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December 21, 2007

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DEC 21 2007

PUBLIC SERVICE
COMMISSION

Director of Engineering
Public Service Commission
P O Box 615
Frankfort KY 40602

**RE: CASE NO. 2006-00494
AN INVESTIGATION OF THE RELIABILITY MEASURES OF
KENTUCKY'S JURISDICTIONAL ELECTRIC DISTRIBUTION UTILITIES
AND CERTAIN RELIABILITY MAINTENANCE PRACTICES**

Attached is the CD and one (1) hard copy with the information as requested by the Public Service Commission for Administrative Case No. 2006-0494; Investigation of the Reliability Measures of Kentucky's Jurisdictional Electric Distribution Utilities and Certain Reliability Maintenance Practices.

Should you have any questions, please do not hesitate to contact me.

A handwritten signature in black ink, appearing to read "Michael I Williams".

Michael I Williams, P.E.
Senior Vice President/COO

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Blue Grass Energy

DISTRIBUTION RIGHT-OF-WAY VEGETATION MANAGEMENT PLAN

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1.0 Introduction

The purpose of this Plan is to describe the strategy and key processes necessary to encourage the orderly, uniform, safe and efficient furtherance of the Cooperative's objectives relative to the maintenance of vegetation on distribution rights-of-way (ROW).

This Blue Grass Energy Distribution Vegetation Management Plan may be modified from time-to-time based on the performance of the Plan as measured by tree-related service reliability, and evaluations of member satisfaction with service reliability. Specific reliability metrics may include Tree SAIFI, trends in customer minutes interrupted by tree-related causes and tree-caused primary interruptions per 100 line miles as internal benchmarks of program performance over time. A Quarterly Tree-Caused Outage Report summarizes these reliability criteria and is regularly reviewed and monitored.

2.0 Safety and Reliability

The purpose of ROW vegetation management is to help maintain safe and reliable service to Cooperative members. Without maintenance, tree can become a major cause of service interruptions and can contribute to dangerous conditions such as downed power lines. ROW maintenance is also the primary means of complying with the RUS standards and National Electric Safety Code Vegetation Management Section 218 (2007).

All crews performing vegetation management work on or near Blue Grass Energy facilities or ROW shall follow approved safety guidelines and procedures. All contractors performing work for Blue Grass Energy shall comply with all applicable governmental safety and health regulations and the safety and health provisions of their respective contract.

All contractors also must, at all times, be aware of the nature and characteristics of Blue Grass Energy electric facilities before work begins. Contractors need to understand that electric facilities must remain energized during the performance of work unless special arrangements are made with an authorized Blue Grass Energy representative.

3.0 Vegetation Management Strategy

3.1. SCHEDULED MAINTENANCE AND CLEARANCE

3.1.1. Distribution (<=25kV) Maintenance Cycle:

Blue Grass Energy uses a cyclic approach to preventive electric distribution ROW. Different circuits or portions of circuits may be scheduled on different cycles based on site conditions, sensitivity of the line to interruptions caused by trees or criticality of the line. The maintenance cycle for tree removal, tree pruning or brush control may be the same or different for a given scheduling unit.

3.1.2. General Guidelines for Tree/Conductor Clearance:

The exact amount of clearance needed to maintain reliable service depends on site factors including, but not limited to, the type of tree, its location and condition, and the type of power line and its voltage. Blue Grass Energy and its contractors will consider all factors when deciding how much clearance is necessary.

Blue Grass Energy and its contractors will use their professional judgment in determining what these clearances will be in each situation, based on the proposed maintenance cycle for the area in which they are working. The maintenance cycle is dependent upon electric reliability requirements of the system.

3.1.3. ROW Maintenance

ROW will normally be maintained to a distances of 30 feet when three-phase line construction is present and 20 feet when single-phase line construction is present. All trees and brush should be controlled on the ROW floor and edge trees growing into the ROW should be pruned or removed.

3.1.4. Yard Tree Clearance

Clearance provided on yard trees will be dependent of tree species and growth rates. Appendix 1 contains a table of recommended clearances at the time of pruning for yard trees.

3.1.5. Circuit Prioritization and Scheduling:

Annually, circuits are prioritized based on the following factors:

- Reliability – The circuits due to be maintained in any given year are ranked based on customer minutes interrupted by tree-related causes. Circuits that have the highest number of customer minutes interrupted by tree growth outages may be scheduled first. Additional metrics used to prioritize work may include primary tree-caused outage events per mile.
- Last Trim Date – Circuits are scheduled based on the last maintenance year. The oldest are weighted over the earliest.
- Customers Affected – Circuits are ranked by customer count. Circuits with high numbers of customers or circuits with critical customers are ranked higher.
- Current Vegetation Conditions – The current vegetation conditions (clearance to conductors, vegetation height, presence of hazardous trees and trees overhanging conductors, and ROW access) on a circuit will be used to prioritize it.
- Other – Additional factors that are considered when scheduling include circuit load, customer complaints and customer requests.

