Transmission Integrated Vegetation Management Right-of-Way Maintenance

SUMMARY

This procedure provides the steps and requirements for implementing Integrated Vegetation Management (IVM) along PG&E electric transmission rights-of-way (ROW) and maintaining compliance on PG&E fee-owned electric transmission asset parcels for weed abatement.

This utility procedure provides instructions for performing tasks required by the Utility Standard TD 7111S, "Transmission Right-of-Way (ROW) Maintenance and ROW Expansion Programs."

Level of Use: Informational Use

TARGET AUDIENCE

Vegetation Program Manager (VPM)

Contract VPM (CVPM)

Vegetation Asset Strategy and Analytics (VASA)

Project Set-Up Contractors (PSC)

Tree/Vegetation Contractors (TC)

Fee Vendors (FV)

Transmission Planning

Database Management Specialists (DMS)

SAFETY

PG&E employees and contractors must use their stop work responsibility if they suspect any situation or condition that may cause injury, harm, or damage. Refer to SAFE-02, "PG&E Safe Start and Stop Work Policy" for more information.

BEFORE YOU START

To have a better understanding of the document content, READ the Definitions Section on Page 21.

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PROCEDURE STEPS

1 Annual Project Plan Development

1.1 The Transmission IVM Vegetation Program Manager (VPM) works with Vegetation Asset Strategy and Analytics (VASA) and Transmission Planning to develop the following year's project plan.

1.2 For ROW projects, the VPM must PERFORM the following actions:

1. REVIEW Transmission Integrated Vegetation Management (TIVM) LiDAR data to assess vegetation conditions by electric transmission lines (ETLs).

2. REVIEW and IDENTIFY the following:

- Past Right-of-Way Expansion (ROWX) completion status

- Transmission IVM (TIVM) project completion history
- Past NERC reclamation work
- Non-NERC projects and or lines
- Agency agreements or commitments
- Carry over work from the previous year(s)

3. COLLABORATE with PSC and CVPM related to past project history and future project recommendations.

4. COLLABORATE with VASA to review and identify a proposed project list of ETLs and associated line segments based on prioritization of those mentioned above in Section 1.2.2 on page 2.

5. OBTAIN a list of approved projects from VASA.

1.3 For fee parcel weed abatement projects, the VPM must PERFORM the following actions:

1. CONSULT with the Land Department to verify if any changes to the existing parcel list have occurred.

2. PROVIDE VASA with the list of fee parcels and associated PMD Fee projects to include in the annual plan.

2 Planning Inspections

2.1 The VPM must PERFORM the following actions:

1. SEND the PSC and DMS the line name(s) and line segment(s) to be inspected and managed.

2. DOCUMENT the list inside the Project Management Database (PMD) and associated PSC reporting workbooks.

2.2 The CVPM, PSC, and DMS must COORDINATE on creating PMD project records and PSC project reporting workbooks.

2.3 The CVPM, Transmission Planning, and PSC must DEVELOP project footprint KMZ files to support field inspection, project execution planning, and stakeholder engagement.

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NOTE

PRIORITIZE and IDENTIFY inspection completion timelines to obtain environmental releases to construction (ERTC) before the end of Q2 or as soon as possible.

1. USE LiDAR data derived KMZs when available.

2. USE Google Earth to identify all potential project environmental constraints, considering the following attributes:

   - LiDAR data, along with other project footprint attributes
   - Limited operation period (LOP) layers
   - Transmission environmental constraint layers (ECL)

2.4 The CVPM must PERFORM the following actions:

1. DOCUMENT coordination opportunities by consulting with Transmission Routine and ROWX operation teams.

   Coordination opportunities include but are not limited to:

   a. IDENTIFY potential safety issues, past customer refusals/interference, property or access alerts, sensitive customers, and sensitive communities where additional planning, coordination, and possible community outreach plans may be needed.

      (1) IF known underbuild exists,

      THEN CONSULT with Routine Distribution operations.

   b. COMMUNICATE planned project inspection and TC completion dates and ADJUST forecast as needed to improve coordination and to avoid work overlap if possible (i.e., limit impact to customers by bundling work).

   c. IDENTIFY potential opportunities for coordinating environmental submittal and release strategies.

   d. Further IDENTIFY other potential project objectives that could support the goals of wire zone–border zone management, routine unit reduction, and fuel reduction.

2. COMMUNICATE the results to the VPM. Any identified actionable items must be DOCUMENTED and COMMUNICATED to the PSC and other stakeholders as needed.

