Coordinates its response internally through its Emergency Response Procedures and its Crisis Communications Plan.

### 9.1 Emergency Management Communication and Coordination

In response to active emergencies, BEC coordinates and collaborates with the local Department of Emergency Management (DEM) and relevant state agencies as peer partners. During such emergencies, BEC provides a utility representative to the county and/or city DEM to ensure effective communication and coordination.

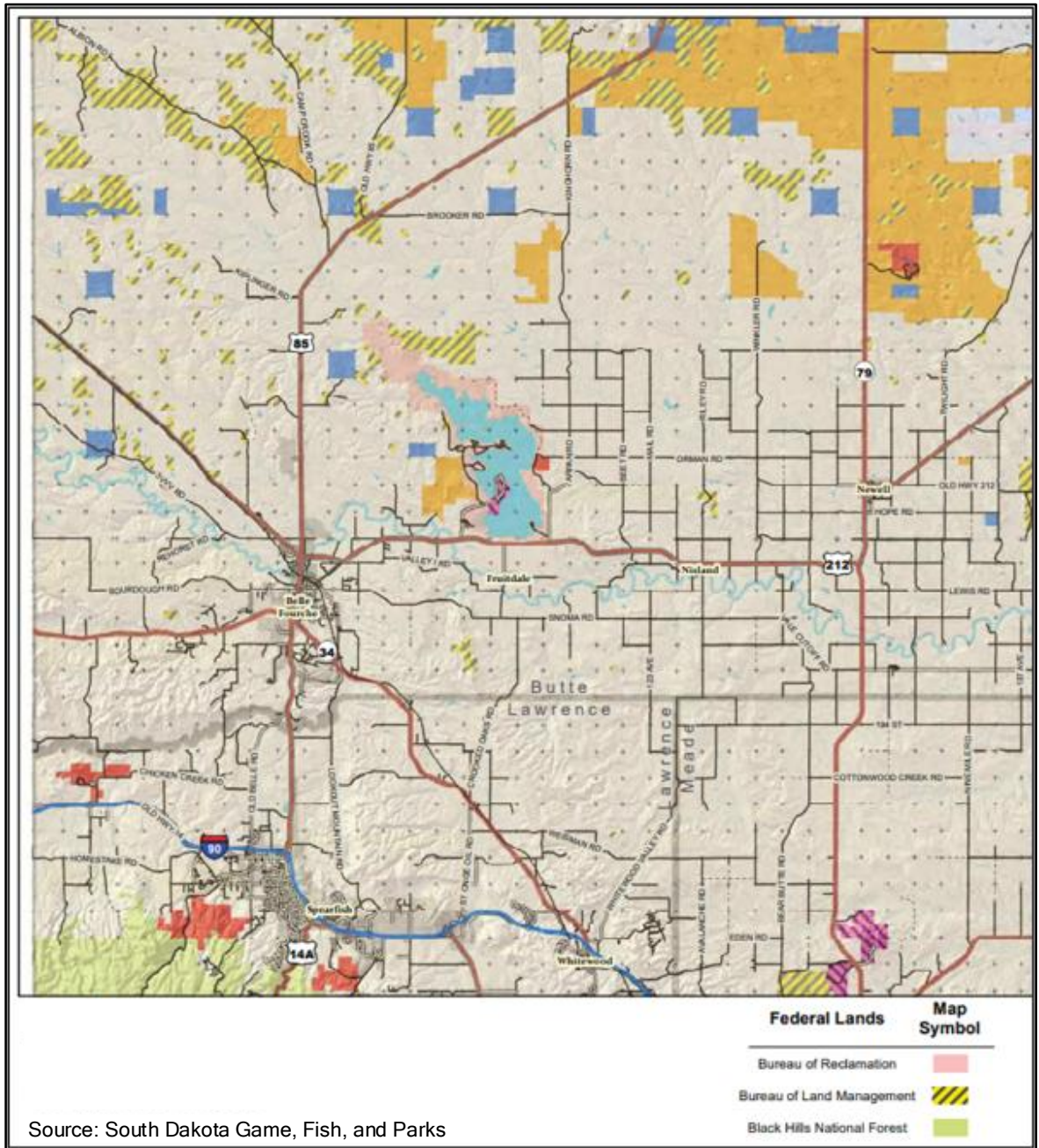
BEC's primary coordination points are the Butte, Lawrence, and Meade County DEM or the Sheriff's office with the county Sheriff designated as the Director of Emergency Services. BEC's Chief Operating Officer or Operations Manager will contact the local DEM and establish themselves as the duty officer for coordination. The Chief Executive Officer or Chief Operating Officer acts as the communications officer during an emergency.

