

**Kansas City Power & Light Company  
2017 Annual Missouri Vegetation Management Report  
Pursuant to 4 CSR 240-23.030**

**KCP&L Greater Missouri Operations Company  
2017 Annual Missouri Vegetation Management Report  
Pursuant to 4 CSR 240-23.030**

**TRANSMISSION and DISTRIBUTION RIGHT-OF-WAY  
VEGETATION MANAGEMENT PROGRAM<sup>1</sup>**

**March 29, 2018**

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<sup>1</sup> This program document applies to vegetation maintenance of Kansas City Power & Light Company's ("KCP&L") and KCP&L Greater Missouri Operations Company's ("GMO") transmission and distribution power lines. It meets the requirements of the Missouri Public Service Commission Rule 4 CSR 240-23.030 *Electrical Corporation Vegetation Management Standards and Reporting Requirements*. KCP&L, by operating agreement, provides vegetation management services to GMO.

## **2017 Annual Vegetation Management Report**

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## **2017 Annual Vegetation Management Report**

### **Confidential Information and Data**

This report contains information that falls under the definitions of Confidential Information, Critical Energy Infrastructure Information, and/or Critical Infrastructure under the *Rules of Procedure of the North American Electric Reliability Corporation*, Section 1500. In light of the requirements to maintain the confidentiality of information and data that falls under Section 1500, portions of this report are marked as Confidential.

### **1.0 Introduction**

Kansas City Power & Light Company (“KCP&L”) and KCP&L Greater Missouri Operations Company’s (“GMO”) Transmission and Distribution Vegetation Management Program (“Program”) report presents the strategy, key processes, and guidelines for orderly, uniform, safe, and efficient management of KCP&L’s and GMO’s overhead delivery systems. The report reflects vegetation management performed in 2017 and planned for 2018; also, the report describes removal, trimming and spraying methods. The Program is dynamic in nature and, at times, requires adjustment to conform to performance as measured by tree-related service reliability; to take advantage of opportunities to gain efficiency; to incorporate customer feedback; to address changes in regulatory initiatives; and to address other program drivers.

### **2.0 Safety and Reliability**

KCP&L’s and GMO’s Program promotes safe and reliable electric service. Beyond compliance and requirements of a robust vegetation maintenance program under 4 CSR 240-23.030 and the National Electric Safety Code Vegetation Management Section 218 (2007), regular vegetation management mitigates service interruptions and reduces potentially dangerous conditions, like downed power lines.

Crews performing vegetation management working on or near KCP&L and GMO facilities, rights-of-way (“ROW”), or easements are required to follow approved safety guidelines and procedures. Contractors performing vegetation management work are contractually required to comply with government safety and health regulations, and KCP&L’s own safety and health standards.

Contractors must, prior to work commencing and at all times during the course of their work, have processes and procedures in place to maintain awareness of the nature and characteristics of KCP&L’s and GMO’s electric facilities. Foundational to safety is the contractors’ understanding that KCP&L’s and GMO’s electric facilities are energized during the performance of their work unless, prior to the work commencing, arrangements are made with an authorized KCP&L representative to de-energize the facilities.

KCP&L and GMO are pleased to report that in 2017 no incidents occurred resulting in death or life-threatening or serious injury to persons assigned to perform vegetation management activities or to the public.

### **3.0 Vegetation Manager**

KCP&L employs a vegetation manager to oversee KCP&L's and GMO's Program, ensuring regulatory compliance and implementation of the Program described in this report.

### **4.0 Distribution Vegetation Management Program Strategy**

#### **4.1. Program Objectives**

The Program's distribution system objectives are: to promote and maintain safe operation of the distribution system; to support system reliability; to ensure optimum use of resources; and to ensure compliance with regulatory requirements. The Program seeks to achieve these objectives, and reduce outage risk, by managing vegetation; trees, and other vegetation, left unmanaged, impact the number of service interruptions and service restoration efficiency. The Program strategy focuses on maintenance activities that reduce outage risks associated with trees growing into distribution lines and risks associated with trees breaking and then falling onto distribution lines.

#### **4.2. Maintenance Scheduling Strategy**

The Program's maintenance scheduling strategy considers: time-based maintenance intervals; voltage; historical reliability; potential vegetation interference of energized lines; and a comparison from year-to-year of the impact on safety and service reliability. Maintenance cycles of distribution lines are based on customer density—urban versus rural<sup>2</sup>. Mid-cycle line inspections of primary distribution lines are scheduled to identify conditions requiring maintenance in advance of the regular primary cycle.

Table 1: Missouri Cycle Lengths in Years

<b>Circuit Description</b>	<b>Primary Cycle Length (Years)</b>	<b>Mid-cycle Inspection/selective Tree Maintenance (Years)</b>
Urban Circuits	4	2
Rural Circuits	6	3

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<sup>2</sup> Urban circuits are defined as those with customer density equal to or greater than 35 customers per line mile. Rural circuits are defined as those with customer density less than 35 customers per line mile. 4 CSR 240-23.030(1)(G) and (J).

Primary maintenance cycles result in maintenance of 25-percent of total urban distribution miles on an annual basis and 25-percent of rural distribution miles on an 18-month cycle.

#### **4.3. Tree Selection Criteria**

KCP&L uses a strong prescriptive maintenance approach to tree selection. Professional utility arborists are assigned to create work plans designating specific vegetation for pruning, removal, or treatment by contract crews. Trees are selected based on risk factors, avoiding indiscriminate and wholesale maintenance decisions simply based on a fixed-distance-from-conductors criterion. Trees selected for pruning or removal are characterized as exhibiting observable and predictable threats that pose significant threats to service reliability. Also, trees exhibiting only some of the risk factors may be pruned or removed in anticipation of impacting service reliability.

General selection criteria for tree maintenance include:

- Potential to cause service interruption by growth into or across energized conductors prior to the next scheduled inspection or trim cycle;
- Obvious defects that predispose the tree to failure and damage to electrical facilities; and/or,
- Dead or broken branches hanging over electrical facilities.

Selection factors considered include:

- The natural growth rate of the tree;
- The expected re-growth rate following pruning of the tree;
- The relative wood strength of the tree species and potential for breakage;
- Voltage, construction type, conductor spacing, and conductor covering;
- Legal right to access the area;
- Extent of defects (decay, splits, weak branch attachments, etc.), customers served by the line, and potential for tree limbs or trunks to strike primary conductors in the event they break or fall; and/or,
- Sag of conductors at elevated temperatures and under wind and ice loading and combined displacement of vegetation, supporting structures, and conductors under adverse weather or routine wind conditions.

Trees affecting secondary service lines are the property owner's responsibility and not normally maintained. However, as part of the primary scheduled maintenance cycle, trees growing into service lines may be maintained to avoid deflection of secondary voltage conductors by tree limbs.

#### 4.3.1 Tree Removal (trees larger than 4 inches diameter)

Tree removal, together with stump treatment to prevent re-sprouting, provides permanent clearance, eliminates the potential for removed trees to break and cause damage, and reduces future maintenance costs. However, neither is it practical, environmentally desirable, or welcomed by property owners to remove all trees that affect power lines. Consequently, designation of trees selected for removal is based on cost effectiveness, failure risk, and signed permission of the property owner.

Trees may be designated for removal if:

- Pruning will result in a significant adverse impact on the health of the tree;
- The tree is a hazard tree that poses an unacceptable risk to overhead lines; and/or,
- It is economically advantageous to remove rather than periodically prune the tree.

#### 4.3.2 Hazard Trees

Structurally unsound trees, on or off the easement or ROW, that can fall into electrical conductors are evaluated for possible removal. Hazard tree conditions can include, but not limited to, the following symptoms:

- Dead or dying
- Severe lean
- Weak branches
- Root failure
- Cankers
- Conks (fungal fruiting bodies)
- Internal decay

#### 4.3.3 Brush and Vines (trees smaller than 4 inches diameter)

Removal and/or treatment of small-size brush with herbicides is a cost-effective method of reducing future maintenance costs before the brush grows large enough to affect power lines. Brush growing below conductors is designated for removal and stump treatment, mowing, foliar treatment, or individual stem treatment prior to growing to wire height and when it can be cost effectively treated. Vines observed growing on poles and guy wires are selected for cutting and treatment with approved herbicides. Pruning brush should be avoided.

