

Right-of-Way Management Program¹

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Abstract. Orange and Rockland Utilities (O&R), and its wholly owned subsidiaries, Rockland Electric Company and Pike County Light & Power Company serve almost 200,000 electric customers in Orange, Rockland and Sullivan Counties in New York State, a portion of Pike County in Pennsylvania and portions of Bergen, Passaic and Sussex Counties in New Jersey, a total territory of some 1,350 square miles. The Company operates high voltage lines on over 380 miles of right-of-way, some 556 circuit miles.

In 1975, an effective vegetation maintenance program for its transmission facilities was developed to prevent tree caused outages, to meet the inception of Article VII of the New York State Public Service Law, to more closely monitor the maintenance of several new high voltage transmission facilities and to meet a Company commitment of selective clearing on all facilities.

All transmission rights-of-way, including 34.5KV to 500KV, were surveyed and inventoried according to a "land use type" code. The code, a four digit number, depicted the following information: land use (i.e. forest, field, residential, commercial, and lakes or wetlands), vegetation density, and general previous treatments (i.e. clearcut or selectively cut). The land use code was used as the principal parameter for dividing the transmission line into segments. After surveying was completed, a vegetation management plan was established for each right-of-way for a ten year period. Survey information and vegetation management plans were converted to an electronic data processing system for record keeping purposes.

Through this system the company has a detailed record keeping system of all treatments, costs, and its future maintenance and budgetary requirements.

Orange and Rockland Utilities, (O&R) is a small electric and gas utility located in southeastern New York State. It stretches from the Hudson River, on the eastern boundary, to the Delaware River, on the western boundary. Its territory also overlaps parts of Pennsylvania and New Jersey, in total 1,350 square miles. It serves 200,000 electric customers, a population of 615,000 in the suburbs and the farmlands of Southern New York State. There are 379 miles (or 4,288 acres) of transmission rights-of-way in the system with voltages ranging from 34.5 kv to 500 kv.

Traditionally, the Company gave tree trimming a low priority as did many other electric utilities. That is, trees were not trimmed until they reached emergency conditions, regularly scheduled tree trimming was not usually performed, and accurate records were not often kept. With changing times

came an increasing public concern over the environmental compatibility of rights-of-way by property owners and local agencies. In addition, the Company instituted a selective clearing program on all newly built and existing lines, for ecological and aesthetic reasons. These, as well as requests from the New York State Public Service Commission and compliance with various New York State Laws, made it clear that a right-of-way management program was necessary.

Goals and Purposes

In 1975, to meet these new obligations, Orange and Rockland began to manage the vegetation on its transmission lines following a newly designed Right-of-Way Management Program. The purposes of the program are as follows:

To continue a selective clearing program during subsequent maintenance of Article VII transmission rights-of-way (Article VII refers to a New York State Law requiring the major transmission facilities to acquire a Certificate of Environmental Compatibility and Public Need. These lines are carefully planned, constructed and maintained following environmental compatibility requirements.)

To keep an accurate record of all right-of-way treatments, per land use type, tree caused outages, and cost/acre of individual treatment methods,

To provide at least a 10-year plan for managing each right-of-way,

To establish costs for previous treatments per land use type and to estimate future costs for right-of-way treatments per circuit.

To meet environmental requirements of local, state and federal legislation and

To provide a simple method of record keeping that field personnel can learn quickly and implement efficiently.

In addition, long range goals were formulated as follows:

To convert all transmission line rights-of-way to

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a selective clearing program. For Orange and Rockland, selective clearing means removing tall growing trees (noncompatible species) which permitting low growing trees and shrubs (compatible species) to remain. Low growing trees and shrubs are those species that do not interfere with the integrity of the line at their mature heights.

To reduce overall maintenance and cost requirements while at the same time reducing the number of tree caused outages,

To follow the success or failure of each treatment type over a period of time (10 years or more) and draw conclusions about its applicability to O&R's transmission system and

To establish a good working rapport with property owners, ad hoc environmental groups and local shade tree commissions in the 82 communities that O&R serves, while maintaining line reliability.

