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January 3, 2013

Henry Jennings, Director
Maine Board of Pesticide Control
State House Station 28
Augusta, ME 04333

Dear Mr. Jennings:

Enclosed is a copy of Central Maine Power Company's Transmission Right-of-Way Vegetation Management Plan for 2013. If you have any questions, I can be reached at 621-3942.

Sincerely,



Nicholas Hahn
Vegetation Management



DRIFT MANAGEMENT PLAN FOR CENTRAL MAINE POWER TRANSMISSION LINE RIGHTS-OF-WAY

During the 2013 calendar year, Central Maine Power Company (CMP) will be treating approximately 8,000 acres as part of our regular vegetation management program. Some of this acreage is comprised of agricultural and industrial uses, and only needs to be patrolled. Integrated vegetation management techniques are employed on the remaining acreage to minimize use of herbicides.

The first phase of the program requires that a contract crew patrol each right-of-way cutting all hardwood species over 8 feet tall and most of the softwood species. The stumps of trees capable of resprouting are treated with a herbicide. This reduces the amount of foliage that must be treated each cycle. Areas not suitable for foliar herbicide application during the summer are to be entirely cut at this time, and stump treatment to be used where appropriate.

The second phase of this year's program requires that the contract crew patrol each transmission line a second time, treating all remaining tree species capable of growing into the conductors or that block access to the right-of-way. The herbicides are applied with a backpack, hand pressurized spray tank. The tank pressure is low, so the potential for off target movement of the mix is minimized. A contract crew composed of 5 to 8 people will selectively treat the capable species.

A no spray zone is maintained around wells, municipal water supplies or any open water. The buffer zone will vary depending on the topography, a minimum of 25 feet is maintained on all water and a minimum 100-foot buffer is maintained on drinking water supplies. These buffers provide an additional margin of safety.

A low-pressure foliar application technique will be used on the majority of right-of-way scheduled this year. The herbicides and adjuvants, including a drift control agent, are mixed in water at rates of 1/8% - 5%. A hand-pressurized backpack sprayer is used to selectively apply the mix directly to the leaves of the undesirable species. The large droplet size, low tank pressure, and drift control agents, combined with the selective application technique, reduces the potential for drift to a very minimal level. The following is a list of herbicides CMP may use depending on species composition, density and environmental factors:

Garlon 4	Krenite	Arsenal	Milestone
Rodeo	Stalker		

Before a treatment technique or herbicide is selected, a review of the right-of-way is conducted including a list of landowner maintenance agreements, known municipal water supplies, and brush densities. This information helps CMP personnel select the herbicides and determine the mix rates.

A form is given to each crew foreman before the job starts listing all special arrangements, herbicides, and mix rates. All the work is performed by licensed contract

crews. The contract crews will post a sign on the first structure on each side of all public roads stating the date and herbicide used. If herbicides are not applied near the road crossing structure, the first structure where herbicides are used will be posted.

Each town that has a transmission right-of-way scheduled for herbicide work in 2013 will be notified in advance. A landowner maintenance agreement is available to any landowner or municipality objecting to the use of herbicides. The landowner agrees to keep brush to a height less than 10 feet and a CMP inspector looks over each area annually. CMP personnel will notify the staff of the Board of Pesticide Control at the start of the season of general work locations. Daily locations are available at CMP's General Office.

The following list identifies the CMP transmission section numbers and general locations for 2013 scheduled work. Plan and profile maps for each right-of-way are on file at the General Office in Augusta.

2013 CMP TRANSMISSION VEGETATION MANAGEMENT SCHEDULE

<u>Section</u>	<u>Location</u>
1	Winslow-Augusta
4	Winslow-Detroit
11	Topsham-Bath Farmingdale-
19	Augusta
20	Searsport
22	Lisbon Falls
26	Belfast-Searsport
27	Lisbon Falls
30	Topsham
31	Topsham-Brunswick
31A	Topsham
32	Rangeley-Stratton
32A	Bigelow
33	Augusta
38	Oakland-Augusta
38A	Oakland-Waterville
38B	Augusta
40	Winslow
42	Auburn
43	Lewiston-Topsham
45	Lewiston-Auburn
46	Lewiston-Auburn
54	Frye-Stratton
55	Bath
56	Winslow-Oakland
56A	Oakland-Waterville
58	Bath
63	Moscow-Livermore Falls
63A	Solon
69	Bath-Pownal
70	Searsport-Prospect
75	Auburn-Lewiston
76	Lewiston-Topsham
76C	Topsham
77	Wiscasset-W. Bath
77A	N. Bath
81	Wiscasset-Pownal
81A	Topsham
92	Bridgton-Fryeburg
97	Lovell-Fryeburg
115	South Berwick
117	N. Berwick-S. Berwick
118	N. Berwick-S. Berwick
139	Ogunquit-York