#### 4.3.4 Integrated Vegetation Management (IVM)

KCP&L utilizes principles of Integrated Vegetation Management ("IVM") to control brush on distribution ROW. IVM is an approach

that considers the use of mechanical mowing, hand cutting, and herbicide applications, together with the benefits of biological control to manage undesirable woody vegetation on a ROW. The responsible, targeted use of herbicides is an important component of this approach.

Foliar application of herbicides for control of ROW brush on ROW, as well as basal and cut stump methods, will be used when appropriate. Cut stumps should be treated with an effective herbicide mixture to prevent re-sprouting. Small diameter brush stumps should be treated unless a follow-up foliar application is scheduled.

In rural locations, herbicide application may be scheduled to occur one to two years in advance of tree maintenance. Brush stems missed during herbicide application can be retreated or cut during the tree maintenance cycle. If brush is too tall to control with herbicides and requires hand cutting or mowing, herbicide application should be scheduled approximately one growing season following cutting.

#### **4.4 Contracting Strategy**

KCP&L contracts with several utility tree maintenance contractors as opposed to performing vegetation maintenance exclusively with its own personnel. Contracts are written to combine time and equipment with performance-based components.

#### **4.5 Customer Relations**

##### **4.5.1 Customer Inquiries**

Customer inquiries generated through KCP&L's Customer Care Center, or other channels, are responded to by the appropriate vegetation management individual by personal meeting, telephone, or letter. Requests for tree trimming, removal assistance, or other requests are evaluated by inspection prior to assignment of work to a maintenance crew. Service provided to customers who request assistance with tree removal for the customer's convenience, normally includes removal of overhanging branches and all limbs within 10 feet of energized conductors. Any debris is left at the worksite.

##### **4.5.2 Property Owner Notification**

KCP&L notifies affected property owners or occupants of pending tree maintenance. Notification is by a combination of personal contact, door hangers, or mailings at least seven days, but not more than, 90 days prior to performing scheduled maintenance.



#### 4.5.3 County and Municipal Notification

KCP&L notifies appropriate county and municipal officials in writing at least two months in advance of planned vegetation management work in their respective jurisdictions. The notice includes planned dates and locations of scheduled vegetation maintenance and other information relevant to the particular municipality or county. The primary contact for each municipality or county is selected by mutual agreement between KCP&L and the highest elected official in the jurisdiction or highest appointed official if there is no elected official.

#### 4.5.4 Public Outreach

KCP&L provides information to the public through its website, publications, and community events, regarding its vegetation management program and appropriate trees to plant near overhead lines. Also, KCP&L annually mails information to KCP&L and GMO customers regarding vegetation management.

### 4.6 **Vegetation Management Practices**

#### 4.6.1 Industry Standards

Vegetation management contractors are required to comply with federal, state and local laws and regulations, including those of the U.S. Occupational Safety and Health Administration. Also, vegetation management contractors are required to follow industry safety standards such as, the *American National Standards Institute (ANSI) Z133.1 – 2006, Pruning, Trimming, Repairing, Maintaining, and Removing Trees and Cutting Brush – Safety Requirements, 2006. ANSI A-300 (Part 1) - 2001 Tree, Shrub and Other Woody Plant Maintenance – Standard Practices*—a requirement as it applies to utility tree pruning. Furthermore, contractors are required to implement the pruning concepts presented in the booklet, *Pruning Trees Near Electric Utility Lines*, by Dr. Alex L. Shigo.

#### 4.6.2 KCP&L Vegetation Management Guidelines and Clearance Standards

KCP&L Vegetation Management Guidelines, Appendix A, provide guidance to the performance of work by the vegetation management contractors. Included as part of the guidelines are standards for clearance at the time vegetation is maintained. For conductors energized at 600 to 50,000 volts, the minimum required clearance is 10 feet or clearance to the edge of the ROW, whichever is less. Mature trees, whose trunks or limbs have sufficient strength and rigidity to prevent the trunk or limbs from damaging the conductor under reasonably foreseeable wind and weather conditions, may be retained within 10 feet of conductors.

#### 4.6.3 Post-Work Inspection and Acceptance

KCP&L, as part of its contract management process, inspects work following completion by vegetation maintenance contractors and prior to final acceptance. This inspection/audit process ensures the work performed is of acceptable quality, completeness, and consistent with work plans and specifications.

### 4.7 **Reports and Record Keeping**

#### 4.7.1 Operational Reporting

Complete records and reporting are important to effective management of vegetation management programs. Records are maintained to identify key aspects of the vegetation management program, to document program performance, and provide information necessary for ongoing program management, including:

Completed work data (substation and circuit designation, date worked, crew size, supervisor and type of work performed);

Cost metrics (cost per mile, cost per circuit, scheduled work, reactive work, etc.);

Contractor performance (man-hours per unit, miles completed, schedule attainment, etc.);

Schedule of future work by substation and circuit; and,

Safety hazards encountered by contractors and OSHA reportable events or accidents.

#### 4.7.2 Regulatory Reporting

KCP&L and GMO submit quarterly and annual reports to the Missouri Public Service Commission ("MPSC"). The quarterly report is submitted approximately six weeks after the quarter ends. It is required under the terms of KCP&L's and GMO's *Non-Unanimous Stipulation and Agreement* (Case Nos. ER-2008-0089, ER-2009-0090, respectively.), and provides data regarding Program expenditure, miles planned, and miles completed on the distribution and transmission systems.

The annual report—the instant report—is filed with the MPSC on or before April 1<sup>st</sup> of each year pursuant to 4 CSR 240-23.030. It summarizes the vegetation management program success for the previous year, a plan for the current year, and an affidavit, verified by an officer with knowledge of the matters stated therein. Similarly, to the quarterly reports, the annual report includes:

- vegetation management expenditures for the preceding year;
- vegetation management budget for the current year;
- circuits, completion dates, and miles trimmed in the preceding year;

- circuits, completion dates, and miles scheduled for the current year; and,
- total distribution miles for the system and corresponding classification between rural and urban.

KCP&L and GMO understand material changes contemplated in vegetation management scope, guidelines, or standards are to be filed with the MPSC no later than thirty (30) days prior to implementing the change, and verified by affidavit of an officer with knowledge of the matters stated therein. Additionally, KCP&L and GMO will report to the MPSC a failure to meet requirements under the *Electrical Corporation Vegetation Management Standards and Reporting Requirements* (4 CSR 240-23.030) within 30 days of discovery and include a mitigation plan for the irregular operation.

**AFFIDAVIT OF KEVIN NOBLET**

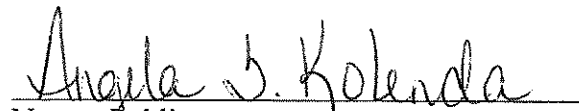
STATE OF MISSOURI     )  
                                      )Ss  
COUNTY OF JACKSON    )

Kevin Noblet, being first duly sworn on his oath, states:

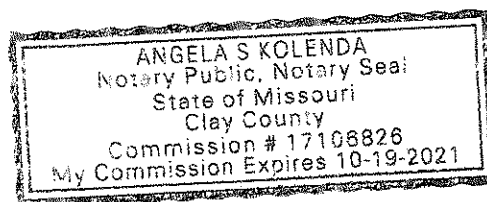
1.     My name is Kevin Noblet. I work in Kansas City, Missouri,  
and I am employed by Kansas City Power & Light Company as Vice President,  
Delivery.
2.     I have knowledge of the matters set forth in *Kansas City Power & Light  
Company 2017 Annual Missouri Vegetation Management Report Pursuant to  
4CSR 240-23.030*.
3.     I hereby swear and affirm that the report is true and accurate to the best of  
my knowledge, information and belief.

  
\_\_\_\_\_  
KEVIN NOBLET

Subscribed and sworn before me this 22<sup>nd</sup> day of March 2018.

  
\_\_\_\_\_  
Notary Public

My Commission expires: 10-19-2021



## APPENDIX A – KCP&L's and GMO's DISTRIBUTION LINE CLEARANCE GUIDELINES

### About This Guideline

*KCP&L's and GMO's Distribution Line Clearance Guidelines* ("Guidelines") are intended as a contractor's guide to implement KCP&L's and GMO's Distribution Vegetation Management Program. The Guidelines' underlying principle is that each tree, and tree species, has its own unique growth pattern, condition, proximity to conductors, structures and other obstacles, and will require the exercise of professional judgment in implementing the guidelines.

