



FEMA

MAR 17 2016

Mark J. Schouten
Director
Iowa Homeland Security and Emergency Management Department
7900 Hickman Road, Suite 500
Windsor Heights, Iowa 50324-4402

Re: Second Appeal – Iowa Lakes Electric Cooperative, PA ID 000-UX9OV-00, FEMA-4114-DR-IA, Project Worksheet 82 – Rural Electric Cooperative

Dear Mr. Schouten:

This is in response to a letter from your office dated August 12, 2015, which transmitted the referenced second appeal on behalf of Iowa Lakes Electric Cooperative (Applicant). The Applicant is appealing the U.S. Department of Homeland Security's Federal Emergency Management Agency's (FEMA) denial of \$145,057.65 in Public Assistance funding to replace conductors on a portion of its electrical distribution system.

As explained in the enclosed analysis, I have determined that the Applicant provided sufficient documentation to demonstrate the pre-disaster condition and capacity of the conductor and that the conductor meets the criteria for replacement listed within DAP 9580.6, *Electric Utility Repair (Public and Private Nonprofit)*. Accordingly, I am granting the appeal. By copy of this letter, I am requesting the Regional Administrator to take appropriate action to implement this determination.

Please inform the Applicant of my decision. This determination is the final decision on this matter pursuant to 44 C.F.R. § 206.206, **Appeals**.

Sincerely,

A handwritten signature in black ink, appearing to read "K. Turi".

Keith Turi
Acting Assistant Administrator
Recovery Directorate

Enclosure

cc: Beth Freeman
Regional Administrator
FEMA Region VII

SECOND APPEAL ANALYSIS
FEMA-4114-DR-IA
Iowa Lakes Electric Cooperative, PA ID 000-UX9OV-00
Project Worksheet 82 – Rural Electric Cooperative

Background

From April 9 to 11, 2013 a severe winter storm produced high winds and ice that extensively damaged an electrical distribution system owned and operated by Iowa Lakes Electric Cooperative (Applicant) – a Rural Electric Cooperative (REC) located in Iowa. FEMA prepared Project Worksheet (PW) 82 for \$145,057.65 in Public Assistance funding to replace approximately 2.8 miles of electrical conductors. FEMA had previously funded re-sagging of these conductors, as documented in PW 85.

With PW 82, FEMA included the Applicant's conductor replacement certifications,¹ signed and stamped by the Applicant's engineer, documenting and recommending replacement per the six criteria contained within Disaster Assistance Policy (DAP) 9580.6, *Electric Utility Repair (Public and Private Nonprofit)*.² FEMA hired a contractor to validate the Applicant's Storm Damage Checklist inspection sheets.³ Within the PW scope of work, FEMA listed the three sources of information that the Applicant should provide to establish the pre-disaster condition per DAP 9580.6. FEMA, however, stated that the Applicant must provide two additional forms of documentation to establish the pre-disaster condition: a summary of the past five years of load growth for the line section and "[i]nspection records, maintenance records, information relating to age / capacity, and hardcore technical data that validates the mechanical and electrical characteristics of the conductor compared to the original manufacturer's design specification."⁴

On August 30, 2013, FEMA notified the Iowa Homeland Security and Emergency Management Department (Grantee) of the ineligibility determination and the Applicant's appeal rights. The rationale for the determination was threefold. First, the Applicant did not comply with the documentation requirements of DAP 9580.6 by failing to provide "hardcore technical data"⁵ to verify that the damage was a direct result of the disaster in accordance with Title 44 of the Code of Federal Regulation (44 C.F.R.) § 206.223(a)(1). Second, the Applicant did not document the adopted code or standard that dictated the requirements and methods used for conductor replacement as required by 44 C.F.R. § 206.226(d). Finally, repair activities appeared to be contingent upon federal funding as such work had not commenced. FEMA obligated PW 82 for zero dollars.

First Appeal

In a first appeal letter submitted October 28, 2013, the Applicant appealed FEMA's denial of \$145,057.65 in costs to replace electrical conductors. With the appeal, the Applicant provided: a

¹ The conductor replacement certifications are documented on forms titled *Evaluation Form for Storm Damaged Conductor*, dated May 7, 2013.

