BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of a Proposed Rulemaking to Amend Commission Rule 4 CSR 240-18.010.	)))	**Case No. EX-2012-0332**

STAFF COMMENTS

COMES NOW the Staff of the Missouri Public Service Commission ("Staff"), by and through its Office of Staff Counsel, and makes the following comments on the Commission's proposed amendment to rule 4 CSR 240-18.010:

1. This rulemaking proceeding to amend rule 4 CSR 240-18.010 started with Staff's April 5, 2012, motion proposing to update the portions of the edition of the *National Electric Safety Code* incorporated in the rule by reference from the 2007 edition, as modified by errata issued October 5, 2006 and May 14, 2007, to the 2012 edition, as modified by errata issued February 6, 2012.

2. During the pendency of this rulemaking proceeding, a subsequent errata to the 2012 edition of the *National Electric Safety Code* was issued on April 29, 2013. A copy of this errata is attached as Attachment A.

3. As it stated in its motion that initiated this rulemaking, the *National Electrical Safety Code* is the code to which utilities build their facilities, and Staff believes the Commission's rule 4 CSR 240-18.010 should be updated to incorporate references to the most recent version of *National Electrical Safety Code*. That rule should also reflect all of the errata to that most recent version as well; therefore, Staff recommends the Commission incorporate the most recent errata into the proposed amendment by adding the words "and April 29, 2013" after

the proposed change from [October 5, 2006 and May 14, 2007] to **February 6, 2012**" in the published proposed amendment.

4. Appended hereto as Attachment B is a marked up version of the published proposed amendment to 4 CSR 240-18.010 showing with highlighting the change to that proposed amendment the Staff proposes the Commission should make.

WHEREFORE, Staff respectfully submits the foregoing comments to the Commission.

Respectfully submitted,

/s/ Nathan Williams
Nathan Williams
Deputy Staff Counsel
Missouri Bar No. 35512

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CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing have been mailed, hand-delivered, transmitted by facsimile or electronically mailed to all counsel of record this 2nd day of October, 2013.

/s/ Nathan Williams

Errata to
2012 Edition
National Electrical Safety Code®

Correction Sheet
Issued 29 April 2013

The following corrections should be made:

Page 2: There is a typographical error in Rule 011A4. The sentence should contain a closing parenthesis.

4. Street and area lights that provide a supply of lumens where these facilities are supplied by underground or overhead conductors installed and/or maintained under the exclusive control of utilities (including their authorized contractors or other qualified persons).

Page 33: There is an error in Rule 97D2. The last sentence should refer to Rule 93D3.

Page 90: There is an error in Table 230-1. The heading for Zone 4 should read "Warm islands located at 0 to 25 degrees latitude."

Page 90: The values in the last two columns of Table 230-1 should not be underlined.

Pages 94 and 98: There is an error in Table 232-1 (m) and Table 232-1 (ft). References to Footnote 25 should be references to Footnote 26.

Page 96: There is an error in item (f) of Footnote 10 that appears at the end of Table 232-1 (m). Item (f) should contain "215C4 or."

(f)	Grounded guys, guys meeting Rules 279A1 and 215C4 or 215C5 exposed to 0 to 300 V	2.9

Page 96: There is an error in Footnote 15 that appears at the end of Table 232-1 (m). The word "215C5" should be replaced with "215C4."

⑮The portion of anchor guys below the lowest insulator meeting Rules 279A1 and 215C4 may have the same clearance as grounded guys.

Page 97: There are errors that appear at the end of Table 232-1 (m). Although Footnote 25 was deleted from the previous version, it should have been listed as follows. Therefore, the inserted footnote should have been shown as Footnote 26.

㉕This footnote not used in this edition.
㉖When designing a line to accommodate oversized vehicles, these clearance values shall be increased by the difference between the known height of the oversized vehicle and 4.3 m.

Pages 97, 98, and 99: There is an error in Table 232-1 (ft). The cells in columns 2 and 5 of the header row should state "(ft)" for feet and not "(m)" for meters.