The Guidelines apply to vegetation management of KCP&L's and GMO's distribution system, including voltages from 600 to 35,000 Volts. The Guidelines are not intended as personal safety guidelines.<sup>3</sup>

#### (1) Introduction

A copy of the Guidelines and the book, *Pruning Trees Near Electric Utility Lines*, by Dr. Alex L. Shigo shall be kept on each crew truck and available at every work location.

The Distribution Vegetation Management Program (hereinafter called the "Program") objective is to help maintain safe, reliable, and least cost electric service, while complying with all regulatory requirements. The Program helps achieve this overall objective by efficiently managing vegetation to reduce outage risk. Left unmanaged, trees and other vegetation can become a leading source of power interruptions during non-storm events and can delay outage restoration associated with major and regular weather events. The Program's strategy focuses on maintenance activities that help reduce tree-caused outage risks associated with trees that grow into lines and risks associated with trees breaking and falling onto lines.

The objectives of the Program are to be achieved within the framework of positive customer relations and using sound environmental practices. The Program also provides incentives to the Contractor to exceed specific production and quality criteria. On the other hand, the Program penalizes Contractors for failing to maintain specific production and quality criteria. KCP&L, and/or its designated representative, is exclusively responsible for program oversight.

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<sup>3</sup> While the Guidelines may comment on safety issues, Contractors and their crews performing vegetation management work on or near KCP&L and GMO facilities, rights-of-way, or easements are contractually required to follow government safety and health regulations and KCP&L's own safety and health provisions.

## **(2) Line Clearance Guidelines**

### **(A) Pruning and Removal Guidelines**

All tree pruning shall be governed by approved principles of modern arboriculture and shall adhere to industry standards, including, ANSI A-300 and Z-133 standards and the natural pruning method. KCP&L representatives, in certain cases, can grant exceptions to these pruning standards where mechanical trimming equipment is used. Pruning shall be done in a manner that protects current tree health and with regard for future growth and development.

### **(B) Voltages**

Vegetation management for voltages of 35,000 volts and higher are considered to be transmission voltages and are deferred to the Transmission Program.

Vegetation management for distribution lines energized at 35 kV and below are maintained by the Program. Primary voltages range from 600 to 34,500 volts, and are further defined as follows: Backbone consists of three energized conductors, and Lateral consists of one or two energized conductors. Conductors with voltages of less than 600 volts are considered secondary voltage. The neutral wire has the potential to carry primary voltage, which CONTRACTOR shall take into consideration when clearing primary lines.

### **(C) Clearance for Primary voltages**

For primary conductors, radial clearance to be achieved at the time of maintenance is 10 feet. Sub-transmission lines and Backbone lines shall be trimmed vertically to remove overhanging limbs to the widths prescribed in paragraphs (2)(C)1. Any tree affecting or potentially affecting a primary distribution line shall be trimmed to help maintain reliable service. The following factors are considered during the clearance process: The natural growth rate per species; the re-growth rate of the tree species (how fast the branches grow back after pruning), see Section 9 "Tree Re-growth Rates;" the wood strength of the tree species (what is the chance of the branch breaking under the load of strong wind, snow, ice); the voltage conducted by the line (the risk presented by the branch contacting the line; the higher the voltage, the greater the risk); branches rubbing insulated wires and broken or hanging tree branches.

The radial clearances in subsection (2)(C) are minimum clearances that should be established between the vegetation and the energized conductors and associated live parts where practicable. Vegetation management practices may make it advantageous to obtain greater clearances than those listed. In the event that the specific trimming conflicts with any other materials within this section, the strictest rules shall apply. Notwithstanding any provision to the contrary in this section (2), mature trees whose trunks or limbs have sufficient strength and rigidity to prevent the trunk or limbs from damaging the conductor under reasonably foreseeable wind and weather conditions are exempt from the minimum clearance requirements in this section (2). Minimum clearances may be subject to limitations of right-of-way width or legal access. All dead

wood shall be removed when it is a risk to conductors or when the KCP&L directs the CONTRACTOR to do so.

(D) Clearance considerations for Secondary Conductors, (600) volts or less

Open Wire secondary shall be cleared to the same standards as lateral primary conductors. Triplex, street light and service lines shall be cleared only to remove **hard contact**, or deflection of the line's intended path. All dead wood shall be removed when it is a risk to conductors or when KCP&L directs the CONTRACTOR to do so.

(E) Clearance considerations for other electrical equipment

The neutral wire has the potential to carry primary voltage, which CONTRACTOR shall take into consideration when clearing primary lines. Guy Wires and poles shall be cleared on a case by case basis as determined necessary during field inspection, to free them from weight, strain, or displacement caused by contact with trees. All dead wood shall be removed when it is a risk to conductors or when KCP&L directs the CONTRACTOR to do so.

(F) Removal Considerations for trees greater than 4" DBH

If the amount of tree crown to be removed in order to obtain adequate clearance will have an adverse impact on the overall long term health of the tree, the tree will be considered for removal. Tall-growing trees within the width of the right-of-way shall be considered for removal. Hazard trees that pose a risk to the utilities overhead facilities shall be considered for removal. Hazard tree conditions could include, but are not limited to the following symptoms: Dead or dying, severe lean, weak branches, root failures, cankers, conks or internal decay. All removed trees should be cut as close to the ground as practical and chemically treated to prevent resprouting. Trees where the cost of removing is equal to or less than the cost of trimming shall be considered for removal.

(G) Brush considerations

Brush is defined as any tall growing tree that is less than 4" DBH. Brush also includes vines growing on or around KCP&L and GMOs' overhead facilities. Brush that has been planned to be removed shall be basal treated or cut as close to ground level as practical and chemically treated to prevent resprouting. Vines shall be cut off approximately one foot above ground level. All vines shall be treated with herbicides below the cut. Brush (as defined in (2)(G)1) that has been selected for removal and is located within the width of the right-of-way shall be removed and treated. Second growth from stumps cut on previous pruning cycles shall be removed if it has been planned.

(H) Debris disposal

Unless specified otherwise, CONTRACTOR shall dispose of all debris resulting from scheduled maintenance work. Wood too large to be chipped shall be cut into fireplace lengths (approximately 18" lengths) and stacked on-site unless the homeowner

requests the wood to be removed. CONTRACTOR shall remove all debris produced from scheduled maintenance within 5 business days, unless property owner gives consent to leave debris. Disposal of chips, wood and brush is the responsibility of the contractor. Any debris resulting from outages and/or storms will be left on site.

#### **(I) Herbicide treatment**

The CONTRACTOR shall provide all necessary herbicide products and comply with applicable laws regarding the application, storage and handling. The CONTRACTOR shall use the most effective herbicide available for any given situation to prevent regeneration of vegetation and subject to approval by KCP&L. The applicable MSDS shall be submitted as part of the approval process. Herbicides shall be applied according to manufacturer instructions. Consideration must be given to the surrounding vegetation and soil conditions to prevent damage to other growth or surface water or ground water. CONTRACTOR shall warranty herbicide treatment for one (1) year after application and remedy any new growth identified.

### **(3) Maintenance Cycle**

#### **(A) Missouri Maintenance Cycle**

Urban circuits are defined as circuits with a customer density equal to or greater than 35 customers per line mile. Rural circuits are defined as circuits with customer density less than 35 customers per line mile. Urban circuits, both backbone and lateral, shall be maintained on a four (4) year cycle. Rural circuits, both backbone and lateral, shall be maintained on a five (5) or six (6) year cycle. Urban circuits shall be inspected every two (2) years. Where needed, vegetation maintenance will occur in a timely manner. Rural circuits shall be inspected at least every three (3) years. Where needed, vegetation maintenance will occur in a timely manner.

### **(4) Outage/Storm Response**

#### **(A) On-Call/Call Out**

In the event of an emergency and when specifically requested by KCP&L, contractors shall provide crews to perform work after hours and on week-ends and holidays, as necessitated by the emergency. Work that is unrelated to the restoration of reliable electric service shall not be performed. On such emergencies, only essential work (i.e. no chipping of brush) shall be done per tree as required to restore electric service rapidly. If necessary, a Vegetation Management Supervisor will report to dispatch headquarters to aid in the dispatching of tree crews. Improper pruning during outage/storm response work may occur due to unsafe conditions. Fallen trees, broken limbs and all trimmings and cut vegetation associated with service restoration are left on site. Crews shall not inform customers that KCP&L will return at a later day to clean up the trimmings and cut vegetation.



