# UTILITIES DIVISION[199]

**Regulatory Analysis**

Notice of Intended Action to be published: Iowa Administrative Code 199—Chapter 25
"Iowa Electrical Safety Code"

Iowa Code section(s) or chapter(s) authorizing rulemaking: 476.1, 476.1B, 476.2, 476A.12, 478.19, and 478.20

State or federal law(s) implemented by the rulemaking: Iowa Code sections 476.1, 476.1B, 476.2, 476A.12, 478.19, and 478.20

## Public Hearing

A public hearing at which persons may present their views orally or in writing will be held as follows:

| | |
|---|---|
| April 23, 2024<br>2 p.m. | Board Hearing Room<br>1375 East Court Avenue<br>Des Moines, Iowa |

## Public Comment

Any interested person may submit written or oral comments concerning this Regulatory Analysis. Written or oral comments in response to this Regulatory Analysis must be received by the Utilities Board no later than 4:30 p.m. on the date of the public hearing. Comments should be directed to:

IT Support
Des Moines, Iowa 50319
Phone: 515.725.7300
Email: ITsupport@iub.iowa.gov

## Purpose and Summary

Chapter 25 promotes safe and adequate service to the public, provides standards for uniform and reasonable practices by utilities, and establishes a basis for determining the reasonableness of such demands as may be made by the public upon the utilities.

## Analysis of Impact

1. Persons affected by the proposed rulemaking:

- Classes of persons that will bear the costs of the proposed rulemaking:

Because the proposed chapter provides standards that are necessary for safe and adequate service and standards for practices of utilities, the costs are paid for by public utilities.

- Classes of persons that will benefit from the proposed rulemaking:

All persons benefit from the improved safety of the electrical lines and the service that is provided through adequate and proper methods of working on the electrical lines.

2. Impact of the proposed rulemaking, economic or otherwise, including the nature and amount of all the different kinds of costs that would be incurred:

- Quantitative description of impact:

There are some additional costs to the utilities since the utilities must meet these proposed safety standards when working on electrical lines and must report certain incidents to the Board.

- Qualitative description of impact:

These safety and service standards, along with the reporting requirements, are helping to ensure adequate service of electricity throughout Iowa while keeping people safe with the prevalence of electrical lines throughout the state. Additionally, the reporting requirements help the Board keep track and review incidents that occur to help prevent future incidents.

3. Costs to the State:

- Implementation and enforcement costs borne by the agency or any other agency:

There are no additional costs to any agency other than the normal costs of operation for inspections that are part of Board review procedures.

- Anticipated effect on state revenues:

There is no anticipated effect on state revenues.

4. Comparison of the costs and benefits of the proposed rulemaking to the costs and benefits of inaction:

Having specific standards that are approved by the industry as a whole helps Iowa have a safer and more easily understood electrical system. Having electric and communication utilities following these proposed rules provides standards for how to behave, while inaction would leave these utilities to inspect and determine what level of safety is necessary depending on the specific location. This could lead to inconsistent standards throughout the state in regard to different utilities and locations since the company could have different staff determining what methods to use.

5. Determination whether less costly methods or less intrusive methods exist for achieving the purpose of the proposed rulemaking:

The provision of minimum standards for land restoration along with the option for individualized plans between landowners and the utilities is the least intrusive method since it still allows individual decision when desired, while the minimum standards provide the least costly method of meeting the desired goal of the rule.

6. Alternative methods considered by the agency:

- Description of any alternative methods that were seriously considered by the agency:

The alternative method considered by the Board was to fully adopt and accept the National Electrical Safety Code rules as written.

- Reasons why alternative methods were rejected in favor of the proposed rulemaking:

The National Electrical Safety Code is a general-purpose code designed to cover basic provisions for safety relating to electric transmission. More specific rules were needed in specific areas to ensure Iowans are properly protected from potential hazards, and some additional rules were required in regard to the more specific issues with electrical transmission in Iowa.