139A	York
147	Lewiston
148	Auburn-Lewiston
149	Auburn
151	Scarborough-S. Portland
151A	S. Portland
158	Dayton-Saco
159	Saco-Biddeford
170	Standish-Hiram
173	Gorham-Westbrook
178	Eliot-York
179	S. Portland-Scarborough
181	Westbrook-S. Portland
185	Sanford
192	Biddeford-Saco
194	Westbrook-S. Portland
195	S. Portland
196	Westbrook-S. Portland
206	Warren-Rockland
206A	Rockland
207	Wiscasset-Bath
207A	Wiscasset
209	Raymond-Harrison
375	Buxton-Wiscasset
377	Pownal-Wiscasset
217D3	Brunswick
681D1	Wells
823D2	Chase Stream Twp-W. Forks

**Central Maine Power Company
Transmission Vegetation Management Plan
2013**

**Central Maine Power Company
Transmission Vegetation Management Annual Plan
January 1, 2013**

1. Introduction

Central Maine Power Company's (CMP) Vegetation Management Department is committed to public and employee safety and the reliable transmission of energy to all the organization's customers. When trees and limbs contact energized conductors power quality is diminished, power outages increase, and the potential of human injury escalates.

The vegetation along transmission systems will be managed on a four year cycle. Every year the incompatible species are removed and screens are pruned along one fourth of the system. Side trimming and danger tree removals will be conducted as required.

CMP is committed to environmental stewardship and vegetation management managers will seek to select the most benign treatments possible. CMP will only use herbicides registered by the Maine Board of Pesticide Control and approved by the U.S. Environmental Protection Agency. Landowners and abutters rights will be considered and alternatives will be offered whenever practical. CMP staff will cooperate and coordinate work as practical with state and municipal representatives.

Safety will be incorporated into the departmental work culture. Safety meetings will be conducted with contractor work force.

2. Goals and Objectives

CMP depends on a cycle of annual vegetation management that is sustainable year after year. In order to accomplish this goal, CMP utilizes a system *of* vegetation management that manages plant communities in which compatible and incompatible vegetation are identified, action thresholds are considered, control methods are evaluated, and selected control (s) are implemented to achieve a specific objective. Choice *of* control methods is based on safety, power reliability, environmental impact, effectiveness, site characteristics, and economics. This system *of*

vegetation management is called Integrated Vegetation Management.¹

The Integrated Vegetation Management program is designed to promote sustainable plant communities that are compatible with the intended use of the right-of-way, and discourage incompatible plants that may pose problems including safety, security, access, fire hazard, electric service reliability, emergency restoration, visibility, line of sight requirements, regulatory compliance, environmental, or other specific concerns.²

3. Safety

CMP considers safety as a very important facet of the vegetation management program. The safety concern is for the landowners, neighbors, workers, and people who use right of ways for recreation or agriculture. When vegetation comes in contact with or grows close enough to the conductors there is risk of electrical arcing, which may cause injury, wide spread power outages, and potential fires. Bulk Transmission System interruptions can lead to loss of electricity to thousands of Maine customers. This can cause safety concerns including but not limited to national security, heating of homes, as well as loss of electricity to hospitals, schools, traffic lights, etc. Therefore, minimum clearances between vegetation and the conductors must be met to mitigate these safety concerns.