Nature of surface underneath wires, conductors, or cables	Insulated communication conductors and cable; messengers; overhead shield/ surge-protection wires; grounded guys; ungrounded portions of guys meeting Rules 215C4, 215C5, and 279A1 exposed to 0 to 300 V ⑥⑪⑮; neutral conductors meeting Rule 230E1; supply cables meeting Rule 230C1 (ft)	Noninsulated communication conductors; supply cables of 0 to 750 V meeting Rule 230C2 or 230C3 (ft)	Supply cables over 750 V meeting Rule 230C2 or 230C3; open supply conductors, 0 to 750 V ③; ungrounded portions of guys meeting Rules 215C4, 215C5, and 279A1 exposed to over 300 V to 750 V ⑥⑭⑮ (ft)	Open supply conductors, over 750 V to 22 kV; unground -ed portions of guys meeting Rules 215C4, 215C5, and 279A1 exposed to 750 V to 22 kV ⑥⑭⑮ (ft)	Trolley and electrified railroad contact conductors and associated span or messenger wires ①	
					0 to 750 V to ground (ft)	Over 750 V to 22 kV to ground (ft)

Page 100: There is an error in item (f) of Footnote 10 that appears at the end of Table 232-1 (ft). Item (f) should contain "215C4 or."

(f) Grounded guys, guys meeting Rules 279A1 and 215C4 or 215C5 exposed to 0 to 300 V 9.5

Page 100: There is an error in Footnote 15 that appears at the end of Table 232-1 (ft). The word "215C5" should be replaced with "215C4."

⑮The portion of anchor guys below the lowest insulator meeting Rules 279A1 and 215C4 may have the same clearance as grounded guys.

Although Footnote 25 was deleted from the previous version, it should have been listed as follows. Therefore, the inserted footnote should have been shown as Footnote 26.

㉕This footnote not used in this edition.
㉖When designing a line to accommodate oversized vehicles, these clearance values shall be increased by the difference between the known height of the oversized vehicle and 14 ft.

Page129: There are three errors in Figure 234-4(b). At the top of the figure, the two instances of "H" should read "A." The text associated with "A" in the legend should read "B + 5.5 m (18 ft)" and not "V + 5.5 m (18 ft)."

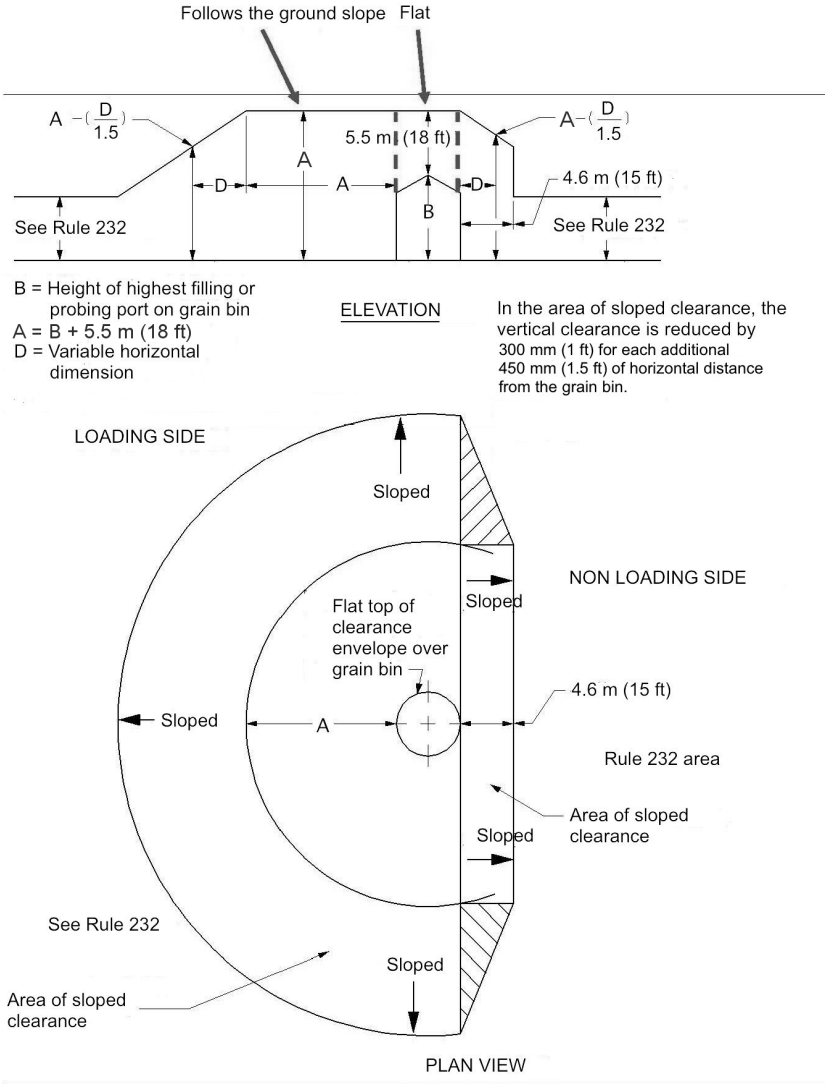

Figure 234-4(b)—Clearance envelope for grain bins filled by portable augers, conveyors, or elevators

Pages 130, 131, and 132: There is an error in Table 234-1 (m). The cell in column 6 of the header row should contain "ungrounded equipment cases, 750 V to 22 kV."