² Disaster Assistance Policy DAP9580.6, *Electric Utility Repair (Public and Private Nonprofit)*, at 3 (Sept. 22, 2009).

³ On an unknown date, the contractor inspected a portion of the Applicant's lines and noted discrepancies in red ink on the Applicant's *Storm Damage Checklist* inspection sheets.

⁴ Project Worksheet 82, Iowa Lakes Electric Cooperative, Version 0, at 2 (Aug. 27, 2013).

⁵ *Id.*

map of the damaged lines; conductor replacement certifications; Iowa Utilities Board inspection reports from 2011, and 2012; construction work plans from 2008 and 2013; reliability plans from 2003 to 2012 and 2013 to 2022; a document describing participation of Rural Electric Cooperatives (REC) in the development of DAP 9580.6, *Electric Utility Repair (Public and Private Nonprofit)*; and affidavits from employees and industry experts. The Applicant also submitted a letter stating that the damaged “lines were in good repair and were operating intact”⁶ prior to the disaster. The Applicant maintained that the conductor met the criteria in the Iowa Electrical Code, which is the code or standard under which it operates, and was consistent with 44 C.F.R. § 206.226(d)(3).

The Applicant contended that it met all of the criteria in DAP 9580.6, including providing documentation to establish the pre-disaster condition of the conductors and conductor replacement certifications recommending that the conductor qualified for replacement. By requiring a five year load growth summary and technical data, Applicant argued that FEMA had essentially modified DAP 9580.6 by requiring additional documentation to establish pre-disaster condition. The Applicant provided affidavits from employees and industry experts to support its position.

On December 24, 2013, the Grantee forwarded the first appeal to FEMA Region VII. The Grantee reiterated the Applicant’s arguments about DAP 9580.6 being implemented differently for the disaster. The Grantee emphasized that the Applicant had met all requirements set forth in FEMA policy and that laboratory testing was neither required nor feasible. To support the latter point, the Grantee contacted testing laboratories and determined that the testing FEMA requested would exceed the cost to replace the conductor by a factor of 1:9 and would bankrupt the Applicant.⁷

On March 5, 2014, Region VII sent a Request for Information (RFI) to the Applicant for records sufficiently demonstrating the condition and capacity of the conductor prior to the disaster and listed several examples of satisfactory documentation. Region VII also requested a letter from a licensed professional engineer certifying the pre-disaster condition and capacity of the conductor, including specific statements addressing the pre-disaster tension limits and breaking strength of the conductor. The Region asked for copies of construction work plans and “Reliability and Outage Information for a five year period ending December 31, 2013 as required by the Iowa Utility Board and [Iowa Administrative Code].”⁸ Region VII also requested a description of damages and cost estimates for any damage not already recorded on PW 82 and a description of disaster related repair and replacement work completed to date. Additionally, the Region asked the Applicant to confirm that “conductor damage indicators... from pre-disaster events were not included in the post-disaster inspection counts.”⁹

⁶ Letter from Manager of Engineering, Iowa Lakes Electric Cooperative (Oct. 24, 2013) [hereinafter *Engineer Certification Letter*].

⁷ Iowa Homeland Security and Emergency Management, *Recommendations and Analysis*, Iowa Lakes Electric Cooperative PW#82, FEMA-4114-DR-IA, First Appeals, at 8 (Dec. 24, 2013).

⁸ Letter from Recovery Div. Dir., FEMA Region VII, to Adm’r, Iowa Homeland Security and Emergency Mgmt. Dep’t (Mar. 5, 2014).

⁹ *Id.*

On April 29, 2014,¹⁰ the Applicant responded to FEMA Region VII's RFI, noting that DAP 9580.6 does not require provision of tension limits or breaking strength of the conductor nor laboratory testing. The Applicant noted that it provided a copy of Region VII's RFI to industry experts who indicated that an engineer could not provide the data requested by FEMA without conducting laboratory testing, which is not required by the REC industry. The Applicant maintained that the conductors failed due to winter ice storm loads exceeding the designed wind and ice loads, not due to age. The Applicant confirmed that its inspection documentation "counts spans with a minimum of one conductor splice, kink, bird caging, or repair sleeve installed during the FEMA event."¹¹ The Applicant provided additional documentation to demonstrate the pre-disaster condition and investment in maintenance for previous years, including line patrol guidelines, a 2013 reliability report, and additional affidavits.

