

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC APPLICATION OF)
KENTUCKY UTILITIES COMPANY FOR AN) CASE NO. 2018-00294
ADJUSTMENT OF ITS ELECTRIC RATES)


RESPONSE OF
KENTUCKY UTILITIES COMPANY
TO
THE FIRST REQUESTS FOR INFORMATION OF
CHARTER COMMUNICATIONS OPERATING, LLC
DATED NOVEMBER 13, 2018

FILED: NOVEMBER 29, 2018

VERIFICATION

COMMONWEALTH OF KENTUCKY)
)
COUNTY OF JEFFERSON)

The undersigned, **John K. Wolfe**, being duly sworn, deposes and says that he is Vice President, Electric Distribution for Kentucky Utilities Company and Louisville Gas and Electric Company and an employee of LG&E and KU Services Company, and that he has personal knowledge of the matters set forth in the responses for which he is identified as the witness, and the answers contained therein are true and correct to the best of his information, knowledge and belief.


John K. Wolfe

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 28th day of November 2018.


Notary Public

My Commission Expires:
Judy Schooler
Notary Public, ID No. 603967
State at Large, Kentucky
Commission Expires 7/11/2022

KENTUCKY UTILITIES COMPANY

**Response to First Requests for Information of
Charter Communication Operating, LLC
Dated November 13, 2018**

Case No. 2018-00294

Question No. 1

Responding Witness: John K. Wolfe

- Q-1. Provide the basis for excluding from Your Proposed Tariff a Telecommunications Carrier that executed an agreement permitting attachments to the Company's Structures prior to July 1, 2017.
- a. Provide all agreements with such users related to the rates, terms, and conditions of Attachment to Your Poles.
 - b. Provide all data related to the basis for different charges to these users of Your Poles.
- A-1. KU has not proposed any revision to Rate Pole and Structure Attachments' ('PSA') applicability to Telecommunications Carriers. In Case No. 2016-00370, the Commission found that it was reasonable to exclude from the provisions of Rate PSA any telecommunication carrier that had executed a license agreement with KU prior to July 1, 2017 for the attachment of its facilities to KU structures. Attachments made by a Telecommunications Carrier pursuant to a license agreement executed prior to July 1, 2017 are subject to Rate PSA upon expiration or termination of that agreement. KU is proposing only to expand the applicability of Rate PSA to Governmental Units and Educational Institutions that presently do not have a license agreement with KU for attachments.

For a history of KU's treatment of telecommunications carrier attachments prior to Rate PSA and an explanation for the Rate PSA's treatment of license agreements executed prior to July 1, 2017, see Rebuttal Testimony of John K. Wolfe at 11 – 20 (filed Apr. 10, 2017 in *Application of Kentucky Utilities Company for an Adjustment of Its Electric Rates and For Certificates of Public Convenience and Necessity*, Case No. 2016-00371 (Ky. PSC filed Nov. 23, 2016)); Direct Testimony of Robert Conroy at 23 – 26 (filed Nov. 23, 2016 in Case No. 2016-00371 (Ky. PSC Nov. 23, 2016)).

- a. See attached. Certain information requested is confidential and is being provided under seal pursuant to a petition for confidential protection.

- b. Prior to the effective date of the PSA Rate Schedule, the terms and conditions of a Telecommunications Carrier's attachment to KU Structures, including any charges, were negotiated and set forth in an attachment agreement.

The entire attachment is
Confidential and
provided separately
under seal.

KENTUCKY UTILITIES COMPANY

**Response to First Requests for Information of
Charter Communication Operating, LLC
Dated November 13, 2018**

Case No. 2018-00294

Question No. 2

Responding Witness: John K. Wolfe

- Q-2. Explain the basis for modifying the definition of “structure” to exclude “any Transmission Pole with electric supply lines operated at 138kV or above” and “any Transmission Pole with electric supply lines operated at less than 138kV other than Transmission Poles to which Company has also attached electric supply lines operated at less than 69kV.”
- A-2. This revision clarifies the existing definition of Structure to include only those Transmission Poles which also support electric supply lines operated at less than 69kV. The revision makes explicit that Transmission Poles with electric supply lines operated at 138kV or higher are not available for attachment.

KENTUCKY UTILITIES COMPANY

**Response to First Requests for Information of
Charter Communication Operating, LLC
Dated November 13, 2018**

Case No. 2018-00294

Question No. 3

Responding Witness: John K. Wolfe

- Q-3. Provide the basis for Your assertion in Your Customer Notification of Changes letter that multiple attachments within one foot constitutes a violation of the National Electrical Safety Code.
- a. Provide a copy of any design and/or construction standards for an “Attachment” as set forth under the Proposed Tariff.
 - b. Explain and provide all data related to what is meant by “multiple attachments within one foot of space,” including but not limited to what constitutes an “Attachment” under such circumstances.
- A-3. The National Electrical Safety Code (“NESC”) specifies certain vertical clearance standards for communication conductors. NESC Rule 235(h) provides that spacing between messengers supporting communications cables should not be less than 12 inches.
- a. See attached.
 - b. Consistent with industry norms and KU’s long-standing practice, each through-bolt supporting a Cable constitutes an Attachment. Consistent with KU’s long-standing practice, when a Service Drop is located closer than six inches above or below a through-bolt supporting its mainline Cable, it does not constitute a separate Attachment from the through-bolt. A Service Drop located more than six inches above or below a through-bolt supporting its mainline Cable constitutes a separate Attachment.



KU THIRD PARTY POLE ATTACHMENT HANDBOOK



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INTRODUCTION

The information contained in this document is intended to assist in facilitating attachment requests from companies which (a) have a valid Pole Attachment License Agreement with Kentucky Utilities Company (KU), (b) are in full compliance with any applicable insurance and bonding requirements, and (c) have the necessary authorization to operate within the State of Kentucky and the relevant local municipality. Strict adherence to KU's Third Party Pole Attachment Handbook will ensure a smooth application and approval process, and will allow completion of construction with minimal delay and conflict.

This Third Party Pole Attachment Handbook outlines the circumstances under which KU will review any requests to attach individual communications cables and equipment to its poles, KU's formal process for granting such access request, and the guidelines and requirements covering the physical design, installation, and maintenance of all such communications cables and equipment on KU's poles.

In all situations, it is the ongoing responsibility of attaching companies to be familiar with and adhere to the National Electric Safety Code (NESC) and this Third Party Pole Attachment Handbook during installation, maintenance and related activities involving their facilities attached to KU's poles. Any attachment found to be in violation of the NESC or any provision of this handbook may be subject to removal by KU.

All required work above the Communication Space (as defined in the NESC) will be performed by KU or a KU qualified approved overhead electrical line contractor after the KU Design Team has completed a route and engineering analysis.

KU reserves the right to modify the requirements found in this handbook or any of its service policies, procedures and/or standards at any time. It is the responsibility of the Third Party Attacher or contractor to ensure that any referenced document is the version currently approved for use by KU. It is also the responsibility of the Attachment Customer to notify KU of any changes to existing wiring, equipment, building structure, electrical loading and/or other service requirements that may affect safety or electric system performance.

Attachment request to Transmission poles must be approved by both KU's Transmission department and KU's pole attachment group. Transmission poles are considered to be those poles supporting electric facilities operating at or above 69kV. See additional requirements for access to Transmission poles on page 6.



KU THIRD PARTY POLE ATTACHMENT GUIDELINES

- 1) A complete and accurate pole attachment proposal is required before engineering review will begin. The attachment proposal shall include, but is not limited to, the following:
 - a. Application for Third Party Attachment. See Exhibit 1 of this handbook.
 - b. Pole/structure number and location, including complete address, county, GPS coordinates, pole height and pole class
 - c. Applicant company name, key contacts, and approval signature
 - d. Pole profile sheet indicating height and owner of all attachments including: all secondary/neutral, grounded equipment, streetlights, proposed attaching location, proposed make-ready construction (shall be identified in red), and lowest existing mid-span height.
 - e. ILEC (i.e. telephone company) pole number (if available).
 - f. Proposed make-ready solution
 - i. Proposed new attachment height and, if necessary, proposed make-ready solution.
 - g. Description of any other work such as anchor attachments, vertical runs, etc.
 - h. Route map, displaying street names along with KU pole numbers and ILEC pole numbers (if available).
 - i. Pole photographs including street view and adjacent spans, annotated with all attachment heights. Preferred file format is a digital file such as GE Mapsight™ "true size", Osrose Digital Measurement Technology™ (DMT™) or equivalent. See Exhibit 2 of this handbook for an example.
 - j. KU may require a Pole Loading Analysis Report be prepared before considering an application for attachment to be complete. Attachment Customers may submit their own pole loading analysis with their application. If they do not, KU will perform a visual inspection of the poles affected by the application to determine whether a pole loading analysis is necessary. This inspection will be at the Attachment Customer's expense. KU will notify the Attachment Customer if KU determines that a pole loading analysis is necessary. In this case, the application for attachment will not be considered complete until a pole loading analysis is submitted.
 - k. Wireless Attachment requests will include the additional requirements:
 - i. MPE (Maximum Permissible Exposure) Report
 - ii. Manufacturer's equipment specifications for antenna and bracket
 - iii. Construction Plan & Material List



- iv. When an Attachment Customer proposes to attach a Wireless Antenna to an existing pole without replacing it, KU may require the Attachment Customer to follow the pole loading analysis procedures set out in (1)(j) above.
 - m. Attachment proposals shall be limited to 100 poles.
 - n. Submit complete application and materials to the applicable KU representative. Exhibit 5 for a map of Operations Center territories and a contacts list.
 - o. Incomplete and inaccurate proposals will be returned to the applicant for correction and completion. The application approval deadline will restart when KU receives the corrected and completed proposal.
 - 2) Overlashing cable is considered to be part of the Attachment Customer's existing attachment. Attachment Customers are required to provide KU advanced notice of proposed overlashing in either of the following circumstances:
 - a. Overlashing using cables that are greater than ½ inch in outside diameter
 - b. Overlashing where overlap of an existing attachment has already occurredNotice must be given using the Application for Third Party Attachment as described in item 1 in this section. For overlashing across 10 or fewer spans, 7 business days advanced notice is required. For overlashing across more than 10 spans, 15 business days advanced notice is required. **No bundle of cable can exceed two inches in outside diameter.**
- 3) Service drops are not considered additional attachments if located within an Attachment Customer's allocated one foot of space on the pole. If a service drop contacts the pole more than six inches above or below an Attachment Customer's main line attachment, the service drop is an additional attachment. Attachment Customers are required to provide KU with notice of service drops within 60 days of installation. See Exhibit 3 for an acceptable form notice.
- 4) Transmission pole attachments will require additional approvals from the Transmission department. Only Transmission poles that also carry Distribution under-build are available for attachments. See page 7 for additional application requirements for attachment to Transmission poles.
- 5) For Joint Use poles, attachment proposals shall be submitted to both KU and the pole owner.



a PPL company

- 6) Outage/emergency events, including storm restoration, may delay scheduled work.
- 7) It may be necessary to deny access for reasons of lack of capacity, safety, reliability or engineering standards.
- 8) KU does not permit any ancillary communications equipment other than the equipment specified in Wireless Attachment Standard 07 14 02 contained in Exhibit 4 of this handbook.
- 9) Attachment Customers must adhere to the NESC, governmental regulations, and KU policy and construction standards at all times. See Exhibit 4 of this handbook.
- 10) The Attachment Customer is responsible for obtaining their own right-of-way (ROW) where installations involve city, county and/or state rights-of-way, or private property owned by others.
- 11) Temporary attachments are not permitted. No attachment is permitted until all necessary make-ready work is complete.
- 12) Communications cable service drops are not permitted to be attached to the KU service riser.
- 13) Attachment Customers must notify KU of attachment removal by notifying the applicable KU representative. See Exhibit 5. Pole attachment fees will continue to accrue until a notice of removal is received.
- 14) Any breach of OSHA's minimum approach distance (including measurement) of electric facilities must be conducted by a qualified worker and in accordance with good safety practices and OSHA guidelines.



APPLICATION FOR ATTACHMENT TO TRANSMISSION POLES

- 1) Attachment requests will only be considered for Transmission poles (poles supporting electric facilities operating at 69kV or greater) that also support KU's Distribution facilities (electric facilities operating below 69kV). No attachment will be permitted to Transmission poles which do not also support KU's Distribution Facilities (Transmission poles also carrying Distribution under-build).
- 2) KU's Transmission Department policy dictates that any upgrades, changes, or addition of new facilities to a Transmission pole (including a new communications cable attachment) requires the pole to be brought up to today code, namely the heavy loading case described in item 12 of this section.
- 3) The attachment method for communication cable facilities must first be reviewed by KU Transmission Department or their representative in accordance with KU's existing Encroachment Guideline. Only after this review has been completed and approval granted can the attachment request be permitted.
- 4) If there are no electric distribution line facilities attached to the transmission poles then the addition of communication cables will be prohibited.
- 5) Transmission lines are normally located within private R/W easements that do not permit KU to grant attachment rights to other companies. Encroachment rights on this private R/W easement must first be granted by the property owner and presented to KU before KU can grant the right to attach to its transmission poles or structures.
- 6) The attachment of communication cable facilities will not be permitted on poles supporting transmission circuits operating at voltages greater than 138 kV.
- 7) No longitudinal third party owned fiber optic cable attachments are permitted on the overhead transmission system (69kV and above) unless it is in the communication space on an under built distribution circuit.
- 8) KU plans to eventually replace its 69kV and 138kV wood poles with steel poles. Attachment Customers must be prepared to change their method of attachment in this event.
- 9) The location/elevation of distribution primary and neutral on any transmission pole, or distribution pole within the transmission right of way may not be altered in any way.
- 10) Analysis of KU Transmission structures for the addition of new communication cables shall be done using a finite element computer program using non-linear analysis. The program will be capable of performing analysis on both guyed and unguyed Transmission pole structures. KU recommends the use of the software program PLS-POLE by Power Line Systems, Inc.