## **(5) Customer Request Process**

### **(A) Customer requests**

Customer requests generated from KCP&L's contact centers, online requests made at [kcpl.com](http://kcpl.com) or other designated source are managed by the vegetation management staff. Customer requests can include but are not limited to: Trim for Line Clearance; Customer Assisted Removal; Check for Drop Service; Pick Up Brush. Customer requests will be inspected and the customer will be notified with the specific action that will be taken. Under some circumstances, a customer request may be answered by a standard letter. Response time to customer requests will vary depending on the number of requests in the system and the type of work required. When necessary and with customer consent, brush will be left on-site. For customer requested assistance for tree removal, any tree(s) to be removed by customer will have all overhang removed and ten feet (10') of clearance from all energized conductors will be provided.

## **(6) Notification Process**

### **(A) Landowner Notification**

For regularly schedule maintenance, customers will be notified in person or by door card with appropriate contact number, by a KCP&L representative. Questions regarding the scheduled work will be answered at this time. Notice to affected property owners or occupants will occur at least seven (7) days, but not more than ninety (90) days, prior to performing planned vegetation maintenance. Alternative notification methods may include direct mail, postcard or bill insert. KCP&L shall maintain a record of the dates, content, and addresses to which all notices provided were given until the subsequent scheduled vegetation management cycle has occurred for each affected property owner or occupant. KCP&L and or its representative must secure signed permission to remove any tree equal to or greater than 4" DBH. If vegetation management is necessary and the landowner refuses permission, the concern will be addressed by KCP&L and or its representative.

### **(B) Public notification**

KCP&L shall provide written notice of any pending vegetation management activities to a primary contact for each county and municipality affected. The primary contact shall be selected by mutual agreement between KCP&L and the highest elected official, or if no elected official, then the highest appointed official, of the county and municipality. Notice shall be made in writing to the primary contact designated herein, at least two (2) months in advance of the planned vegetation management. This notice shall include the planned dates and locations of the vegetation management and the vegetation manager's name and contact information.

## **(7) Contractor Guidelines**

### **(A) Appearance and Conduct**

All contract line clearance workers shall maintain professional appearance and conduct and shall adhere to the following guidelines. The following guidelines are neither intended to be nor should they be considered inclusive. The contractor:

- shall be courteous to customers at all times;
- shall not engage in "horseplay" while on the job;
- shall not use language that is profane, boisterous, derogatory, racial, or of an ethnic nature;
- shall not display sexually suggestive objects or pictures, such as t-shirts, magazines, calendars or posters;
- shall not use customers' property (i.e. patios, picnic tables, etc.) for breaks;
- shall not leave refuse from lunches, etc. on private or public property;
- shall not enter the customer's house;
- shall refrain from climbing over or standing on any fence, garage, tool shed, etc. unless absolutely necessary to access work and only when it can be done safely and without damaging customers' property;
- shall not solicit private work, including tree work, while performing work pursuant to this Contract;
- shall not obligate KCP&L to make any payments to another party, nor make any promises or representations of any nature to another party for or on behalf of KCP&L/GMO;
- shall maintain neat appearance at all times and;
- shall wear clothing and hard hat displaying CONTRACTOR's color and/or emblem.

### **(B) Supervision**

The CONTRACTOR shall ensure that it has adequate supervisory personnel on the property to ensure that all of the CONTRACTOR's crews on the property are properly supervised. CONTRACTOR's personnel shall provide the interaction and communication with KCP&L as required by this Contract. Such supervisory personnel shall be called "General Foremen" in these guidelines. All contract supervisors and General Foreman will be Certified Arborists through the International Society of Arboriculture (ISA). Employees currently in these positions will have six months to obtain the certification; newly assigned supervisors and general foreman shall obtain their certification within twelve months.

### **(C) Identification**

All General Foreman and Crew Forman shall possess identification stating employee name, employer, as well as documentation stating the contractor is providing vegetation management services for KCP&L.

#### (D) Employment expectations

CONTRACTOR shall conduct pre-employment and random drug and alcohol screening to detect the presence of amphetamines, cocaine, marijuana, opiates, and phencyclidine, at no additional cost to KCP&L. CONTRACTOR shall conduct pre-employment background check for felony criminal convictions and motor vehicle violations for all states of residency within the past five (5) years, at no additional cost to KCP&L.

#### (E) Vehicles

All vehicles and equipment shall be in good working condition, kept clean and organized at all times, maintaining a professional appearance. All trucks shall clearly display CONTRACTOR markings and vehicle numbers. Truck numbering should be visible from both side and the back. Also, the numbering should be large enough to be legible from a distance commonly encountered in traffic, i.e., several car lengths or across a four-lane intersection. Each General Foreman and Crew shall be equipped with a two-way communication device at no additional cost to KCP&L. If radios are supplied by KCP&L, the contractor will replace all lost or stolen radios. Cones will be placed at a highly visible area (street intersections, driveways, alleys, etc.) when a crew's work location is not readily detectable, as recommended by Missouri Department of Transportation.

#### (F) Time Fulfillment

All work shall be performed Monday through Friday, except under special circumstances as agreed by KCP&L. The CONTRACTOR and KCP&L shall mutually agree to the working hours in accordance to IBEW local 53. Any approved overtime shall be paid at the rates set forth in contract, depending on the circumstances, by KCP&L for any work performed in excess of 40 hours per week. While on **stand-by**, crew(s) shall be dumping chips, fueling trucks, maintaining chainsaws, and engaging in other productive duties. *Crews sitting for the **2-hour show up time** shall not charge time towards their perspective equipment.* Holidays - CONTRACTOR may, upon receipt of permission from KCP&L, work at straight time on any KCP&L-observed holiday.

#### (G) Certification and permits

The CONTRACTOR shall acquire all certifications and permits required by local, county, municipality, state, tribal and federal agencies in which the CONTRACTOR's crews will be performing work pursuant to this Contract.

#### (H) Refusal/Access

In the event that the CONTRACTOR encounters conditions prohibiting performance of Work, the crew foreman will make, and document on Work Log, all reasonable efforts to secure access. CONTRACTOR shall notify KCP&L after all reasonable efforts to secure access have failed. A locked gate shall not, in and of itself, constitute "No Access". CONTRACTOR shall not be entitled to additional compensation for No Access. In the

event that a property owner refuses access to the work scheduled, the crew foreman will notify KCP&L and move on to the next job site. Work will not be performed until KCP&L has notified the CONTRACTOR that access has been granted.

#### (I) Reporting

The CONTRACTOR shall collect and report key aspects of the vegetation management program to document program performance and provide information necessary for ongoing program management including:

- CONTRACTOR Weekly Work Log
- Weekly TRES timesheets
- Daily Crew Locations
- A record of any safety hazards encountered
- Any unexpected occurrence or accident resulting in death, life-threatening or serious injury to a person assigned to perform vegetation management activities or the public.
- Additional documentation as requested by KCP&L

#### (J) Contact information

KCP&L and the CONTRACTOR shall provide each other as needed, a list of all Vegetation Management personnel, and the phone numbers where each can be contacted, including pagers/beepers/cell phones.

#### (K) Communication

During the progress of the work, CONTRACTOR shall provide crew locations to KCP&L staff as requested. In the event the CONTRACTOR plans to deviate from the normal work schedule, e.g. leaving the job site or starting location due to inclement weather or other cause, the foreman shall notify the appropriate personnel immediately.

#### (L) System Awareness

The CONTRACTOR shall at all times be aware of the nature and characteristics of the electric facilities, including circuit voltage. It is understood that all circuits shall remain energized during the performance of work. Any exceptions must be authorized and scheduled by KCP&L. If in the judgment of the Contractor's general foreman/supervisor, it is hazardous to prune or remove trees with the circuits energized, the Contractor must contact an authorized KCP&L representative. If appropriate, KCP&L will provide the necessary protective materials or de-energize circuits to ensure the safe pruning or removal of the tree(s).

Should the Contractor knock down or come into contact with conductors (power lines), the Contractor shall immediately notify KCP&L and take the necessary protective measures. All Contractor-caused electric service interruptions are subject to repair at the Contractor's expense. This includes any damage to customers' property, including any electrical damage.