4. Reliability Standards

CMP must maintain vegetation to ensure the reliability of the transmission system. It is vital to the operation transmission network that CMP does not allow tree caused outages on its transmission line system. As a bulk transmission system operator, CMP's vegetation management practices are

¹ American National Standard for Tree Care Operations – Tree, Shrub, and Other Woody Plant Maintenance - Standard Practices (Integrated Vegetation Management a. Electric Utility Vegetation Management, ANSI A300 (Part 7)-2006 IVM (American National Standards Institute, Inc.) p. 58

² American National Standard for Tree Care Operations - Tree, Shrub, and Other Woody Plant Maintenance - Standard Practices (Integrated Vegetation Management a. Electric Utility Vegetation Management, ANSI A300 (Part 7)-2006 IVM (American National Standards Institute, Inc.) p. 57

designed to conform to the Transmission Vegetation Management Program reliability standards recently adopted by the North American Electric Reliability Council ("NERC") as Standard FAC003-1, and to the American National Standards Institute ("ANSI") Standard A300 - Standard Practices for Tree Shrub and Other Woody Plant Maintenance (Integrated Vegetation Management - Electric Utility Rights-of-Way).

Properly maintained vegetation on a right of way allows for improved reliability, access, longer lines of sight, and improved visibility of structures, all of which aid in reducing restoration time in the event of a service interruption, and routine maintenance activity.

5. Environmental Impact

CMP's vegetation management program is designed to minimize the impact on the environment. CMP considers several environmental factors including streams, wetlands, wildlife habitat, plant biodiversity, and soil erosion. The goal is to promote a healthy early successional growth pattern on the right of ways.

6. Economics

One of CMP's goals is to minimize the cost to CMP's rate payers as well as minimize vegetation caused interruptions and outages. CMP considers program costs when finalizing vegetation management plans.

7. Enhance Wildlife Habitat

Properly maintained rights-of-way create habitats that can improve habitat for numerous plant and animal species. General observations on CMP rights of way display an early successional ecotype that provides favorable habitat for many wildlife species. Right of way corridors promote low growing desirable vegetation that is maintained in a stable early successional habitat that is disappearing in Maine. This early successional habitat provides benefits to many wildlife species.

There have been many studies on this subject that CMP references when making vegetation management decisions. A continuing research project initiated by Purdue University professors Dr. William Byrnes and Dr. William Bramble has been conducted on a transmission line right of way in Pennsylvania over the last 50 years. The project concentrated on the vegetation management practices on utility rights of ways and the impact on wildlife. The research documented the effects that different vegetation management techniques have on food and cover for whitetail deer, cottontail rabbit, ruffed grouse, wild turkey, songbirds and other small mammals and birds. The conclusions of this study has documented that Integrated Vegetation Management on rights of way is promotes habitats to support wildlife populations.

CMP conducted a songbird assessment to better understand current vegetation management practices impact on Maine song birds.

Stream crossings are also of particular concern for wildlife that requires special management objectives. The objective of stream crossing management is to promote vegetation that will shade streams, control erosion, and promote bank stability. Wildlife also use stream buffers as crossing areas.

Specific vegetation management practices in stream crossings shall include:

1. Removal of all capable tree species.
2. Managing brush consistent with Maine slash laws.
3. Promoting the continued growth and reproduction of compatible vegetation with canopies that provide shade to the stream.
4. Avoid use of heavy equipment that may cause soil compaction or rutting to the greatest extent possible.
5. Leave all stumps in place so that the root mat maintains bank stability.

CMP has cooperated wildlife organizations such as the National Wild Turkey Federation.

8. Wetland Impacts

Vegetation management activities will be conducted in accordance with CMP policies to protect wetlands.

An Environment Consultant study was commissioned by several Massachusetts utilities in 1989 comparing several right of way management techniques, including the use of herbicides to control capable vegetation in wetlands. The study concluded that there is no significant impact to wetlands from the selective use of foliar herbicide applications. Mechanical treatments result in relatively higher impacts than selective herbicide applications.

Mechanical techniques had a significantly higher impact on the cover value of herbaceous vegetation than herbicide techniques. Residues from petroleum products such as bar oil or hydraulic fluid were found in the leaf litter on mechanically treated sites. No herbicide residues were found on herbicide treated sites.³ Many wetland species are low growing and are desirable species. By removing the undesirable species the desirable species can compete more effectively which reduces need for additional vegetation management during subsequent cycles.

9. Maintain Access

CMP maintains access along the right of way corridor to allow crews to safely and efficiently traverse the right of way for emergency and routine maintenance. Vegetation may be controlled to allow access.