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- 11) Approved Engineering Consultants to perform analysis of KU transmission structures are as follows:
- a) Black and Veatch - 11401 Lamar Ave. Overland Park, KS.
 - b) Burns and McDonnell - 9400 Ward Parkway Kansas City, MO.
 - c) Sargent and Lundy-55 East Monroe Street Chicago, IL.
 - d) Power Engineers – P.O. Box 1066 Hailey, ID.
- e) Other Engineering Consultants may be considered by KU upon written request.

12) Pole Loading Criteria

The analysis shall be done using the following codes and standards:

National Electrical Safety Code 2012 or latest edition.

- ANSI O5.1-2008 Specifications and Dimensions for Wood Poles or latest edition.
- KU Vertical Clearance Requirements between KU facilities and non-KU communication facilities Standards Codes and Standards revision D or latest edition.

The following load conditions shall be checked for all transmission poles:

- NESC 250B-Heavy $\frac{1}{2}$ " radial ice, 4 PSF wind at 0 degrees F.
- NESC 250C – 21 PSF Extreme wind at 60 degrees F.
- NESC 250D- Concurrent Ice/Wind with $\frac{3}{4}$ " radial ice, 2.30psf wind at 15 degrees F.
- Grade B construction standards shall be used for all transmission structures.

Pole strength reductions shall be applied as follows:

- 5 – 12 years: 0 - 0.5%
- 13 – 30 years: 0.5 – 2.0%
- 31 – 80 years: 2.0 – 6.0%
- Note: Interpolation is allowed

Pole defects can be, but not limited to, woodpecker holes, shell rot, insect damage, excessive checking, and external pockets or split pole top.

Conductor/cable diameter and weights should be provided by the appropriate utility. Submittals shall include information and description of each wire used to check the Transmission structure.

Conductor/cable tension should be provided by the appropriate utility. If unavailable then maximum tension under heavy loading is not to exceed 60% RBS of conductor or messenger, whichever is appropriate.



a PPL company

13) Procedure

All Pole Loading Analysis and Reporting shall be developed and performed under the direction of a professional engineer licensed by the state where such facility is located, all of which shall be subject to KU review and acceptance. The analysis shall be stamped by an engineer licensed in the appropriate state.

When a fix is required in the form of a new pole or other means, only KU will schedule and supervise the construction work with Company approved contractors.

14) Reports

All analysis files and the field survey reports shall be sent to KU or their representative for review.

The report shall include the following items:

- Structure type (tangent, angle, etc.) and number if available.
- County and or City pole is located.
- Pole length and class, (example 70 ft. class 2 wood pole)
- State Plan Coordinates at each structure considered.
- Digital photo of structure to be considered.
- Field survey used to determine locations of all existing and proposed cable attachments on pole.

The report shall include a description of all cables used in analysis of the transmission structure. The applicant shall also supply PLS-Cadd wire files for any proposed cables to be attached to the transmission structures.

For additional information reference Power Line Systems section 9.2 Creating or Editing cable files for more information.



APPLICATION FOR ELECTRIC SERVICE

- 1) **Sign up for service:** Call the KU customer service department at (800) 383-5582 and create an account for the meter that will be installed. Be sure when creating the account that the address provided is as close in proximity to the pole location as possible. Please ensure your electrician uses this same address when applying for the electrical permit.

- 2) **Municipality Inspection:** Once your electrician has received a final inspection from the local inspector KU will receive a notification that the job has passed final inspection. KU will not install a meter without final inspection from the local inspector.
 - If an underground service lateral can be installed on a KU pole without any other power make ready, KU can bypass the design process and move the job right to construction, after receiving final inspection and the load sheet.
 - Prior to Customer's initial attachment, KU reserves the right due to engineering design requirements to refuse use by Customer of certain or specific poles or structures (such as normal transmission routes).
 - KU will furnish, install, and maintain at its expense the necessary overhead service drop or service line required to deliver electricity at the voltage contracted for, to Customer's electric facilities, except when such service drop extends over 150 feet.



EXHIBIT 1—APPLICATION FOR THIRD PARTY ATTACHMENT

Kentucky Utilities Company

_____ Date

All Third Party Attachment requests or inquiries shall be directed to the local KU Operations staff.

Application for Third Party Attachment						
Type of Attachment	<input type="checkbox"/> CATV	<input type="checkbox"/> Telecom	<input type="checkbox"/> Other	Applicant: _____	Company Name _____	
Location	_____ City, County, State _____					
Make-Ready Work Required?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	If YES, please attach drawings to this Application			
Application will not be accepted without applicable drawings						
Pole Number	Number of Attachments		Overlash? (Yes or No)	Overlash Notification (To complete if YES)		Make-Ready Required? (Yes or No)
	Cables	Other (Please specify)		Existing diam.	Final diam.	
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
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_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
Make-Ready Work Requested Completion Date: _____					X	_____
						Applicant's Approval Signature
Applicant's Contact Information for Contracts			Applicant's Engineering Representative			
Name	_____		Name	_____		
Title	_____		Title	_____		
Phone	_____		Phone	_____		

TO BE COMPLETED BY KU ONLY		
Application granted for _____ attachment(s), subject to approval by applicant of changes and rearrangements, at an estimated cost of \$ _____ ("Make-Ready cost estimate"). After completion of the make-ready work, applicant may be responsible for make-ready costs in excess of the estimate.		
KU Representative		
By: _____	Date: _____	Total attachments requested on this application _____
Title: _____		

Applicant authorizes KU to proceed with Make-Ready work associated with this application. Applicant acknowledges that KU will not proceed with construction until payment of the estimate is received. Applicant agrees to pay any Make-Ready costs in excess of the estimated amount.

Applicant's Authorized Representative
 By: _____ Date: _____
 Signature: _____



EXHIBIT 2—SAMPLE POLE PHOTO IMAGE WITH HEIGHT ANNOTATION



Lowest Power
SEC 29'-0"

WIND 21'-8"

TWC 20'-4"

AT&T 19'-4"

AT&T 18'-6"

AT&T 17'-6"

KU POLE #
50248-90104

BASE 0'-0"



EXHIBIT 3—NOTIFICATION FORM FOR SERVICE DROPS

Kentucky Utilities Company

_____ Date

Upon completion of form, submit to local KU Operations design staff.

Notification Form for Service Drops			
Type of Attachment		<input type="checkbox"/> CATV	<input type="checkbox"/> Telecom
		<input type="checkbox"/> Other	Applicant _____
Location _____		Company Name _____	
City, County, State _____			
Pole Number	Service Drop Information		Comments
	Date of installation	New Attachment? (Yes or No)	
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
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_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
Applicant's Contact Information for Contracts		Applicant's Engineering Representative	
Name _____		Name _____	
Title _____		Title _____	
Phone _____		Phone _____	



EXHIBIT 4—ELECTRIC STANDARDS

NESC SECTION 235 AND 238 REQUIREMENTS (NESC 2017)

This standard details the clearance requirements at all locations between LG&E/KU's conductors and equipment and any non-LG&E/KU communication cables and equipment.

Two sections are shown below. Part I details the required clearances at the structure while Part II details the clearances at all other locations. Each part shows the typical clearances between facilities, the minimum clearances allowed by the NESC, and special clearance reductions which are allowed under certain circumstances.

All new facilities will be constructed using the "typical" clearances. New facilities placed on existing structures should also meet the "typical" clearance requirements wherever possible. However, clearances may be reduced to the minimum NESC clearances (including special clearance reductions) where necessary to prevent the need to replace the structure. Allowable special clearance reductions should only be used as the last option to replacing the structure.

PART I - (VERTICAL CLEARANCES AT THE STRUCTURE - NESC RULE 235/238)

TABLE A

LG&E/KU FACILITIES	CLEARANCE TO COMMUNICATION FACILITIES		
	TYPICAL	NESC MINIMUM	SPECIAL REDUCTION
NEUTRAL, GROUNDED GUYS AND SUPERVISORY CABLE	48"	40"	30" *
SECONDARY (750V) & INSULATED GUYS	48"	40"	
4.16 KV, 12.47 KV	48"	40"	
13.8 KV	48"	43"	
34.5 KV	60"	45"	
69 KV	120"	54"	
138 KV	120"	70"	
GROUNDED EQUIPMENT	48"	40"	30" **
UNGROUND EQUIPMENT	SAME AS PRIMARY CLEARANCE		
STREET LIGHT	SEE PAGE 2		

CLEARANCE REQUIREMENTS AT THE POLE ARE MEASURED BETWEEN:

UPPER POSITION: Lowest supply conductor or metallic conductor support, including insulator pins, switch arms (in open position), aerial cable spacers and brackets, etc.

LOWER POSITION: Upper most communication cable, messenger or the top of any communication equipment, including support brackets, equipment enclosures, splice packs, etc.

**SEE PAGE #2
TO DETERMINE HOW CLEARANCES AT THE
STRUCTURE ARE MEASURED**

* NESC TABLE 235-5, NOTE 5 ** NESC TABLE 238-1, NOTE 1

PART II - (VERTICAL CLEARANCES AT ALL OTHER LOCATIONS - NESC RULE 235)

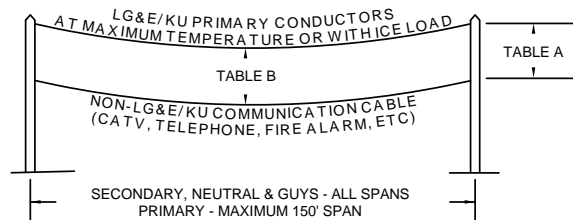
Clearances at all locations, other than at the structure, will be based on one of the following load cases (whichever results in the least amount of clearance). All sags are final sags.

- A) The upper supply conductor at its maximum operating temperature with the communication conductors at 120° F (maximum operating temperature is 120° F for voltages less than 69kV, and 212° F for voltages 69kV and above).
- B) The upper supply conductor at 0° F with 1/2" ice and the communication conductor at 0° F with no ice.

TABLE B

LG&E/KU FACILITIES	TYPICAL CLEARANCE	NESC MINIMUM	SPECIAL CLEARANCE REDUCTION
SECONDARY, NEUTRALS & GUYS - ALL SPANS			
NEUTRAL, GROUNDED GUYS AND SUPERVISORY CABLE	36"	30"	12" ***
SECONDARY (750V) & INSULATED GUYS	36"	30"	
PRIMARY CONDUCTORS - MAXIMUM OF 150' SPANS			
4.16 KV, 12.47 KV	36"	30"	
13.8 KV	36"	32"	
34.5 KV	48"	34"	
69 KV	96"	40"	
138 KV	96"	55"	

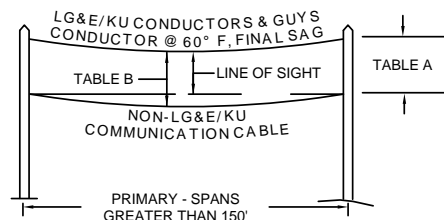
*** NESC RULE 235C2b(1)(a) EXCEPTION 1



CLEARANCES OF PRIMARY CONDUCTORS ON SPANS GREATER THAN 150'

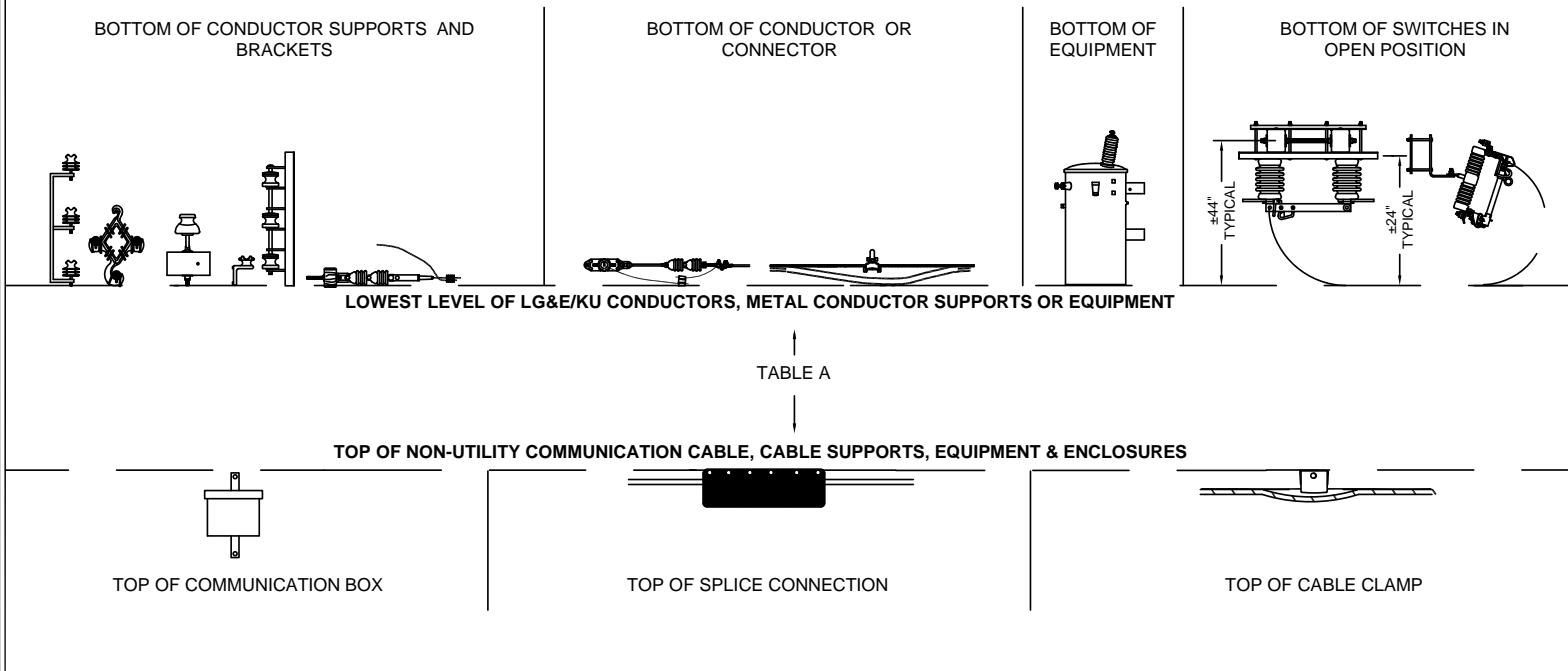
When primary conductors (above 750V) are installed on spans longer than 150', a supplemental requirement must be met in addition to the NESC minimum clearances detailed in Table B. The clearances at the pole must be adjusted so that both the following conditions are met at any point in the span:

- A) Clearances are not less than the values shown in Table B.
- B) Clearance must be provided so that the supply conductor at 60 F, no wind displacement, final sag, will not sag below the line of sight between the attachment points of the highest communication conductor (NESC RULE 235C2b(3)).