## Small Business Impact

If the rulemaking will have a substantial impact on small business, include a discussion of whether it would be feasible and practicable to do any of the following to reduce the impact of the rulemaking on small business:

- Establish less stringent compliance or reporting requirements in the rulemaking for small business.
- Establish less stringent schedules or deadlines in the rulemaking for compliance or reporting requirements for small business.
- Consolidate or simplify the rulemaking's compliance or reporting requirements for small business.
- Establish performance standards to replace design or operational standards in the rulemaking for small business.
- Exempt small business from any or all requirements of the rulemaking.

If legal and feasible, how does the rulemaking use a method discussed above to reduce the substantial impact on small business?

There is no anticipated impact on small business.

## Text of Proposed Rulemaking

ITEM 1. Rescind 199—Chapter 25 and adopt the following **new** chapter in lieu thereof:

CHAPTER 25
IOWA ELECTRICAL SAFETY CODE

**199—25.1(476,476A,478) General information.**

**25.1(1)** *Authority.* The standards relating to electric and communication facilities in this chapter are prescribed by the Iowa utilities board pursuant to Iowa Code sections 476.1, 476.1B, 476.2, 476A.12, 478.19, and 478.20.

**25.1(2)** *Purpose.* The purpose of this chapter is to promote safe and adequate service to the public, to provide standards for uniform and reasonable practices by utilities, and to establish a basis for determining the reasonableness of such demands as may be made by the public upon the utilities. The rules apply to electric and communication utility facilities located in the state of Iowa and supersede all conflicting rules of any such utility. In no way does this rule relieve any utility from any of its duties under the laws of this state.

**25.1(3)** *Definition of utility.* For the purpose of this chapter, a utility is any owner or operator of electric or communications facilities subject to the safety jurisdiction of the board.

**199—25.2(476,476A,478) Iowa electrical safety code defined.** The standard minimum requirements for the installation and maintenance of electric substations, generating stations, and overhead and underground electric supply or communications lines adopted below, collectively constitute the "Iowa Electrical Safety Code."

**25.2(1)** *National Electrical Safety Code.* The American National Standards Institute (ANSI) C2-2023, "National Electrical Safety Code" (NESC), including issued Correction Sheets, is adopted as part of the Iowa electrical safety code, except Part 4, "Rules for Operation of Electric Supply and Communications Lines and Equipment," which is not adopted by the board.

**25.2(2)** *Modifications and qualifications to the NESC.* The standards set forth in the NESC are modified or qualified as follows:

*a.* Introduction to the National Electrical Safety Code. NESC 013A2 is modified to read as follows: "Types of construction and methods of installation other than those specified in the rules may be used experimentally to obtain information, if done where:

"1. Qualified supervision is provided,

"2. Equivalent safety is provided,

"3. On joint-use facilities, all joint users are notified in a timely manner, and

"4. Prior approval is obtained from the Iowa utilities board."

*b.* Minimum clearances.

(1) In any instance where minimum clearances are provided in Iowa Code chapter 478 that are greater than otherwise required by these rules, the statutory clearances prevail.

(2) The following clearances apply to all lines regardless of date of construction: NESC 232, vertical clearances for "Water areas not suitable for sailboating or where sailboating is prohibited," "Water areas suitable for sailboating . . .," and "Established boat ramps and associated rigging areas . . ."; and NESC 234E, "Clearance of Wires, Conductors, Cables or Unguarded Rigid Live Parts Installed Over or Near Swimming Areas With No Wind Displacement."

(3) Table 232-1, Footnote 21, is changed to read: "Where the U.S. Army Corps of Engineers or the state, or a surrogate thereof, issues a crossing permit, the clearances of that permit govern if equal to or greater than those required herein. Where the permit clearances are less than those required herein and water surface use restrictions on vessel heights are enforced, the permit clearances may be used."