### 9.2 Jurisdictional Structure

BEC territory consists of the following land ownership types:

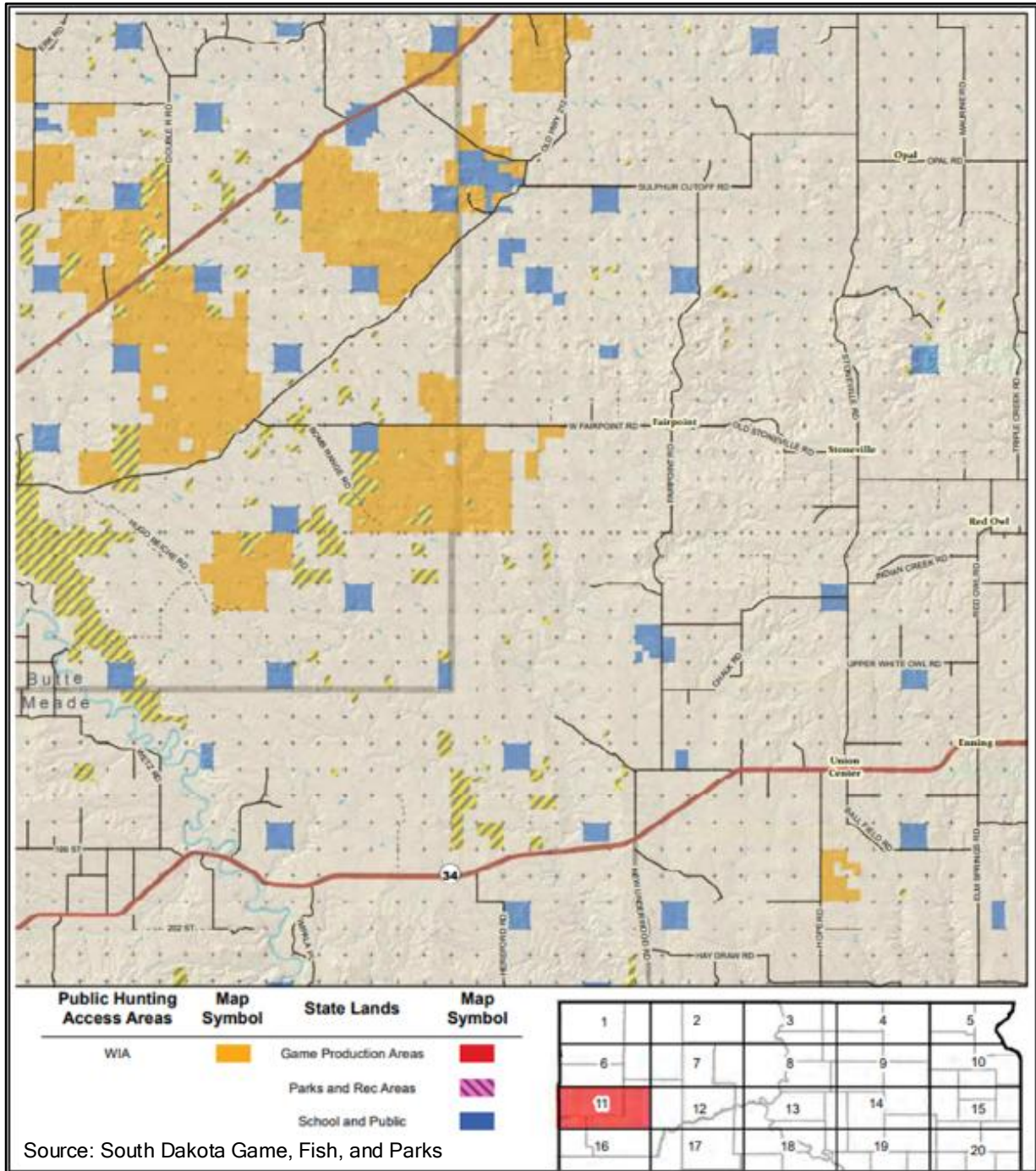
- Private Property – A large percentage of the land north of I-90 is Private Property.
- Bureau of Land Management (BLM) – Small to large parcels primarily in northern Butte County.
- United States Forest Service – The Black Hills National Forest is located south of I-90. A large percentage of the land located within the Black Hills National Forest is United States Forest Service land.
- Bureau of Reclamation – Portions of the land around Orman Dam is Bureau of Reclamation property.
- State of South Dakota School and Public Lands – Sections 16 and 36 were designated as State of South Dakota School and Public Lands. Not many of these sections remain under that ownership in Lawrence County and southern Butte County. There are some School sections located in Northern Butte County and Meade County.
- State of South Dakota Game Fish and Parks Game Production areas. The State of South Dakota Game Fish and Parks has game production areas south, west and east of Spearfish.

