

U.S. Department of Energy



ORDER

WAPA O 450.3A

DATE: 03-13-08

Page Change: 02-23-09

SUBJECT: TRANSMISSION VEGETATION MANAGEMENT PROGRAM

1. **OBJECTIVES.** The objective of this Order is to define the Transmission Vegetation Management Program (TVMP) for the Western Area Power Administration (Western); to ensure the safe and reliable operation of the electrical transmission system in an environmentally sensitive, cost effective, and socially responsible manner.
2. **CANCELLATION.** This Order cancels WAPA Order 450.3, Transmission Vegetation Management Program, dated 05-10-07.
3. **BACKGROUND.** This Order is in accordance with the requirements defined in the North American Electric Reliability Council (NERC) Standard FAC-003-1.
4. **APPLICABILITY.**
 - a. **Western Program Areas.** This Order applies to all Western programs involved with vegetation management beneath and adjacent to transmission lines and associated facilities that make up the transmission system maintained by Western. At a minimum, this standard shall apply to all 200 kV and above transmission lines and to any lower voltage lines designated by the Regional Reliability Organization (RRO) as critical to the reliability of each Region's electric system.
 - b. **Contractors.** Contractors in support of Western's TVMP are responsible for ensuring full compliance with the requirements set forth in applicable Contracts and are also responsible for any subcontractor's compliance.
5. **POLICY.** It is Western's policy to identify and perform maintenance management activities in support of obtaining a desired condition for transmission line rights-of-way (ROW) and associated facilities. Western will apply the concept of Integrated Vegetation Management (IVM) as a practice for creating and maintaining a desired condition. Western's IVM Guidance Manual (see paragraph 13 of this Order) provides guidance for these practices.

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All Supervisors – Western-Wide
Available Online: <http://www.int.wapa.gov/Directives/alphadir.htm>

INITIATED BY:
CSO Engineering

6. RESPONSIBILITIES.

- a. Chief Operating Officer. Ensures full compliance with NERC and RRO reliability standards
 - b. CSO Engineering. Provides oversight in the development of Engineering and Maintenance policies and standards.
 - c. CSO Natural Resources Office. Provides support to the Regions relative to environment and lands programs. Serves as a point of contact with DOE Headquarters offices for the purpose of policy development, reporting, regulatory review, Native American issues, and other requirements.
 - d. Office of General Counsel. Provides legal advice, counsel, and representation.
 - e. Regional Managers. Provide oversight of the maintenance and safety policy and programs in their respective regions.
 - f. Regional Maintenance Managers. Develop long-term strategies and programs, in coordination with Regional safety, environmental, and realty personnel, to address vegetation issues in and along all Western maintained transmission lines and associated facilities.
 - g. Regional Environmental Managers. Support the Maintenance Managers in ensuring that the maintenance activities employed to manage Western's TVMP are in compliance with environmental laws and regulations.
 - h. Regional Safety Managers. Support the Maintenance Managers in advising supervisors and foremen on the applications of the Power System Safety Manual and applicable safety and health regulations.
 - i. Regional Reality Officers. Support the Maintenance Managers in the resolution of vegetation management problems by working with landowners in identifying and enforcing vegetation control rights
7. DESIRED CONDITION. Western's desired condition beneath and adjacent to its transmission line facilities is characterized by stable, low growth plant communities free from noxious or invasive plants. These communities will typically be comprised of herbaceous plants and low growing shrubs which ideally are native to the local area. Vegetation on the bordering areas of transmission line easements/ROWs can be managed so that increased tree height is allowed in relation to an increasing distance from the transmission line. Accumulations of vegetation debris from intensive or repetitive vegetation treatments may require mitigation to reduce risks from wildfire and enhance the fire survivability of the transmission facility. The

density of the remaining vegetation will also be a consideration in assessing overall fire risk. Adequate access routes are required and must be maintained to provide for efficient, cost effective vegetation treatment activities.

a. Areas of Concern. The desired condition will allow Western to manage vegetation such that it does not threaten power system safety or reliability. Vegetation management activities will be undertaken to the maximum extent that is reasonable and practical within three main areas of concern:

- (1) Vegetation within the defined boundary of a facility (ROW, fence line, etc.);
- (2) Vegetation adjacent to the facility; and
- (3) Prevention of wildfire on and off the facility.

b. Guidance. On-the-ground conditions can be extremely variable and specific for each transmission facility or unique section of a facility. In general, it is Western's practice to perform vegetation management activities in support of achieving the desired condition of low, stable growth plant communities. However, reasonable accommodations can be made in consideration of other critical resources or management issues. The principal purpose of the transmission facility is for the safe and reliable operation of the power system and all other resource and management issues are considered secondary. When constraints do not allow for the immediate removal of trees and other taller vegetation, the desired condition should identify the maximum tree height and density thresholds allowed. American National Standards, ANSI A300, part 7, *Tree, Shrub, and Other Woody Plant Maintenance - Standard Practices (Integrated Vegetation Management, a. Electrical Utility Rights-of-way)*, may be used for additional guidance and reference.

c. Objective. Western's intent is to secure and maintain a manageable landscape that minimizes vegetative threats to transmission system reliability and safety, and ultimately does not require frequent re-treatments. Achieving a desired condition is a process that may take several iterations over an extended period of time. However, once defined, the desired condition will serve as the guide for future vegetation management decisions. All subsequent vegetation treatment activities should consistently move toward achieving and maintaining the desired condition. Once achieved, the desired condition will be proactively maintained by occasional re-treatments.

