

INDIANAPOLIS POWER & LIGHT COMPANY DISTRIBUTION LINE CLEARANCE PROGRAM¹

by Charles H. Miller

Abstract. The program at Indianapolis Power & Light Company has evolved over the past twenty years into an effective operation. This program is based on a manhour per mile ratio that varies with the individual difficulty involved in trimming each of over 1,800 map sections. Specific procedures have been developed to ensure that overhead primary lines are trimmed on a timely basis.

Résumé. Le programme de la Compagnie Indianapolis Power and Light a évolué pendant les vingt dernières années en une opération efficace. Ce programme est basé sur un ratio homme-heure par mile qui varie selon la difficulté individuelle impliquée dans chaque élagage des 1800 sections cartographiées. Des procédures spécifiques ont été développées afin d'assurer que le réseau aérien primaire soit délagé sur une base opportune.

There is much more to line clearing than just trimming trees. At Indianapolis Power & Light Company (IPL), we strive to reduce line clearing costs by working with engineering and lines personnel to keep new lines away from trees. We also work to remove trees from easements when new lines cannot avoid trees. Once lines are constructed, however, we maintain adequate tree clearance for the safe, reliable electric service we provide.

Indianapolis Power & Light Company is an investor-owned electric utility serving nearly 380,000 customers in our 530 square mile service area, which includes all of Marion County and portions of surrounding counties in Central Indiana.

Our Line Clearing and Right-of-Way Division is comprised of a division supervisor, a staff forester, and a Line Clearing Section staffed by a section supervisor and two field supervisors. The staff forester oversees our transmission line vegetation management and wood pole maintenance programs. The Line Clearing Section is responsible for the day-to-day operation of our distribution line clearing program which this paper will discuss.

Management information and records. IPL's distribution line clearing program involves tree trimming and removal work on about 3,600 miles

of overhead primary distribution lines over a 30-month rotation. We do not routinely trim for secondary lines unless they are in the same span with a primary. We do, however, trim around 3-wire, open-wire secondaries with high tree-related outage potential. If we do trim around secondary wires, it is for swinging clearance only. We do not trim for service drops, but we will remove cracked or broken limbs that endanger the lines. We will also temporarily drop the service at no charge so the customers can trim their own yard trees.

We issue section prints to each contractor. Before the prints are issued they are previewed by the section supervisor and the contractor's general foreman to estimate the amount of time it will take to complete the section trimming according to Tree Manual specifications. Also at this time, brush conditions are noted and decisions are made regarding removal of specific brush and trees.

After trimming is completed the prints are checked by the general foreman before they are turned in. IPL's field supervisors then check the prints for quality and completeness before the prints are accepted. If any clearances do not meet specifications, the work is redone at the contractor's expense. Any prints that require retrimming are first reviewed and field checked by the division supervisor and contractor management for mutual agreement.

Budgeting. Our program is based on manhours worked per mile of line trimmed. We determine the number of manhours required for each years' line clearing workload based on our computer records. We then ask for dollars to support the number of manhours required for trimming the scheduled sections. Justification for these dollars is based on maintaining the 30-month line clearing cycle. When money is allocated, a certain amount goes to section trimming, and the remainder is divided between capital work and maintenance

1. Presented at the annual conference of the International Society of Arboriculture in Toronto, Ontario in August 1990.

work orders. Our computer records cover approximately the past 20 years and give us a very realistic history of what our past manpower and cost allocations have been, thus, only minor adjustments are necessary in preparing each year's budget.

Management approach to work. Our computer records tell us which sections are scheduled for trimming in a given year. The work is assigned according to priority based on trimming the oldest section first. This helps insure that line clearing forces are placed where the work is most needed.

The distribution line clearing work at IPL is performed by 32 contract crews provided by four contractors: Asplundh Tree Expert Company, The F.A. Barlett Tree Expert Company, Telepower Services, Inc., and Wright Tree Service, Inc. We have no in-house line clearing crews.

The contractors who perform line clearing work on IPL property are invited to submit annual prices based on time and material rates. The submitted prices, as well as the contractors submitting them are evaluated by our T&D Vice President, Lines Manager, and Line Clearing & Right-of-Way Division Supervisor. The prices are evaluated on the basis of current costs throughout the industry and other known economic factors such as fuel prices and labor and equipment costs. The contractors are evaluated on their performance, productivity, safety, customer satisfaction, as well as the prices they submit. Rates and productivity are analytical data that can be evaluated quantitatively; the other factors require qualitative judgement to complete the contractor performance evaluation.

At IPL we pride ourselves on having long term relationships with our line clearing contractors. Our evaluated, annual time and material agreements have helped establish and maintain a superior, well-trained work force. Many foreman and journeymen trimmers have worked on the IPL system continuously for over twenty years. The number of crews awarded to each contractor is subject to the ongoing contractor evaluation, and crew numbers can and have been increased to reward superior performance or decreased if inferior performance does not improve after a reasonable period of time.