The survey

To accomplish the purposes and goals, several steps were taken. First, all transmission rights-of-way were surveyed in the field on foot or using a four wheel drive vehicle during the dormant season (October through April) to determine existing vegetation and field conditions. The New York State Department of Transportation Quadrangles (modified USGS 7½" Topographic Maps) with the transmission lines superimposed, were used as base maps. The land use on and adjacent to the right-of-way was categorized into forest, field, residential, commercial and lakes or wetland. These categories or land use types became the principal parameters for dividing the right-of-way into sections. Here section is not meant to be synonymous with a span (from pole to pole) but portions of the right-of-way, these portions may contain more than one span. Vegetation compatibility was rated as: 10-compatible, 20-semi compatible or 30-non compatible. Vegetation density was rated: 1-light, 2-medium or 3-heavy. The lines were also categorized as to their previous treatment, in general: 1000 clearcut and 2000 selectively cut. As a rule, lines constructed before 1967 were clearcut and after 1967 selectively cut. When all the categories were added together, a four digit code resulted or

what was termed a land use type. This four digit land use designation gives the administrative and field personnel a good description of the right-of-way section conditions. (See Table 1).

Table 1. Land use types

Code Number	Designation
1000	selectively cut right-of-way
2000	original clearcut right-of-way
100	lakes, ponds, wetlands
200	commercial, industrial
300	residential, laws
400	brushfields, pastures, farmlands
500	wood areas
10	compatible vegetation
20	semi-compatible vegetation
30	non-compatible vegetation
1	light density
2	medium density
3	heavy density

Example:

Originally clearcut	2000
Wooded area	500
Non-compatible	30
Medium density	2
Land use type is	<u>2532</u>

Second, records of the land use type codes for each right-of-way were entered on a field survey sheet along with a schedule of tree work (treatments) to be performed over the next 10 years. The Company employed several treatment methods to perform its selective clearing program consisting of selective cutting (removing) non-compatible species and stump treating, winter basal spraying, side trimming, selective foliar spraying and using a brush hog (mechanical). Vegetation maintenance using this program began in 1975 and later in 1977, conversion to an electronic data processing system began. With the inception of computer utilization, a project card is produced and acts as the tree crews field assignment. It describes the transmission line number and location, section number and location, land use type, voltage, acreage, treatment to be performed and special notes. The crew follows the directions as prescribed on the project card. When work is completed, the crew notes the

manhours worked for each treatment requested, equipment used, brush disposal, date, and other remarks on the project card. The cards are returned to data processing so that a record can be automatically made of the work performed in the field.

Reports

With the data received from the project cards, four types of reports can be generated upon request as follows: The Detail History Report contains a complete record of all the transmission lines listed by their line number. It includes the past right-of-way maintenance schedule of treatments with their associated manhours and costs as well as the current and future years schedule of right-of-way maintenance. In addition, it lists outage incidents, unscheduled maintenance and special notes. The special notes include easement restrictions, indications of a park or historical site and specific restrictions on the use of herbicides.

The Maintenance Program for 19____ (a given year) lists all the transmission lines, their section numbers and the types of treatments scheduled for a requested year. By using the information provided in this report, the project cards are then produced. Each project card contains information on one and only one transmission line section. Since a line may contain as many as 40 sections, 40 project cards will be produced each containing a separate field crew assignment. The Maintenance Program Report, therefore, is a composite list of the project cards.

The Estimated Treatment Costs Per Acre for 19____ (a given year) lists the average manhours and cost/manhours to perform a treatment.

The Maintenance Budget for 19____ (given year) is derived from the information contained in the Estimated Treatment Costs Per Acre for 19____. The "Budget Report" lists the lines by number and indicates the number of manhours and costs to do the required treatments as scheduled for a requested year.

This program has been more completely described in two booklets: "Tree Trimmer Supervisor's Manual" which contains a detailed description of how to use the project cards and computer reports, treatment types, vegetation maintenance procedures and specifications, and the "General Description, Policies and Guidelines" which contains the Company's goals and purposes, department activities and duties, a description of the electronic data processing system and notification of property owners, resurvey and training procedure. Both booklets are available upon request. The initial cost of the program to the Company was \$30,000 which included design, right-of-way surveying, record keeping, and conversion to the data processing system. The Company used, exclusively, the knowledge and experience of its in-house personnel to develop and implement the program.

Bibliography

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