10. Erosion Control

Erosion can be a concern if vegetation is completely removed. Promoting stable plant communities on the right of way allows strong, healthy root-mat

³ Study of the Impacts of Vegetation Management Techniques on Wetlands for Utility Rights-of Way in the Commonwealth of Massachusetts, Environmental Consultants, Inc., June 1989, p ES6

conditions that are effective in stabilizing soil and controlling erosion. CMP's vegetation management program encourages compatible plants such as: ferns, grasses, sweet-fern, blueberries, blackberries, raspberries, dogwood and other low-growing shrubs as well as a variety of wild flowers. In areas where there are compatible species, erosion is typically less of a concern due to the fact that most plant species are not removed. When herbicides are used to control incompatible species, the roots are effective in controlling erosion until natural re-vegetation can populate the site.

CMP will encourage compatible vegetation to grow along stream banks.

11. Public Outreach and Education

CMP educates the public as well as stakeholders in the vegetation management plan about the benefits of the program. Cooperators and affiliates include:

1. United States Environmental Protection Agency Pesticide Environmental Stewardship Partnership
2. National Wild Turkey Federation
3. Utility Arborists Association
4. International Society of Arboriculture
5. Edison Electric Institute

12. Research

CMP periodically investigates new technologies and evaluates new products for their ability to meet the Row maintenance objectives.

13. Integrated Vegetation Management Program

CMP utilizes a system of vegetation management that manipulates plant communities in which compatible and incompatible vegetation are identified, action thresholds are considered, control methods are evaluated, and selected control (s) are implemented to achieve the plans objective.

Integrated Vegetation Management is a system employing several control

methods based on effectiveness, environmental impact, site characteristics, safety, security, and economics to protect the reliability of the transmission system.⁴

A four year vegetation management cycle has been established as an action threshold. This vegetation management cycle has been routine since the 1980's and is based on engineering design of the line, the growth rate potential of the common tree species, and required minimum vegetation to conductor clearances.

Growth rates are determined by species composition, exposure to sunlight, soil quality and type, and available soil moisture.

NERC adopted Transmission Vegetation Management Standard FAC003-1 which became effective April 7, 2006. The standard requires that the Transmission Owner shall identify and document clearances of vegetation to conductors at the time of vegetation management and to establish clearances that will prevent flashover between vegetation and conductors.⁵

14. Clearances

Minimum clearances between all capable tree species and wires at time of vegetation management work are listed on table 1. Distances may be increased based in topography, length of span or tower height.

Table 1

	(A)
Voltage	Minimum Vertical Wire clearance (feet) *
34.5 kV	15
69kV	15

⁴ American National Standard for Tree Care Operations - Tree, Shrub, and Other Woody Plant Maintenance - Standard Practices (Integrated Vegetation Management a. Electric Utility Vegetation Management, ANSI A300 (Part 7)-2006 IVM (American National Standards Institute, Inc.) p. 58

⁵ NERC Standard FAC-003-1 -- Transmission Vegetation Management Program, B. Requirements, R1.2, p.1.

115 kV	20
345 kV	25

- Clearance between conductor at maximum sag and capable vegetation.

Minimum clearances are designed to prevent flash over between vegetation and overhead ungrounded supply conductors. At no time will vegetation be allowed to grow closer than the distances listed on table 2.

Table 2

Voltage	Minimum Wire clearance (feet) *
34.5 kV	3
69kV	3
115 kV	4
345 kV	10

* Based on IEEE 516-2003 table 5 and increased to the next whole number.

15. Hazard Tree Program

The Hazard tree program is the practice of pruning or removing trees along the edge (sides) of a transmission ROW. CMP's ROW width is determined either by ownership or easement. The goal is to maintain the full ROW width, or reestablish the original cleared ROW width. Side pruning is accomplished with climbing crews, mechanical tools, or an off-road bucket crews.

Branch pruning to achieve sufficient line clearance is ordinarily the last course of action.

Removing the tree is preferred over pruning because it usually will reduce long term maintenance costs and minimize future power outage risks. Danger trees in the right of way will be removed during routine maintenance. Danger trees are trees that could contact electric supply lines.

Hazardous trees with the potential to hit the conductors must be removed. Hazardous trees are edge trees that pose an obvious threat to overhead conductors - dead trees, unsightly trees after pruning, unhealthy trees, trees with weakened crotches and trees leaning over or towards the wires. Stumps

shall be no taller than six (6) inches tall. Trees that may not survive extensive pruning should be removed.