The worst ice storm in IPL history occurred from

March 3-10, 1988. Following that storm, IPL's customers allowed our contract tree trimming crews to remove more brush, trees, and overhang and obtain greater clearance than has been possible for many years. This more aggressive tree trimming operation takes more time to accomplish. Our goal is to maintain a 30-month cycle without adding additional crews. Each contractor is assigned specific production goals within their assigned work areas. We keep the tree trimming crews working on scheduled section maintenance trimming and move them only to do emergency work.

Emergency work is any work necessary to eliminate a condition that is clearly unsafe to the public or IPL property or that is causing or could cause an outage. This includes broken limbs or uprooted trees on or about to fall on IPL lines. It also includes regular growth that is actually interrupting service, ie. blowing fuses. Wires arcing in trees and vines on poles are not considered emergencies; these conditions are written up on miscellaneous tickets.

In 1988 we started using a computer system to help us schedule work. We can now tell, within a few weeks, when we will be doing routine maintenance trimming in any map section. This allows us to reduce the amount of "hot-spot" trimming because much work on miscellaneous tickets and work orders can be scheduled to be done at the time when the section maintenance trimming is done. We can also compare trouble orders to sections previously completed to determine the effectiveness of the clearances we're getting.

In order to schedule our work more effectively, all miscellaneous tickets and work orders are field checked by either Line Clearing Section field supervisors or contractor general foremen. Based on their knowledge and experience, these personnel determine if immediate attention is required or if the work can be included with the normal section trimming.

Miscellaneous tickets are handled according to the following priorities: Priority 1: Tickets marked "RUSH" issued by IPL Lines and Service personnel. These tickets are considered emergencies. Priority 2: All other tickets issued by IPL Lines and Services personnel. These tickets are not con-

sidered emergencies. Priority 3: Tickets issued by IPL clerical personnel from customer call-ins. These tickets are usually not considered emergencies.

Every effort is being made to have work order trimming completed before line work begins. All work orders marked for tree trimming are routed to the Line Clearing Section supervisor who is responsible for checking them. This procedure will enable the tree crews to remain on their schedule work assignments.

Our overhead primary distribution system is divided into a grid network of over 1,800 one-half mile square map sections showing the location of all lines in relation to roads, rivers, subdivisions, etc. Each section is numbered and its corresponding map is scaled so that all line miles can be measured. These maps are continually updated by our Drafting & Records Division to show lines added or removed based on completed work orders.

The line clearing contractors at IPL trim according to National Arborist Association standards as described in our Tree Manual. We do not use tree growth regulators; however, we do require the application of herbicides to cut stump surfaces. We are requiring each contractor to attain a 10% tree removal rate annually.

Customer relations. It is our policy that every customer be contacted before any line clearing work is performed on their property. Tree removals require signed permission on the company's "Line Clearing Permit." In an effort to facilitate disposal of wood mulch generated by the line clearing operation, customers are invited to request delivery of free wood mulch from crews working near them. A tree brochure is made available to customers through our tree trimming forces at the time contact is made. Through newspaper advertising and other informational efforts, we try to make customers aware of the importance of planting trees away from power lines and the necessity for line clearing when there is a tree/wire conflict. Our information includes appropriate trees for planting at specified distances from overhead power lines.

To enhance our environment and foster better customer relations, IPL has recently embarked on a three-step program. First, we are involved with a

tree seedling give-away program in sponsorship with a local radio station. This program, called "Hoosier ReLEAF," involves giving away 10,000 flowering crabapple seedlings to the public. Second, in conjunction the City of Indianapolis' *Trees for Tomorrow* urban forestry program, we will plant approximately 1,500 sapling trees annually for the next five years. These trees will be planted on either company property to improve landscaping, along thoroughfares or city parks, or in residential areas (ie. electric subdivisions) for marketing and promotional purposes. Some of these trees will also be used in a pilot distribution tree replacement program. Third, an additional aspect of the program will be public education through ads and literature to inform customers about tree selection, planting, and maintenance to minimize problems with electric distribution lines and outages resulting from broken limbs and tree damage.

Safety. Our line clearing contractors have been invited to participate in a Safety Training Observation Program (STOP), which we purchased from the E.I. duPont de Nemours & Co. This program focuses on reducing accidents by eliminating unsafe acts. We routinely audit crews to see how well they are following the STOP concepts in this non-punitive program.

The contractors are expected to train their own personnel; however, we have provided the use of our company facilities for the contractors after hours use if they so desire.

Summary. We feel as though we have a good rapport with our contractors. We share information and have established quarterly reviews of progress and performance. Our policies are fixed but our procedures remain flexible so that we can act swiftly to take advantage of opportunities as we did when, following the 1988 ice storm, we placed additional line clearing crews temporarily in neighborhoods with high customer sensitivity toward line clearing and successfully gained needed clearances.

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