FEMA Region VII solicited technical advice from a licensed engineer. The engineer provided his findings in a report titled, *FEMA Region VII, Technical Report of Aged, Small Gauge Distribution Conductor at Issue in Iowa Lakes EC* (hereinafter "Technical Report").¹² Region VII transmitted the Technical Report to the Applicant on November 14, 2014 and the Applicant responded on February 3, 2015, challenging many of the Technical Report's findings.

On April 30, 2015, the FEMA Region VII Regional Administrator (RA) denied the first appeal, concluding that the Applicant did not sufficiently demonstrate the damage was the result of the declared disaster. The RA examined the three criteria contained in DAP 9580.6 to establish the pre-disaster condition of the Applicant's conductor. The RA found that: the Applicant failed to provide a certification of the pre-disaster condition and capacity of the conductor from a licensed professional engineer and records detailing the pre-disaster condition and capacity; system inspection reports provided by the Applicant presented little evidence of the pre-disaster condition and capacity of the conductor and only addressed poles and associated hardware; copies of construction work plans provided by the Applicant did not address the age or degradation of the conductor and the Applicant did not submit any corrective action plans; and reliability reports provided did not demonstrate an increase in outages since the disaster. The RA estimated that the conductor was about 60 years old and was likely subjected to multiple loading events, such as ice, wind, or other environmental elements which would have impacted the condition and capacity of the conductor over time.

The RA determined that the criteria listed in DAP 9580.6 to establish conductor replacement did not apply because the Applicant did not establish pre-disaster condition; however, FEMA reviewed the documentation provided by the Applicant and noted discrepancies in visual inspections and inspection reports. Lastly, the RA mentioned that, based on the criteria of 44 C.F.R. § 206.226, the original PW indicated that the Applicant did not demonstrate that an eligible code or standard applied. The RA concluded that the criteria of 44 C.F.R. § 206.226 do

¹⁰ Note that the RFI is undated, but the date is recorded in the *Technical Report of Aged, Small Gauge Distribution Conductor at Issue in Iowa Lakes EC (PA-07-IA-4114-PW-00082) Reconductoring Eligibility Appeal*, (Oct. 31, 2014).

¹¹ Letter from Manager of Engineering, Iowa Lakes Electric Cooperative, to Administrator, FEMA Region VII, at 5 (Apr. 29, 2014).

¹² *Technical Report of Aged, Small Gauge Distribution Conductor at Issue in Iowa Lakes EC (PA-07-IA-4114-PW-00082) Reconductoring Eligibility Issues*, (Oct. 31, 2014).

not apply because the Applicant could not demonstrate the damage to the conductors was disaster related.¹³

Second Appeal

On June 23, 2015, the Applicant submitted a second appeal in which it reiterated many of its first appeal arguments. The Applicant again emphasized that DAP 9580.6 does not require laboratory testing and lists the specific criteria which the Applicant met. The Grantee forwarded the second appeal to FEMA Region VII on August 12, 2015,¹⁴ supporting the appeal. On August 14, 2015, FEMA Region VII transmitted the second appeal to FEMA Headquarters.

Discussion

Pursuant to 44 C.F.R. § 206.226, *Restoration of damaged facilities*, FEMA may reimburse applicants for “work to restore eligible facilities on the basis of the design of such facilities as they existed immediately prior to the disaster.” DAP 9580.6 establishes criteria to assist FEMA in determining eligibility for repair or replacement of disaster-damaged electric distribution and transmission systems.