**Figure 7. General Land Ownership – Western Butte and Lawrence Counties**

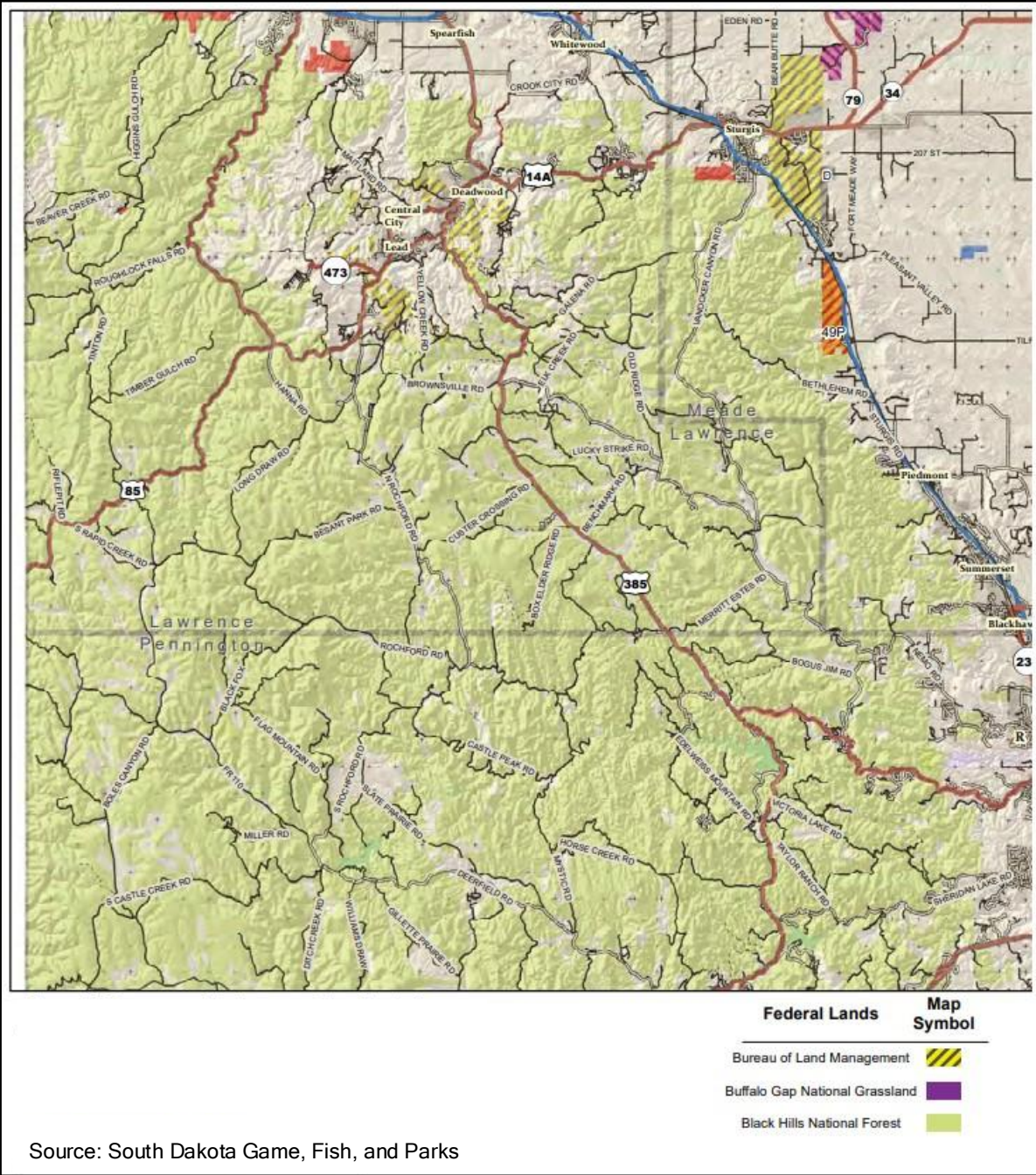


Source: South Dakota Game, Fish, and Parks

**Figure 8. Land Ownership – Eastern Butte and Meade Counties**



**Figure 9. Land Ownership – Black Hills National Forest – Lawrence and Meade Counties**



### 9.3 Public Agency and Customer Communications for Outages

BEC has standard communication procedures and a crisis communications plan that will be followed as circumstances present themselves.

### 9.4 Community Outreach

BEC utilizes its social media and website to communicate with members regarding wildfire safety and emergency preparedness and other public awareness needs.

### 9.5 Restoration of Service

If an outside emergency management/emergency response agency requests a power shutdown, or if BEC elects to de-energize segments of its system due to extreme weather, BEC staff will patrol the affected portions of the system before the system can be re-energized. Suspect equipment or distribution lines that cannot immediately be patrolled will remain de-energized until BEC staff can do so. Poles and structures damaged in a wildfire must be assessed and rebuilt as needed prior to re-energization. Periodic customer and media updates of restoration status prior to full restoration will be made.

### 9.6 Service Restoration Process

After a wide-spread outage, BEC work crews take the following steps before restoring electrical service after a de-energization event. These measures are intended to protect the workers, members, the public, and the system's reliability.

- **Patrol:** Crews patrol every de-energized line to ensure no hazards have affected the system during the outage. If an outage is due to wildfire or other natural disasters, as soon as it is deemed safe by the appropriate officials, crews inspect lines and equipment for damage, foreign contacts and estimate equipment needed for repair and restoration. Lines located in remote and rugged terrain with limited access may require additional time for inspection. BEC personnel assist in clearing downed trees and limbs as needed.
- **Isolate:** **Isolate** the outage and restore power to areas not affected.