(4) Except for clearances near grain bins, for measurements made under field conditions, the board will consider compliance with the overhead vertical line clearance requirements of Subsection 232 and Table 232-1 of the 1987 NESC indicative of compliance with the 1990 through 2017 editions of the NESC. (For an explanation of the differences between 1987 and subsequent code edition clearances, see Appendix A of the 1990 through 2017 editions of the NESC.)

*c.* Reserved.

*d.* Rule 217C1 is changed to read:

"The ground end of at least one guy per anchor shall be provided with a substantial marker not less than eight feet long. The guy marker shall be of a conspicuous color such as yellow, orange, or red. Noncomplying guy markers shall be replaced as part of the utility's inspection and maintenance plan."

*e.* There is added to Rule 381G:

(3) Pad-mounted and other aboveground equipment not located within a fenced or otherwise protected area shall have affixed to its outside access door or cover a prominent "Warning" or other appropriate sign of highly visible color, warning of hazardous voltage and including the name of the utility. This rule applies to all signs placed or replaced after June 18, 2003.

*f.* There is added to the first paragraph of Rule 110A1, after the sentence stating, "Entrances not under observation of an authorized attendant shall be kept locked," the following sentences: Entrances may be unlocked while authorized personnel

are inside. However, if unlocked, the entrance gate must be fully closed, and latched or fastened if there is a gate-latching mechanism.

*g.* Lines crossing railroad tracks will comply with the additional requirements of rule 199—42.6(476), "Engineering standards for electric and communications lines."

**25.2(3)** *Grain bins.*

*a.* Electric utilities shall conduct or participate in annual public information campaigns to inform farmers, farm lenders, grain bin merchants, and city and county zoning officials of the hazards of and standards for construction of grain bins near power lines.

*b.* An electric utility may refuse to provide electric service to any grain bin built near an existing electric line that does not provide the clearances required by the American National Standards Institute (ANSI) C2-2023 "National Electrical Safety Code," Rule 234F. This paragraph applies only to grain bins loaded by portable augers, conveyors or elevators and built after September 9, 1992, or to grain bins loaded by permanently installed augers, conveyors, or elevator systems installed after December 24, 1997.

**25.2(4)** *General rules.*

*a. Joint-use construction.* Where it is mutually agreeable between an electric utility and a communication or cable television company, communication circuits or cables may be buried in the same trench or attached to the same supporting structure, provided this joint use is permitted by, and is constructed in compliance with, the Iowa electrical safety code.

*b. Lines.* In order to limit the residual currents and voltages arising from line unbalances, the resistance, inductance, capacitance and leakage conductance of each phase conductor of an electric supply circuit in any section shall be as nearly equal as practical to the corresponding quantities in the other phase conductors in the same section.

The ampacity of a multigrounded neutral conductor of an electric supply circuit shall be adequate for the load that it carries. The ampacity of a multigrounded neutral conductor of an electric supply circuit shall not be less than 60 percent of that of any phase conductor with which it is associated, except for three phase four wire wye circuits where it shall have ampacity not less than 50 percent of that of any associated phase conductor. In no case shall the resistance of a multigrounded neutral conductor exceed 3.6 ohms per mile. (This does not modify the mechanical strength requirements for conductors.) A multigrounded conductor installed and utilized primarily for lightning shielding of the associated phase conductors need not comply with the above percentage ampacity requirements for neutral conductors.

Where the neutral conductor of the electric supply circuit is not multigrounded or in an inductive exposure involving communication or signal circuits and equipment where the controlling frequencies are 360 Hertz or lower, any neutral conductor shall have the same ampacity as the phase conductors with which it is associated.

**25.2(5)** *Other references adopted.*

*a.* The "National Electrical Code," ANSI/NFPA 70-2023, is adopted as a standard of accepted good practice for customer-owned electrical facilities beyond the utility point of delivery, except for installations subject to the provisions of the state fire marshal standards in rule 661—504.1(103).