HAZARD TREE EVALUATION CRITERIA

The following criteria will be used to identify and remove hazard trees.

Species

- Failure rates of tree species
- Tensile strengths of wood
- Longevity
- Rooting characteristics

Growth Patterns

- Phototropism-tree growing towards sunlight
- Lean

Location

- Slope
- Shallow soils.
- Wet soils
- Stream banks
- Erosion

Structural Defects

- Poorly attached leaders / crotches with included bark
- Multi stems - co-dominate leaders
- Rubbing leaders or rubbing against other trees

Disease / Insect damage

- Defects caused by disease or insects

Decay - caused from

- Storm damage
- Mechanical damage
- Disease
- Frost cracks
- Sun scald

CMP will document and track all areas containing trees that do not meet CMP Section 400 transmission clearances. Problem trees are to be recorded in the transmission database, so removal can be scheduled.

The Transmission Utility Arborist will be consulted regarding the removal of hazardous trees outside of the ROW boundaries or road limits.

Hardwood stumps are to be treated with a cut surface herbicide treatment (CST) whenever environmentally acceptable, to prevent re-sprouting.

Brush and wood resulting from pruning and removals is to be left in the ROW in compliance with the Maine Slash Law. Large amounts of brush must be burned, chipped, or removed, per State of Maine Slash Law.

16. Tree and Brush Removal in Conjunction with Herbicide Applications

Preparatory cutting is the practice of manually removing trees in a ROW on a cycle in preparation for the subsequent herbicide application. Preparatory cutting may take place between April and May, or prior to foliar herbicide application.

In some situations the manual clearing may occur after the foliar herbicide applications.

Stumps will be cut as flat and as low as possible, less than six (6) inches tall. The resulting slash should lie as flat as possible to comply with the Maine slash law. There are to be no remaining live branches attached to the stump of a softwood tree after it was removed.

Hardwood stumps and pitch pine stumps are to be treated with a CST, whenever environmentally acceptable, to prevent resprouting.

All hardwood tree species over eight (8) feet tall will be cut, and the stumps will be immediately treated with a CST herbicide.

All softwood trees species over one (1) foot tall will be cut, or height will be based on a herbicide selection. The remaining stump will have no live

branches. Incorrectly cut softwood trees will result in withholding of payment until the trees have been correctly cut.

Due to low conductor height and/or invasiveness, tall shrub species (alder, buckhorn, autumn olive, etc.) may have to be cut and/or treated.

The full cleared ROW width must be maintained.

Distribution circuits within a transmission ROW are to be included when maintaining the transmission section next to the distribution line. This is considered part of the work for the scheduled transmission section.

Trees and brush near tower bases and switch platforms, and vines on poles/towers or guy wires are to be cut and treated with a CST.

CMP has taken a wire zone / border zone approach to managing compatible vegetation within the ROW. The compatible vegetation height may vary from the center of the ROW to the edge depending on conductor sag; however incompatible tree species are to be removed from the active right of way, especially the wire zone, no vegetation over (10) feet tall is permitted in the wire zone. Compatible species over (10) feet in height may be left in the border zone.

17. Widening of the Right-Of-Way

CMP periodically widens the edges of the right of way. Trees growing along the edges seek sunlight in the right of way and either bend out towards the sunlight or grow all their branches on the right of way side of the tree. Tree seedlings can become established under these branches and encroach the easement. This encroachment needs to be removed to ensure the goals and objectives of the TVMP are met. Encroachment trees are controlled during each vegetation management cycle. Danger trees are removed during ROW reclamation.

18. Herbicide Application

Foliar applications of herbicides are made on a periodic basis employing the low volume foliar application method. This technique uses 3-5 gallon, non-motorized backpack sprayers (such as Birchmeir or Solo) to selectively apply the herbicides to target species. Motorized backpacks, such as mistblowers, are prohibited.

Foliar spraying will take place between early June and the end of August.

The following describes CMP's specific methods of herbicide use.

Herbicides shall be applied only by manual application techniques so that target individual plants or compact clusters of plants are treated.

Herbicides shall be applied in strict accordance with the instructions of the manufacturer and the requirements of any state or federal agency having jurisdiction. If CMP experiences, or generally accepted practices within the industry, indicate the need for more restrictive application practices then greater restrictions shall be implemented.