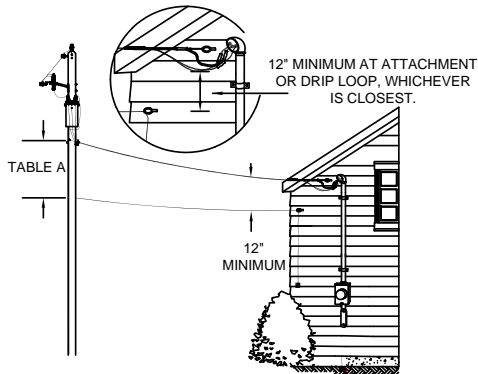
Electric System Codes & Standards
 VERTICAL CLEARANCE REQUIREMENTS BETWEEN LG&E/KU FACILITIES AND NON-LG&E/KU COMMUNICATION FACILITIES
 02 10 02 Rev. F

REQUIREMENTS FOR DETERMINING VERTICAL CLEARANCES TO COMMUNICATION FACILITIES AT THE STRUCTURE (NESC RULE 238)



Note: Communications service drops are no longer permitted on the service mast (above or below roof).
 NEC 230.28

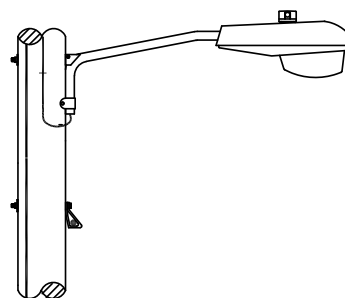
OTHER SPECIAL CLEARANCE REDUCTIONS



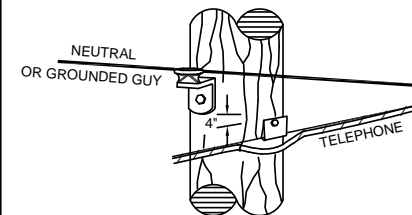
SERVICE DROPS ONLY

For secondary service drops only, clearance at any point within the span may be reduced to 12" if clearance at the pole is maintained to the values in Table B (NESC Rule 235C1 Exception 3)

SEE STANDARD 021012



DRIP LOOP & LUMINAIRE TO COMMUNICATION CABLE/EQUIPMENT (NESC TABLE 238-2)



COMMUNICATION CROSSING

Where communication conductors cross under an effectively grounded neutral or grounded guy, clearances may be reduced to 4" provided clearance to energized conductors are maintained (NESC Rule 235C1 Exception 2).

By: Heithcox/Hall
 08/22/17
 Page 2 of 2

Replaces
 LGE 021002E
 KU None

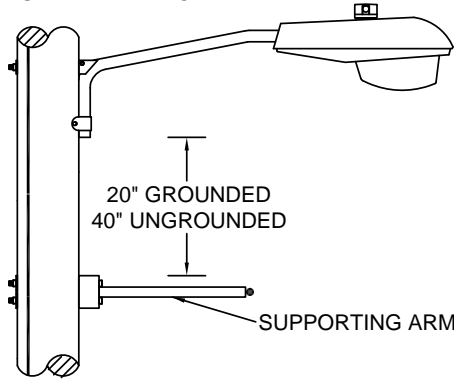
Electric Design And
 Construction Standards



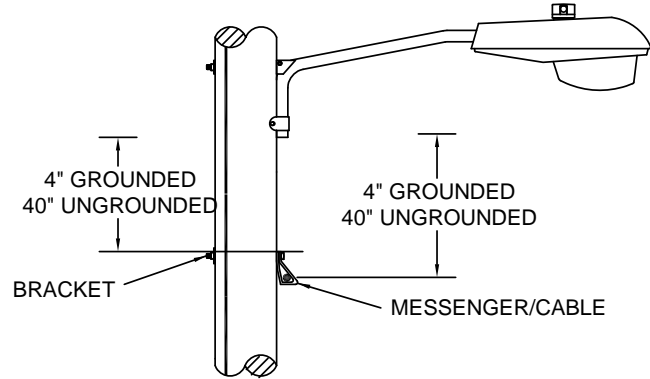
NESC SECTION 238 REQUIREMENTS (NESC 2017)

NOTE:

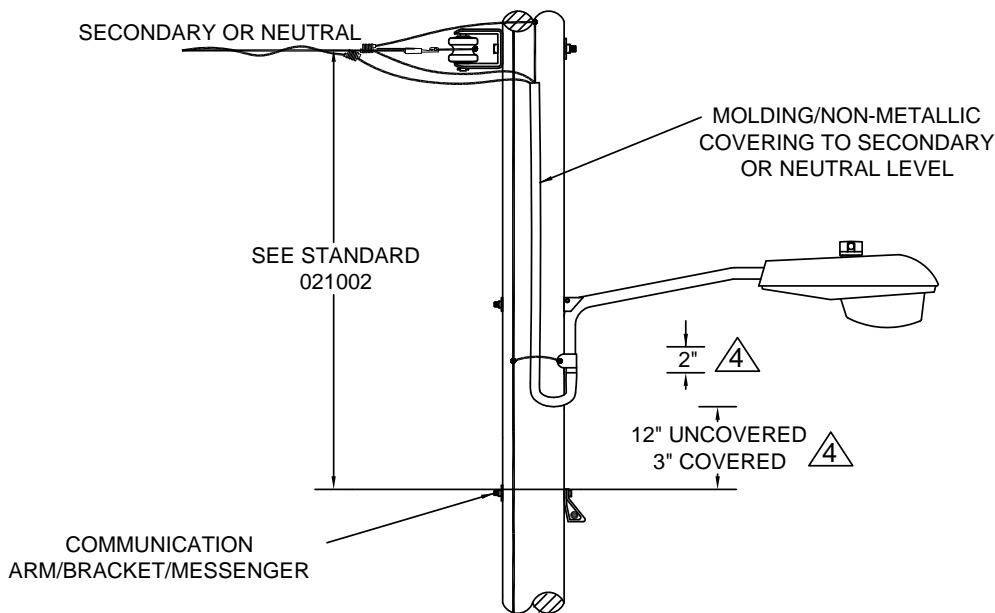
1. ALL NEW STREET LIGHT FIXTURES MUST BE EFFECTIVELY GROUNDED. IF UNABLE TO VERIFY GROUND, EITHER USE UNGROUNDED CLEARANCES OR FIXTURE MUST BE GROUNDED.
2. 40" MIN. CLEARANCE MUST BE MET BETWEEN NEUTRAL AND SECONDARY CABLE HARDWARE AND COMMUNICATIONS EQUIPMENT.
3. THE 12" AND 3" CLEARANCE ONLY APPLIES TO THE DRIP LOOP FEEDING THE LUMINAIRE.
4. THE REDUCED 3" CLEARANCE MAY BE USED IF NON-METALLIC COVERING IS PROVIDED AND EXTENDS 2" INTO LUMINAIRE BRACKET.



CLEARANCE FROM
LUMINAIRE BRACKET TO
TOP OF COMMUNICATION
SUPPORTING ARM



CLEARANCE FROM LUMINAIRE
BRACKET TO TOP OF COMMUNICATION
BRACKET OR CABLE/MESSENGER
MOUNTED TO POLE
(BOTH REQUIREMENTS APPLY)