*b.* "The Lineman's and Cableman's Handbook," Fourteenth Edition; Shoemaker, Thomas M. and Mack, James E.; New York, McGraw-Hill Book Co., is adopted as a recommended guideline to implement the "National Electrical Safety Code" or "National Electrical Code," and for developing the inspection and maintenance plans required by rule 199—25.3(476,478).

**199—25.3(476,478) Inspection and maintenance plans.**

**25.3(1)** *Filing of plan.* Each electric utility shall adopt and file with the board a written plan for inspecting and maintaining its electric supply lines and substations (excluding generating stations) in order to determine the necessity for replacement, maintenance, and repair and for tree trimming or other vegetation management. If the plan is amended or altered, revised copies of the appropriate plan pages shall be filed.

**25.3(2)** *Annual report.* Each investor-owned, rate-regulated utility shall include as part of its annual report to the board, as required by 199—Chapter 23, certification of compliance with each area of the inspection and maintenance plan required by subrule 25.3(1) or a detailed statement on areas of noncompliance.

**25.3(3)** *Contents of plan.* The inspection plan includes the following elements:

*a. General.* A listing of all counties or parts of counties in which the utility has electric supply lines in Iowa. If the utility has district or regional offices responsible for implementation of a portion of the plan, the addresses of those offices and a description of the territory for which they are responsible shall also be included.

*b. Inspection of lines, poles, and substations.*

(1) Inspection schedules. The plan shall contain a schedule for the periodic inspection of the various units of the utility's electric plant. The period between inspections shall be based on accepted good practice in the industry, but for lines and substations shall not exceed ten years for any given line or piece of equipment. Lines operated at 34.5 kV or above shall be inspected at least annually for damage and to determine the condition of the overhead line insulators.

(2) Inspection coverage. The plan shall provide for the inspection of all supply line and substation units within the adopted inspection periods and shall include a complete listing of all categories of items to be checked during an inspection.

(3) Conduct of inspections. Inspections shall be conducted in a manner conducive to the identification of safety, maintenance, and reliability concerns or needs.

(4) Instructions to inspectors. Copies of instructions or guide materials used by utility inspectors in determining whether a facility is in acceptable condition or in need of corrective action or further investigation.

*c. Tree trimming or vegetation management plan.*

(1) Schedule. The plan shall contain a schedule for periodic tree trimming or other measures to control vegetation growth under or along the various units of the utility's electric plant. The period between inspections shall be based on accepted good practice in the industry and may vary depending on the nature of the vegetation at different locations, not exceeding five years between inspections.

(2) Procedures. The plan shall include written procedures for vegetation management. The procedures shall promote the safety and reliability of electric lines and facilities. Where tree trimming is employed, practices shall be adopted that will protect the health of the tree and reduce undesirable regrowth patterns.

*d. Pole inspections.* Pole inspections shall periodically include an examination of the poles that includes tests in addition to visual inspection in appropriate circumstances. These additional tests may include sounding, boring, groundline exposure, and, if applicable, pole treatment.

**25.3(4)** *Records.* Each utility shall keep sufficient records to demonstrate compliance with its inspection and vegetation management plans. For each inspection unit, the records of line and substation inspections and pole inspections shall include the inspection date(s), the findings of the inspection, and the disposition or scheduling of repairs or maintenance found necessary during the inspection. For each inspection unit, the records of vegetation management shall include the date(s) during which the work was conducted. The records shall be kept until two years after the next periodic inspection or vegetation management action in the inspection and maintenance plan cycle is completed or until all necessary repairs and maintenance are completed, whichever is longer.

**25.3(5)** *Guidelines.* Applicable portions of Rural Utilities Service (RUS) Bulletins 1730-1, 1730B-121, and 1724E-300 and "The Lineman's and Cableman's Handbook" are suggested as guidelines for the development and implementation of an inspection plan. ANSI A300 (Part 1)-2008 (R2014), "Pruning," and Section 35 of "The Lineman's and Cableman's Handbook" are suggested as guides for tree trimming practices.