- **Repair:** **After** the initial assessment, BEC staff meet to plan the needed work. Rebuilding commences as soon as the affected areas become safe. Repair plans prioritize substations and transmission facilities, then distribution circuits serving the most critical infrastructure needs. While the goal to reenergize all areas as soon as possible, emergency services, medical facilities, and utilities receive first consideration when resources are limited. Additional crew and equipment are dispatched as necessary.
- **Restore:** Periodic customer and media updates of restoration status before full restoration are posted on social media platforms and BEC website. After repairs are made, power is restored to homes and businesses as quickly as possible. Members, local news, and other agencies receive notification of restored electric service.

# 10 Performance Metrics and Monitoring

## 10.1 WMP Accountability

Staff responsibility for WMP implementation and general communications is described below:

- The Board of Directors makes policy decisions relative to the utility – they will be responsible for approving and adopting the Wildfire Mitigation Plan.
- The Chief Executive Officer directs the management staff responsible for operations, customer service, and finance.
- The Chief Operating Officer supervises the operational staff.
- The Chief Executive Officer is responsible for the overall execution of the WMP. Staff will be directed as to their roles and responsibilities in support of the plan.
- The Chief Executive Officer and other personnel, as assigned, shall be responsible for communicating with public safety, media outlets, public agencies, first responders, local Office of Emergency Management, and health agencies during emergency or planned maintenance outages.
- The Chief Executive Officer determines when and how to notify outside agencies in cases of wildfire emergency events.
- The Chief Executive Officer and Chief Operating Officer will be responsible for monitoring and auditing the targets specified in the WMP to confirm that the objectives of the WMP are met, as well as the implementation of the plan in general.