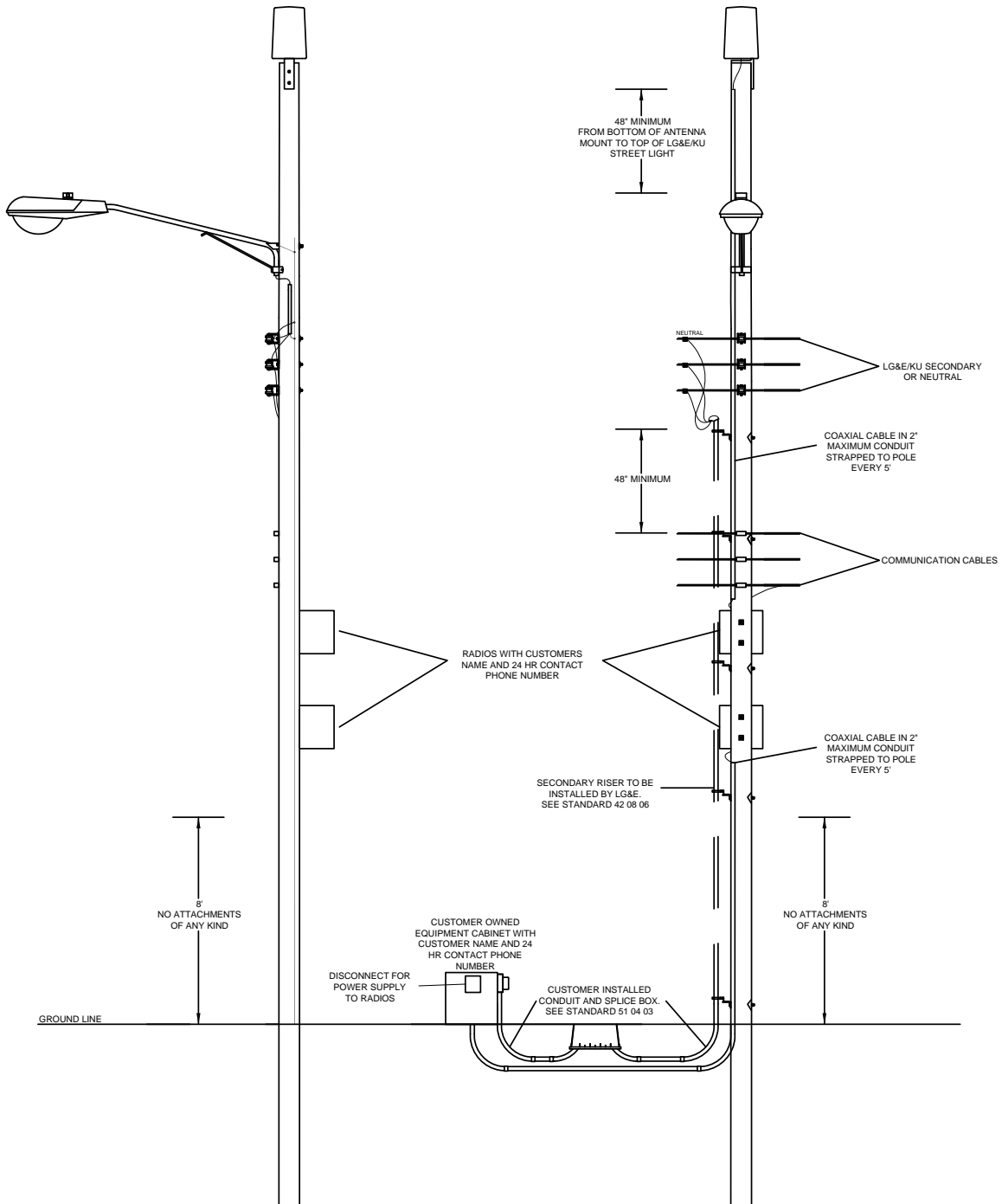


CLEARANCE FROM DRIP
LOOP TO TOP OF
COMMUNICATION
ARM/BRACKET/MESSENGER

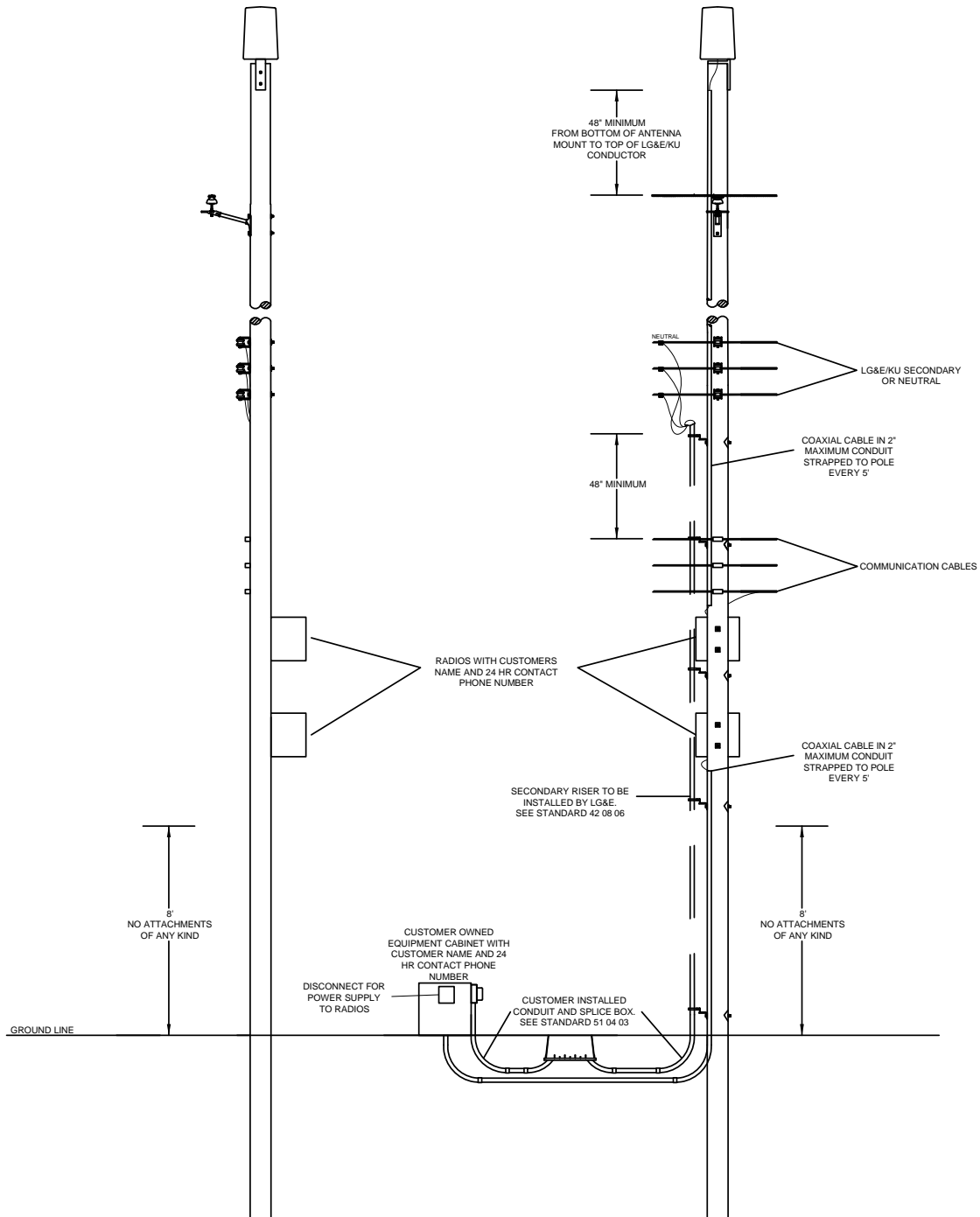
GUIDELINES FOR DESIGN AND INSTALLATION

- When requesting wireless antenna attachment on LG&E/KU poles, antenna owner must first look at attaching to secondary, service, drop, or guy poles. If no such pole is available antenna owner may request attachment to a single phase primary pole. LG&E/KU will only consider attachment to three phase primary poles after attachment customer has exhausted all other options.
- All clearance dimensions are a minimum distance.
- Installations will be allowed on bucket truck accessible poles only, where bucket truck poses no risk of damage to public or private property.
- Consult Distribution Operations Design Group to ensure that 120/240 volt service is available on the pole in question.
- All installations must conform to all applicable electrical codes and LG&E/KU requirements for clearances, climbing space and working space.
- All communications equipment shall be furnished and installed by the facility owner. Refer to Standard 510403 for service related equipment.
- Only qualified personnel approved by LG&E/KU shall be allowed to work above the communications space. They shall be trained in and knowledgeable of the clearance requirements and working rules of OSHA and the NESC.
- A driven ground is required at each equipment location. Grounding shall be in accordance with all applicable electrical codes. Bond the antenna bracket and radio/equipment box(s) to ground lead.
- Only one antenna unit shall be installed per pole.
- The height of all poles used to mount antennas must be increased by a minimum of five feet above the existing pole's height unless otherwise approved by LG&E/KU Distribution Operations staff. The cost of the taller pole is the responsibility of the attacher. Pole height not to exceed 60' above ground.
- Minimum Class 3 pole is required unless approved by LG&E/KU Distribution Operations staff.
- If a pole is topped for installation the untreated pole top must be treated and covered.
- Unit may not be mounted to any pole on which there are transformers, risers, vertical supply conductors to aerial services, switch handles, capacitor banks or similar fixtures.
- The service riser shall be installed by LG&E/KU.
- All wireless attachment sites must be metered. No third party meters will be allowed on LG&E/KU poles.
- The meter socket shall be a minimum of 100 amp, ringless style, with bypass horns. The service will be three wire 120/240 volt. Two wire 120 volt service is not acceptable.
- The antenna power source must have an additional lockable disconnect installed to allow the antenna and radio/equipment boxes to be disconnected from the battery backup before work is performed within the area designated by the RF Warning signs. Each disconnect must provide a visible break, a test point, or similar means for utility workers to ensure circuit has been de-energized. Each attaching company shall provide and install a lockbox with a key to their disconnect switch inside. LG&E/KU will padlock the lockbox to enable access to the attacher's key for the disconnect switch.
- All antennas are required to have two RF warning signs installed. A sign shall be installed near the pole top at the level where the safe approach distance ends for the FCC General Population/Uncontrolled Power Levels and read at minimum "Warning - Antenna Approach distance is ___ Feet." The second sign shall be installed near the base of the pole at eye-level and shall read "Radio frequency fields at pole top may exceed FCC limits for utility work on structure within the safe antenna approach distance designated above. Disconnect RF power using disconnect located on ground mounted equipment cabinet before working within the safe antenna approach distance. Call _____ (800-XXX-XXX) for disconnect instructions or more information." The sign shall include the antenna owners name and phone number or attachee number. When LGE/KU work is required within the antenna approach distance, workers will disconnect the RF source.
- All antennas and ancillary equipment shall be labeled with the owner's name and contact information, including an emergency contact number.
- It is the antenna owner's responsibility to inform all pole attachers on the pole of the RF exposure hazards and mitigation techniques.
- The antenna cables shall be run in non-metallic conduit. Schedule 80 will be used for the first 8' from the ground and Schedule 40 or 80 can be used for the rest of the riser. Conduit is to extend at least 48" above and below any supply conductors.
- All cabinets must be installed with thru-bolts on same side of pole to maintain ability to climb pole when required. Band-type attachments shall not be used.
- Maximum weight for radio/equipment boxes will be determined during permitting process.
- Antenna owner may have their equipment mounted to the pole contained within no more than two separate boxes unless approved by LG&E/KU Distribution Operations staff.
- Antenna cable(s) shall be installed in maximum 2" non-metallic conduit strapped every 5' unless approved by LG&E/KU Distribution Operations staff.
- Customer's equipment may not occupy more than two adjacent quadrants.
- The weatherhead and antenna unit must be mounted on the same quadrant of the pole unless approved by LG&E/KU Distribution Operations staff.
- The unit cannot prevent other communication companies from accessing their facilities.
- LG&E/KU is not responsible for any damages caused by weather events, other's actions, or when the pole and associated fixtures are maintained or replaced.
- LG&E/KU must approve the final design prior to any installations.

SECONDARY POLE WITH ANTENNA ABOVE SECONDARY



1Ø POLE WITH ANTENNA ABOVE PRIMARY



3Ø POLE WITH ANTENNA BELOW SECONDARY

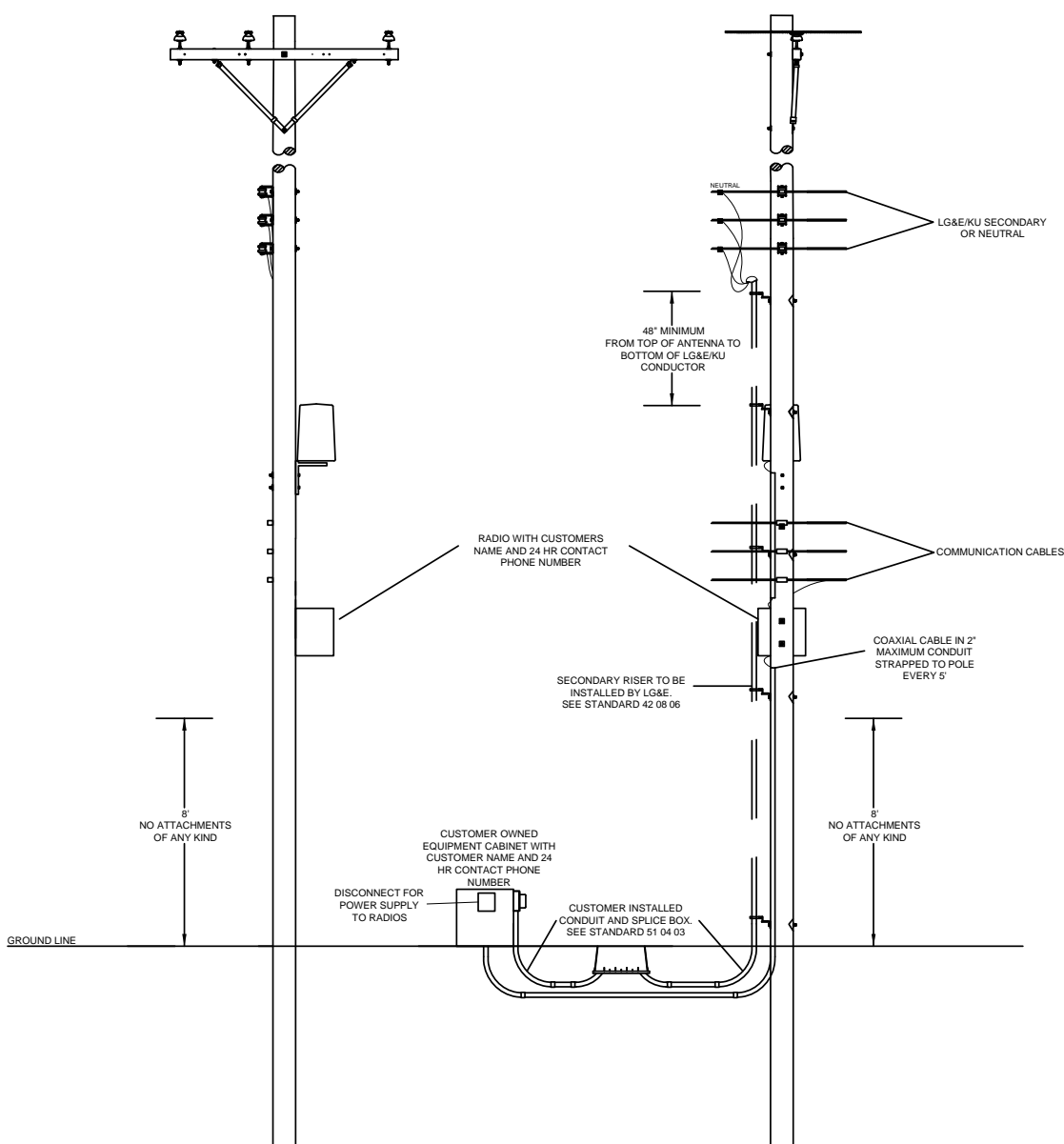
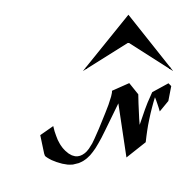
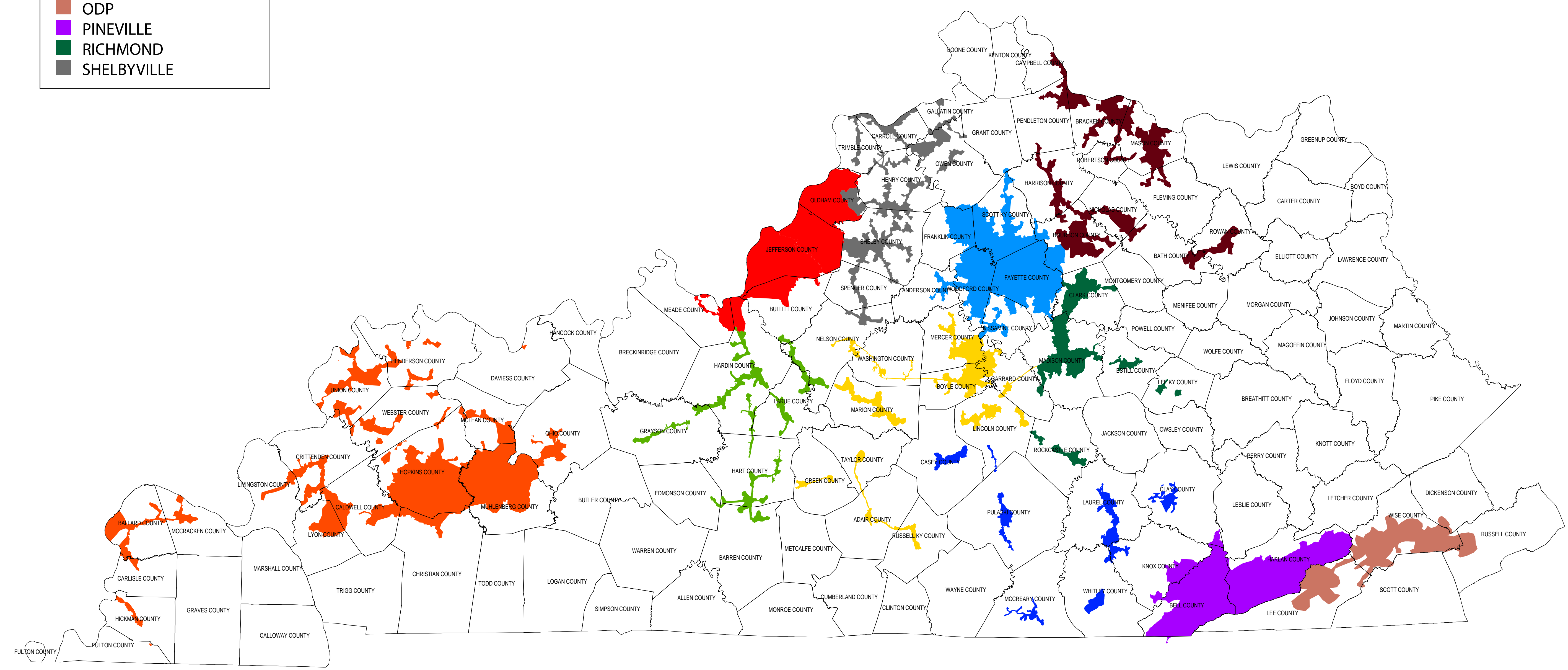