Herbicides shall be applied only by applicators trained and licensed by the Maine Board of Pesticide Control.

Herbicides shall be applied in accordance with the products label directions to be effective for the purposes for which they are intended.

The requirements and limitations of this policy shall apply both to CMP personnel and to any outside contractor engaged to perform right-of-way vegetation management.

Any tree or shrub species capable of interfering with conductors, structures, tower bases, guys, etc. will be controlled with a herbicide application, or mechanically removed.

The Transmission Utility Arborist may specify that certain shrub species (alder, buckhorn, etc.) be treated to maintain open access to the ROW.

Foliar herbicide applications must control 100% of all tree species over six (6) feet tall and capable of interfering with conductors, structures, tower bases, guys, etc., and at least 95% of all capable species under six (6) feet tall will be controlled.

Contractor will re-treat, at their expense, areas where the Transmission Utility Arborist finds ineffective control due to application technique. Failure to do so will result in withholding of payment.

Herbicide applications will stop when wind is capable of moving the spray mixture off the ROW. Spray pressure will be kept as low as possible to reduce drift. Maine drift regulations prohibit spraying when the wind speed exceeds 15 mph.

All herbicide applications will be stopped during rainfall or when rain is imminent. If spraying is interrupted by rain, the crew will resume treatment at a point prior to where rain started.

Avoid foliar herbicide applications near yards, gardens, pools, and where humans or animals are congregating. These situations will require manual cutting and where a CST will be applied, to create an appropriate buffer.

All herbicide mixes and rates will be approved by CMP.

Crew foremen are required to post all public road crossings with a sign provided by CMP that identifies the date of the foliar application and the product used. Crew is instructed to put the notice on the first pole of the area requiring herbicide application.

All new transmission sections after construction must be scheduled for a foliar herbicide application during the following growing season and charged to the original work order.

CMP and/or its contactors shall conduct annual training on herbicide use for all members of the herbicide application crews prior to beginning the vegetation control program.

All significant chemical spills must be reported to CMP Arborist or Manager of Vegetation Management Operations, Maine Department of Environmental Protection, and Maine Board of Pesticide Control. Off-hour calls should go to the CMP Communication Center ((207) 622-7421 or (207) 622-7671). All chemical spills resulting in an environmental impact must be reported to CMP

Environmental Department the next business day.

Approved Herbicide List

Application Method

Herbicide

Foliar spray

Rodeo @ 4% plus Arsenal @ .25% plus Milestone @ .5%, plus surfactant in water*

Rodeo @ 4% plus Arsenal @ .25% plus surfactant in water*

* The Rodeo + Arsenal mix cannot be used in pastures.

Krenite @ 5% plus surfactant in water

Krenite @ 3% plus Escort (3 ounces per 100 gallons of mix plus surfactant in water

Cut stump treatment

Garlon 4 @ 20% plus oil (basal or non-petroleum carrier)

Garlon 4 @ 20% plus Stalker @ 1% in oil (basal or non-petroleum carrier)
(Mix 1 gallon of Garlon 4 plus 5 oz. of Stalker in 3 gallons of oil) (basal or non-petroleum carrier includes dye)

19. Emergency Communication with System Operations

In the event that trees have grown to such a height that a transmission line when carrying the emergency rated capacity will likely sag into trees, the person making this observation will contact the System Operations. The System Operations will monitor the line flows and make adjustments to the

noted section of line until the tree can be removed. If any person is not available the field personnel will directly contact System Operations at (207) 622-7421 or (207) 622-7671. The Vegetation Management Department will assign a tree crew to prune or remove problematic trees immediately. Once the trees have been cleared or pruned the Vegetation Management Department will contact System Operations, and the system will resume normal operations.

20. Methods of Vegetation Control

The overall strategy is to implement the vegetation management technique that best meets the goals and objectives of the TVMP. The methods of vegetation control include manual, mechanical, biological or chemical. Each method is composed of a variety of tools and techniques.

21. Manual Methods

1. Chainsaws
2. Brush saws
3. Brush hooks

Manual methods are used frequently in areas where chemical methods are restricted by regulation, landowners, or environmental considerations.

