



March 21, 2023

The Honorable Joseph R. Biden, Jr.
President of the United States
The White House
1600 Pennsylvania Avenue NW
Washington, D.C. 20500

Through: Nancy Dragani, Regional Administrator
Federal Emergency Management Agency
Region VIII
Denver Federal Center
Building 710, Box 25267
Denver, CO 80225-0267

RE: REQUEST FOR A PRESIDENTIAL MAJOR DISASTER DECLARATION

Dear Mr. President,

The State of North Dakota remains resilient through adversity. Within the past five years, North Dakota has received eight federal disaster declarations, four of which were caused by extreme weather events. This winter has been particularly unique with still air casting over the state creating dense and freezing fog that collected on power lines from Jan. 16, 2023, to Jan. 20, 2023, followed by winds that pulled down ice-laden electrical infrastructure. Thick layers of ice accumulated on power lines and tree limbs resulting in thousands of power outages due to downed power lines. Pursuant to Section 401 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. §§5121-5207 (Stafford Act), and implemented by 44 CFR §206.36, the State of North Dakota requests a major disaster declaration for the Jan. 16, 2023, to Jan. 20, 2023, severe fog and ice storm for the counties of Burke, Divide, McLean, Nelson, Renville, Sheridan, and Walsh. The counties of Grand Forks, McHenry, Mountrail, and Ward were also heavily impacted by downed power lines but did not have enough damages to exceed their per capita impact thresholds.

This series of freezing fog caused widespread impacts across the state coating the landscape with a thick layer of ice. The northern regions of the state experienced the greatest impacts with the northwest region experiencing the longest duration of power outages. Electrical cooperatives worked tirelessly to get power restored to all citizens in a timely and cost-effective manner with life safety at the forefront.

Weather Summary

North Dakota experiences an abundance of variable weather patterns that we are accustomed to in a state of all seasons. However, January 2023 was a remarkably foggy month when compared to what would be considered normal for the season. The state experienced a stretch of 15 days of dense fog in January 2023, whereas generally North Dakota experiences one day of dense fog in the month of January. Freezing fog produced significant impacts during the time frame of Jan. 16, 2023, through Jan. 20, 2023.

The average number of days with fog is not a typical statistic that is tracked by NOAA's National Weather Service (NWS), but in the case of dense fog with visibility of one-quarter mile or less, they are detailed and maintained. For example, in Williston, North Dakota, fog allowed for visibility of fewer than 7 miles which occurred for 24 days in January. Overall, the fog was reported statewide at 32 days in a row from Dec. 27, 2022, through Jan. 27, 2023.

Furthermore, this fog event was atypical as it brought rime ice and hoar frost, otherwise referred to as freezing fog which is not a common phenomenon in North Dakota. Hoar frost forms when fog freezes upon contact with objects such as tree branches, automobile windows, and in this case, powerlines. The air temperature dictates whether the liquid water freezes, and during this time it was at or below freezing temperatures, but the dew point also has to be taken into consideration. The dew point indicates how much water is in the air. Any time the air temperature is as cool as the dew point, the available water in the air changes from gas to liquid. This process causes fog to form, usually occurring early in the morning when the temperatures are the lowest. Both the air and the dewpoint temperatures were well below the freezing point of water, and because we know that fog was observed for this time period, the air temperatures were equal to the dew point temperatures at that time, said State Climatologist, Adnan Akyüz. Fog can accumulate as much glazed ice on frozen surfaces as rain if the fog is dense and the air is laden with water supply, which was the case on most January 2023 mornings, especially on days between Jan. 16 and 20. The air temperatures ranged between 25 and 28 degrees, which was well below freezing threshold.

Freezing fog, especially over a period of days, is likely to be accompanied by freezing drizzle, impacting additional critical infrastructure such as transportation. There were reported pockets of freezing drizzle, and although not widespread, they were highly impactful to ice-laden power lines. Weather impact intelligence from electric company experts has revealed that drizzle is absorbed by frost on powerlines like a sponge soaking up water. This in turn adds additional weight to lines and trees with devastating results. Unfortunately, and unusual for North Dakota, there was minimal wind during the critical impact period, which allowed ice to continue to accumulate on electrical infrastructure before enough wind came through to haul down the systems.

Incident Analysis

The uncharacteristic weather patterns brought significant accumulations of ice that weighed down thousands of power lines, broke poles and spliced repaired lines. The North Dakota Association of Rural Electric Cooperatives (NDAREC) has experienced extreme impacts on

infrastructure continually damaging systems without time or resources to fully repair. These weakened systems are vulnerable to day-to-day weather and mention extreme events such as those from Jan. 16, 2023, to Jan. 20, 2023.

With the sun peeking out, melting ice and then retracting to bring cold temperatures back, ice went through a melting and freezing cycle challenging the ability of power poles to handle the weight of the ice. The amounts of ice were varied but put significant stress on infrastructure nonetheless. Ice is extremely heavy, with one-quarter inch weighing 30 times the amount of weight that power lines can typically hold, according to NDAREC Director of Safety Services Christina Roemmich. Parts of the state experienced ice that was the diameter of a pop bottle, showing significant accumulation and weight. In order to remove these taxing masses on the power lines, crews must remove near-record breaking snow amounts to access the line and then manually remove the ice.