EXHIBIT 5—SERVICE TERRITORY AND CONTACTS

Louisville Gas & Electric and Kentucky Utilities Electric Service Territory

- OPERATION CENTERS
- LG&E
 - DANVILLE
 - EARLINGTON
 - ELIZABETHTOWN
 - LEXINGTON
 - LONDON
 - MAYSVILLE
 - ODP
 - PINEVILLE
 - RICHMOND
 - SHELBYVILLE



Kentucky Utilities Company

Operations Center Contact Information for Pole Attachments

<u>Operations Center</u>	<u>Contact Information</u>
Danville	Adam Smith 270-469-4924 adam.smith2@lge-ku.com
Earlington	Charlie Pace 270-383-6014 Charles.Pace@lge-ku.com
Elizabethtown	Brad Keown 502-333-6650 Brad.Keown@lge-ku.com
Lexington	Kevin Long 859-367-4219 Kevin.Long@lge-ku.com
London	David Laun 606-877-2836 David.Laun@lge-ku.com
Maysville	Mike Stitt 606-563-8446 Michael.Stitt@lge-ku.com
Norton	Michael Wells 276-679-4837 Michael.Wells@lge-ku.com
Pineville	Michael Daugherty 606-337-0303 Michael.Daugherty@lge-ku.com
Richmond	Jonathon Lane 859-626-3372 Jonathon.Lane@lge-ku.com
Shelbyville	Michael Whitis 502-333-6619 Michael.Whitis@lge-ku.com

KENTUCKY UTILITIES COMPANY

**Response to First Requests for Information of
Charter Communication Operating, LLC
Dated November 13, 2018**

Case No. 2018-00294

Question No. 4

Responding Witness: John K. Wolfe

- Q-4. Explain the basis for Your assertion that any Service Drop affixed to a pole more than six inches above or below a through-bolt shall be considered a separate attachment, while on drop or lift poles, Service Drops affixed within one foot of usable space are considered a single attachment.
- a. Explain how You will determine whether or not to conduct an inspection of any Service Drop Attachments.
 - b. Explain the processes and procedures you intend to use to conduct an inspection of any Service Drop Attachments.
 - c. Provide data related to the charges, or range of charges, You intend to require an Attachment Customer to reimburse for the cost of an inspection of any Service Drop Attachments.
- A-4. A Service Drop affixed to a pole more than six inches above or below a through-bolt is encroaching on space that is occupied or could be occupied by a separate bolted Attachment, potentially hindering the attachment or maintenance of that separate bolted Attachment. Service Drops affixed in this manner do not pose the same problem on service or drop poles.
- a. KU does not plan to inspect Service Drop Attachments outside of a periodic inspection or audit provided for by Term and Condition 14. KU will continue to rely on its Attachment Customers to install Service Drops in accordance with KU's construction and safety standards and practices and appropriately report when a Service Drop constitutes a separate Attachment.
 - b. If KU conducts an inspection of a Service Drop, a design technician will visit the location and determine if the Service Drop was affixed within six inches above or below its through-bolt mainline Cable.
 - c. If KU determines there is a need to conduct an inspection of a Service Drops outside of a periodic inspection or audit provided for by Term and Condition 14, KU will seek reimbursement for the actual costs incurred in the inspection.

KENTUCKY UTILITIES COMPANY

**Response to First Requests for Information of
Charter Communication Operating, LLC
Dated November 13, 2018**

Case No. 2018-00294

Question No. 5

Responding Witness: John K. Wolfe

- Q-5. Provide a copy of Your standards and specifications related to the design, installation, and maintenance of Attachments with which You propose Attachment Customers must comply.
- A-5. See the response to Question No. 3(a).

KENTUCKY UTILITIES COMPANY

**Response to First Requests for Information of
Charter Communication Operating, LLC
Dated November 13, 2018**

Case No. 2018-00294

Question No. 6

Responding Witness: John K. Wolfe

- Q-6. Explain the basis for Your proposed requirement of Terms and Conditions No. 7(g) that an Attachment Customer must provide notice to the Company at least one week prior to performing make ready work.
- a. Provide all data related to the basis for Your proposed requirement of Terms and Conditions No. 7(g) that an Attachment Customer must provide notice to the Company at least one week prior to performing make ready work.
- A-6. Term and Condition No. 7(g) permits an Attachment Customer to hire a KU Approved Contractor to perform power space make-ready utilizing an Approved Contractor if KU has not completed the make-ready itself within 60 days of receiving payment. The one-week notice provision ensures that KU has an opportunity to schedule an inspector to accompany the Approved Contractor. The presence of a KU-inspector onsite will protect the integrity and reliability of KU's electric distribution system. It enables rapid communication between the worksite and KU's distribution control center regarding the status of the system and the make-ready work, thus enhancing work safety, ensures the work is performed to applicable construction and safety standards, and reduces the likelihood of any unintended customer outages.
- a. See above.

KENTUCKY UTILITIES COMPANY

**Response to First Requests for Information of
Charter Communication Operating, LLC
Dated November 13, 2018**

Case No. 2018-00294

Question No. 7

Responding Witness: John K. Wolfe

- Q-7. Explain the basis for Your proposed requirement of Terms and Conditions No. 7(g) that an inspector designated by the Company shall accompany Approved Contractors during the performance of any make ready work, and can direct that the work be performed in a manner other than as approved in an application.
- a. Explain the processes and procedures an inspector designated by the Company will follow to determine whether approved work shall be performed in a manner other than as approved in an application.
 - b. Explain how the Company will document changes to approved make ready, pole configurations, and third party attachments where an inspector requires approved make ready work to be performed in a manner other than as approved in an application.
 - c. Explain Your basis for charging an Attachment Customer where the Company demands to have a Company-designated inspector to accompany an Approved Contractor during the performance of make-ready work.
 - d. Provide data related to the charges, or range of charges, You intend to charge an Attachment Customer where the Company has a Company-designated inspector accompany an Approved Contractor during the performance of make-ready work.
 - e. Explain how You will determine whether circumstances in the field require the Company-designated inspector to direct that work be performed in a manner inconsistent with an application, and how the Company will determine when this inconsistent work was completed at the direction of the Company.
 - f. Explain how You will address situations in which a Company-designated inspector is unavailable to accompany the Approved Contractor, including any and all costs incurred as a result of the Company's delay.

- A-7. See the response to Question No. 6. The provision is designed to address circumstances in the field that differ from those contemplated in an approved application. The facilities on a Structure may be different at the time of make-ready construction than they were when an Attachment application was approved. Changes to the system during this period may occur due to storm restoration or other necessary repairs to the system. Rather than halting the make-ready so the work can be redesigned, an inspector has flexibility under this provision, in these very limited circumstances, to authorize make-ready construction under an alternative design. This authority may also allow the inspector to provide a lower-cost make-ready solution.
- a. If the make-ready design contained in an approved application conflicts with the conditions in the field, the inspector would utilize her knowledge of KU's electric design and construction standards to determine whether an alternative design solution would be appropriate.
 - b. KU documents all such alterations to its electric distribution system using as-built drawings and a GIS mapping system.
 - c. The installation of any third party attachment to the Company's poles and other structures poses the risk of damage to the Company's facilities and disruption of electric service to the Company's customers. This risk is increased when non-Company personnel perform the make-ready work for those installations, at the direction of a third party. The presence of a KU-inspector onsite will protect the integrity and reliability of KU's electric distribution system. It enables rapid communication between the worksite and KU's distribution control center regarding the status of the system and the make-ready work, thus enhancing work safety, ensures the work is performed to applicable construction and safety standards, and reduces the likelihood of any unintended customer outages. The inspector's presence is intended to reduce and mitigate the increased risk created by the Attachment Customer. Since the Attachment Customer is responsible for the increased risk, it is appropriate that the Attachment Customer bear the cost of the inspector rather than electric service customers who receive no direct benefit from the attachment.
 - d. KU will seek reimbursement of its actual costs to provide an inspector.
 - e. See the response to Question Nos. 7(a) and 7(b).
 - f. The one-week notice requirement is intended to ensure the availability of an inspector and avoid any delay due to the lack of an inspector.

KENTUCKY UTILITIES COMPANY

**Response to First Requests for Information of
Charter Communication Operating, LLC**

Dated November 13, 2018

Case No. 2018-00294

Question No. 8

Responding Witness: John K. Wolfe

- Q-8. Explain the basis for the proposed requirement of Terms and Conditions No. 8(c) that an Attachment Customer must reimburse the Company's costs to identify the owner of an untagged attachment.
- a. Explain the steps You intend to take to identify the owner of an untagged attachment.
 - b. Explain the basis for any costs You propose to charge to identify the owner of an untagged attachment.
 - c. Explain the basis for Your presumption that the Company has provided notice to the owner of an untagged Attachment upon inspecting the Attachment and determining that it is untagged.
 - d. Provide all data related to any analysis or study of costs You incur related to untagged attachments or any other issues associated with untagged attachments.
 - e. Explain the basis for your requirement that attachments be tagged with ownership information.
- A-8. Attachments that are not identified with an ownership tag pose significant operational difficulties. For example, the absence of clear ownership identification makes it more difficult in an emergency to notify the owner of an untagged attachment to request relocation of that attachment. Similarly, when an untagged Attachment has been installed in violation of the NESC or KU standards, it is more difficult for KU to coordinate the correction of the violation than if the Attachment is tagged. The incremental costs KU incurs to identify the owner of an untagged Attachment should be reimbursed by the owner of that attachment..
- a. KU field personnel first search for a tag or attempt to trace the Attachment to an identifiable piece of equipment. If unsuccessful, a KU design technician who is more familiar with Attachment Customers' installation practices attempts to identify it. If unsuccessful, KU will retain a contractor, who is still

more familiar with Attachment Customers' installation practices, to identify the attachment by recognition or by tracing the Attachment to its origin or to a customer.

- b. KU will seek reimbursement of its actual costs to identify an untagged Attachment.
- c. The notice referred to in Term and Condition 8(c) is contained in Term and Condition 16, which requires KU to provide 45 days' notice to an Attachment Customer that a Structure supporting an Attachment Customer's Attachment will be replaced, relocated, or removed consistent with its provision of electric service. The presumption is designed to reduce unnecessary delay in making repairs or upgrades to LG&E facilities required for electric service due to the Attachment owner's failure to tag its Attachments. It is premised on the assumption that notice would have been provided to the Attachment Customer as soon as the problem or deficient condition was discovered but for the failure of the Attachment Customer to tag or otherwise properly identify its Attachment. It properly allocates any timing risk to the entity that is in the best position to properly tag the Attachments. Repairs and upgrades should not be delayed more than 45 days merely because the owner of an untagged Attachment cannot be identified and contacted immediately.
- d. KU does not currently track the requested information as KU does not currently have a mechanism to recover those costs caused by Attachment Customers.
- e. See the response to Question No. 8 above.

KENTUCKY UTILITIES COMPANY

**Response to First Requests for Information of
Charter Communication Operating, LLC
Dated November 13, 2018**

Case No. 2018-00294

Question No. 9

Responding Witness: John K. Wolfe

- Q-9. Explain the basis for Your proposed requirement of Terms and Conditions No. 8(g) that an Attachment Customer must use an Approved Contractor for work in or above the Communication Worker Safety Zone.
- a. Provide all data related to the basis for Your proposed requirement of Terms and Conditions No. 8(g) that an Attachment Customer must use an Approved Contractor for work in or above the Communication Worker Safety Zone
- A-9. Work on facilities in or above the Communication Worker Safety Zone (“CWSZ”) involves close contact with KU’s electric supply system and therefore must be performed by KU employees and Approved Contractors. This specialized work poses greater personal safety risks than those associated with work on facilities attached below the CWSZ. KU employees and Approved Contractors are the only personnel that KU knows possess the skill and system familiarity necessary to perform work in and above the CWSZ. This provision does not require an inspector present when work in the Communication Space incidentally places a communication worker’s head and shoulders in the CWSZ.
- a. See the response to Question No. 9 above.

KENTUCKY UTILITIES COMPANY

**Response to First Requests for Information of
Charter Communication Operating, LLC
Dated November 13, 2018**

Case No. 2018-00294

Question No. 10

Responding Witness: John K. Wolfe

- Q-10. Explain the basis for Your proposed requirement of Terms and Conditions No. 8(g) to require, at the Company's discretion, a Company-designated inspector to accompany an Attachment Customer for work in the Communication Worker Safety Zone.
- a. Provide data related to the basis for Your proposed requirement of Terms and Conditions No. 8(g) to require, at the Company's discretion, a Company-designated inspector to accompany an Attachment Customer for work in the Communication Worker Safety Zone.
 - b. Explain how You will determine whether an Attachment Customer is required to be accompanied by a Company-designated inspector.
 - c. Explain Your basis for charging an Attachment Customer where the Company exercises an option to have a Company-designated inspector to accompany an Attachment Customer for work in the Communication Worker Safety Zone.
 - d. Provide data related to the charges, or range of charges, You intend to charge an Attachment Customer where the Company exercises an option to have a Company-designated inspector to accompany an Attachment Customer for work in the Communication Worker Safety Zone.
- A-10. Work on facilities in the CWSZ involves close contact with KU's electric supply system, and may require clearances and communications from and with KU's distribution control center. A KU-designated inspector is necessary as a liaison between the distribution control center and a contractor working on behalf of an Attachment Customer.
- a. See response to Question No. 10 above.
 - b. KU will make that determination based on the circumstances presented in each instance.

- c. The cost reimbursement provision in Term and Condition 8(g) is consistent with similar cost reimbursement provisions found elsewhere in Rate PSA, in superseded Rate CTAC, and in legacy license agreements with other Telecommunications Carriers. An Attachment Customer should reimburse KU for the costs that it incurs solely to enable the safe and responsible placement of those Customers' attachments on the Company's structure. These costs are not associated with the provision of electric service. However, if the Attachment Customer were not assessed these costs, electric service customers would ultimately have to bear those costs.