Clearance of	**Insulated communication conductors and cables; messengers; overhead shield/ surge-protection wires; grounded guys; ungrounded portions of guys meeting Rules 215C4, 215C5, and 279A1 exposed to 0 to 300 V ⑪⑭ neutral conductors meeting Rule 230E1; supply cables meeting Rule 230C1 (m)**	**Supply cables of 0 to 750 V meeting Rule 230C2 or 230C3 (m)**	**Unguarded rigid live parts, 0 to 750 V; noninsulated communication conductors; ungrounded equipment cases, 0 to 750 V; and ungrounded portions of guys meeting Rules 215C4, 215C5, and 279A1 exposed to open supply conductors of over 300 V to 750 V ⑤⑭ (m)**	**Supply cables over 750 V meeting Rule 230C2 or 230C3; open supply conductors, 0 to 750 V ⑬ (m)**	**Unguarded rigid live parts, over 750 V to 22 kV; ungrounded equipment cases, 750 V to 22 kV; ungrounded portions of guys meeting Rules 215C4, 215C5, and 279A1 exposed to over 750 V to 22 kV ⑤⑭ (m)**	**Open supply conductors, over 750 V to 22 kV (m)**

Pages 130, 131, and 132: There are errors in some of the footnotes that appear in Table 234-1 (m).

All mentions of Footnote 12 should be Footnote 14.
All mentions of Footnote 13 should be Footnote 15.
All mentions of Footnote 14 should be Footnote 16.
All mentions of Footnote 15 should be Footnote 17.
All mentions of Footnote 16 should be Footnote 18.

Page 131: The ^ symbol in row 1b(4), first value column of Table 234-1(m), should be replaced with 4.7 since this is a metric table.

Page 133: There is an error in Footnote 11 that appears at the end of Table 234-1 (m). The word "215C5" should be replaced with "215C4."

⑪The portion of anchor guys below the lowest insulator meeting Rules 279A1 and 215C4 may have the same clearance as grounded guys.

Although Footnotes 12 and 13 were deleted from the previous version, the remaining footnotes should not have been renumbered. They should be listed as follows:

⑫This footnote not used in this edition.
⑬This footnote not used in this edition.
⑭For clearances above railings, walls, or parapets around balconies, decks, or roofs, use the clearances required for row 1b(1). For such clearances where an outside stairway exists to provide access to such balconies, decks, or roofs, use the clearances required for row 2b(2).
⑮Does not include neutral conductors meeting Rule 230E1.
⑯These clearance values also apply to guy insulators.
⑰It is presumed that a flag or banner is fully extended but that there is no deflection or displacement of the flagpole or other supporting structure due to wind and that the conductors, cables, or rigid live parts are not displaced by the wind. The specified clearance is measured to the point of maximum displacement of the banner or flag towards the overhead utility facility.
⑱When designing a line to accommodate oversized vehicles, these clearance values shall be increased by the difference between the known height of the oversized vehicle and 4.3 m.

Pages 134, 135, and 136: There is an error in Table 234-1 (ft). The cell in column 6 of the header row should contain "ungrounded equipment cases, 750 V to 22 kV."

Clearance of	Insulated communication conductors and cables; messengers; overhead shield/ surge-protection wires; grounded guys; ungrounded portions of guys meeting Rules 215C4, 215C5, and 279A1 exposed to 0 to 300 V ⑪⑭ neutral conductors meeting Rule 230E1; supply cables meeting Rule 230C1 (ft)	Supply cables of 0 to 750 V meeting Rule 230C2 or 230C3 (ft)	Unguarded rigid live parts, 0 to 750 V; noninsulated communication conductors; ungrounded equipment cases, 0 to 750 V; and ungrounded portions of guys meeting Rules 215C4, 215C5, and 279A1 exposed to open supply conductors of over 300 V to 750 V ⑤⑭ (ft)	Supply cables over 750 V meeting Rule 230C2 or 230C3; open supply conduc-tors, 0 to 750 V ⑬ (ft)	Unguarded rigid live parts, over 750 V to 22 kV; ungrounded equipment cases, 750 V to 22 kV; ungrounded portions of guys meeting Rules 215C4, 215C5, and 279A1 exposed to over 750 V to 22 kV ⑤⑭ (ft)	Open supply conduc-tors, over 750 V to 22 kV (ft)

Pages 134, 135, and 136: There are errors in some of the footnotes that appear in Table 234-1 (ft).