Once the fog had lifted, wind speeds increased causing the lines to gallop, resulting in outages that posed a direct hazard to the public. Removing lines from roadways or areas of direct contact with the public was the first priority. Freeing the lines from the anchoring ice is laborious and time consuming. This effort required snow clearing efforts and linemen who are able to climb to the top of the power pole to remove the ice. Normally, scenarios like this draw in lots of mutual aid, however, since the impacts were widespread, options were limited. Marty Tetrault, General Manager and Operations Manager of Cavalier Rural Electric Cooperative, noted, "Normally you call your neighbors for help, but all of our neighbors were busy that day so crews went as quick as they could with a limited number of guys." This self-sufficiency attitude is something that North Dakotans value and is seen in everyday resiliency.

As power outages lasted across long durations, some households were able to power homes with generators, but were not able to fuel whole agricultural productions. These extended periods without power create a scene of high vulnerability and increased risk to life safety, particularly for those in remote areas of the state. Farmers and ranchers experienced many darks days under fog while experiencing extreme stress. Operations and daily chores must continue regardless of the weather conditions.

Access to critical resources was delayed because of icy conditions and minimal sun. Drivers experienced variable road conditions due to the melting and freezing cycle of the ice. Several motorists were stranded along major roadways due to vehicles sliding into ditches. These conditions result in slow movements of needed materials for electrical cooperatives and other essential goods. Communications were lost in variable portions of the state creating additional challenges for identifying ice amounts and battering predictability.

Whole Community and Government Partnerships

The residents of North Dakota prove again their competency and adaptability when faced with adverse, unfamiliar weather extremes. The electrical grid is a system we all rely on for survival, especially in a hypothermic climate. Since this ice and fog storm was seen statewide, it took a whole community approach for response and recovery efforts. Reporting, assisting and

monitoring impacts were considerable actions taken at all levels to ensure safety and security within the state.

Emergency Managers served as a major link to understanding impacts at the local level. Proficient partners monitored and reported outages within their counties. They provided information on numbers and location of their community members without power. Identifying locations and providing situational awareness of power outages is critical, especially when analyzing where the most vulnerable populations reside.

NDAREC members span from large to very small operations with variable resources. Cooperatives in rural regions work with few resources to provide a wide range of services. Notably, Cavalier Electric closely collaborated with the county Emergency Manager, Karen Kempert, as life safety is the main priority. With overwhelming responsibilities and little staff or equipment, available staff reached out to neighboring cooperatives in and out of the state. Resources from each cooperative consisted of personnel and equipment as there are extensive response and recovery actions without people to fulfill them. Small cooperatives often do not have call centers and rely on one to two people to directly coordinate response efforts with a vast range of territory as powerlines don't always follow county borders.

Rural county road accessibility was impacted due to rough terrain and desolate locations. Local contractors from construction companies assisted in moving excessive loads of snow. This was not only so people could get to their homes, but so powerline workers could get to buried poles. Local businesses or residents with available snowmobiles were utilized for clearing roads and accessing sites. RECs were overwhelmed with emergency activities; activating mutual aid agreements along with contractors to aid in system repairs to thousands of downed power lines and poles became essential.

Additionally, the NWS followed environmental conditions closely and relayed information as needed. The North Dakota Department of Emergency Services (NDDDES) State Emergency Operations Center monitored incoming reports of damage costs and outages in coordination with NDAREC. NDDDES produced weather-related products with information gathered from stakeholders.

Long-Term Implications of Recent Disasters

North Dakota has experienced 43 disasters since 1993, with 12 of these disasters happening within the last decade. NDAREC has experienced unceasing impacts on infrastructure. Within the last 10 years the organization has been involved in four of the declared disasters – two within the last year. Last spring, from April 22, 2022, to May 25, 2022, North Dakota experienced a winter storm with subsequent flooding that cost nearly \$97 million in damages statewide, ranking as the fifth-largest disaster in North Dakota history. These trends show the extremes that North Dakota has experienced in recent years.

Planners continually prepare for regular and irregular wear on power lines that experience some of the worst weather impacts. Cavalier Rural Electric Cooperative reported 76 outages in all of

2022, and they have already experienced 75 outages in January 2023. Understanding the toll on essential services in rural communities is daunting with January's cost being nearly \$60,000 over budget, according to Marty Tetrault. This is telling the story of one cooperative while multiple others continue to experience similar needs. Having constant damage with rising costs of materials poses the threat of loss of continuity of the company and employee livelihoods.