- d. KU will seek reimbursement of its actual costs to provide an inspector to accompany an Approved Contractor performing work for an Attachment Customer in the CWSZ.

KENTUCKY UTILITIES COMPANY

**Response to First Requests for Information of
Charter Communication Operating, LLC
Dated November 13, 2018**

Case No. 2018-00294

Question No. 11

Responding Witness: John K. Wolfe

- Q-11. Explain the basis for the proposed requirement of Terms and Conditions of Attachment No. 8(j) to impose a 50 percent surcharge on Attachment Customers that do not adequately make adjustments upon 30 days' notice.
- a. Explain the basis for selecting 30 days as the applicable time period.
 - b. Explain the basis for imposing a 50 percent surcharge.
 - c. Explain the basis for how you will determine whether or not adjustments have been made within 30 days, and any circumstances under which a surcharge would not be imposed if changes are not made within 30 days, such as whether a charge would be imposed if changes could not be made within 30 days as a result of the complexity of the required work, or actions or inactions of another pole user, including You.
 - d. Provide all data related to the basis for the proposed requirement of Terms and Conditions of Attachment No. 8(j) to impose a 50 percent surcharge on Attachment Customers that do not adequately make adjustments upon 30 days' notice.
- A-11. See the response to PSC 2-10.
- a. See the response to PSC 2-10.
 - b. See the response to PSC 2-10.
 - c. After 30 days from KU's notice to an Attachment Customer of deficient Attachment installation, KU will conduct an inspection to determine whether the corrections have been made. Refer to Section 28 of the PSA for circumstances where delay or nonperformance by either party shall be excused.
 - d. See the response to parts (a) through (c).

KENTUCKY UTILITIES COMPANY

**Response to First Requests for Information of
Charter Communication Operating, LLC
Dated November 13, 2018**

Case No. 2018-00294

Question No. 12

Responding Witness: John K. Wolfe

- Q-12. Explain the procedures and processes You will use to “verify the number, location, and type of Attachment Customer’s Attachments” under proposed Terms and Conditions of Attachment No. 14.
- a. Explain Your process for selecting who will perform any attachment audit of third party attachments on Your poles.
 - b. Provide all data related to Your process for selecting who will perform any attachment audit of third party attachments on Your poles.
 - c. Explain what information is to be collected during an audit, and how such information will be used.
- A-12. KU will conduct a pole attachment audit. KU plans to conduct regular attachment audits under the provisions of Term and Condition No. 14 not more frequently than every five years for the purposes set forth in Term and Condition No. 14, such that each pole is audited no more frequently than one time in a five-year period.
- a. KU will utilize a competitive bid process to select a vendor to perform attachment audits under Term and Condition No. 14. KU will issue a request for proposals containing a vendor’s safety practices, proposed work plan, project organization structure, experience with similar work, project execution plan, training capabilities, reporting capabilities, and price. KU will evaluate those proposals and select a vendor based on performance under objective criteria.
 - b. See the response to part a.
 - c. For each Attachment on a Structure, an audit under Term and Condition No. 14 will record whether an Attachment exists, the Attachment owner, and the Attachment type. This data will confirm billable Attachment counts for each Attachment Customer.

KENTUCKY UTILITIES COMPANY

**Response to First Requests for Information of
Charter Communication Operating, LLC
Dated November 13, 2018**

Case No. 2018-00294

Question No. 13

Responding Witness: John K. Wolfe

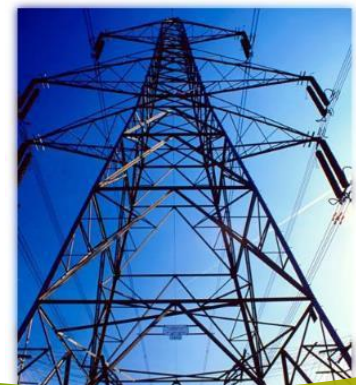
- Q-13. Explain the basis for the proposed requirement of Terms and Conditions of Attachment No. 14 to charge Attachment Customers for the cost of audits completed by the Company.
- a. Provide all data regarding the last attachment audit of third party attachments that you completed, including the results of such audit, the cost of such audit, the information collected during such audit, the procedures and processes used to count attachments, how such information has been used by You or others, and how costs of the audit were allocated among You and third party attachers.
 - b. Provide information and data related to costs incurred by You to complete audits of third party attachments on Your poles.
 - c. Provide all data related to the cost, or anticipated cost, of any planned or contemplated attachment audit of third party attachments on Your poles.
 - d. Explain how costs of any audit of third party attachments on Your poles will be allocated among third party attachers.
- A-13. The only audits for which an Attachment Customer will be charged under this provision are audits of its Attachments to Company Structures. Company intends to perform such audits not more than once every five years for the purposes set forth in this provision. Requiring attachment customers to assume the cost of the audits is consistent with longstanding ratemaking practices. The audits are the functional equivalent of meter reading. They measure the Attachment Customer's use of the Company's facilities much in the same way that an electric meter measures a customer's use of the Company's electricity. The costs related to meters and meter reading personnel and equipment have long been included in the rates for electric service. The audit benefits customers by ensuring that every Attachment Customer is paying only for the number of Attachments it has made, and that no Attachment Customer is receiving unlawful favorable treatment by paying for less than the actual number of Attachments made to the Company's poles and structures.

- a. KU is not aware of any prior audits of third party attachments that have been completed in its territory. KU began a system-wide audit of third party attachments in October 2018. See attached information. The vendor performing the current pole audit is using a manual that details the information to be collected and the procedures and processes used to count attachments. As this audit is in progress, KU does not yet have results of the audit and have not begun to use the information collected. KU believes this audit to be of great importance, and is bearing the full costs of the audit until KU has a mechanism to pass pro-rata costs to its Attachment Customers.
- b. The KU pole audit currently underway was competitively bid and priced such that the two components of the audit—verification of pole ownership and counting of Attachments—can be fairly apportioned should the Commission approve KU’s proposed mechanism to pass the pro-rata costs of the audit to its Attachment Customers. KU will not seek reimbursement from its Attachment Customers for the portion of the audit related to pole ownership verification. In the event KU collects additional data not related to Attachment Customers during a future audit, the audit shall be priced such that the expenses for that additional data can be excluded prior to determining the pro rata share of Attachment Customers.
- c. See attached. Certain information requested is confidential and is being provided under seal pursuant to a petition for confidential protection.
- d. See the response to Question No. 13b. The components of the audit are priced separately such that Attachment counting is a distinguishable charge. Each Attachment Customer will pay its pro rata share of that cost based on the number of Attachments they have made to KU Structures. For example, if the total cost associated with a combined audit of 1,000 Company Structures costs \$5,000, and the audit reveals that Attachment Customer A has 500 total Attachments, Attachment Customer B has 500 total Attachments, and Attachment Customer C has 1,000 total Attachments, then Attachment Customer A would be charged \$1,250, Attachment Customer B would be charged \$1,250, and Attachment Customer C would be charged \$2,500.

LG&E/KU JOINT USE PROJECT

Field Project Procedures

September 12, 2018



Field Project Procedures Manual
Joint Use Inventory Services

Presented by

Davey Resource Group
A Division of The Davey Tree Expert Company
1500 North Mantua Street
Kent, Ohio 44240

Contact: Nathan W Post
Phone: (828) 778 0337
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www.daveyresourcegroup.com



September 12, 2018

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Project Teams

The following project teams represent the key customer contacts on this project for each of the invested parties. The role of this section is to provide key contacts, and what responsibilities they should generally be contacted for on the project.

Davey Resource Group

Nathan W Post
Project Manager
Nathan.post@davey.com
(828) 778-0337

Responsibility Overview: Nathan is the primary point of contact on the LG&E/KU project. He will lead the weekly conference calls, coordinate all project staff, and has ultimate responsibility for decisions on this project. Any questions that LG&E/KU may have can be directed to him.

Kevin Kirkwood
Senior Geospatial Analyst
kevin.kirkwood@davey.com

Responsibility Overview: Kevin is the DRG GIS Lead on the LG&E/KU project. He will administer, coordinate and manage all GIS activities for DRG on the LG&E/KU Project. Any LG&E/KU project geoinformatic questions can be directed to Kevin.

Jordan Caspell
Operations Manager
jordan.caspell@davey.com

Responsibility Overview: Jordan is responsible for the daily oversight of Asset Management Services at DRG. He will be monitoring the LG&E/KU project ensure expectations and goals are achieved and will assist the DRG team in meeting these goals during the LG&E/KU project.

Scott Anderson
Senior Project Developer
scott.anderson@davey.com

Responsibility Overview: Scott is the Project Developer on the LG&E/KU Project.

LG&E/KU

Bradley Hayes

Group Leader Distribution Analytics and Special Contracts | LG&E and KU
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Contract Administration Project Specialist, Third Party Attachments
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Group Leader – Asset Information
Special Contracts | LG&E and KU
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Safety

The DRG team is firmly committed to maintaining a safe and healthful working environment. To achieve this goal, we have implemented a comprehensive Safety and Loss Prevention Program. It is designed to prevent workplace

accidents, injuries, and illnesses. This Program is an Industry Best Safety program called “The Road to Zero.”

The Company’s goal is attaining Zero accidents through consistent reduction of accident frequency per 10,000 labor hours. DRG’s Safety and Loss Prevention Program is a commitment to ensuring that all employees understand the key role that they play in achieving these objectives. The primary purpose of the program is to ensure the safety and health of our workers, provide a safe and healthful work environment, and protect property from damage.

To ensure the safety of all personnel that will be performing work on the LG&E/KU project, DRG will additionally define project specific safety requirements that will assist in meeting this goal. These values are something that we strive for our employees to not only maintain on the job, but something that is internalized as part of their daily lives.

Any instance where personnel safety becomes an issue, our HTA (Hard to Access) pole approach will be utilized. In severe cases, LG&E/KU may be requested to provide security or personnel to assist in access.

For personnel in remote locations, the team has implemented the following procedures (these safety protocols are in addition to all standard safety protocols):

- Any personnel entering an area of inconsistent communications will coordinate call in/out times with immediate supervisory personnel.
- Supervisors will clearly identify daily all locations that may require these procedures.
- Supervisors will coordinate with LG&E/KU staff responsible for each local area to understand any specific safety hazards that may be present.
- Any person not contacted within two hours of identified time will be reported to supervisor for an escalated approach.

Personal Protective Equipment

A key component of preventing incidents is visibility and proper planning. Each employee will be clearly visible and identifiable to the public (**see image at right**). Proper attire is required at all times after exiting the vehicle. This includes full length pants (jeans are not acceptable), boots above the ankle, DRG approved shirt, and proper identification. DRG data technicians will have in his/her possession and wear the following personal protective equipment (PPE):

- **Class III Safety Vest** – While in the field, personnel will wear Class III safety vests any time work is being performed outside of the vehicle. This vest is worn due to the high visibility needed when working in close contact to heavy traffic and approved for use based on ANSI 107-2004.
- **Hard Hat** – While in the field and outside of the vehicle, personnel will wear Company issued hard hat that meets ANSI Z89.1, 2003, TYPE I, Class “E” & “G” standards.
- **Safety Glasses** – While in the field and outside of the vehicle, personnel will wear



company supplied eye protection at all times. This eye protection meets OSHA standards for eye safety.

- **Field Employee Communications** – All personnel have cell phones and can be contacted where service allows. When an individual enters a known area that has no reliable communication options, we will use a “call in/call out” procedure, meaning each auditor will touch base with their direct superior upon entry and exit from these areas. Cell phone contact lists will be used as the primary tool for contact during emergencies. The Project Manager has an updated list of these contacts always. Each employee will call their direct Supervisor at the end of every work day upon returning from their respective field location as an added safety measure.

Safety Tailgates

DRG supplies all field personnel with monthly Safety Tailgates which are supplemented with additional Asset Management specific tailgates as needed. These tailgates are held weekly with field personnel as part of the ongoing DRG and OSHA safe work practices and training requirements.

Job Briefings

To avoid accidents on the job site, DRG auditors will plan and communicate with one another. Personnel participate in ongoing job briefings in compliance with DRG and OSHA safe work procedure requirements. Ongoing discussions as part of the job briefing:

- Error precursors observed during field visits.
- Practical steps in job completion.
- Potential on the job hazards.
- Action steps to avert the associated on the job hazards.
- Active encouragement of crew members to participate in job briefing.
- Answer all questions thoroughly and be certain that crew members who ask questions understand the answers.

All crewmembers must understand how to complete their part of the job assignment safely. They are not allowed to start a job until supervising personnel are assured this is the case. The term “job briefing” has been introduced in recent years; however, evaluating, planning and communicating have long been part of a DRG coordinator’s responsibilities and daily activities. Job briefing remains one of our primary tools for on the job hazard identification, training and accident prevention.

DRG Defensive Driving

The DRG Defensive Driving Course (DDDC) is a key element of our driver safety education program. The goal of DDDC is to help you to defend yourself on the road, avoid collisions, and adjust driving to unpredictable conditions and, most importantly, how to save your life and lives of others through safe driving. Each driver is trained through the DDDC on a bi-annum basis.

First Aid/CPR

This DRG First Aid Course is designed to provide first aid training specific to the DRG employee. The level of training provided by DRG is intended to meet the requirements set forth by the Occupational Safety and Health Administration (OSHA) and be comparable to standards set by the American Red Cross. All DRG vehicles are equipped with company supplied First

Aid kit and 2.5 lbs. ABC fire extinguisher. All field employees are trained in the full DRG First Aid Course every two years and in CPR every year.

Hazardous Materials Training

DRG's Hazard Communication (HazCom) Standard Training Program is provided to field operations. The Program consists of eight written sessions, a video, and a Session #1 Test. DRG's HazCom is united with Department of Transportation (DOT) Hazardous Materials Law HM-126F to form a HazCom and HazMat compliance package. To achieve compliance, employees are educated in the components of the Occupational Safety and Health Administration (OSHA) standard and trained in safe hazardous materials usage, handling, and transport. Each employee is certified as being trained in HazCom and HazMat by a valid and certified Instructor/Trainer. DRG's monthly Safety Tailgates provide continuing education and training under the OSHA standard. All field employees are trained in the HazCom program on a two- year basis.