All mentions of Footnote 12 should be Footnote 14.
All mentions of Footnote 13 should be Footnote 15.
All mentions of Footnote 14 should be Footnote 16.
All mentions of Footnote 15 should be Footnote 17.
All mentions of Footnote 16 should be Footnote 18.

Page 137: There is an error in Footnote 11 that appears at the end of Table 234-1 (ft). The word "215C5" should be replaced with "215C4."

⑪The portion of anchor guys below the lowest insulator meeting Rules 279A1 and 215C4 may have the same clearance as grounded guys.

Although Footnotes 12 and 13 were deleted from the previous version, the remaining footnotes should not have been renumbered. They should be listed as follows:

⑫This footnote not used in this edition.
⑬This footnote not used in this edition.
⑭For clearances above railings, walls, or parapets around balconies, decks, or roofs, use the clearances required for row 1b(1). For such clearances where an outside stairway exists to provide access to such balconies, decks, or roofs, use the clearances required for row 2b(2).
⑮Does not include neutral conductors meeting Rule 230E1.
⑯These clearance values also apply to guy insulators.
⑰It is presumed that a flag or banner is fully extended but that there is no deflection or displacement of the flagpole or other supporting structure due to wind and that the conductors, cables, or rigid live parts are not displaced by the wind. The specified clearance is measured to the point of maximum displacement of the banner or flag towards the overhead utility facility.
⑱When designing a line to accommodate oversized vehicles, these clearance values shall be increased by the difference between the known height of the oversized vehicle and 14 ft.

Page 138: There is a typographical error in Table 234-2 (m). The underscore should be removed from the comma in the last sentence of the parenthetical statement below the table caption.

Table 234-2—
Clearance of wires, conductors, cables, and unguarded rigid live parts from bridges
(Voltages are phase to ground for effectively grounded circuits and those other circuits where all ground faults are cleared by promptly de-energizing the faulted section, both initially and following subsequent breaker operations. See the definitions section for voltages of other systems. Clearances are with no wind displacement except where stated in the footnotes below.
See Rules 234A, 234D1a, and 234H4.)

Page 142: There is an error in Footnote 2 that appears at the end of Table 234-3 (m). The word "215C5" should be replaced with "215C4."

②The portion of anchor guys below the lowest insulator meeting Rules 279A1 and 215C4 may have the same clearance as grounded guys.

Page 143: There is an error in Footnote 2 that appears at the end of Table 234-3 (ft). The word "215C5" should be replaced with "215C4."

②The portion of anchor guys below the lowest insulator meeting Rules 279A1 and 215C4 may have the same clearance as grounded guys.

Page 166: There is an error in Table 235-6 (mm). The cell in column 2 of row 2c should read "75" and not "3."

c. All other	75 ⑦	150 ①⑦	150 ①⑦	150	150 plus 10 per kV in excess of 8.7 kV	580 plus 10 per kV in excess of 50 kV

Page 222: There is a typographical error in Footnote 3 that appears at the end of Table 261-1. Delete the strikethrough ("~~R~~") in the last sentence of the footnote.

③Wood and reinforced structures shall be replaced or rehabilitated when deterioration reduces the structure strength to 3/4 of that required when installed. When new or changed facilities modify loads on existing structures, the required strength shall be based on the revised loadings. If a structure or component is replaced, it shall meet the strength required by Table 261-1. If a structure or component is rehabilitated, the rehabilitated portions of the structures shall have strength greater than 3/4 of that required when installed.

Page 230: There is an error in Rule 279A2b(1). The sentence should contain "215C4 or."

(1) The guy is otherwise insulated to meet the requirements of Rules 215C4 or 215C5 and 279A1.

Page 262: There is a typographical error in Rule 410A3b. The exception and notes are applicable to Rule 410A3 and not Rule 410A3b.

410. General requirements

A. General

3. The employer shall ensure that an assessment is performed to determine potential exposure to an electric arc for employees who work on or near energized lines, parts, or equipment.

