



Transmission Integrated Vegetation Management Procedure (TIVM)

Summary

The purpose of this procedure is to describe the instructions and requirements for implementing the PG&E transmission Integrated Vegetation Management (IVM) program to ensure transmission right-of-way (T-ROW) vegetation is controlled and maintained for safe and reliable operation of transmission lines and facilities on an on-going basis. This procedure is implemented after TROW reclamation has occurred as described in [TD-7103P-03, "Transmission Right of Way Maintenance Procedure \(TROW\),"](#) and then as needed when vegetation maintenance thresholds as described below are triggered.

This procedure also provides guidance for PG&E employees and contractors to meet or exceed the requirements of North American Electric Reliability Corporation (NERC) Standards for Vegetation Management, NERC FAC-003-4 Transmission Vegetation Management.

Integrated vegetation management (IVM) is the practice of promoting desirable, stable, low-growing plant communities that resist invasion by tall growing tree and brush species, through the use of appropriate, environmentally sound, and cost-effective control methods. IVM control methods include a combination of chemical, biological, cultural, mechanical, and/or manual treatments. Long-term effective IVM transitions the vegetative community to a composition of low-growing, compatible native species.

IVM focuses on reclaimed T-ROW corridors. Right-of-way (ROW) corridors are placed into the IVM program typically one to two years following reclamation, and periodically reworked when regrowth threshold triggers are met or exceeded. Threshold triggers for implementing this procedure include incompatible vegetation exceeding 3 feet in height and/or when incompatible vegetation is greater than 50% ground coverage within the ROW. Other triggers include the need to control vegetation around transmission towers, poles and guy wires.

Level of Use: Informational Use

Target Audience

Vegetation management (VM) operations personnel

Vegetation management planning personnel

Vegetation management contractors

- Professional services (PS)
 - Pre-inspection (PI)
 - Tree contractors (TC)
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Safety NA

- Before You Start**
- 1 Prior to initiating IVM maintenance activities, read
 - [TD-7103S. "Transmission Vegetation Management Standard \(TVMS\)"](#)
 - [TD-7103P-03. "Transmission Right of Way Maintenance Procedure \(TROW\)"](#)
 - 2 Review the Definitions section of this document.
 - 3 Review the following documents to address potential environmental impacts as a result of transmission IVM work:
 - Electrical Vegetation Management Best Management Practices (BMPs) document located on the VM shared drive at:
[VM Environmental BMPs](#)
 - [Guidelines and Best Management Practices for Herbicide Programs on Transmission Line Right-of-Ways](#)
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Procedure Steps

1 Work List

1.1 Professional services (PS) or pre-inspection (PI) contractor does the following:

1. WORK with the IVM vegetation program manager (VPM) to maintain a spreadsheet that captures a list of work and work priorities, based on the year the work should be added to the annual plan.
 - a. The TROW reclamation PS/PI project manager DETERMINES the year that IVM maintenance should be added to an annual plan.
 - b. Following completion of that work, the IVM PS/PI project manager DETERMINES when further IVM maintenance should be added to an annual plan.
2. RESPOND to spreadsheet / database triggers when:
 - a. Routine patrol IVM PS/PI, and/or IVM contract program manager (CPM) identifies a threshold that has been met or exceeded.
 - b. Location information is sent by PS, PI and/or CPM to the IVM database manager, including:
 - (1) Line names and sections with incompatible vegetation or trees greater than 3 feet tall
 - (2) Line names and sections where incompatible vegetation density is greater than 50% ground coverage within ROW.
 - c. Next inspection dates are assigned by the PS/PI project manager after TROW maintenance and/or IVM work are complete.

2 Annual Plan

2.1 PS/PI contractor must:

1. By mid-year of the current year, SEND PG&E IVM program manager a list of work / line segments scheduled for inspection for the next year, along with the following information:
 - IVM project name
 - Transmission line name segments
 - Spans by structure number
 - Voltage(s) information



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2.1 1 (continued)

- Specify whether NERC or non-NERC
- Line miles
- Acres
- Proposed PI company name
- Planned project PI and TC start and completion dates
- Estimated planned project costs for set up and project management, and for crew costs
- Likely IVM prescription information, for example, IVM maintenance vs. reclear, and related treatment information about methods (mastication/mechanical, manual, herbicide, biological)

2.2 Vegetation program manager (VPM) completes the following:

1. CREATE an annual IVM plan based on work list received from PS/PI.
2. ASSIGN work for each quarter for completion based on access, weather conditions, and other contributing factors.
3. SEND the Annual Plan to database manager.