Electric/Communication Distribution Identification

Each DRG field technician is trained in the identification of electrical and communication distribution equipment in the classroom and field environments. Each DRG field technician is trained in the identification of electrical distribution hazards as well as minimum approach distances. Stray Voltage training is also provided, to ensure that contact with unnecessary facilities are avoided, unless strictly described by the scope of work.

Vehicle Inspection

Each DRG driver inspects his vehicle daily before its first use and the vehicle surroundings before movement (after being parked).

Temporary Traffic Control

Each DRG field technician when parking a vehicle will use at a minimum the 3-cone taper traffic control system

Company Attire and Vehicles

The team outfits its field staff with the best tools to perform the work at the highest level and work as safely as possible. Below is an example of DRG team company vehicle.

Drug and Alcohol Policy

Davey Tree recognizes that the future of the Company is dependent upon the physical and psychological health of all its employees, both in the field and in the office. The misuse and abuse of drugs and alcohol poses a serious threat to the well-being and safety of employees, impairs their efficiency and judgment, and could damage customer property and goodwill, thereby injuring Davey Tree's reputation and standing in the community. Davey Tree recognizes that it is the responsibility of both the Company and the employees to maintain a safe and efficient working environment, free from the effects of alcohol and drug abuse, and has therefore adopted the following policies:

- Davey Tree employees are expected to report for work and remain at work in a condition to perform their assigned duties free from the effects of alcohol and drugs. Any involvement with alcohol or drugs on the part of Davey Tree employees that adversely affects the workplace or working environment will not be tolerated.

- The possession, use, or sale of alcohol, unauthorized or illegal drugs, or the misuse of any legal drugs on Company premises or while on Company business is prohibited and will constitute grounds for disciplinary action or termination of employment.
- All prospective new hires will be tested for use of drugs/alcohol. Positive test results will be considered in employment decisions and may result in the withholding of qualification for employment.
- Davey Tree will initiate such procedures as are necessary to effectively enforce this policy. This may include the requirement that employees cooperate in personal or facility searches when the presence of drugs or alcohol is suspected and in employee medical screening (urine and/or blood testing), where employee judgment or performance is impaired, employee behavior is erratic, or employee accidents or near accidents indicate possible drug or alcohol use. Refusal to cooperate with these procedures may subject employees to discipline and/or termination.
- Davey Tree maintains an Employee Assistance Program (EAP) and strongly encourages employees to use the program for help with alcohol or drug problems. It is each employee's responsibility to seek assistance from the EAP before his problem begins to affect his performance, judgment, or behavior in the workplace.

Davey Personal Excellence

Davey Personal Excellence (DPE) is more than a safety initiative. It is a distinct way of thinking and behaving that helps reduce human error and organizational conditions that create situations where error is likely to occur. When applied to safety, DPE is designed to identify and mitigate these situations that greatly increase the risk of incidents. The overwhelming majority of incidents are caused or triggered by human error.

DPE is adapted from Human Performance Excellence principles that were developed in response to critical organizational incidents in the nuclear power and commercial aviation industries. These five principles are not safety specific. They apply to every aspect of the Davey Mission. "Always deliver a superior tree, landscape and environmental service experience to every residential, utility, commercial and government client." The success of our mission depends on four key values of our culture: our safety, the quality of our service, our productivity and the client experience that we face every day.



DPE Principles:

- *People are fallible, even the best make mistakes.* It is important to understand we cannot eliminate all errors. We can, however reduce the frequency and impact of errors.
- *Situations that are likely to result in error are predictable, manageable and preventable.* Things like time pressure, distractions, stress and poor communications skills are error precursors that can create situations ripe for error to occur. Enhanced awareness of error precursors allows us to adjust behaviors and conditions to reduce the likelihood of error.
- *Individual behavior is influenced by organizational pressures and values.* Our Espoused Values are tested every day against our Values-in-Use. Any gaps between our espoused values and values in use put our mission at risk.

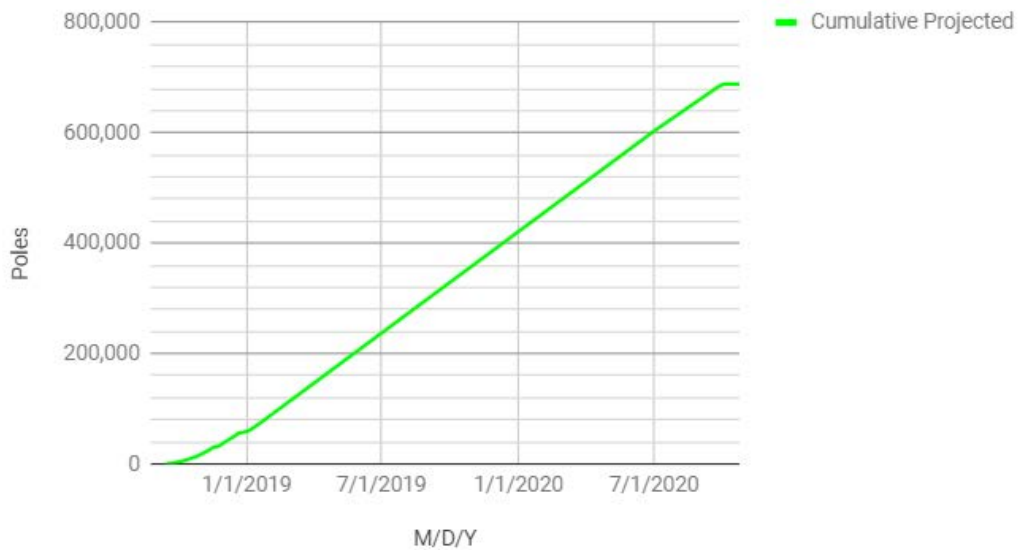
- *People achieve high levels of performance based largely on the encouragement and reinforcement received from leaders, peers and subordinates. High performance cannot be achieved without discretionary effort (effort beyond the minimum we need to get by). This is a key leadership concept. People cannot be threatened or punished into providing discretionary effort. Discretionary effort can only be elicited by encouragement and positive reinforcement of desired behaviors.*
- *Incidents can be avoided by understanding the reasons mistakes occur and applying lessons learned from past incidents. A key component of high performing organizations is a “Just Culture” or “an atmosphere of trust in which people are encouraged, even rewarded, for providing essential safety related information, but in which they are clear about where the line must be drawn between acceptable and unacceptable behavior.”*

Safety is created every day by people negotiating between safety and the other values of our organization in actual operating conditions. Davey Personal Excellence is about leadership and helping people make good decisions in all our offices and all of our job sites.

LG&E/KU Project Duration

- September 19, 2018 through October 20, 2020 (24 Months)

LG&E Project Schedule - Production



Project Volume – By Operations Center

Ops Center	Number of KU Owned Poles (JU and Non-JU)	Number of Foreign Owned JU Poles	Total poles	3-year plan	Year Complete
Shelbyville	26,081	10,242	36,323	1	2018
Richmond	23,541	7,781	31,322	1	2018
LG&E	141,915	45,228	187,143	2/3	2019/2020
London	31,003	7,019	38,022	2	2019
Maysville	33,657	9,683	43,340	2	2019
Norton (ODP)	28,202	8,823	37,025	2	2019
Pineville	29,494	9,050	38,544	3	2020
Earlington	70,099	14,831	84,930	3	2020
Elizabethtown	28,543	4,688	33,231	3	2020
Lexington	69,434	24,671	94,105	3	2020
Danville	33,447	8,756	42,203	3	2020

Field Project Scope

In addition to our safety planning, listed below are the three fundamental field components for project success:

Field Components:

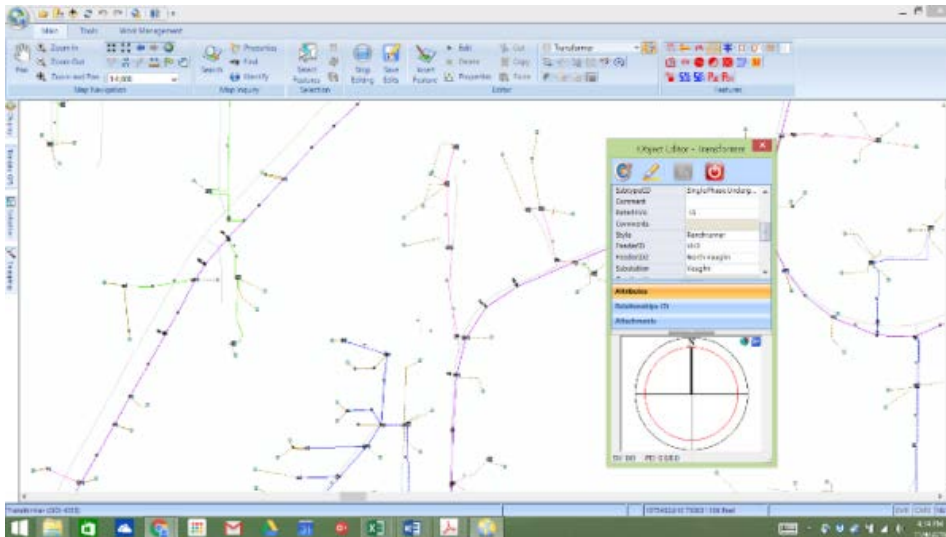
- Data collection equipment and technology
- Field pole audit collection plan
- Field pole audit QC

Data Collection Equipment and Technology

Before the pilot begins, the Davey team will configure the field software applications based on the data source matrix. The data and mapping technicians are equipped with pen-based PCs which are used in the field to gather, store, and process the data. Equipment that will be used in this project is listed below:

Getac F110 Rugged Tablet	
Processor	Intel Core i5-4300U 1.9GHz
Memory	4GB DDR3
Hard Drive	128GB solid state drive
Display	11.6" TFT LCD HD (1366x768) 800 NITs QuadraClear sunlight readable LED display with multi-touch technology
Communication	Intel Dual Band Wireless-AC 7260 (802.11ac), Bluetooth (v4.0 class 1)
Power Supply	AC Adapter (65W, 100-240VAC, 50/60Hz), Hot swappable Dual Li-Ion battery, 461F ready
Camera	5MP autofocus rear camera and webcam (not available on all models)
Operating System	Windows 7 Professional 64-bit
Warranty	3-year bumper-to-bumper warranty - Protects all major system components and even covers accidental damage!
Rugged Rating	MIL-STD-810G, IP65

Clearion Mobile Data Collection Software: Clearion mobile data collection application is a multifaceted data collection tool that allows for the insertion of missing features using GPS as well as spatially correcting existing features with GPS. Our proprietary Clearion version allows for attribute collection and feature association.



Field Pole Audit Collection Plan

LG&E/KU Joint Use Collection

Utilizing source data provided by LG&E/KU divided up by Operation Center, Davey Resource Group will conduct a joint use audit of all LG&E/KU poles defined by this scope of work. All data assumed to be collected below is defined in the outline of attributes. DRG is not responsible for any data outside of the outline of attributes. Specific attributes to be collected can be found in the outline of attributes.

1. The DRG team will use a systematic approach to field data collection of each OP Center in sequence, as identified by LG&E/KU. DRG will work with LG&E/KU to send notifications to attachment companies in each OP Center.
2. DRG Senior Field Technicians will assign work in specified OP Centers to field technicians.
3. DRG Mapping Technicians will visit all pole locations and collect specific information contained within the outline of attributes for each OP Center.
4. Poles not found in the OP Center data set but found in the field will added spatially and DRG will collect specific information contained within the outline of attributes for each feature.
5. The following data will be collected at each Pole:
 1. Confirm Pole owner and Spatial Location
 - i. DRG will reference LG&E/KU pole ownership data and inspect for pole ownership tags or brands that confirm or conflict the source ownership data.
 2. For all poles – in addition to ownership DRG will collect double wood information by identifying idle poles or if communication transfers are needed.

3. For Joint Use poles owned by LG&E/KU, DRG will verify pole ownership and collect attachment data using the outline of attributes.
 4. For Joint Use poles not owned by LG&E/KU, DRG will only verify pole ownership. If pole ownership is unknown through conflict or lack of ownership markers on added poles, then DRG will collect communication attachments as outlined in the outline of attributes. *Communication attachment data will not be collected on foreign owned Joint Use poles.*
 5. For non-JU poles, LG&E/KU is presumed to be the owner, DRG will only collect the attachment counts as outlined in the outline of attributes.
 6. For discovered (added) poles, the following will be collected if visible - Pole height, pole class, pole birthdate, pole material, pole number, any owner tag/brand and joint use data. *DRG will keep a running tally of discovered (added) poles in project reports.*
 7. Communication Attachment Data – For the attachment counts, LG&E/KU count the following items as separate attachments:
 - i. Bolted cable (mainline attachment)
 - ii. Service drop (j-hook) when attached more than 6” above or below the bolted cabled (mainline attachment)
 - iii. Service drop (j-hook) when attached without a bolted cable (mainline attachment)
6. Quality assurance procedures will be performed in the field on data.
7. DRG will complete final data verification and then deliver the information in the required database format. Per LG&E/KU excel spreadsheets will be acceptable delivery formats.

Field Pole Audit QA/QC

As data verification/collection proceeds, DRG will provide the following as quality assurance (QA) and quality control (QC):

- DRG personnel will see all appropriate GIS data while in the field performing the verification/inventory. The GIS Field Technicians will not have all data as DRG experience has shown it is necessary to force data on some attributes.
- DRG Clearion mobile field data collection software will be configured to ensure accurate and complete data capture including valid value lists, intra-record multi-attribute dependencies, conditional logic, restricted data entry, and free formatted text, as well as database table relationships.
- Field data will be uploaded nightly for backup and processed when a circuit is completed in the field.
- Quality assurance check files are generated based on programmatic and visual validations of data.
- When initially assigned to the project, DRG GIS mapping technicians will have ten percent (10%) of their fieldwork randomly checked by a QA/QC GIS mapping technician and moving to a minimum of three percent (3%) once work quality has been established.