   If the assessment determines potential employee exposure, clothing made from acetate, nylon, polyester, or polypropylene shall not be worn, unless arc rated.

   If the assessment determines a potential employee exposure greater than 2 cal/cm2 exists (see Neal, Bingham, and Doughty [B63]), the employer shall:

   a. Perform a detailed arc hazard analysis, or use Table 410-1, 410-2, or 410-3 to determine the effective arc rating of clothing or a clothing system to be worn by employees working on or near energized lines, parts, or equipment at voltages 50 V to 800 000 V.

      The arc hazard analysis shall include a calculation of the estimated arc energy based on the available fault current, the duration of the arc (cycles), and the distance from the arc to the employee.

   b. Require employees to wear clothing or a clothing system with an effective arc rating not less than the anticipated level of arc energy.

   EXCEPTION: If the clothing or clothing system required by this rule has the potential to create additional or greater hazards than the possible exposure to the heat energy of the electric arc, then clothing or a clothing system with an effective arc rating less than that required by the this rule may be worn.

   NOTE 1: Assessments performed to determine potential exposure to an electric arc consider the affected employee's assigned tasks and/or work activities.

   NOTE 2: A clothing system (multiple layers) that includes an outer layer of flame resistant material and an inner layer of non-flame resistant natural fiber material has been shown to block more heat than a single layer. The effect of the combination of these multiple layers may be referred to as the *effective arc rating* (e.g., E_{BT}, ATPV).

   NOTE 3: Engineering controls can be utilized to reduce arc energy levels and work practices can be utilized to reduce exposure levels.

Page 263: There is a typographical error in Table 410-1. Delete the repeated header rows.

Equipment type	**Nominal voltage range and cal/cm^2**		
	50 V to 250 V	**251 V to 600 V** ⑭	**601 V to 1000 V**
Self-contained meters / cabinets	4 ②	20 ④	30 ⑧
Pad-mounted transformers	4 ⑨	4 ⑨	6 ⑧
CT meters and control wiring	4 ②	4 ⑤	6 ⑧
Metal-clad switchgear / motor control centers	8 ③	40 ⑥	60 ⑧
Pedestals / pull boxes / hand holes	4 ②	8 ⑦	12 ⑧
Open air (includes lines)	4 ②	4 ⑦	6 ⑧
~~**Equipment type**~~	~~**Nominal voltage range and cal/cm^2**~~		
	~~**50 V to 250 V**~~	~~**251 V to 600 V** ⑭~~	~~**601 V to 1000 V**~~
Network protectors	4 ⑩	⑪	⑪
Panel boards—single phase (all) / three phase (≤100 A)	4 ②	8 ⑫	12 ⑧
Panel boards—three phase (>100 A)	4 ②	⑬	⑬

Page 265: There is a typographical error in Table 410-2. The underscore in the cell of column 1 in the first row should be removed.

1.1 to 15	5	46.5	93.0	139.5

Page 280: There is a typographical error in the first sentence of Rule 441. The underlined formatting should be removed.

> Employees shall not approach (within the reach or extended reach), or knowingly permit others to approach, any exposed ungrounded part normally energized except as permitted by this rule.

Page 280: There is an error in Rule 441A1. "Table 441-4" should be renumbered as "Table 441-2."

> Employees shall not approach or bring any conductive object within the minimum approach distance listed in Table 441-1 or Table 441-2 or distances as determined by an engineering analysis to exposed parts unless one of the following is met:

Title 4—DEPARTMENT OF ECONOMIC DEVELOPMENT
Division 240—Public Service Commission
Chapter 18—Safety Standards

PROPOSED AMENDMENT

4 CSR 240-18.010 Safety Standards for Electrical Corporations, Telecommunications Companies and Rural Electric Cooperatives

Purpose: This amendment changes the edition of the National Electrical Safety Code that the Public Service Commission adopts for the minimum safety standards applicable to electrical corporations, telecommunications companies and rural electric cooperatives, and clarifies that the new standards apply only to new installations and extensions.

PURPOSE: This rule prescribes minimum safety standards relating to the operation of electric utilities, telecommunications companies, and rural electric cooperatives. Adoption of this rule will [not only] inform the utilities of the minimum safety standards required by the commission and will be of assistance to the commission staff in carrying out its assigned duties.

PUBLISHER'S NOTE: The secretary of state has determined that the publication of the entire text of the material which is incorporated by reference as a portion of this rule would be unduly cumbersome or expensive. This material as incorporated by reference in this rule shall be maintained by the agency at its headquarters and shall be made available to the public for inspection and copying at no more than the actual cost of reproduction. This note applies only to the reference material. The entire text of the rule is printed here.