Economic and structural impacts will remain far into the future for companies and consumers. Supply chain inconsistencies are being experienced nationwide with increased attention drawn toward the issue. Disaster events emphasize these impacts even further. Supplies such as transformers, wires, bucket trucks and other materials have been extremely difficult to obtain with wait times spanning from three to six years. RECs are working to provide reliable services to consumers using the resources they have available, but vulnerability remains high and continues to grow. Challenges for RECs will continue into the future and the next disaster season. Repetitive disasters bring about constant maintenance and recovery efforts creating additional stress. Technicians work with limited resources to temporarily splice power lines as there are not enough resources nor time to replace the broken system. This weakened system will experience cascading impacts with increased susceptibility to future weather events and manmade hazards, such as cyberattacks. Electricity is a fundamental piece of society to ensure access to basic goods, communication, health, safety, and continued dependence of technology. Securing and hardening a robust system will help prepare for inevitable future events and ensure critical service availability.

Commitment to Resilience

The North Dakota Department of Emergency Services upholds an *Enhanced Mitigation Mission Area Operations Plan* approved on Feb. 6, 2019. The plan reflects close partnerships with 84 local, tribal and state jurisdictions and private organizations highlighting a whole community approach to mitigation. Holding an enhanced status also allows North Dakota to have a Program Administration by State (PAS) mitigation program. These close relationships provide the ability to drive mitigation initiatives and priorities in collaboration with the Federal Emergency Management Agency (FEMA).

Having a deep understanding of the threats and hazards that face North Dakota, NDDDES works to collaborate with emergency managers and planning staff to build a robust mitigation strategy. Through FEMA Hazard Mitigation Assistance (HMA) grant funding, the state has developed an electrical infrastructure resiliency plan to account for a wide range of hazards. Projects such as burying power lines, relocation of at-risk substations, and efforts to heal and harden the system are actively being pursued by both state and private partners. Christina Roemmich from NDAREC emphasized the planning efforts that are happening on a local level but are challenged by the heavy price tag of \$1 million per mile of line buried. Mitigation efforts are prioritized and taken seriously to account for all factors to create safer and more resilient communities.

This proactive effort highlights a long-term commitment to resilience by learning from past damage reports and experiences. North Dakota has enacted 457 total mitigation projects since

1997 with a total of \$286.5 million spent on completed mitigation efforts. Pew Charitable trusts found in 2020 that using complex budgeting mechanisms such as those used in North Dakota saves \$6.54 per \$1 invested. This savings brings the state to be in the highest category of savings in the country with a total of nearly \$1.9 million saved. As North Dakota experiences a wide range of extreme climate conditions, NDDDES takes a creative and data informed process toward completion of mitigation projects. The state has applied for an IJA Grid Resilience grant under section 40101(b) to further advance resiliency efforts in the state.

Conclusion

North Dakota's dedication to the protection of human life and safety, public and private property, and the environment shows precedence in our response and recovery efforts. Demanding weather systems are faced in stride with close communication and collaboration at all levels. In response to atypical weather, the citizens of North Dakota are continually diligent and resilient.

Pursuant to 44 CFR§206.36, I have determined freezing fog episodes were of such severity and magnitude that effective response and recovery are beyond the capabilities of the state and affected local governments. For the reasons described in this letter and its supporting documentation, I respectfully request that you declare a major disaster, with an incident period starting Jan. 16, 2023, and ending Jan. 20, 2023, for the counties of Burke, Divide, McLean, Nelson, Renville, Sheridan and Walsh. The other impacted counties of Grand Forks, McHenry, Mountrail and Ward are identified in the supporting documentation since they sustained damages from this event, however, since they did not exceed their per capita impact thresholds they cannot be designated if a disaster declaration is subsequently approved.

As in previous disasters, I also request North Dakota be designated as a Public Assistance Managing State, and that the Hazard Mitigation Grant Program be implemented on a statewide basis.

I certify for this major disaster that the state and local governments will assume all applicable non-federal shares of costs required by the Stafford Act 93-288. Preliminary Damage Assessments (PDAs) indicate that damages are expected to exceed \$1.45 million as detailed in Enclosure B.

I have designated MG Alan S. Dohrmann and Homeland Security Director Darin Hanson as the State Coordinating Officers (SCOs) for this request. They will work with FEMA to coordinate damage assessments and may provide further information or justifications on my behalf.

Thank you for your consideration of my request for a Major Presidential Disaster Declaration for the State of North Dakota and for your continued support as we recover from an unprecedented number of disasters.

Sincerely,



Doug Burgum
Governor

Enclosures: Enclosure A: Request for Major Presidential Disaster Declaration
Enclosure B: Preliminary Damage Assessment

Attachments: Attachment A: Jurisdictions Impacted by January 16-20, 2023 Event
Attachment B: State Climatologist Analysis of January 16-20, 2023 Event
Attachment B: NDDDES and FEMA Region 8 North Dakota Weather Summary for
January 16-20, 2023
Attachment C: ND Presidential Declarations (1993 – 2023)

CC: Senator John Hoeven
Senator Kevin Cramer
Representative Kelly Armstrong
MG Alan S. Dohrmann, Director, North Dakota Department of Emergency Services
Darin Hanson, Director, North Dakota Division of Homeland Security
Justin Messner, Disaster Recovery Chief, North Dakota Division of Homeland Security