

NSTAR Electric Integrated Vegetation Management Right-of-Way Program Overview

Date: 7/28/09

NSTAR Vegetation Maintenance Objectives

- NSTAR has a responsibility to deliver reliable electric service
- NSTAR runs a thoughtful, award-winning tree maintenance program that follows all state and federal regulations
- NSTAR is always mindful of our neighbors and the need for cooperative communication

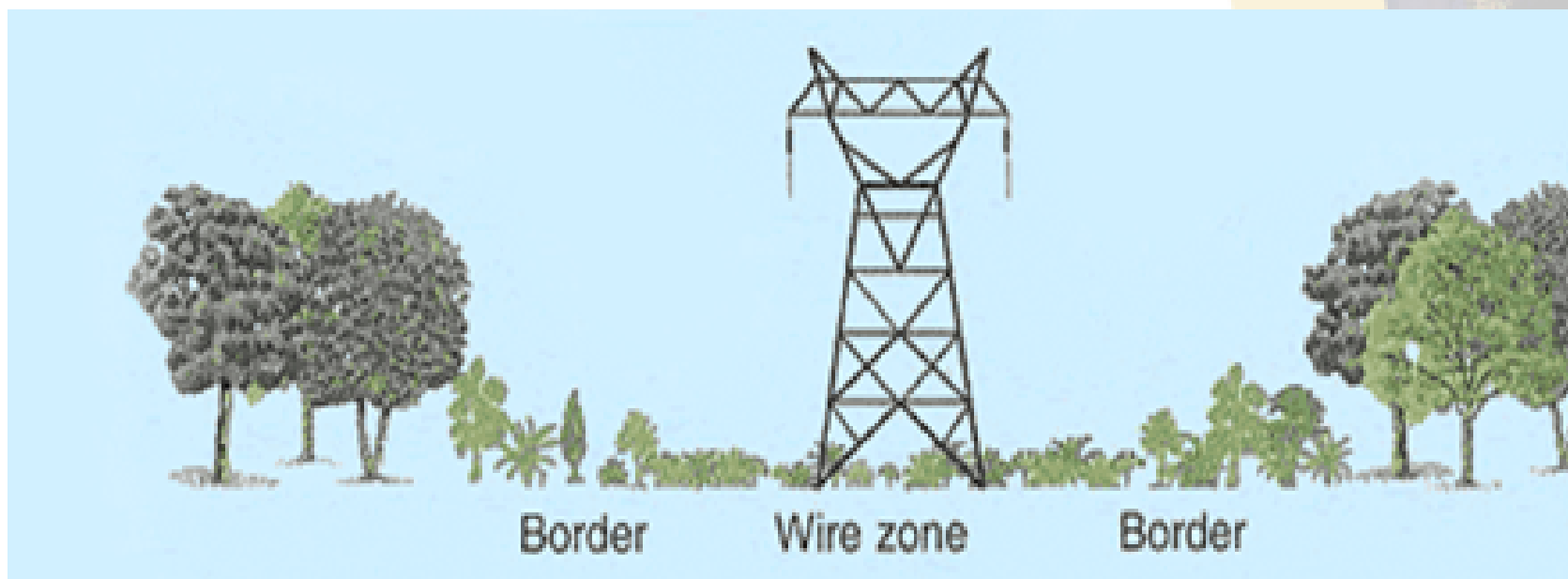
NSTAR Transmission Vegetation Program Summary

- Safety and reliability of the transmission system
 - Critical to regional and local reliability
- Compliance
 - Federal Electric Reliability Commission (FERC) best practices
FAC 003 - 1
 - North American Electric Reliability Corporation (NERC) reliability standards
- Implement and develop vegetation management best practices in partnership with relevant state agencies
- Trees are the number one contributor to power outages especially during storm events

Transmission vegetation

The perfect picture

The wire zone, border zone concept



The Goal

- Comply with all Federal and State laws/regulations
- Maintain system safety and reliability in an environmentally sensitive manner
- Manage our right-of-way through industry standard best management practices
- Keep the ROW floor a self-sustaining early stage of plant succession (herbaceous plants and shrubs)
- Work with ROW abutters and the public on all activity on the right-of-way

Utility Vegetation Management Final Report March 2004

- Commissioned by the U.S. Federal Energy Regulatory Commission to support the federal investigation of the August 14, 2003 Northeast blackout

- **Discussion:** ...for example, tree removals are consistently higher than trees pruned. Which indicates a correct focus of resources. Also, if a company is employing IVM techniques, and has its system under control, it is appropriate to see a higher number of acres “treated” as opposed to “mowed.”

Integrated Vegetation Management Program (IVM)

What is an IVM program?