## 10.2 Monitoring and Auditing of the WMP

The WMP will be reviewed annually for the purpose of updating the plan as needed to reflect knowledge gained in the preceding year and modified accordingly. A more formal review will be done every five years in coordination with BEC's business planning.

### 10.2.1 Identifying Deficiencies in the WMP

The Chief Executive Officer will be responsible for ensuring that this WMP meets all public agency guidelines to mitigate the risk of its assets becoming the source or contributing factor of wildfire. Staff responsible for assigned mitigation areas have the role of vetting current procedures and recommending changes or enhancements to build upon the strategies in the WMP. Either due to unforeseen circumstances, regulatory changes, emerging technologies or other rationales, deficiencies within the WMP will be sought out and reported to the Board of Directors in the form of an updated WMP on a 5-year basis.

The Chief Operating Officer, or their designee, will be responsible for spearheading discussions on addressing any plan deficiencies and collaborating on solutions when updating the WMP. At any point in time when deficiencies are identified, the Supervisors or their delegates are responsible for making the appropriate policy adjustments. BEC staff and qualified stakeholders are encouraged to bring any potential deficiencies to the attention of the Chief Executive Officer. The Chief Executive Officer, along with the appropriate staff, will evaluate each reported deficiency, and if determined to be valid, shall record the deficiency for further action.

## 10.3 Performance Metrics

BEC reviews its operating procedures and adjusts as part of the wildfire mitigation plan.

**Table 5. Performance Metrics**

| METRIC                                       | RATIONAL  | MEASURE OF EFFECTIVENESS                 |
|--|---|--|
| Red Flag Warning (RFW) days in service area  | Used to adjust annual variation in criteria. Track evolving weather conditions. | N/A                                      |
| Utility caused ignitions and track the cause | Demonstrates the effectiveness of the plan                                      | Reduction or no material increase        |
| Down lines during fire season                | Assess system hardening efforts in critical areas                               | Reduction in the general trend of events |
| Faults in WHP                                | Assess system hardening efforts in critical areas                               | Reduction or no material increase        |
| Vegetation-caused Outage during fire season  | Assess VM program work schedules/QC process                                     | Reduction or no material increase        |

## 10.4 Programmatic QA/QC processes

### 10.4.1 Transmission and Distribution System Inspection QC Process

The Chief Operations Officer and Operations Manager are responsible for developing and implementing processes and procedures for crews to follow for Transmission and Distribution System inspections. Crews are responsible for following those processes and procedures. The Chief Operations Officer, Operations Manager, and Crews will be responsible for periodically reviewing inspections, test results, repair work, and other matters that may occur to make sure that the processes and procedures are followed and sufficient to ensure the reliability and safety of the system.

### 10.4.2 Vegetation Management QC Process

BEC will document the tree trimming practices using its inspections program, photographs showing a representation of the trimmed area. If external contractors are hired, members of the crew will inspect the completed work to BEC's standards and satisfaction. The Chief Operating Officer and the Operations Manager will be responsible for making sure that the activities are documented appropriately that the jobs are completed to BEC's standards, and that any outstanding matters are taken care of in a timely and professional manner.

## 10.5 Plan Approval Process

### 10.5.1 Internal Preparation and Review

The WMP will be prepared by BEC staff and reviewed by the appropriate parties. Once the preparation and review of the WMP are complete the CEO will present the WMP to BEC's attorney for legal review. Once the legal review has been completed and any necessary changes are made the CEO will present the WMP to the Board of Directors for review.

### 10.5.2 Board Presentation

The Board of Directors will review the WMP annually. The plan will be implemented by BEC staff.

## Appendix A: Plan and Mapping Disclaimers

### **WILDFIRE MITIGATION PLAN DISCLAIMER**

The information provided in this report was developed by BEC staff and is intended for BEC's internal planning purposes only. BEC does not guarantee the accuracy, reliability, or timeliness of any information in this report, and assumes no liability for any errors, omissions, or inaccuracies in the information provided. BEC shall not be held liable for losses caused by using this information. Portions of the data may not reflect current conditions. Any person or entity who relies on any information obtained from this report does so at their own risk. This report is presented solely for internal use AS-IS by BEC staff. BEC make no representations or guarantees expressed or implied regarding the accuracy or completeness of the report.

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