In the event a Contractor becomes aware of any broken, damaged, loose or faulty line facilities in the normal course of its line clearance performance, the Contractor shall promptly notify KCP&L as to the exact location(s) and nature of the condition found. The CONTRACTOR's Representative (i.e. Regional Manager or designated representative) and General Foreman shall attend meetings as scheduled by KCP&L to discuss work practices and issues.

#### (M) Expectations

CONTRACTOR shall insure that crews are being productive at all times. CONTRACTOR shall perform Work as identified by KCP&L. The CONTRACTOR shall only accept work assignments from KCP&L's designated representative. The CONTRACTOR shall make an attempt to contact the homeowner at each property they have planned work.

### (8) Definitions

**basal treatment** - Herbicide application covering the entire stem to approximately 18 inches above the soil

**brush** - a woody plant that is less than 4 inches DBH, that is not part of an existing tree, and that may reach the conductor at maturity.

**brush work** – trimming, clearing brush and applying a herbicide to the cut stems, or only applying herbicide to brush.

**clearance** - the distance between vegetation and the conductors.

**coniferous** - any of the cone-bearing trees or shrubs, mostly evergreens.

**DBH** - "diameter at breast height" – the diameter of individual tree trunks or individual stems of brush measured at a point 4.5 feet above the ground.

**deciduous** - any perennial plant that sheds its leaves annually at the end of a growing season.

**demand tree trimming** - trimming or removing trees on a customer requested or emergency basis. Also, may include tree work associated with line construction projects. This is typically required when trees have grown into the conductors, or are close to the conductors, and have created a potentially dangerous situation. This may also include special trimming or chipping work when requested by the Utility. Customer requested only Utility authorized representatives may assign demand tree work.

**directional pruning** - a form of natural pruning used to encourage tree regrowth away from the conductor. It is accomplished by removing limbs growing toward the conductors entirely at the branch collar near the trunk of the tree, or by pruning to lateral branches that are at least one-third the diameter of the limb being cut and are growing away from the conductor.

**drop-crotching** - is a crown reduction technique in which a tree trimmer makes proper pruning cuts at crotches, removing the larger limb and favoring the smaller. For electric line clearance, the trimmer would remove limbs growing toward the conductors and

favor those growing away from the conductors. This usually results in a "V" shaped appearance of the tree crown and is frequently referred to as "V-trimming". See definition of "natural pruning" for further description.

**evergreen** - any plant that retains its leaves/needles year-round.

**foliar herbicide application** - the application of a herbicide to the leaves or needles of a target plant.

**hazard trees** - trees that are located off the right of way, have a high probability for failure and are of sufficient height to contact the conductors and/or structures and guy wires if they were to fall in that direction, and should be cleared. Conditions could include but are not limited to the following: Dead, dying or diseased, leaning trees, weak branches, shallow root system, root failure, internal decay, canker or canker root.

**herbicide** - a chemical pesticide used to control, suppress, or kill plants.

**natural pruning** - a method by which branches are cut to the branch collar at a suitable parent limb, the trunk of the tree, or an appropriately sized lateral branch. This method of pruning is sometimes called "drop-crotching", "proper pruning", the "Shigo method" or "lateral trimming."

**preventative maintenance** - trimming or removing vegetation on a systematic basis typically by, but not limited to, circuit or grid, and in a manner intended to achieve system reliability.

**pruning** - the removal of dead, dying, diseased, interfering, objectionable, and/or weak branches of trees or shrubs using proper arboricultural techniques.

**removal** - completely removing an entire tree as close as practical to ground level and applying herbicide to the cut stump when appropriate.

**right-of-way** - a transmission or distribution right-of-way, an easement, a utility easement, or any other corridor of land paralleling, on both sides, an overhead transmission or distribution line, and in respect of which the Utility has certain rights.

**rounding over** - the making of many small cuts so that a tree underneath the conductors is rounded over in a uniform curve. This creates an unhealthy tree condition and results in rapid regrowth directly back toward the electrical conductors. This is not an acceptable practice.

**safety zone work** – removing all overhang and cutting back limbs to a minimum clearance of 10 feet from the energized conductor.

**selective herbicide** - a herbicide that, when applied to a mixed population of plants, will control specific species without injury to others.

**shearing** - the making of many small cuts so that a tree adjacent to the conductors is sheared in a uniform line. This is not a generally acceptable practice.

**show-up site** – site where CONTRACTOR crews receive work assignments.

**side pruning** - using natural pruning methods to cut back or removing side branches that are threatening the conductors; required where trees are growing adjacent to conductors.

**stump treatment** - applying an approved herbicide to the outer ring (cambium) portion of the stump to reduce or eliminate re-growth.

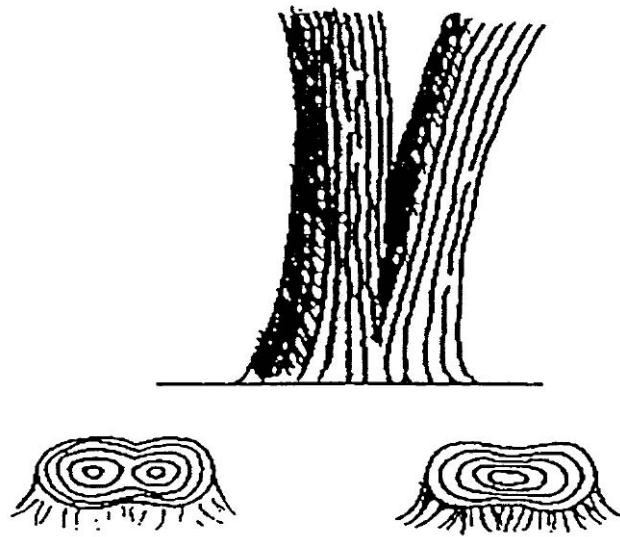
**sucker growth** - the re-growth within the tree that originates near the cuts made during the previous trimming.

**the property** - any work site associated with this contract.

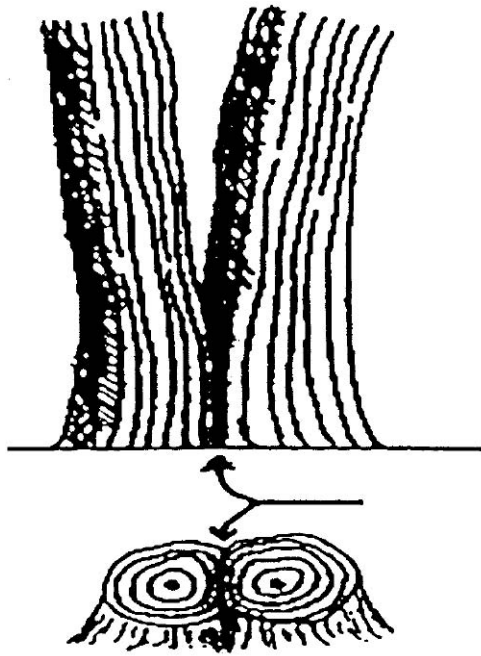
**topping** - cutting back the upper crown of a tree to a uniform horizontal line, leaving multiple stubs. This is an improper and unacceptable trimming technique.

**tree** - a perennial plant with a woody trunk measuring at least four (4) inches DBH, and having one set of annual rings at ground level or more than one set of annual rings not separated by included bark. Trees that grow adjacent to one another and share an apparent common base completely separated by "included bark" are considered to be distinct trees. "Included bark" is bark that is included within the wood of a tree, or between the woody stems of separate trees, creating a physical separation between the trees.

**single tree**- a tree that splits above the ground line and has no visible included bark seam down to the ground line.



**multiple trees**- Any tree that splits at the ground line or any tree that splits above the ground line but has a visible included bark seam down to the ground line.



**tree size classifications** - tree diameter as measured at breast height (DBH): 4" to 8", 8" to 12", 12" to 24", 24" and greater

**tree crown** - the upper portion of the tree; the branches or leaf area.

**trimming** - cutting back tree branches or shrubs to shape or reduce the size of the tree or shrub.

**V-trim** - using natural pruning methods to cut back large portions of the upper crown of a tree. This is required when trees are located directly beneath a conductor. This is also known as crown reduction pruning or drop-crotching.