2.3 Database manager must:

1. ENTER each project into the Project Management Database (PMD), completing all required fields including, but not limited to:
 - Transmission line segment name(s)
 - Spans
 - Line miles
 - Acres

3 Work Set Up

3.1 Prior to initiating a new IVM project, PS contractor and database manager CREATE an IVM project maintenance binder using pertinent information from the associated TROW project maintenance binder.

1. The IVM maintenance binder should include, but is not limited to:
 - California Natural Diversity Data Base (CNDDDB) maps
 - Land rights documentation



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3.1 1 (continued)

- Assessor's Parcel Number (APN) maps using Real Quest Maps with drawn transmission lines
- Line drawings
- Topographic maps
- Landowner information (address, phone number, etc.)
- Past refusals and alerts
- Known Environmental Release to Construction (ERTC) reports, Streambed Alteration Agreements (SAA), Habitat Conservation Plans (HCP), and other applicable environmental requirements/permits
- LIDAR, ortho imagery, and other related remote sensing information

3.2 Prior to inspection and also prior to tree crew work, PS contractor should INFORM local transmission and distribution VPMs of project details including:

- Scope of Work
- Spans to be worked
- Expected start and stop dates
- PS and TC contractor contact information

3.3 PS/PI contractor does the following:

1. FIELD-INSPECT work area, including, but not limited to:

- Pertinent customer / owner information
- Reports of terrain conditions
- Unresolved ROW conditions
- List of trees and brush to be worked, including species, diameter at breast height (DBH), number of trees, and treatment type
- Herbicide prescriptions
- Mechanical clearing prescription (e.g., equipment)
- Manual clearing prescription (e.g., chainsaw cutting)
- Biological prescription (e.g., goat grazing, etc.)
- Cultural prescription (e.g., cultivated agricultural activity, planting native desirable species)



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3.3 (continued)

2. IF mowing or mastication is proposed by PS/PI,

THEN INITIATE a Natural Resource Review (NRR) with VMs environmental team
3. IF hazard trees are observed by PS/PI in the field,

THEN COMMUNICATE tree species, location and other pertinent information to the local VPM as soon as possible.
4. COMPLETE documentation of applicable project management fields in the following document:

[Guidelines and Best Management Practices for Herbicide Programs on Transmission Line Right-of-Ways](#)
5. NOTIFY customers by letter (see [TD-7103P-04 Attachment 1, Template for IVM First Notification Letter](#)), with a follow up by phone or personal visit, that PG&E will be on their property to inspect and complete IVM work.
 - a. Include the proposed use of EPA and / or California Department of Pesticide Regulation (CAL DPR) approved herbicides.
 - b. DISCUSS work proposal with property owner.
 - c. IF customer gives permission to use pesticide / herbicide,

THEN PS must DOCUMENT agreement in project file.
 - d. IF customer does **not** respond to notification before the estimated start date,

THEN consent is implied and PS must DOCUMENT lack of response in the project file.
6. COMPLETE NRR of work area, including:
 - California Natural Diversity Database (CNDDB)
 - Parcel layer
 - Water / riparian zones
 - Roads
 - Airports
 - Critical habitats
 - Protected lands



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3.3.6 (continued)

- Schools
- Levees
- Work areas
- Lake and Streambed Alteration Agreement (LSAA) 1600 permitting

7. IDENTIFY environmental constraints and impacts, including:

- Constraints analyses: sensitive resources and suitable habitats
- Impact analyses: potential permits required
- Avoidance and Minimization Measures (AMM)
- Documentation: Biological Report and any maps prepared by the IVM VPM or PG&E land consultant

4 Contractor Selection Process

4.1 The IVM VPM / PS must:

1. DETERMINE whether work will be bid as a lump sum, unit price, or time and materials (T&M), OR direct awarded or assigned work to the primary contractor.