- Check files are returned to the field for final review by specific QA/QC personnel. All questions of data accuracy are resolved to meet the client expectation of 97% accuracy during this final review and data validation reports are available if requested by the client.

Report Dangerous/Hazardous Field Conditions

DRG will report the specific observed dangerous/hazardous field conditions listed below to LG&E/KU. “Urgent” field conditions are those occurrences are limited to those identified below.

1. LG&E/KU and DRG will define the “urgent” conditions as::
 - Large tree limb on primary conductor.
 - Down Primary or Neutral line
 - Down Pole
2. DRG will immediately call the LG&E/KU representative and report the problem. DRG will stand by until cleared by LG&E/KU personnel. Extended standby time may be billed to LG&E/KU at an hourly rate. All DRG personnel will have the contact information of the LG&E/KU representative.
3. DRG will keep a log of all “urgent” reports called in to LG&E/KU.

Project Tracking and Reporting

The Davey team strives to provide clarity and visibility into all aspects of the project. Our team believes that it is critical for the client to have access to the status of the facilities as they are collected.

As part of the project, Davey will configure and supply weekly project reports. This report will summarize many Key Performance Indicators and allow the project team to track the progress of each system under review. See sample report below...

Sample/DRG-9/05/2018 Weekly Report

Report Period	08/27/18 to 08/31/18
Distribute to	LGE/KU: Lafollette, John <John.Lafollette@lge-ku.com> DRG: Carla Waldron, Kevin Kirkwood, Bill Ash, Jordan Caspell
Prepared by	DRG: Nathan W Post

Safety Report:

- All work completed safely for week ending 9/1/2018
- No OSHA recordable incidents.
- No other incidents.
- No near misses.

Current Staff Assignments:

Name	Email	Phone	Feeder

Project Metrics:

- Features mapped last week = *Note this number is based on GPSed features
- Features mapped to date = *Note this number is based on GPSed features

Activities scheduled for this week:

- 1. Production:
- 2. QA/QC:
- 3. Delivery:

Activities scheduled for next week:

- 1. Production:
- 2. QA/QC:
- 3. Deliveries:

Action items:

Status per OP Center

Delivery

DRG will provide as deliverables Shapefiles for new poles/DNE/Poles Not Found and tabular deliveries for attachment data. DRG will adhere to a monthly delivery schedule for poles completed and delivered within each OP Centers.

Invoicing

DRG will invoice LG&E/KU each month for work completed. For example: DRG will identify a monthly deliverable date range (9/17-10/12, say.) DRG delivers the data on the last day of the range (or on the next business day, if that's more realistic/convenient). The invoice would read:

Invoice	for	Joint	Use/Pole	Attachment	Audit
	Data delivery	001—Delivered	10/12/2018	(or the next business day)	

LG&E/KU will request a PO based on the cost of each deliverable and LG&E/KU will pay the invoice within 30 days.

Using the example dates above, the next deliverable period would begin on 10/15 and end on 11/9. That batch of data would be delivered on 11/9 (or the next business day). The invoice for that period would read:

Invoice	for	Joint	Use/Pole	Attachment	Audit
	Data delivery	002—Delivered on	11/9/2018	(or next business day)	

Outline of Attributes

Feature Class	DRG Field Name	DRG Field Type	DRG Domain
Pole			
	Pole_Type	Short Int	PoleType - 3 - Joint, 4- NonJoint, 77 - DNE/Not Found, 88 - No Access, 99 - Added by Mistake
	Symbology	Short Int	PoleSymbology - 1 - Not Audited, 2 - Audited, 3 - Added, 55 - Exception, 66 - QC, 77 - DNE, 88 - No Access, 99 - Added by Mistake
	Pole_Use_Type	Text (128)	LGE_OperatingClass - Transmission, Distribution, Secondary, Service, Unknown
	Pole_Number	Text (25)	
	Height	Long Int	PoleHeight - 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100, 88 - Other, 99 - Unknown
	Class	Text (3)	LGE_PoleClass - 1 - 1, 2 - 2, 3 - 3, 4 - 4, 5 - 5, 6 - 6, 7 - 7, 8 - 8, 9 - 9, 10 - 10, 11 - H1, 12 - H2, 13, H3, 14 - H4, 15 - H5, 16 - H6, 88 - Other, 99 - Unknown
	Birthdate	Date	dd/mm/yyyy
	Material	Text (20)	LGE_PoleMaterial - WOOD, UNKNOWN, STEEL, FIBERGLASS, CONCRETE, CAST IRON, BRONZE, ALUM
	Foundation	Text (15)	Foundation - Direct Burial, Pedestal, Poured Pad, Unknown
	Reinforced	Text (20)	Reinforced - Yes, No, Unknown, Truss, Wood pole, Fiber wrap, Mod Pole
	OriginalTreatment	Text (50)	LGE_OriginalTreat - CCA, CREOSOTE, GALV, PENTA, WEATHERING, OTHER, UNKNOWN
	Doublewood	Short Int	Doublewood - 1 - None, 2 - Needs Transfer, 3 - Idle New, 4 - Idle Old
	Pole_Owner	Text - L = 40	List from Client - Pole Owner Tab
	Owner_Tag	Short Int	Yes, No
	Conflict_Tag	Text - L = 40	List from Client - Pole Owner Tab - Default = None
	Owner_Brand	Short Int	Yes, No

	Conflict_Brand	Text - L = 40	List from Client - Pole Owner Tab - Default = None
	Conflict	Short Int	Yes, No
	ClientID	Text (50)	
	Operation Center	Text(100)	
	LocalArea	Text(100)	
	Comment	Text (200)	
	QC_Issue	Text (Max 250)	
	Audit_User	Text (50)	
	Audit_Date	Date	
	Update_User	Text (50)	
	Update_Date	Date	
	PoleGUID	Guid	
	ESRIGNSS_LATITUDE	Double	
	ESRIGNSS_LONGITUDE	Double	
	ESRIGNSS_RECEIVER	String(50)	
	GlobalID	Global ID	
	created_user	Text (255)	
	created_date	Date	
	last_edited_user	Text (255)	
	last_edited_date	Date	
	OBJECTID	Object ID	
	SHAPE	Geometry	
Related Table to Pole	DRG Field Name	DRG Field Type	DRG Domain
ForeignAttacher			
	Owner	Text (100)	List From Client - LGEAttachOwner - AttachOwner tab for full list
	Attach_Type	Text (100)	LGEAttachType - Communications, Supervisory Cable, CATV, DAS, Fire Alarm, Police Camera, Traffic Signal, Telegraph, Acoustic Sensor, Wireless Antenna, Riser
	Drop_Only	Short Int	YesNoInt - 1 - Yes, 2 - No
	Guy_Only	Short Int	YesNoInt - 1 - Yes, 2 - No
	Needs_to_Attach	Short Int	YesNoInt - 1 - Yes, 2 - No

	Needs_to_Transfer	Short Int	YesNoInt - 1 - Yes, 2 - No
	Overlash	Short Int	YesNoInt - 1 - Yes, 2 - No
	ClientID	Text (50)	
	Comment	Text (200)	
	QA_Count	Short Int	Domain - QACount - 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10
	QA_Complete	Short Int	YesNoInt - 1 - Yes, 2 - No
	Audit_User	Text (50)	
	Audit_Date	Date	
	Update_User	Text (50)	
	Update_Date	Date	
	QA_User	Text (50)	
	QA_Date	Date	
	REL_GLOBALID	Guid	
	ForeignAttacherGUID	Guid	
	GlobalID	Global ID	
	created_user	Text (255)	
	created_date	Date	
	last_edited_user	Text (255)	
	last_edited_date	Date	
	OBJECTID	Object ID	

New LG&E/KU Pole Tag 1



Old LG&E/KU Pole Tag/Birthmark



New LG&E/KU Pole Tag 1



AT&T Owner pole tag 2



AT&T Owner pole tag 2



Attacher Notes:

1. Windstream/KDL sleeves - How to call (Windstream)
2. All Time Warner = Spectrum
3. Insight = Spectrum
4. Review updated attacher list - Nicholas Wise (Will resolve 1-3)
5. Verify if multiple riser records are needed when more than 1 riser is attached to pole.

Pole Owner:

1. GTE South = Windstream
2. Double Ownership Tagged poles found
3. Add 'Conflict' to Pole_Owner domain - Use this for double tagged poles or when source and field differ.

Outage notification:

1. From Nicholas Wise - Outage center process
2. List of field crews, names and number

Access:

1. KU Keys for locks. Kevin Lewellen to follow up
2. Talking points card for field staff - John Laffollette

Invoicing:

1. PO Number - Nathan John on details

Primary Metering :

1. If source for locations after PM is missing or poles have 'Customer Owned' Ownership...,do not collect/add poles.

Manual Pics:

1. Add Owner tags, Owner brand, Wireless Antenna (Fiber tech, Crown Castle, AT&T, Mobility)

Delivery:

1. Shapefiles for new poles/DNE/Poles Not Found and tabular for attachment data. Identify delivered poles by OP Center for invoicing.

Pilot Meeting Notes 10/12/2018

1. More poles in shapefile than attacher sheet are Foreign owned JU poles

2. Request from LG&E/KU
 - a. Add attacher data to shapefile (Not possible) but option for Personal GDB. LGE to review this request on their end and DRG will hold off.
 - b. Add pole owner name and pole number to attacher spreadsheet.
3. Pilot data accepted with requested changes 2b.

**Attachment pages provided under
confidential seal have been removed.**

REVISED PRICING

1/24/2018

Davey Resource Group is pleased to offer the following revised pricing below.

Company requests pricing in a per-pole format.

Please provide a summary of your pricing proposal for all services related to the delivery of your solution including any equipment, vehicle, mileage, etc.

Item	Description	Unit	Quantity	Total
1 -2 Year Completion	Per Pole Audited	█	629,163	█
2 Years Completion	Per Pole Audited	█	629,163	█
3 Years Completion	Per Pole Audited	█	629,163	█

Pricing is inclusive of all personnel, equipment, housing, and management to complete the work on time and within the specifications.

+ 24 Month Completion

Description	Number of Poles	Per Unit	Proposed Project Total	Notes
LGE Joint Use	220,583	█	█	LGE Owned Joint Use Poles ONLY with Ownership determination and attachment count by space on pole
0Foreign Joint Use	141,949	█	█	Foreign Owned Joint Use Poles ONLY with Ownership determination
LGE Non-Joint Use Poles	266,631	█	█	LGE Owned Non Joint Use Poles ONLY; automatically determined to be owned by LGE
Total	629,163	█	█	

KENTUCKY UTILITIES COMPANY

**Response to First Requests for Information of
Charter Communication Operating, LLC
Dated November 13, 2018**

Case No. 2018-00294

Question No. 14

Responding Witness: John K. Wolfe

- Q-14. Explain the basis for the penalty You propose for Unauthorized Attachments in Terms and Conditions of Attachment No. 19.
- a. Explain the basis for and provide data related to how You will determine whether an Attachment is authorized or “unauthorized.”
 - b. Explain the basis for and provide data related to Your assumption that unauthorized attachments have been affixed to Company Structures for two years or since completion of the most recent audit.
 - c. Explain how you determined the amount of Your proposed penalty.
 - d. Provide all data related to the cost basis of Your proposed penalty.
 - e. Provide information and data related to any and all costs incurred by You to address unauthorized attachments.
 - f. Please provide any reports, analysis, or studies related to costs You incur as a result of any unauthorized attachments.
- A-14. See the response to PSC 2-9(a).
- a. KU is not proposing to change how unauthorized attachments are identified. Following the completion of the current attachment audit, KU will compare the results of the audit to its attachment count records for each Attachment Customer. Attachments discovered in the audit in excess of the count on record are presumed to be unauthorized attachments, as prescribed in Rate PSA.
 - b. See the response to PSC 2-9(b).
 - c. See the response to PSC 2-9(a).
 - d. See the response to PSC 2-9(a).

- e. KU does not track the requested information as KU does not currently have a mechanism to recover those costs.
- f. KU has not performed any reports, analysis, or studies related to the requested information.

KENTUCKY UTILITIES COMPANY

**Response to First Requests for Information of
Charter Communication Operating, LLC
Dated November 13, 2018**

Case No. 2018-00294

Question No. 15

Responding Witness: John K. Wolfe

- Q-15. Explain the basis for Your proposed requirement that, if an Attachment Customer proposes to attach a Wireless Facility or Facilities to a Structure, it must post Performance Assurance in the amount of \$1,500 for each pole to which a wireless attachment is attached.
- a. Provide all data related to the basis for Your proposed requirement that, if an Attachment Customer proposes to attach a Wireless Facility or Facilities to a Structure, it must post Performance Assurance in the amount of \$1,500 for each pole to which a wireless attachment is attached.
- A-15. There is a risk of damage or disruption to KU facilities and service during a Wireless Facility installation. Furthermore, if an Attachment Customer defaults under the attachment customer agreement, the Attachment Customer has no incentive to remove the Wireless Facility or pay for its removal. The Performance Assurance provided for in Rate PSA mitigates this risk.
- a. KU estimates that it will cost \$1,405.32 to remove the typical Wireless Facility attachment on a KU primary distribution pole. LG&E estimates that it will cost \$1,834 to remove the typical Wireless Facility attachment on a LG&E primary distribution pole. If the removal also involves the removal of the electric service and requires ground reclamation, the estimate increases to \$1958.00. Based on these estimates, \$1,500 was determined to be a reasonable, if not customer-friendly, bond amount that is uniformly applied for Wireless Facility Attachments made to KU and LG&E structures.