**vegetation** - all the plant (flora) life in a particular region. A plant community, assemblage, or aggregation with distinguishable characteristics



## (9) Tree Re-growth Rates

**Average Annual Re-growth Rates for Individual Species on the KCP&L and GMO Distribution Systems.**

<u>Species</u>	<u>Pruning Type</u>	<u>Inches of Re-growth by Age of Sprout</u>					
		<u>1 Yr.</u>	<u>2 Yr.</u>	<u>3 Yr.</u>	<u>4 Yr.</u>	<u>5 Yr.</u>	<u>6 Yr.</u>
Silver Maple	Side	55	67	84	101	118	135
	Top	71	92	113	134	155	176
Hackberry	Side	36	56	78	87	100	104
	Top	53	81	104	120	140	161
Ash	Side	33	63	84	98	115	132
	Top	26	61	88	118	134	161
Honeylocust	Side	36	68	91	115	135	162
	Top	48	81	115	128	147	173
Black Walnut	Side	43	71	87	103	119	130
	Top	69	103	144	166	183	212
Eastern Redcedar	Side	7	11	17	22	27	34
	Top	17	29	41	53	65	79
Osage-Orange	Side	67	89	111	133	155	177
	Top	81	105	129	153	177	201
Mulberry	Side	28	50	75	86	126	141
	Top	52	96	129	163	202	241
Scotch Pine	Side	12	22	29	37	46	54
	Top	13	25	35	44	53	59
Sycamore	Side	71	112	137	158	176	194
	Top	26	96	132	176	225	275
Eastern Cottonwood	Side	48	80	101	128	160	192
	Top	67	105	147	176	196	209
Shingle Oak	Side	43	57	71	87	94	103
	Top	17	36	54	66	77	88

<u>Species</u>	<b>Pruning Type</b>	<b>Inches of Re-growth by Age of Sprout</b>					
		<u>1 Yr.</u>	<u>2 Yr.</u>	<u>3 Yr.</u>	<u>4 Yr.</u>	<u>5 Yr.</u>	<u>6 Yr.</u>
Pin Oak	Side	27	45	57	68	82	91
	Top	30	59	80	94	106	126
Elm	Side	50	83	111	133	152	203
	Top	53	93	124	158	193	226

## APPENDIX B – 2016 DISTRIBUTION VEGETATION MANAGEMENT EXPENSE AND PERFORMANCE

### Summary

KCP&L manages vegetation for itself and GMO through an Integrated Vegetation Management (“IVM”) program. The IVM includes, but is not limited to: manual techniques, mechanical techniques, biological, chemical, and cultural control. Standard crew sizes are three workers on a manual crew and two workers on a bucket crew. Safety hazards may be encountered daily thereby requiring the contractor’s certified line clearance trimmer to assess and take proactive measure(s) to safely clear limbs from power lines.

KCP&L also implemented an Emerald Ash Borer (“EAB”) program across its entire service territory. Wide spread ash tree mortality is expected throughout Northwest Missouri over the course of the next 12 years, beginning in 2015. Infested ash trees have a tendency to fail at the base, which create a reliability and safety hazard. KCP&L’s vegetation management program incorporated mitigation efforts to ash trees, of sufficient height to strike electrical conductors, into established circuit maintenance cycles in an effort to reduce the overall impact of EAB.

### Expenditures – 2017

2017 distribution vegetation management expenditures for Missouri service areas:

KCP&L-MO	\$ 8,636,874
KCP&L-GMO	<u>\$ 9,051,143</u>
Total	\$ 17,688,017

### Vegetation Management Activities – 2017

Table 2 summarizes vegetation management activities completed in 2017 on distribution circuits in KCP&L and GMO Missouri service territories.

Table 2: 2017 MO Distribution System Vegetation Management Activities

Company	Circuit	Classification	Miles	Completion Date
GMO	20812	U	2.28	1/13/2017
GMO	40122	R	23.56	1/20/2017
GMO	27612	R	0.84	2/6/2017
GMO	24022	U	28.56	2/15/2017
GMO	42511	R	3.26	2/21/2017
GMO	42521	R	2.06	2/21/2017
GMO	30722	R	1.62	2/22/2017
GMO	21321	U	10.14	2/24/2017
GMO	278111	34	14.18	2/24/2017
GMO	21311	U	7.54	2/25/2017
GMO	21432	U	3.71	2/27/2017

<b>Company</b>	<b>Circuit</b>	<b>Classification</b>	<b>Miles</b>	<b>Completion Date</b>
GMO	21414	U	2.25	2/27/2017
GMO	32611	R	17.75	3/2/2017
GMO	40121	R	60.16	3/9/2017
GMO	36621	U	15.05	3/10/2017
GMO	42710	R	0.03	3/20/2017
GMO	40423	34	1.71	3/20/2017
GMO	21711	R	14.98	3/21/2017
GMO	21522	R	2.89	3/24/2017
GMO	247921	R	7.27	3/24/2017
GMO	22313	R	56.46	3/24/2017
GMO	27311	R	26.33	3/24/2017
GMO	21421	U	13.18	3/25/2017
GMO	8610	R	0.05	3/25/2017
GMO	36611	U	13.07	3/30/2017
GMO	21521	R	5.90	4/4/2017
GMO	43021	R	4.34	4/7/2017
GMO	43031	U	10.53	4/7/2017
GMO	27215	R	37.58	4/8/2017
GMO	40412	34	5.23	4/13/2017
GMO	322111	34	11.33	4/15/2017
GMO	43030	R	0.05	4/17/2017
GMO	41310	R	0.04	4/17/2017
GMO	41320	R	0.03	4/17/2017
GMO	38610	R	0.04	4/17/2017
GMO	41510	R	0.03	4/17/2017
GMO	41520	R	0.03	4/17/2017
GMO	40760	R	0.02	4/17/2017
GMO	407770	R	0.02	4/17/2017
GMO	29311	U	11.08	4/17/2017
GMO	22512	U	8.66	4/21/2017
GMO	41611	U	13.13	4/28/2017
GMO	41621	U	11.54	4/28/2017
GMO	30614	U	12.15	5/2/2017
GMO	43020	R	0.08	5/8/2017
GMO	40120	R	0.05	5/8/2017
GMO	38322	R	28.01	5/10/2017
GMO	34512	R	0.01	5/26/2017
GMO	8613	U	15.55	5/27/2017
GMO	36112	U	2.52	6/2/2017
GMO	3533	U	0.88	6/2/2017
GMO	3544	U	14.49	6/16/2017
GMO	38911	R	7.99	6/20/2017
GMO	37521	U	19.38	7/14/2017
GMO	5612	U	8.68	8/4/2017
GMO	24814	U	3.52	8/4/2017
GMO	38521	U	18.52	8/4/2017
GMO	38531	U	10.84	8/4/2017
GMO	326331	34	14.01	8/9/2017
GMO	37511	U	23.57	8/17/2017

<b>Company</b>	<b>Circuit</b>	<b>Classification</b>	<b>Miles</b>	<b>Completion Date</b>
GMO	32611	R	93.86	8/18/2017
GMO	34511	U	2.95	8/25/2017
GMO	31922	U	137.97	8/29/2017
GMO	33111	U	3.63	8/31/2017
GMO	37652	R	0.32	9/1/2017
GMO	27911	U	11.82	9/5/2017
GMO	32612	U	4.81	9/8/2017
GMO	26412	U	2.80	9/11/2017
GMO	30713	R	41.42	9/12/2017
GMO	22712	U	3.42	9/14/2017
GMO	22812	R	18.50	9/14/2017
GMO	38611	R	41.40	9/15/2017
GMO	37231	U	1.09	9/20/2017
GMO	38221	U	6.44	9/28/2017
GMO	25322	R	1.43	9/29/2017
GMO	37234	U	1.46	9/29/2017
GMO	38823	U	22.39	10/3/2017
GMO	6613	U	5.56	10/18/2017
GMO	41711	R	51.01	10/18/2017
GMO	27712	U	26.87	10/23/2017
GMO	26421	U	6.65	10/23/2017
GMO	37212	U	27.80	10/25/2017
GMO	34013	R	11.20	11/2/2017
GMO	24512	U	42.20	11/3/2017
GMO	32711	U	17.33	11/3/2017
GMO	32712	U	12.46	11/3/2017
GMO	38833	U	8.28	11/6/2017
GMO	6632	U	3.74	11/10/2017
GMO	241111	34	22.67	11/11/2017
GMO	398051	R	1.26	11/14/2017
GMO	39031	U	7.54	11/15/2017
GMO	39032	U	7.54	11/15/2017
GMO	6621	U	7.62	11/22/2017
GMO	28212	U	5.16	11/25/2017
GMO	28211	U	11.49	11/25/2017
GMO	28221	U	6.29	11/25/2017
GMO	28232	U	0.36	11/25/2017
GMO	28311	U	9.19	11/27/2017
GMO	39911	34	7.84	11/28/2017
GMO	39922	34	12.79	11/28/2017
GMO	6624	U	1.89	12/2/2017
GMO	23911	U	5.82	12/2/2017
GMO	26313	U	8.74	12/2/2017
GMO	30312	U	3.59	12/7/2017
GMO	41511	U	10.33	12/8/2017
GMO	41521	R	28.53	12/8/2017
GMO	42611	R	45.36	12/8/2017
GMO	26311	U	11.88	12/9/2017
GMO	26312	U	11.06	12/9/2017