Circuits are initially evaluated based on reliability data, customer load, years since previous maintenance and the current vegetation conditions. Other factors are then considered to refine the rankings. Prioritization of a

circuit may change based on any of these factors. For scheduling strategy, see Appendix 2.

3.2. TREE REMOVAL

3.2.1. Manual/Mechanical Removal of Vegetation

The following guidelines should influence the decision as to whether ROW trees are removed, and how to remove trees designated for removal:

- Remove all tall-growing trees within the width of the ROW.
- Remove all tall-growing brush that has the potential to grow closer than the minimum clearance specified for a specific voltage line.
- Remove all brush around poles and other equipment.
- Cut and treat all vines growing on poles and guy wires.
- All trees and brush should be cut as close to the ground as practical.
- Remove fast-growing and undesirable tree species.
- Remove trees that present an obvious imminent hazard to Blue Grass Energy facilities.
- Consider removing trees when the cost of removal is equal to or less than trimming.
- Whenever possible, deciduous tree stumps should be treated with herbicides to prevent re-sprouting.

3.2.2. Hazard Trees

Structurally unsound trees (on or off the easement or ROW) and that could fall into electrical conductors should be evaluated for removal. Hazard tree conditions could include but are not limited to the following symptoms:

- Dead or dying
- Leaning trees
- Weak branches
- Shallow root system
- Root failure
- Cankers
- Conks (fungal fruiting bodies)
- Internal decay

3.2.3. Yard Tree Removal

Blue Grass Energy or its agents will inspect the trees near power lines scheduled for maintenance and determine which trees should be removed. If a tree is a candidate for removal, the homeowner or resident

will be contacted and asked to authorize Blue Grass Energy and its contractors to remove the tree to the ground line.

3.3. TREE PRUNING

3.3.1. Pruning (Yard Trees and ROW Edge Trees)

Tree pruning is the selective removal of tree branches that are not an adequate distance from the power lines, or that will grow too close to the power lines before the next maintenance cycle.

Trees are to be pruned to provide adequate clearance from Blue Grass Energy facilities. As a general rule, trees should be pruned to improve or re-establish the clearance provided from all previous tree maintenance performed.

Yard trees will be directionally pruned in conformance with industry standards such as RUS and the American National Standards Institute (ANSI) A-300 Tree, Shrub and Other Woody Plant Maintenance – Standard Practices. Trees should not be “rounded over” unless there has been a long history of rounding over a particular tree directly under conductors.

Some factors to consider before pruning include:

- The growth rate of the tree species (how fast the branches grow back);
- The wood strength of the tree species (what is the chance of the branch breaking under the load of strong wind, snow, or ice);
- The voltage conducted by the line (the hazard presented by the branch contacting the line; the higher the voltage, the greater the hazard);
- Limbs overhanging primary conductors or equipment. Dangerous limbs – those overhanging limbs with a high potential for breaking or bending into conductors due to ice, snow or wind loading should be shortened or removed (failure risk associated with co-dominant stems with included bark should also be evaluated);
- Desirability of tree removal in lieu of pruning. In many cases, it may be preferable to remove a tree rather than prune the tree. For example, when repeated severe pruning is necessary or when the tree is declining and unsafe or when it is economically beneficial to remove the tree.

3.3.2. Pruning Near Secondary Service Wires:

Trees growing into service lines will be maintained to avoid deflection of these secondary voltage conductors by tree limbs as part of routine, scheduled ROW maintenance.

3.4. ROW BRUSH CONTROL - DISTRIBUTION ROW

3.4.1. Integrated Vegetation Management

Blue Grass Energy will utilize 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 rights-of-ways as well as basal and cut stump methods will be used when most appropriate. Cut stumps should be treated with an appropriate herbicide mixture to prevent resprouting. Even small diameter brush stumps should be treated unless a follow-up foliar application is definitely scheduled.

Herbicide application may be scheduled to occur 1 to 2 years in advance of tree maintenance. Any brush stems missed in the 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.

3.4.2. Safety and Regulations

All herbicides shall be applied in strict compliance with all federal, state and local laws and regulations. This includes, but is not limited to: transporting, handling and chemical container disposal.

All herbicide and treatment methods used by the contractor shall have prior approval by Blue Grass Energy.

Any crewmember applying herbicides must be supplied with the appropriate protective gear, current label and Material Safety Data Sheet (MSDS) for the product being applied and meet licensure requirements of the State of Kentucky.

It is the herbicide application contractor's responsibility to provide all necessary materials, including chemicals and safety gear. The contractor will be responsible for the proper disposal or recycling of all herbicide containers.