Establishing Pre-Disaster Condition

DAP 9580.6 lists three sources of information that applicants should provide FEMA to demonstrate the pre-disaster condition of the conductors. The three sources of information should not be viewed as exhaustive or absolute requirements that must be met by an applicant, but rather as information preferred by FEMA to demonstrate pre-disaster condition.¹⁵ However, if the Applicant is able to provide the three sources of information, FEMA does not require further documentation.¹⁶

The first source of information is a “certification of the pre-disaster condition and capacity of the conductor from a licensed professional engineer who has direct experience with the damaged electrical transmission or distribution system”¹⁷ and “records providing satisfactory evidence of the condition and capacity of the conductor as it existed prior to the disaster.”¹⁸ A “signed, dated, and stamped letter from a license[d] professional engineer will satisfy the certification requirement”¹⁹ and satisfactory evidence of the condition and capacity of the conductor “may include, but is not limited to maintenance records, contract documents, work orders, inspection

¹³ The RA also noted that the repairs appear to be contingent on FEMA funding since the Applicant hasn’t started the work yet, however in an oral meeting on second appeal held on Oct. 28, 2015, the Applicant stated that it has started replacing conductors.

¹⁴ The Grantee letter is dated August 12, 2013, but the timeline in which it was received indicates that it should be dated August 12, 2015.

¹⁵ FEMA Second Appeal Analysis, *Nobles Cooperative Electric*, FEMA-4113-DR-MN, at 4 (Jul. 23, 2015).

¹⁶ *Nobles Cooperative Electric*, FEMA-4113-DR-MN, at 4.

¹⁷ Disaster Assistance Policy DAP9580.6, *Electric Utility Repair (Public and Private Nonprofit)*, at 3 (Sept. 22, 2009).

¹⁸ *Id.*

¹⁹ *Nobles Cooperative Electric*, FEMA-4113-DR-MN, at 4.

logs, etc.”²⁰ The physical condition of a conductor is commonly documented within inspection reports, which note issues with leaning poles, broken conductor strands, and broken guys. Inspection reports also include information on whether a conductor was functioning as designed prior to the incident. The capacity of a conductor refers to the amount of electricity (amperage) that can flow through it²¹ and is dependent on the type of conductor. An inspection report typically speaks to the capacity of a distribution system. While laboratory testing of the tensile strength of a conductor would indicate its physical strength, this is not required to determine the condition and capacity of the conductor as the terms are used in FEMA policy.

On October 24, 2013, the Applicant provided FEMA with a signed, dated, and stamped letter from a licensed professional engineer with 30 years of experience working with the Applicant’s electric distribution system. In the letter, the engineer certified that the lines referenced in PW 82 were “in good repair and were operating intact” to general industry and Iowa Utilities Board (IUB) requirements prior to the disaster.²² Thus, the engineer speaks to the physical condition and capacity of the conductor when he states that it was in good repair. The Applicant also submitted IUB inspection reports from 2011 and 2012 indicating defects found and the resulting repair actions taken. Transmission and distribution system inspection guidelines require inspection for broken strands, sag, and splices, along with the inspection of other components of the electrical distribution system.²³ The IUB inspection reports did not note any maintenance needs or reliability concerns and found that the Applicant conducted inspections “in a manner conducive to the identification of safety, maintenance, and reliability concerns.”²⁴ The fact that the conductor was not mentioned in the IUB inspection reports indicates that no physical defects were observed. The absence of any observed reliability concerns sufficiently demonstrates the pre-disaster conductor had the appropriate capacity. Taken together, the October 24 engineer certification letter and IUB inspection reports adequately document the pre-disaster condition and capacity of the conductor and satisfy the first source of information listed in DAP 9580.6.

The second source of information required by DAP 9580.6 is “copies of construction work plans demonstrating the utility’s past practices and current/future projects.”²⁵ The Applicant provided 2008 and 2013 construction work plans and a 2013 line patrol guideline work plan indicating that it maintains and upgrades the system. It also submitted a calendar year 2012 annual engineer certification certifying that the electrical distribution system “materials, equipment, and construction conform to prudent utility practices and meet all applicable code requirements as to strength and safety.”²⁶ Those documents sufficiently satisfy the second source of information listed in DAP 9580.6.

²⁰ *Id.*

²¹ See The Merriam-Webster dictionary defines ‘conductor’ as “a material or object that allows electricity or heat to move through it.” The Institute of Electrical and Electronics Engineer *IEEE 100 The Authoritative Dictionary of IEEE Standards Terms*, Seventh Edition (2000) [hereinafter *IEEE Dictionary*] defines ‘conductor’ as “[a] substance or body that allows a current of electricity to pass continuously along it.”