Advantages of Manual methods are:

1. Can be employed year round
2. Generally accepted by the public
3. Can be selective as only incompatible species are removed

Disadvantages of Manual methods are:

1. Loss of plant bio-diversity as generally promotes monocultures of incompatible plant species.
2. Most incompatible species re-sprout increasing stem densities therefore only gaining short term control.
3. More exposure to personal injuries as chainsaws can be hazardous to

operate.

4. Reduced wildlife habitat due to incompatible monocultures of vegetation that develop cyclic rather than stable plant communities.
5. Increase potential for petroleum products to be introduced into soil.
6. Manual methods are labor intensive, therefore expensive.
7. When mechanical methods are used exclusively the treatment cycle is reduced.

22. Mechanical Methods

1. Mowing of brush with specialized equipment for cutting and grinding brush

Mechanical methods are also used in areas where chemical methods are restricted by regulation, or environmental consideration.

Advantages of Mechanical methods are:

1. Can be employed year round with the exception of deep snow cover.

Disadvantages of Mechanical methods are:

1. Loss of plant bio-diversity as generally promotes monocultures of incompatible plant species.
2. Non-selective as compatible as well incompatible species are removed
3. Most incompatible species re-sprout increasing stem densities therefore only gaining short term control.
4. Potential for personal injuries from flying debris.
5. Due to the use of heavy equipment there is potential for soil compaction and rutting.
6. Potential for illegal dumping due to increased brush density and decreased lines of sight.
7. Reduced wildlife habitat due to monocultures of vegetation that develop, rather than stable plant communities.
8. Risk for petroleum product pollution from hydraulic oil leaks and spills.

9. Typically more costly than other methods.

23. Biological Methods

1. Encourage land to be converted to managed uses such as lawns, agricultural fields or pastures.
2. Plant low-growing brush and/or allelopathic plants.
3. Use of herbicides to maintain the vegetation in an early successional stage growth.

Advantages of Biological Control Methods are:

1. Generally accepted by the public.
2. Typically longer term than manual or mechanical methods however ongoing maintenance required to control capable tree species or keep the area in an agricultural stage.

24. Chemical Methods

1. Low Volume Foliar Application
2. Cut Stump Treatment

CMP currently employs low volume foliar and cut stump herbicide application methods. The application method is selected depending on site characteristics such as stem densities, environmental concerns, aesthetic concerns, and regulatory concerns.

Advantages of Chemical Control Methods

1. Minimal risk for vegetation management workers.
2. Provide the optimal cycle length.
3. Hand held applications allow species selectivity.
4. Highly Regulated.
5. Promotes bio-diversity among plants and wildlife.
6. Products used bio-degrade quickly.
7. Products used are not prone to leaching.
8. Only method that reduces stem densities of undesirable plant species

reducing future management costs.

9. Stable plant communities lead to long term aesthetic improvement.

10. Stable plant communities improve wildlife habitat.

11. Only feasible control method for invasive species.

Disadvantages of Chemical Control Methods

1. Can be less acceptable to the public.

2. Application limited to active growing season.

3. May create brown out vegetation.

Each application method is explained in detail below:

1. Low Volume Foliar

Low Volume Foliar is an application herbicide application method where the herbicide application is made directly to the foliage of the incompatible species of vegetation. This application is very selective as there is little to no runoff and in low densities of incompatible species can be used as a spot type treatment. This application is typically made from a back pack sprayer following full leaf out which is typically from early June until the first of September. CMP expects 100% control of trees over 6' tall.

25. Cut Stump Treatment

Cut Stump Treatments are made directly to stumps of undesirable trees following manual treatments and sometimes following mechanical treatments. This application can also be made during the growing or dormant season. Using a pack applied and low volume wand. The application is very selective as only stumps of undesirable vegetation are treated. This application is 85-90 % effective for controlling the incompatible species with one application.

26. Qualified Personnel

The Manger of Vegetation Management Operations and Transmission Arborist will acquire and maintain high level of expertise in all relevant subjects related to the use of herbicides for right of way vegetation

management, including, but not limited to the effectiveness, benefits and risks of all herbicides used by or considered for use by the company or its contractors, regulatory requirements concerning such use, and the need for and techniques of the training of personnel in the application, transport, and storage of herbicides. Qualifications are filled with human resource department.