3.5. MEMBER COMMUNICATION

3.5.1. Scheduled ROW Maintenance

A Blue Grass Energy representative will attempt to notify each member, whenever possible, before pruning or removing a yard trees, and in accordance with the special conditions that might apply to a particular location. If no one is home, a notice may be left on the door. If the homeowner does not contact Blue Grass Energy, the contract vegetation maintenance crew will do the necessary pruning. Before starting the

work, the contract maintenance crew will attempt a courtesy contact with the property owner by knocking on the door.

3.5.2. Tree Removal Permits

Before removing a yard tree as part of scheduled maintenance, property owners will be contacted and informed of the necessary work. Blue Grass Energy representative or agent will secure a signed permit before starting the work.

3.6. REPORTS AND RECORD KEEPING

Adequate records and reporting are important to effective management of any program. Records shall be maintained of key aspects of the ROW vegetation management program to document program performance and provide information necessary for ongoing program management including:

- Cost metrics (cost per mile, cost per circuit, scheduled work, reactive work, etc.)
- Schedule of future work and completed work by work type and date
- Contractor performance (T&M man-hours per unit, miles per week, schedule attainment, etc.)
- Daily crew locations

4.0 Appendices

Appendix 1

4.1. CLEARANCE DISTANCES

The following guidelines for tree clearances apply at the time of line clearance tree maintenance to protect the lines under normal operating conditions. Special clearances may be needed at times because of field conditions. Additional allowance should be made for wires that will sag due to hot weather or swing sideways in strong winds.

Table of Recommended Line Clearances (in feet)

Clearance from trees	Growth Rate	2&3-phase Primary	1-phase Primary	Secondary	Services
ROW Areas					
Under (ROW)	Slow	a	b	Clear	As req'r'd - f
	Fast	a	b	Clear	As req'r'd - f
Side (ROW)	Slow	10-12 ft or ROW Edge	10 ft	Clear	As req'r'd - f
	Fast	10-12 ft or ROW Edge	10 ft	Clear	As req'r'd - f
Over (ROW)	Slow	c	d	Clear	As req'r'd - f
	Fast	c	d	Clear	As req'r'd - f
Yard Trees					
Under (Yards)	Slow	12 ft. (d)	12 ft. (d)	2	As req'r'd - f
	Fast	15 ft. (d)	15 ft. (d)	4	As req'r'd - f
Side (Yards)	Slow	10 ft. (e)	8 ft. (e)	2	As req'r'd - f
	Fast	10 ft. (e)	10 ft. (e)	4	As req'r'd - f
Over (Yards)	Slow	Remove all overhang	d	2	As req'r'd - f
	Fast	Remove all overhang	d	4	As req'r'd - f

NOTES

- (a) The ROW shall be cleared and ground cut for a minimum distance of 15 feet either side of the multi-phase pole line, or out to the limits of the existing cleared ROW when that is greater. The Contractor shall ground cut and stump treat all tall growing tree species over 3 feet tall growing within the ROW's adjacent to roadways, and over 6 feet tall when the ROW is off road and surrounded by woodlands. All trees, limbs and branches that are trimmed or cut shall be neatly piled along the edge of the ROW, mowed, or removed from site as approved by property owner.
- (b) The ROW shall be cleared and ground cut for a minimum distance of 10 feet either side of the single-phase pole line, or out to the limits of the existing cleared ROW when that is greater. The Contractor shall ground cut and stump treat all tall-growing tree species over

3 feet tall growing within the ROW's adjacent to roadways, and over 6 feet tall when the ROW is off road and surrounded by woodlands. All trees, limbs and branches that are trimmed or cut shall be neatly piled along the edge of the ROW, mowed, or removed from site as approved by property owner.

- (c) Prune all trees from sky to ground to a minimum of 20 feet either side of the pole line, and eliminate all overhangs from the area above the three-phase line.
- (d) Remove all overhang from lines to a height of at least 15 feet over the primary or as high as can be reached with a 55 ft trim lift, whichever is greater when working from an aerial lift. Remove all overhangs from sky-to-ground or as high as can be reached when trimming with mechanical equipment.
- (e) Begin pruning on distribution primary voltages to at least 12 to 15 ft below the primary as determined by tree species and growth rates, and also prune to the clearance requirements for secondary lines described above. Examples of fast-growing trees include black walnut, black locust, and silver maple.
- (f) Trim service drops to 1.5 feet of clearance in all directions of clearance around conductor where a limb or branch is displacing the service drop from it's natural sag condition, or when a significant limb (two inches or larger in diameter) is rubbing on the service drop. It will not be required to trip other service drops.

Appendix 2

4.2. ROW VEGETATION MAINTENANCE SCHEDULING STRATEGY

The following table summarizes the Blue Grass Energy ROW vegetation maintenance scheduling strategy. Individual circuits may be accelerated or deferred based on assessment of field conditions and operating performance.

Circuit Description	Primary Cycle Length (Years)	Mid-cycle Inspection/selective Tree Maintenance (Years)
Feeder Multi-phase	5-6	2 to 3
Feeder Laterals (single-phase)	5-6	