**199—25.4(476,478) Correction of problems found during inspections and pole attachment procedures.**

**25.4(1)** Corrective action shall be taken within a reasonable period of time on all potentially hazardous conditions, instances of safety code noncompliance, maintenance needs, potential threats to safety and reliability, or other concerns identified during inspections. Hazardous conditions shall be corrected promptly. In addition to the general requirements stated in this subrule, pole attachments shall comply with the specific requirements and procedures established in subrule 25.4(2).

**25.4(2)** To ensure the safety of pole attachments to poles owned by utilities in Iowa, this subrule establishes requirements for attaching electric lines, communications lines, cable systems, video service lines, data lines, wireless antennae and other wireless facilities, or similar lines and facilities that are attached to the excess space on poles owned by utilities.

*a. Definitions.* The following definitions apply to this rule.

*"Pole"* means any pole owned by a utility that carries electric lines, communications lines, cable systems, video service lines, data service lines, wireless antennae or other wireless facilities, or similar lines and facilities.

*"Pole attachment"* means any electric line, communication circuit, cable system, video service line, data service line, antenna and other associated wireless equipment, or similar lines and facilities attached to a pole or other supporting structure subject to the safety jurisdiction of the board pursuant to the Iowa electrical safety code, rule 199—25.2(476,476A,478).

*"Pole occupant"* means any electric utility, telecommunications carrier, cable system provider, video service provider, data service provider, wireless service provider, or similar person or entity that constructs, operates, or maintains pole attachments as defined in this chapter.

*"Pole owner"* means a utility that owns poles subject to the safety jurisdiction of the board pursuant to the Iowa electrical safety code, rule 199—25.2(476,476A,478).

*b. Compliance with Iowa electrical safety code.* Pole attachments to poles shall be constructed, installed, operated, and maintained in compliance with the Iowa electrical safety code, rule 199—25.2(476,476A,478), and the requirements and procedures established in this subrule.

*c. Requests for access to poles; exceptions for service drops and overlashing.*

(1) A pole owner shall provide nondiscriminatory access to poles it owns, to the extent required by federal or state law. Requests for access to poles by an electric utility, telecommunications carrier, cable system operator, video service provider, data service provider, wireless service provider, or similar person or entity shall be made in writing or by any method as may be agreed upon by the pole owner and the person or entity requesting access to the pole. If access is denied, the pole owner shall explain in detail the specific reason for denial and how the denial relates to reasons of lack of capacity, safety, reliability, or engineering standards.

(2) Service drops are not subject to the notice and approval requirements in subparagraph 25.4(2)*"c"*(1). Instead, pole occupants shall provide notice to pole owners within 30 days of the installation of a new service drop unless the pole occupant and pole owner have negotiated a different notification requirement.

(3) Overlashing of existing lines is not subject to the notice and approval requirements in subparagraph 25.4(2)*"c"*(1). Pole occupants shall provide notice to pole owners of proposed overlashing at least seven days prior to installation of the overlashing unless the pole occupant and pole owner have negotiated a different notification requirement.

*d. Notification of violation.* A pole owner shall notify in writing a pole occupant of an alleged violation of the Iowa electrical safety code by a pole attachment owned by the pole occupant or may provide notice by another method as may be agreed upon by the parties to a pole attachment agreement. The notice shall include the address and pole location where the alleged violation occurred, a description of the alleged violation, and suggested corrective action.

*e. Corrective action.*

(1) Upon receipt of notification from a pole owner that the pole occupant has one or more pole attachments in violation of the Iowa electrical safety code, the pole occupant shall respond to the pole owner within 60 days in writing or by another method as may be agreed upon by the pole occupant and the pole owner. The response will provide a plan for corrective action, state that the violation has been corrected, indicate that the pole attachment is owned by a different pole occupant, or indicate that the pole occupant disputes that a violation has occurred. The violation shall be corrected within 180 days of the date notification is received unless good cause is shown for any delay in taking corrective action. A disagreement that a violation has occurred, a claim that correction is not possible within the specific time frames due to events beyond the control of the pole occupant, or a claim that a different pole occupant is responsible for the alleged violation will be considered good cause to extend the time for taking corrective action. The pole occupant and pole owner may also agree to an extension of the time for taking corrective action. The pole owner and pole occupant shall cooperate in determining the cause of a violation and an efficient and cost-effective method of correcting a violation.