4.2 When going out to bid, PS and / or contract project manager must:

1. PREPARE the bid proposal, including bid specifications (e.g., \$ per acre, total costs for labor and materials).
2. IDENTIFY potential contractors to receive bid proposal.
3. EMAIL an invitation to bid to potential bidders.
4. SEND proposals to PG&E IVM program manager for contractor selection.

4.3 PG&E program manager AWARDS the bid.

5 Contract Work Authorization (CWA)

5.1 WHEN contractor is selected for project, THEN the database manager must:

1. CREATE the CWA, specifying start and completion dates.
2. SEND CWA to the VM planning group for processing through sourcing department and contractor signature.



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6 Project Initiation

6.1 WHEN CWA is approved and signed,

THEN PS/PI, in conjunction with TC supervisor and/or job foreman, does the following:

1. INITIATES the project with the selected contractor.
2. CONDUCTS a pre-operation field meeting AND meet the selected contractor in the field.
3. REVIEWS all potential environmental impacts and sensitive habitat areas with the contractor.
4. CONDUCTS appropriate training with contractor (e.g., Valley Elderberry Longhorn Beetle (VELB), migratory bird, HCP).
5. DOCUMENTS completion of these activities in the IVM maintenance binder.

7 Ongoing Project Management

7.1 While project work is under way, the PS/PI contractor does the following:

1. SENDS weekly project updates to the database manager for Project Management Database (PMD) entry - ongoing.
2. Periodically PROVIDES oversight and quality control inspections of TC work.

8 IVM Maintenance Prescriptions

8.1 PS contractor must COMPLETE both general maintenance prescriptions, and when applicable, also herbicide maintenance prescriptions.

1. For general prescriptions
 - a. Considering the Minimum Ground-to-Conductor Clearance (MGCC), REMOVE OR CONTROL all non-compatible vegetation within the TROW that has the potential to grow within the Minimum Vegetation Clearance Distance (MVCD).
 - b. CONTROL vegetation in and around transmission structures and guy wires to allow for routine inspections.
 - c. CONTROL vegetation at a minimal fuel loading to minimize fire intensity and flame heights, at less than 50% ground cover threshold of incompatible species.



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8.1 1 (continued)

- d. ENSURE that the tree crew chips and/or removes large wood, brush, and debris when working on PG&E owned properties.
 - (1) IF access makes it unsafe or impractical to do so,
THEN CONSULT with fee strip program manager.
- e. In consultation with the IVM VPM and property owner / manager, PRESCRIBE work to:
 - (1) CONTROL noxious weeds and other invasive vegetation.
 - (2) IMPROVE species diversity; improve access to towers and other equipment.
 - (3) IMPROVE habitat for pollinators, threatened and endangered species, fish and game animals, and beneficial wildlife.
- f. DOCUMENT all property owner agreements so that future maintenance prescriptions can take existing agreements into consideration during the next maintenance cycle.

2. For herbicide prescriptions

NOTE

Herbicide use on PG&E-owned properties is approved unless otherwise specified by the PG&E land asset owner.

- a. USE Federal / State registered and labeled herbicides for ROWs, aquatic use.
- b. ENSURE herbicide applications are prescribed by a licensed Pest Control Advisor (PCA) in a pest control recommendation.
- c. ENSURE herbicide treatments focus on controlling incompatible vegetation, such as conifer trees, hardwood trees, and other woody brush species.
- d. ENSURE treatments encourage a low-growing vegetative community that cannot grow to within the minimum vegetation clearance distances and does not create access or inspection issues for towers, poles, and guy wires
- e. ENSURE herbicide treatments are permitted expressly or by implied consent by the property owner, operator, or manager.
- f. DOCUMENT both the notification of herbicide use and the subsequent permission/consent of the property owner/manager.



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8.1.2 (continued)

- g. When subject to CEQA / NEPA, ENSURE herbicide treatments on public lands are applied at the discretion of the land management agency.
- h. USE documentation forms in the "Guidelines and Best Management Practices for Herbicide Programs on Transmission Line Right-of-Ways" AND INCLUDE in the IVM binder.