<b>Company</b>	<b>Circuit</b>	<b>Classification</b>	<b>Miles</b>	<b>Completion Date</b>
GMO	7052	U	11.43	12/18/2017
GMO	37112	R	9.17	12/18/2017
GMO	102501	R	4.22	12/19/2017
GMO	335111	34	36.93	12/20/2017
GMO	37111	R	10.16	12/21/2017
GMO	26423	U	18.85	12/26/2017
GMO	26411	U	5.21	12/26/2017
GMO	33022	U	15.86	12/26/2017
GMO	5263	U	19.57	12/27/2017
GMO	28312	U	11.91	12/27/2017
KCPL	4412	R	1.67	1/5/2017
KCPL	4854	U	2.89	1/6/2017
KCPL	4824	U	7.87	1/12/2017
KCPL	4841	U	13.13	2/15/2017
KCPL	619	U	0.21	2/15/2017
KCPL	3711	U	7.76	2/21/2017
KCPL	3121	U	4.54	2/23/2017
KCPL	5337	U	9.78	2/27/2017
KCPL	4952	U	6.51	3/4/2017
KCPL	2811	R	55.56	3/7/2017
KCPL	3142	U	1.02	3/9/2017
KCPL	3144	U	7.64	3/22/2017
KCPL	2821	R	27.19	4/10/2017
KCPL	3514	R	5.77	4/13/2017
KCPL	5371	U	18.62	4/17/2017
KCPL	5384	R	13.73	4/22/2017
KCPL	7446	R	0.41	4/24/2017
KCPL	7453	U	8.61	5/9/2017
KCPL	3543	U	9.25	5/11/2017
KCPL	7564	U	0.53	5/12/2017
KCPL	7574	U	1.09	5/26/2017
KCPL	7543	U	1.24	5/31/2017
KCPL	5911	R	86.56	6/2/2017
KCPL	7544	U	2.27	6/8/2017
KCPL	4912	U	19.59	6/10/2017
KCPL	7404	U	8.15	6/15/2017
KCPL	7491	U	9.39	8/2/2017
KCPL	3022	U	11.37	8/10/2017
KCPL	9423	R	1.13	8/22/2017
KCPL	127202	34	26.84	9/1/2017
KCPL	4962	U	18.97	9/9/2017
KCPL	120	R	0.11	9/25/2017
KCPL	3612	R	56.96	9/29/2017
KCPL	7930	R	0.12	10/1/2017
KCPL	5710	R	0.15	10/1/2017
KCPL	5720	R	0.02	10/1/2017
KCPL	9623	R	1.14	10/1/2017
KCPL	104101	34	13.28	10/27/2017
KCPL	10011	R	1.65	10/27/2017

<b>Company</b>	<b>Circuit</b>	<b>Classification</b>	<b>Miles</b>	<b>Completion Date</b>
KCPL	3411	R	3.93	10/27/2017
KCPL	11612	R	33.51	10/28/2017
KCPL	7911	U	10.91	10/31/2017
KCPL	7492	U	6.66	11/1/2017
KCPL	2721	U	7.21	11/4/2017
KCPL	2481	U	0.58	11/7/2017
KCPL	9611	R	0.68	11/14/2017
KCPL	9612	R	2.60	11/15/2017
KCPL	9621	R	7.15	11/17/2017
KCPL	2732	U	17.66	11/18/2017
KCPL	2753	R	4.32	11/20/2017
KCPL	7402	U	6.72	11/20/2017
KCPL	3132	U	23.72	11/21/2017
KCPL	12211	R	14.65	11/27/2017
KCPL	12013	R	13.91	11/27/2017
KCPL	2724	U	3.81	12/4/2017
KCPL	2751	R	3.40	12/4/2017
KCPL	7813	U	6.45	12/9/2017
KCPL	2333	U	9.99	12/12/2017
KCPL	2334	U	12.22	12/14/2017
KCPL	3911	R	2.15	12/15/2017
KCPL	6141	R	1.96	12/15/2017
KCPL	6154	R	0.33	12/15/2017
KCPL	33321	U	22.16	12/16/2017
KCPL	31312	R	24.42	12/16/2017
KCPL	6113	U	18.74	12/19/2017
KCPL	3942	R	21.81	12/27/2017
KCPL	6311	U	7.78	12/28/2017
KCPL	6341	U	16.03	12/28/2017
KCPL	2354	U	17.23	12/28/2017
KCPL	7573	U	23.24	12/28/2017
KCPL	2343	U	21.57	12/28/2017
KCPL	6134	U	6.56	12/30/2017
KCPL	2335	U	2.66	12/31/2017

Table 3: 2017 MO Completion Summary of Distribution System Vegetation Management Circuits Scheduled for Maintenance

<b>Territory</b>	<b>Urban Miles</b>	<b>Rural Miles</b>	<b>Total 12 kV (Urban + Rural)</b>	<b>34 kV</b>	<b>Total 12 kV + 34 kV</b>
KCP&L-Missouri	412.33	386.99	799.32	40.12	839.44
GMO	821.82	659.32	1,481.14	126.69	1,607.83
Total	1,234.15	1,046.31	2,280.46	166.81	2,447.27



Table 4: 2017 MO Distribution System Mileage Inventory

<b>Territory</b>	<b>Urban Miles</b>	<b>Rural Miles</b>	<b>Total 12 kV (Urban + Rural)</b>	<b>34 kV</b>	<b>12 kV + 34 kV</b>
KCP&L-Missouri	1,954.97	1,818.45	3,773.42	176.76	3,950.18
GMO	2,946.17	4,463.73	7,409.90	496.54	7,906.44
Total	4,901.14	6,282.18	11,183.32	673.30	11,856.62

Note: Minor differences in distribution system miles occur between annual and quarterly reports. The minor differences reflect regular monitoring of the distribution system that identifies retired or new facilities.

## APPENDIX C – 2018 DISTRIBUTION VEGETATION MANAGEMENT BUDGET AND SCHEDULED PERFORMANCE

The listed vegetation management work is planned for completion in 2018. The Program is dynamic in nature and, at times, requires adjustment to conform to performance as measured by tree-related service reliability; to take advantage of opportunities to gain efficiency; to incorporate customer feedback; to address changes in regulatory initiatives; and to address other program drivers. In light of the many variables affecting vegetation management activities, including weather, specific schedule dates were excluded from this appendix.

Due to the presence of Emerald Ash Borer (EAB) in Northwest Missouri, ash tree mortality is expected over the course of 12 years, beginning in 2015. Infested ash trees have a tendency to fail at the base, which create a reliability and safety hazard. In 2018, KCP&L's vegetation management program will continue to incorporate proactive removal and hazard mitigation efforts to ash trees, of sufficient height to strike electrical conductors, into established circuit maintenance cycles in an effort to reduce the overall impact of EAB.

### Budget – 2018

2018 distribution vegetation management budget for Missouri service areas:

KCP&L-MO	\$ 11,385,683
GMO	<u>\$ 6,266,046</u>
	\$ 17,651,729

\*This budget amount includes the scheduled circuit work shown below in Table 5, as well as non-scheduled work that occurs throughout the year (e.g. storm restoration, customer requests, mid-cycle patrols, etc.).