(1) The minimum safety standards relating to the operation of electrical corporations, telecommunications companies, and rural electric cooperatives are Parts 1, 2, and 3 and Sections 1, 2, and 9 of the *National Electrical Safety Code* (NESC); [*2007*] **2012** Edition as approved by the American National Standards Institute on [*June 16, 2006*] **August 1, 2011**, as modified by Errata thereto issued on [*October 5, 2006 and May 14, 2007*] **February 6, 2012, and April 29, 2013**, and published by the Institute of Electrical and Electronics Engineers, Inc., 3 Park Avenue, New York, NY 10016-5997. The NESC is composed of four (4) different parts and four (4) sections, each of which pertain to different aspects of the electric and telecommunications industries. Part 1 specifies rules for the installation and maintenance of equipment normally found in electric generating plants and substations. Part 2 pertains to safety rules for overhead electric and communication lines. Part 3 contains safety rules for underground electric and communication lines. Section 1 is an introduction to the NESC, Section 2 defines special terms, and Section 9 requires certain grounding methods for electric and communications facilities. The full text of this material is available at the Energy Department of the Public Service Commission, Suite 700, 200 Madison, Jefferson City, Missouri. This rule does not incorporate any subsequent amendments or additions.

(2) Electrical corporations, telecommunications companies, and rural electric cooperatives subject to regulation by this commission pursuant to Chapters 386, 392–394, RSMo 2000 shall comply with the safety standards established by this rule for new installations and extensions as described in the NESC.

(3) Incident reporting requirements for electrical corporations and rural electric cooperatives are found in 4 CSR 240-3.190(4).

(4) Those who excavate near underground facilities or conduct activities within ten feet (10') of overhead power lines are required to notify area utilities prior to engaging in such action, pursuant to the Underground Facility Safety and Damage Prevention Act, section 319.010 et seq., RSMo 2000, and the Overhead Power Line Safety Act, section 319.075 et seq., RSMo 2000.

AUTHORITY: sections 386.310 and 394.160, RSMo 2000. Original rule filed March 15, 1978, effective Oct. 2, 1978. Amended: Filed April 8, 1981, effective Oct. 15, 1981. Amended: Filed Feb. 9, 1984, effective June 15, 1984. Amended: Filed June 12, 1987, effective Sept. 15, 1987. Amended: Filed Jan. 5, 1990, effective April 13, 1990. Amended: Filed March 23, 1993, effective Oct. 10, 1993. Amended: Filed Aug. 27, 1999, effective Feb. 29, 2000. Amended: Filed Oct. 14, 2003, effective April 30, 2004. Amended: Filed May 2, 2008, effective Nov. 30, 2008.* ***Amended: Filed Month/Day, 2012, effective Month/Day, 2012***

**Original authority: 386.310, RSMo 1939, amended 1979, 1989, 1996 and 394.160, RSMo 1939, amended 1979.*

PUBLIC COST: *This proposed rule will not cost state agencies or political subdivisions in excess of $500.00 in total.*

PRIVATE COST: *This proposed rule will not cost private entities in excess of $500.00 in total.*

NOTICE TO SUBMIT COMMENTS AND NOTICE OF PUBLIC HEARING: *Anyone may file comments in support of or in opposition to this proposed rule with the Missouri Public Service Commission, Steven C. Reed, Secretary of the Commission, PO Box 360, Jefferson City, MO 65102. To be considered, comments must be received at the Commission's offices on or before Month/Day/Year, and should include a reference to Commission Case No. EX-2012-####. If comments are submitted via a paper filing, an original and eight (8) copies of the comments are required. Comments may also be submitted via a filin using the Commission's electronic filing and information system at http://www.psc.mo.gov/efis.asp. A public hearing regarding this proposed rule is scheduled for Month/Day/Year, at Time, in Room ### of the Governor Office Building, 200 Madison St., Jefferson City, Missouri. Interested persons may appear at this hearing to submit additional comments and/or testimony in support of or in opposition to this proposed rule, and may be asked to respond to Commission questions. Any persons with special needs as addressed by the Americans with Disabilities Act should contact the Missouri Public Service Commission at least ten (10) days prior to the hearing at one (1) of the following numbers:*
Consumer Services Hotline 1-800-392-4211 or TDD Hotline 1-800-829-7541.