8. PRACTICES. Western's TVMP practices are guided by internal manuals, handbooks, guidelines, orders, and standards outlining objectives, practices, approved procedures, and work specifications set forth in paragraph 14. These various formal documents are kept current through internal working committees from the functional organizations where the document resides.

9. REQUIREMENTS.

- a. Maintenance Schedule. Aerial and ground patrol schedules for each transmission facility are developed and maintained by each regional maintenance organization. Maintenance schedules are based on requirements and procedures set forth in Western's maintenance program. Other conditions where additional inspections may be necessary are those where catastrophic results could occur. Aerial or ground patrols may be conducted after an outage occurrence.
- b. Vegetation clearance levels for each transmission line. Clearance 1 distances required by NERC FAC-003-1 are provided in Western Order 430.1A, Right-of-Way Management Guidance for Vegetation, Encroachments, and Access Routes. Western's desired condition is a condition of low growth plant communities; these values represent the maximum but not preferred vegetation height thresholds allowed. NERC FAC-003-1, Clearance 2 distances are provided in Western's Power System Safety Manual (PSSM), Table A-1.
- c. Qualifications and Training. Personnel involved in the design, implementation, and execution of the TVMP shall be qualified and trained as provided in individual position descriptions and contract language. The Western Transmission Vegetation Management Committee was established to design and provide oversight of the TVMP, and committee membership qualifications are outlined in the charter. Western staff involved in the preparation and implementation of annual plans discussed in paragraph 9 of this Order shall be included. PSSM Chapter 11 also addresses field crew training requirements for trimming and felling trees and brush near power lines. Contractors hired by Western must be fully qualified with respect to all certifications, licenses, training, and other skills and requirements as presented in the most recent version of Western's statement of work.
- d. Mitigation Measures. WAPA Order 430.1A and the Regional Transmission Vegetation Management Program Statements provide mitigation measures and processes to achieve sufficient clearances for the protection of the transmission systems in identified locations where Western is restricted from attaining the clearances specified in paragraph 9b.
- e. Inspections and Emergency Procedures. Transmission line maintenance personnel are responsible for inspection of Western's transmission facilities from vehicles, on foot or from aircraft. Routine inspections of vegetation are made during scheduled ground and aerial line patrols. Any encroachments, including vegetation, are documented and forwarded to the proper functional organization for assessment and resolution. Typical patrol reports will describe the

encroachment, clearance between the conductor and encroachment, and other pertinent information, such as when the reading was taken, and why there is a problem. If an imminent threat of a transmission line outage is identified and requires action (such as switching the line out of service), the threat shall immediately be reported verbally for resolution.

Western's craft personnel and IVM contractors are responsible for complying with prescribed clearance and safety rules and regulations, are qualified to recognize safety hazards and unsafe conditions, and are required to initiate action to alleviate or eliminate the hazards. Duties include the immediate reporting of safety hazards and unsafe conditions and initiating action to correct the safety hazard. Line crew members are required to report potential power system troubles to their Foreman. While on patrol, they are qualified to make on-the-spot decisions as to the urgency for immediate communication of vegetation conditions that present an imminent threat of a transmission system outage so that action may be taken.

10. ANNUAL PLANS FOR VEGETATION MANAGEMENT WORK. Each Regional Maintenance Organization shall create and implement an annual plan for vegetation management activities to ensure the reliability of the power system. The plan shall describe the methods used, such as manual clearing, mechanical clearing, herbicide treatment, or other actions. The plan should be flexible enough to adjust to changing conditions, taking into consideration anticipated growth of vegetation and all other environmental factors that may have an impact on the reliability of the transmission systems. Adjustments to the plan shall be documented as they occur. The plan should take into consideration the time required to obtain permissions or authorizations from landowners or regulatory authorities and also to conduct the appropriate environmental review. Each maintenance organization shall have systems and procedures for documenting and tracking the planned vegetation management work and ensuring that the vegetation management work is completed according to work specifications

11. REPORTING REQUIREMENTS. Each Region will report quarterly to their RRO, and upon request, will also report sustained transmission line outages determined to have been caused by vegetation. If there are no sustained transmission line outages for the quarter, the report shall be submitted indicating full compliance. Multiple sustained outages on an individual line, if caused by the same vegetation, shall be reported as one outage regardless of the actual number of outages within a 24-hour period.

- a. Western is not required to report to the RRO, or the RRO's designee, certain sustained transmission line outages caused by vegetation. These outages are: (1) vegetation-related outages that result from vegetation falling into lines from outside the ROW that result from natural disasters (examples of disasters that

could create non-reportable outages include, but are not limited to, earthquakes, fires, tornados, hurricanes, landslides, wind shear, major storms as defined either by Western or an applicable regulatory body, ice storms, and floods); and (2) vegetation-related outages due to human or animal activity (examples of human or animal activity that could cause a non-reportable outage include, but are not limited to, logging, animal severing tree, vehicle contact with tree, arboricultural, horticultural, agricultural activities, or removal or digging of vegetation).