CONTRACTORS will use only licensed crews and promote ongoing training. All crews will be supervised by licensed crew leaders, as defined in Maine law.

Prior to the foliar session, a meeting is held with the contractor(s) to discuss the details of the current year plan and environmental stewardship.

In the meeting, the following are topics are reviewed:

1. Relevant contract metrics
2. Quality Control
3. Selective herbicide application techniques
4. Wetlands
5. Public relations
6. Landowner maintenance agreements
7. Mixing and labels
8. CMP authorization forms
9. Record keeping

27. Implementation of Integrated Vegetation Management

An integrated vegetation management approach to vegetation management will require that prior to each management cycle a review of vegetation conditions shall be completed.

The historic data will be used to define the work scope used for a request for proposal for vegetation management services from qualified vegetation management contractors. Contracts are developed for each line or line segment that includes a work scope, pricing, schedule of performance, general conditions, key personnel, and special conditions.

28. Inspection Standards

Growth rates of vegetation vary due to species, soil, site conditions and climate conditions. It is therefore required that each line be periodically patrolled to detect locations where minimum clearances are being approached.

A. Frequency

1. An aerial patrol shall be performed at least once a year to determine where vegetation is not in compliance with the standard clearances.
2. An aerial or foot patrol may be performed following a weather event incident on a given line. Any hazard trees identified will be checked to determine if removal or pruning is required.
3. Each year 25% of the ROWS will be inspected with a ground patrol as part of the quality assurance program.

B. Nature of Patrol

1. All vegetation conditions that might immediately affect the operation or maintenance of the lines shall be observed and recorded.
2. The following list is representative of observations that the observer will note:
 - a. Heights of vegetation in the transmission corridor, that approach minimum clearances.
 - b. Clearance of road screens
 - c. Trees which because of their condition are an imminent threat to the lines and may be deemed a threat tree.
 - d. Encroachment of trees along the edge of the right of way that may pose a threat to the reliability of the line prior to the next vegetation management cycle.

29. Guidance, Control, & Evaluation of Contractors

CMP expects the vegetation management contractors to train its field personnel in the concepts of this TVMP and the CMP Vegetation

Management Policies and Procedures.

CMP's Right of Way Management staff will inspect the contract field crews on a frequent basis to monitor activities and insure compliance with this vegetation management plan and all related regulations and safety standards. It is the responsibility of CMP's Vegetation Management staff and the vegetation management contractor's supervisors to evaluate the quality of performance of the contract field crews.

The elements of an evaluation are as follows:

1. Compliance with all safety regulations.
2. Clear understanding of the technical specifications.
3. Good work production.
4. Control standards that comply with contract specifications.
5. Good public relations with property owners and the general public.
6. Maintenance of daily records/herbicide data, time sheets, *etc.*
7. Maintenance of equipment in good and safe condition.

CMP will insist that its contractors use appropriate application techniques and are in compliance with all State and Federal Laws and Regulations and the principles of the TVMP and CMP Vegetation Management Field Operating Procedure Section 400. These principles have the primary purpose of assuring the continuous safe and reliable operation of the transmission electric grid.

30. 2013 Work Plan

Listed here are the sections where routine maintenance including hazard tree removal, side pruning, herbicide application, selective removals and screen maintenance are scheduled.

Cycle D

Line 1, 4, 11, 19, 20, 22, 26, 27, 30, 31, 31A, 32, 32A, 33, 38, 38A, 38B, 40, 42, 43, 45, 46, 54, 55, 56, 56A, 58, 63, 63A, 69, 70, 75, 76, 76C, 77, 77A, 81, 81A, 92, 97, 115 (old 118 poles 42-end), 117, 118, 139, 139A, 147, 148, 149, 151, 151A, 158, 159, 170, 173, 178, 179, 181, 185, 192, 194, 195, 196, 206, 206A, 207, 207A, 209, 278, 279, 375, 377.

A. Deferred Off Cycle Hazard Tree and Side Pruning Work

None

31. Resources Required for 2013 Work Plan:

CMP Transmission Vegetation Management Budget for 2013:

- \$1,010,160.00 cycle D manual clearing, herbicide application, and screen work
- \$2,511,209.00 hazard tree / side prune
- \$250,000.00 Widening
- \$12,000.00 storm restoration
- \$3,771,369.00 Lump, Unit and T&M budget