9 Project Completion

9.1 WHEN the project has been completed, THEN PS/PI contractor does the following:

1. MONITORS project after completion for efficacy of herbicide prescriptions AND DOCUMENTS results in the IVM maintenance binder.
2. SEND project completion information to the database manager.

9.2 PS contractor MAINTAINS the master work list with the following information:

1. Next inspection date
2. Project completion details:
 - IVM project name
 - Transmission line name (s)
 - Spans
 - Acres
 - Treatment types
 - Treatment descriptions by spans and acres (reviewed with PS)

END of Instructions



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Definitions

Corridor: The presence of one or more transmission lines located within separate and contiguous easements, or within close proximity of each other.

Easement (or Right of Way): For the purposes of this document, an easement / ROW is a geographically described strip of land upon which PG&E's electric transmission facilities are constructed, operated, and maintained.

Incompatible Vegetation: Vegetation that is undesirable, unsafe, or interferes with the intended use of the site.

Light Detection and Ranging (LiDAR): Technology used to determine vegetation conditions, predominantly distances and clearances, in relation to the electric conductors and easement boundaries.

- **"As-Flown" LiDAR Data:** A snap shot of data taken at the time of LiDAR visual patrol that includes vegetation conditions, facility locations, span lengths, and conductor heights.

NERC-Regulated Transmission Lines (NERC lines): Transmission lines operated at 200kV or higher and certain sub-200kV lines that are elements of a Major Western Electric Coordinating Council (WECC) Transfer Path.

Minimum Ground-to-Conductor Clearance (MGCC): The height to which a conductor can sag from the ground under maximum operating conditions. MGCC is provided through analysis of "as-flown" LiDAR data which have been analyzed to determine maximum conductor sag along the line span.

Minimum Vegetation Clearance Distance (MVCD): Minimum distance required to prevent flash-over. However, prudent vegetation maintenance practices dictate that substantially greater distances will be achieved at time of vegetation maintenance.

Right-of-Way (ROW): See Easement.

Treatment/Prescription: A treatment type or a combination of treatment types within the same area to achieve the goal of encouraging a low growing compatible vegetative community with a corresponding lower fire fuel load.

Implementation Responsibilities

The vegetation management team is responsible for the implementation, communication, and maintenance for this procedure and associated standard.

- The VM manager communicates this procedure to the VM stakeholders.
- The VM supervisor communicates this procedure to the operational work teams.



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Governing Document [TD-7103S, "Transmission Vegetation Management Standard \(TVMS\)"](#)

**Compliance Requirement/
Regulatory Commitment**

ANSI Standard, NCA 300, Part 7

California Public Resource Code 4292

California Public Resource Code 4293

[CPUC General Order \(G.O.\) 95 Rule 35](#)

Federal Energy Regulatory Commission (FERC) Order No. 777

North American Electric Reliability Corporation (NERC) Standards for Vegetation Management, [NERC FAC-003-4 Transmission Vegetation Management](#)

Reference Documents [TD-7103P-03, "Transmission Right of Way Maintenance Procedure \(TROW\)"](#)

[Guidelines and Best Management Practices for Herbicide Programs on Transmission Line Right-of-Ways](#)

Appendices NA

Attachments [TD-7103P-04 Attachment 1, Template for IVM First Notification Letter](#)

Document Rescission This procedure cancels and supersedes Utility Procedure TD-7103P-04, "Transmission Integrated Vegetation Management Procedure," Revision 1, dated 06/18/2014.

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Revision Notes

Where?	What Changed?
Entire document	Edited.
Summary section	Added reference to North American Electric Reliability Corporation (NERC) Standards for Vegetation Management, NERC FAC-003-4 Transmission Vegetation Management.
Definitions section	Added definition for MVCD.
Compliance Requirements/Regulatory Commitment section	Updated link to North American Electric Reliability Corporation (NERC) Standards for Vegetation Management, NERC FAC-003-4 Transmission Vegetation Management .
Appendix A, Template for IVM First Notification Letter	Moved to Attachment 1, Template for IVM First Notification Letter