²² *Engineer Certification Letter*, at 1.

²³ Iowa Lakes Electric Cooperative System Reliability Plan 2003 – 2012, at 14 (May 23, 2003).

²⁴ Iowa Utilities Board – Safety and Engineering Section, Field Inspection Report, *Iowa Lakes Electric Cooperative*, at 3 (Mar. 27, 2012); Iowa Utilities Board – Safety and Engineering Section, Field Inspection Report, *Iowa Lakes Electric Cooperative*, at 3 (Mar. 23, 2011).

²⁵ DAP 9580.6, *Electric Utility Repair (Public and Private Nonprofit)*, at 3.

²⁶ Annual Engineer Certification, at 1 (Apr. 22, 2013).

The third source of information is a copy of corrective action plans required by the Rural Utility Service (RUS).²⁷ The Applicant is not currently a RUS borrower and, consequently, is not required to provide corrective action plans to RUS.

Upon review of all of the information provided, the documentation satisfies the sources of information delineated in DAP 9580.6. As such, the Applicant has established the pre-disaster condition of the conductor.

Criteria for Conductor Replacement

After an applicant establishes the pre-disaster condition of the conductors, it must then identify, and FEMA must verify, the disaster-related damage.²⁸ The extent of damage controls whether FEMA will fund the conductor's repair or replacement.²⁹ Damage to conductors is often not demonstrated by an outright break in the cable, but rather sagging or stretching, which is more difficult to identify. To assist with this determination, FEMA has pre-determined that a conductor is "eligible for replacement," when it is stretched beyond the point where it can be effectively repaired and re-sagged.³⁰ A conductor is beyond the point where it can be effectively repaired when one or more of the following exists within a line section as a result of the disaster: 25 percent or more of the conductor spans are damaged; 30 percent or more of the line spans are visibly out of sag or do not meet clearances; 40 percent or more of the poles were replaced or need to be replaced due to the disaster; 40 percent or more of the supporting structures have a disaster-related damaged component; the sum of the percentages of any combination of the above criteria is 65 percent or more; or there is other compelling information provided by a licensed professional engineer.³¹

The Applicant provided conductor replacement certifications, appropriately signed and stamped by a professional engineer, documenting how specific line sections meet at least one of the six criteria, and the corresponding inspection reports. The Applicant confirmed that it only counted "spans with a minimum of one conductor splice, kink, bird caging, or repair sleeve installed during the FEMA event" when it completed these certifications.³² A FEMA contractor performed an independent inspection and verified much of the damages to the spans as well as additional damages not reported by the Applicant. While some differences were noted, FEMA Region VII's Technical Report reflects the highly subjective nature of inspecting conductor lines and provides a reasonable explanation for the variances.³³ As such, the Applicant's provision of conductor replacement certifications specifying the line sections that qualify for conductor

²⁷ *Id.*

²⁸ *Nobles Cooperative Electric*, FEMA-4113-DR-MN, at 4.

²⁹ DAP 9580.6, *Electric Utility Repair (Public and Private Nonprofit)*, at 4.

³⁰ *Id.*

³¹ *Id.*

³² Letter from Manager of Engineering, Iowa Lakes Electric Cooperative, to Administrator, FEMA Region VII, at 5 (Apr. 29, 2014).

³³ *Technical Report* at 18 (stating that inspections of older small gauge conductor "are very subjective to what is being 'searched for' and to the experience, training, and knowledge of the inspector(s).") Lines can "routinely be classified by one inspector as 'out-of-sag' and the next inspector as 'OK.' "). Due to the subjective nature of these inspections, it is generally preferred to have FEMA, the Grantee, and the Applicant perform joint conductor inspections to document and resolve any discrepancies.

replacement, which were signed and stamped by a professional engineer and substantially verified by FEMA, are sufficient to meet the requirements of DAP 9580.6.

Conclusion

Through inspection reports, construction work plans, and engineer certifications, the Applicant has provided sufficient documentation to establish the pre-disaster condition of the conductors and has met FEMA's criteria for conductor replacement. As such, the conductors are eligible for replacement.