(2) If the violation could reasonably be expected to endanger life or property, the pole occupant shall take the necessary action to correct, disconnect, or isolate the problem immediately upon notification. If immediate corrective action is not taken by the pole occupant for a violation that could reasonably be expected to endanger life or property, the pole owner may take the necessary corrective action and the pole occupant shall reimburse the pole owner for the actual cost of any corrective measures. If the pole owner is later determined to have caused the violation and the pole occupant has taken corrective action, the pole owner shall reimburse the pole occupant for the actual cost of the corrective action. Disputes concerning the ownership of the pole attachment should be resolved as quickly as possible.

*f. Negotiated resolution of disputes.* Parties to disputes over alleged violations of the Iowa electrical safety code, the cause of a violation, the pole occupant responsible for the violation, the cost-effective corrective action, or any other dispute regarding the provisions of subrule 25.4(2) shall attempt to resolve disputes through good-faith negotiations. Parties may file an informal complaint with the board pursuant to 199—Chapter 6 as part of negotiations.

*g. Complaints.* Complaints concerning the requirements or procedures established in subrule 25.4(2), including alleged violations of the Iowa electrical safety code, may be filed with the board by pole owners or pole occupants pursuant to the complaint procedures in 199—Chapter 6.

*h. Civil penalties.* Persons found to have violated the provisions of subrule 25.4(2) may be subject to civil penalties pursuant to Iowa Code section 476.51 or to other action by the board.

**199—25.5(476,478) Accident reports.** This rule applies to all owners or operators of electrical facilities subject to the safety jurisdiction of the board under this chapter.

**25.5(1)** All owners and operators of electrical facilities subject to the safety jurisdiction of the board shall provide the board with a 24-hour contact number where the board can obtain immediate access to a person knowledgeable about any incidents involving contact with energized electrical facilities.

**25.5(2)** All owners and operators of electrical facilities subject to the safety jurisdiction of the board shall notify the board of any incident or accident involving contact with energized electrical facilities that meets the following conditions:

*a.* An employee or other person coming in contact with energized electrical facilities that results in death or personal injury necessitating in-patient hospitalization.

*b.* Estimated property damage of $15,000 or more to the property of the utility and others.

*c.* Any other incident considered significant by the company.

*d.* Any incident leading to an electrical line being taken out of service.

**25.5(3)** The board shall be notified immediately, or as soon as practical thereafter, by email to the board duty officer at dutyofficer@iub.iowa.gov or, if email service is not available, by calling 515.745.2332. The person contacting the board shall leave a telephone number of a person who can provide the following information:

*a.* The name of the company, the name and telephone number of the person making the report, and the name and telephone number of a contact person knowledgeable about the incident.

*b.* The location of the incident.

*c.* The time of the incident.

*d.* The number of deaths or personal injuries requiring in-patient hospitalization and the extent of those injuries.

*e.* Initial estimate of damages.

*f.* A summary of the significant information available regarding the probable cause of the incident and extent of damages.

*g.* Any oral or written report made to a federal agency, the agency receiving the report, and the name and telephone number of the person who made or prepared the report.

**25.5(4)** Written incident reports. Within 30 days of the date of the incident, the owner or operator shall file a written report with the board. The report will include the information required for notice in subrule 25.5(3), the probable cause as determined by the company, the number and cause of any deaths or personal injuries requiring in-patient hospitalization, and a detailed description of property damage and the amount of monetary damages. If significant additional information becomes available at a later date, a supplemental report shall be filed. Duplicate copies of any written reports filed with or submitted to a federal agency concerning the incident shall also be provided to the board.

These rules are intended to implement Iowa Code chapter 478.