Table 5: 2018 MO Distribution System Vegetation Management Circuits Scheduled for Maintenance

Company	Circuit	Classification	Miles
GMO	11801	U	13.82
GMO	11824	U	5.89
GMO	11832	U	19.11
GMO	21322	U	8.10
GMO	21323	U	11.77
GMO	21431	U	14.57
GMO	21433	U	6.84
GMO	21513	U	3.28
GMO	22111	U	5.51
GMO	22112	U	17.02
GMO	22311	U	14.74
GMO	22711	U	2.91
GMO	22713	U	0.92

<b>Company</b>	<b>Circuit</b>	<b>Classification</b>	<b>Miles</b>
GMO	23213	U	6.67
GMO	23812	U	4.17
GMO	24013	U	13.73
GMO	24021	U	27.65
GMO	24023	U	16.43
GMO	24613	U	9.67
GMO	24812	U	4.22
GMO	25321	U	18.70
GMO	27722	U	22.31
GMO	29011	U	4.68
GMO	29041	U	1.07
GMO	29042	U	43.41
GMO	29112	U	6.87
GMO	29122	U	20.16
GMO	30721	U	12.10
GMO	31012	U	11.86
GMO	31112	U	10.45
GMO	31612	U	10.30
GMO	31921	U	26.49
GMO	32511	U	9.88
GMO	32513	U	9.60
GMO	32631	U	20.75
GMO	32721	U	4.55
GMO	32722	U	21.79
GMO	33113	U	2.81
GMO	34131	U	11.64
GMO	34142	U	15.85
GMO	34151	U	12.59
GMO	34221	U	10.67
GMO	34712	U	6.33
GMO	35913	U	3.67
GMO	35923	U	2.60
GMO	37211	U	12.31
GMO	37321	U	14.37
GMO	37631	U	14.81
GMO	38231	U	20.05
GMO	38241	U	5.81
GMO	38561	U	3.94
GMO	38824	U	10.87
GMO	38831	U	7.47
GMO	39043	U	10.87
GMO	39412	U	21.73
GMO	39421	U	0.18
GMO	39431	U	9.16
GMO	39441	U	8.37
GMO	39442	U	0.99
GMO	41641	U	7.43

<b>Company</b>	<b>Circuit</b>	<b>Classification</b>	<b>Miles</b>
GMO	43311	U	8.54
GMO	43312	U	5.30
GMO	21611	R	6.80
GMO	21612	R	17.49
GMO	21811	R	3.21
GMO	21812	R	6.47
GMO	22012	R	11.98
GMO	22611	R	5.73
GMO	22811	R	13.50
GMO	25211	R	61.71
GMO	25311	R	47.15
GMO	25611	R	31.55
GMO	26111	R	31.75
GMO	27711	R	22.05
GMO	28411	R	14.38
GMO	28512	R	44.48
GMO	30313	R	11.81
GMO	30411	R	4.33
GMO	30613	R	58.34
GMO	31311	R	29.40
GMO	31511	R	18.29
GMO	31513	R	29.72
GMO	32311	R	16.57
GMO	32312	R	15.14
GMO	33412	R	5.05
GMO	35811	R	12.04
GMO	36012	R	16.22
GMO	36311	R	8.66
GMO	39611	R	11.39
GMO	39815	R	3.10
GMO	40011	R	4.06
GMO	40021	R	28.05
GMO	41721	R	34.31
GMO	42412	R	28.11
GMO	43032	R	66.49
GMO	43323	R	24.67
GMO	247821	R	3.05
GMO	247822	R	2.81
GMO	31411	34	24.41
GMO	39011	34	8.28
GMO	39012	34	36.31
GMO	39021	34	9.15
GMO	39022	34	3.64
GMO	39141	34	0.69
GMO	39144	34	2.99
GMO	39145	34	3.03
GMO	40421	34	0.75

<b>Company</b>	<b>Circuit</b>	<b>Classification</b>	<b>Miles</b>
GMO	223331	34	10.94
GMO	300111	34	26.91
GMO	326333	34	3.98
GMO	404612	34	0.25
KCPL	650	U	2.76
KCPL	1114	U	4.09
KCPL	1161	U	3.99
KCPL	1162	U	14.54
KCPL	1565	U	3.54
KCPL	1576	U	2.36
KCPL	2341	U	5.69
KCPL	2372	U	16.78
KCPL	2373	U	8.10
KCPL	2374	U	8.44
KCPL	2413	U	3.51
KCPL	2414	U	2.06
KCPL	2433	U	0.83
KCPL	2454	U	0.88
KCPL	2743	U	5.62
KCPL	3011	U	11.20
KCPL	3012	U	14.00
KCPL	3512	U	12.04
KCPL	3513	U	14.67
KCPL	3531	U	5.15
KCPL	3551	U	5.98
KCPL	3714	U	2.01
KCPL	3724	U	0.07
KCPL	3732	U	1.34
KCPL	3931	U	8.44
KCPL	3932	U	0.62
KCPL	4811	U	8.71
KCPL	4813	U	8.35
KCPL	4823	U	7.57
KCPL	4842	U	1.04
KCPL	4851	U	3.88
KCPL	4852	U	3.82
KCPL	4951	U	10.07
KCPL	5332	U	16.64
KCPL	5333	U	2.58
KCPL	5621	U	10.41
KCPL	5641	U	12.21
KCPL	5642	U	15.99
KCPL	5661	U	10.69
KCPL	6112	U	17.86
KCPL	6132	U	11.63
KCPL	6151	U	9.69
KCPL	6152	U	11.68

<b>Company</b>	<b>Circuit</b>	<b>Classification</b>	<b>Miles</b>
KCPL	6162	U	10.48
KCPL	6312	U	7.93
KCPL	6332	U	12.37
KCPL	6623	U	27.84
KCPL	6634	U	5.82
KCPL	7452	U	2.57
KCPL	7473	U	8.88
KCPL	7542	U	6.01
KCPL	7561	U	6.56
KCPL	7571	U	6.26
KCPL	7582	U	6.67
KCPL	7812	U	8.80
KCPL	7824	U	9.63
KCPL	7834	U	5.81
KCPL	7841	U	11.67
KCPL	7843	U	5.06
KCPL	7844	U	9.71
KCPL	7852	U	9.44
KCPL	7861	U	6.64
KCPL	7862	U	5.96
KCPL	7932	U	0.02
KCPL	9841	U	14.73
KCPL	13941	U	3.43
KCPL	13942	U	2.45
KCPL	13943	U	6.04
KCPL	1568	R	3.30
KCPL	1811	R	44.79
KCPL	1812	R	64.93
KCPL	1813	R	42.61
KCPL	2111	R	11.43
KCPL	2112	R	28.58
KCPL	2714	R	1.68
KCPL	2812	R	52.25
KCPL	3021	R	0.53
KCPL	3401	R	0.18
KCPL	3731	R	0.41
KCPL	4222	R	3.89
KCPL	5373	R	3.28
KCPL	6012	R	53.83
KCPL	7454	R	5.28
KCPL	10410	R	0.14
KCPL	12011	R	0.51
KCPL	95102	34	6.82
KCPL	95103	34	19.45
GMOPS	22114	U	2.47

Table 6: 2018 Summary MO Distribution System Vegetation Management Circuits  
Scheduled for Maintenance

<b>Territory</b>	<b>Urban Miles</b>	<b>Rural Miles</b>	<b>Total 12 kV (Urban + Rural)</b>	<b>34 kV</b>	<b>12 kV + 34 kV</b>
KCP&L- Missouri	522.31	317.62	839.93	26.27	866.20
GMO	676.39	749.86	1,426.25	131.33	1,557.58
<b>Total</b>	<b>1,198.70</b>	<b>1,067.48</b>	<b>2,266.18</b>	<b>157.60</b>	<b>2,423.78</b>

Table 7: MO Distribution System Mileage Inventory

<b>Territory</b>	<b>Urban Miles</b>	<b>Rural Miles</b>	<b>Total 12 kV (Urban + Rural)</b>	<b>34 kV</b>	<b>12 kV + 34 kV</b>
KCP&L- Missouri	1,954.97	1,818.45	3,773.42	176.76	3,950.18
GMO	2,946.67	4,463.73	7,410.40	493.54	7,903.94
<b>Total</b>	<b>4,901.64</b>	<b>6,282.18</b>	<b>11,183.82</b>	<b>670.30</b>	<b>11,854.12</b>

**APPENDICES D THROUGH G  
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