- When a combination of **mechanical, chemical** and **natural controls** are used to maximize benefits
- The integration of all three creates a well-balanced program that reduces the impact on non-target organisms
- Promotes the growth of vegetation compatible with the Transmission System
- Eliminates and reduces non-compatible vegetation
- Promotes a habitat for animals, birds and reptiles

Three components of the NSTAR IVM Program

Chemical Control:

the selective use of herbicides applied to the foliage, stems and/or root zone of target vegetation to suppress growth and achieve root control

Mechanical Control:

the physical removal of the stem and branch of target vegetation by cutting, chopping or mowing, usually leaving the root system intact

Integrated Vegetation Management:

A combination of Mechanical, Chemical and Natural vegetation management techniques that promote long-term control with minimal impact to non-target organisms

Natural Control:

the science of working in concert with the stages of plant succession and interspecies competition to limit the establishment of undesirable vegetation

Documents Filed with the State

- ***Yearly Operational Plan (YOP)*** with the Mass Dept. of Agricultural Resources' Rights-of-way Regulations (333 CMR 11.00)
 - Each Right- of- Way (ROW) is identified in YOP for selective treatment
- ***Vegetation Management Plan (VMP)*** – 5 year plan outlines the specifications of our Integrated Vegetation Management Program.

Maintenance Methods

Mowing:

- 4 year cycle
- Significant impact every 4 years
- Eliminates all vegetation
- Does not always promote compatible vegetation
- In conflict with wildlife



Selective Treatment:

- 2-4 year Maintenance Program
- Promotes compatible vegetation with transmission lines
- Encourages wildlife
- Supports meadow - type environment



Why not just mow?

MOWING

- Mowing leaves the root system intact. This promotes rapid re-sprouting and spreading. Months later where one tree has grown, several more grow back.
- The increased stem density inhibits access for inspections and routine/emergency repair work

Selective Treatment

- Herbicide treatment systemically inhibits plant function eliminating future re-sprouting
- No stem density issue until new plants germinate in ROW

Selective Treatment

- We selectively apply herbicides to a ROW one to three years after it is mowed, in order to use less material as the re-growth is under the twelve foot maximum height allowed for treatment.
- Upon the implementation of our IVM program we will be mowing in select locations and treating on a three to five year cycle
- The herbicide application equipment used are common backpack sprayers
- One to two unannounced state “use inspections” occur to verify accurate mix rates, use according to the label (it’s the law) and applicator licensing, verbal knowledge talking points
- Only approved Sensitive Area Materials are used at the lowest labeled rate. These materials have gone through extensive testing for registration and careful review by MA Dept. of Agricultural Resources and the Dept. of Environmental Protection regarding their impact on the environment

Re-sprouting of mowed undesirable maple trees



Common NSTAR Right-of-Way Easement Language

- “...the perpetual right and easement, at any time and from time to time and without further payment therefore, to clear and keep said strip or any part thereof cleared of trees, underbrush, buildings and other structures (the first clearing may be for less than full width and may be widened from time to time to the full width)...”

YOP Notification Requirements

- Notification:
 - Forty-five day public review and comment period
 - Twenty-one day notification period
- Towns are notified by Certified mail:
 - Conservation Commission (45 days)
 - Selectman (45 days)
 - Board of Health (45 days)
 - Public water suppliers (21 days)
- Posting in newspaper
 - 48 hours (min) before start date
- Environmental monitor posting online (MEPA)

Yearly Operational Plan

Contains the following:

1. Identifies target vegetation
2. Definitions, identification and treatment of sensitive areas including private and public well sites. (Onsite foot patrol location verification and notification by door stuffers prior to treatment application)
3. Proposed herbicide treatment methods
4. Alternative mechanical control techniques
5. The companies that will perform the herbicide treatment
6. Herbicide fact sheets, labels and ROW area maps indicating certified vernal pool locations,
7. Procedures and locations for handling, mixing and loading herbicide concentrates
8. Emergency resources

Information Available Online

YOP, VMP, NHESP, Mass 333 CMR 11.00, MEPA WEB Sites:

- <http://www.kenersongroup.com/yop/2009/nstar>
- <http://www.kenersongroup.com/VMP.pdf>
- www.mass.gov/agr/pesticides/rightofway/index.htm
- www.mass.gov/dfwele/dfw/nhesp.htm
- www.mass.gov/agr/legal/regs/pesticides_regulations_list.htm
- <http://www.mass.gov/envir/mepa/>

Material Safety Data Sheets and Herbicide Labels

- MSDS sheets and labels refer to the material *concentrate*
- They are mostly related to the mixing and storage process both of which occur off the ROW and under controlled conditions.

MA Dept. of Agricultural Resources

Herbicide Fact Sheets

- Found in YOP, these contain tested information about each herbicides active ingredients
- The amount of material that is applied on the ROWs is much less than the amounts tested in the fact sheets. (Compare to section VI page 10 in the beginning of the YOP).
- Due to elimination of the target tree species, subsequent applications will use even less material on the ROW.
- Half-life: the time required for half the amount of a substance in or introduced into a living system or ecosystem to be eliminated or disintegrated by natural processes. This is a common inquiry posed by our customers

Ideal NSTAR Transmission Right-of-Way

NSTAR ROW 342 Barnstable to Bourne