- b. The outage information provided by Western to the RRO, or the RRO's designee, shall include at a minimum: the name of the circuit(s) experiencing the outage, the date, time and duration of the outage; a description of the cause of the outage; other pertinent comments; and any countermeasures taken by Western.
- c. An outage shall be categorized as one of the following:
 - Category 1 — Grow-ins: Outages caused by vegetation growing into lines from vegetation inside and/or outside of the ROW;
 - Category 2 — Fall-ins: Outages caused by vegetation falling into lines from inside the ROW;
 - Category 3 — Fall-ins: Outages caused by vegetation falling into lines from outside the ROW.

12. DOCUMENTATION. All documentation required in this section shall be retained for a minimum period of 5 years.

- a. Each Region shall document that they have performed the vegetation inspections identified in 8a above. This information shall be retained in Western's maintenance management databases (Maximo, TAMIS, SIMS, TLDB, etc.).
- b. Western shall retain documentation that describes the clearances identified in 8b above. This information shall be retained in Western's PSSM, Table A1 (Clearance 2), and WAPA Order 430.1A (Clearance 1).
- c. Western shall retain documentation that describes the qualifications of personnel directly involved in the design, implementation, and execution of the TVMP as required in 8c. This information shall be retained in the employee's position descriptions and training records maintained by Western and the Corporate Human Resource Information System (CHRIS).
- d. Each Region shall document any areas identified as not meeting this Order for vegetation management and any mitigating measures taken to address these deficiencies as identified in 8d. This information shall be retained by each

Regional Lands Office and attached to the appropriate authorizing document (easement, permit, etc.). It should also be noted in the geographic information system (GIS) database so that it is available to the maintenance organization responsible for planning and completing vegetation management activities.

- e. Western shall maintain a documented process for the immediate communication of imminent threats by vegetation as required in 8e above. This information shall be retained in the employee's position description and the Standard Operating Procedures.
- f. Each Region shall document that the annual work plan identified in paragraph 9 has been implemented. This will be documented in the appropriate procurement records (for contract work) and in Western's maintenance management databases (Maximo, TAMIS, SIMS, TLDB, etc.).
- g. Each Region shall retain copies of all quarterly reports and additional outage reports submitted to the RRO, or the RRO's designee, as identified in paragraph 10.
- h. Each Region shall develop a Transmission Vegetation Management Program statement which identifies Regional specific practices.

13. CERTIFICATION. Each Region shall demonstrate compliance through self-certification submitted to the compliance monitor (RRO or RRO's designee) in accordance with the requirements of NERC FAC-003-1.

14. REFERENCES.

- a. North American Electric Reliability Council (NERC) Reliability Standard FAC-003-1.
- b. Western Area Power Administration Integrated Vegetation Management Guidance Manual, latest version.
- c. American National Standards, ANSI A300 (part 7)-2006 IVM for Tree Care Operations – Tree, Shrub, and Other Woody Plant Maintenance – Standard Practices (Integrated Vegetation Management, a. Electrical Utility Rights-of-Way).
- d. Chapter 13, Power System Maintenance Manual (PSMM), latest revision.
- e. WAPA Order 430.1A, Right-of-Way Management Guidance for Vegetation, Encroachments, and Access Routes, latest revision.

- f. Chapter 11, PSMM, Trimming and Felling of Trees and Brush Near Power Lines, latest revision.
 - g. Chapter 1, Power System Operations Manual (PSOM), Power System Switching Procedure, latest revision.
 - h. Chapter 4, PSOM, Power System Operating Guidelines, latest revision.
 - i. Power System Safety Manual (PSSM), latest revision.
 - j. Regional Transmission Vegetation Management Program Statements.
 - k. ANSI A300, (Part 1) – 2001 Pruning for Tree Care Operations – Tree, Shrub, and Other Woody Plant Maintenance.
 - l. ANSI Z133.1 – 2000, for Arboricultural Operations – Pruning, Repairing, Maintaining, and Removing Trees, and Cutting Brush – Safety Requirements.
 - m. Western Transmission Vegetation Management Committee (TVMC) Charter.
15. CONTACT. Questions concerning this Order should be addressed to the CSO Engineering Office at (720) 962-7296.



Timothy J. Meeks
Administrator

U.S. Department of Energy



PAGE CHANGE

WAPA O 450.3A

DATE: 03-13-08
Change 1: 02-23-09

SUBJECT: TRANSMISSION VEGETATION MANAGEMENT PROGRAM

1. PURPOSE. To transmit revised pages 3 and 4 to WAPA O 450.3A, Transmission Vegetation Management Program, dated 03-13-08.
2. EXPLANATION OF CHANGES. To correct the references to the paragraph numbers identified in paragraph 8 and paragraph 9d.
3. LOCATION OF CHANGES.

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3	8
4	9d

After filing the attached pages, this transmittal may be discarded.



Timothy J. Meeks
Administrator