2.5 The DMS and CVPM must COLLABORATE to perform the following actions:

1. CREATE a project record in the PMD (i.e., current system of record) using the following conventions:

   a. PMD project names are based on the ETL name, using the following project nomenclature; the VPM may provide additional project description information:

      (1) Line Name, TIVM, and Year as shown below:

      PMD Name: Salt Springs-Tiger Creek USFS TIVM 23

      (2) Projects with multiple ETLs are considered Corridor Projects and should contain “CR” in front of the project name, as shown below:

      PMD Name: CR-Fulton-Calistoga TIVM 23

   b. ENSURE all structure/pole numbering matches the Electronic Transmission Geographic Information System (ETGIS) application, including all special characters and numbering formats (e.g., 000/001 or ;000/001).

   c. INCLUDE the total estimated project footprint acreage in the comments section, provided by the VMP/CVPM via LiDAR data (e.g., “Estimated total project footprint inspection acreage = 1,455 acres”).

   d. ENSURE that the project record and associated PSC reporting workbooks include the range of spans to be inspected and all required PMD data fields that include but are not limited to:

      - Planned/forecasted acres of work
      - Pre-inspection and TC plan completion dates
      - Transmission line name(s)
      - Span start/stop information
      - Total circuit miles
      - PI execution plan targets
      - Environmental constraints

2. CREATE a project binder that contains background information and associated documentation for each TIVM project.

   a. STORE the electronic version of the project binder inside the Z:\TROW\TROW-TVMR-IVM Binders shared folder.

(1) IF the PSC requests a physical copy of the project binder,

THEN it must be provided.

(2) IF the TIVM project follows a ROWX project,

THEN UPDATE the ROWX Project Binder and USE that binder as the TIVM Project Binder.

b. The project binder should contain, but is not limited to, the following information:

- Project/Line name(s), and span numbers
- California Natural Diversity Data Base (CNDDB) maps
- Land rights documentation (as needed)
- Assessor's parcel number (APN) maps (as needed)
- Line drawings
- Topographic maps
- Landowner information (i.e., address, phone number, etc.)
- Past customer refusals/interference and alerts (Enterprise Alerts and Vegetation Management Database (VMD) Alerts)
- Known Environmental Release to Construction (ERTC) reports, Streambed Alteration Agreements (SAA), or other potentially applicable requirements and permits
- LiDAR, tree risk score, or other related remote sensing information if needed

3. CLOSE OUT completed projects in PMD when all the work and clean-up are completed and VERIFED by the PSC.

3 Planning Fee Projects

3.1 The CVPM and Fee Vendors (FV) must PERFORM the following actions:

1. REVIEW fee parcel assignments and ORGANIZE them according to city/county fire district(s) and PMD projects.

2. DETERMINE Parcel-specific compliance requirements and due dates.

3. IDENTIFY Land Agent (LA) contacts.

3.2 The CVPM and/or VPM must PERFORM the following actions:

1. CREATE Fee vendor weekly reporting workbooks.

2. COMMUNICATE and PROVIDE project details to the DMS.

3.3 The DMS must CREATE Fee project PMD records by county and vendor (e.g., “Monterey Fee-CARF IVM-Fee).

4 Management Objectives (Inside the Managed Area)

4.1 The PSC must PERFORM the following actions:

1. IMPLEMENT wire zone-border zone concepts as shown in Appendix A, Figure 1 and 2.

2. INSPECT all vegetation inside a managed area to identify:

- Hazardous or incompatible vegetation (e.g., Palm trees and century plants that could encroach threshold conductor clearances as shown in Appendix B, Table 9)
- Fuel loads that would significantly contribute to wildfire spread or intensity (e.g., dry brush or surface-level fuel accumulation, including debris from prior Electric Transmission VM activities)
- Any vegetation species with the genetic propensity to encroach on minimum vegetation clearance distances
- Opportunities to improve access to the facilities allowing transmission line personnel and/or equipment to get in and do maintenance, construction, or emergency work

NOTE

IF clearing of access roads is required and is on agency land,

THEN OBTAIN approval as part of the ERTC process.

3. IF the TIVM project follows a ROWX project, and widening has occurred as shown in Appendix B, Table 7,

THEN MITIGATE incompatible vegetation in the ROW, AND the widened area (i.e., managed area), where allowed by easement or by landowner agreement,

OTHERWISE, when the TIVM project does NOT follow a ROWX project, SEEK to obtain, maintain, or enhance wire zone-border zone conditions within the current managed ROW width(s) according to Table 1 below.

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Table 1. Typical PG&E ROW Width(s)

	60/70 kV	115 kV	230 kV	500 kV
Typical PG&E ROW width(s)	50 ft.	75 ft.	100 ft.	120-175 ft.

Note: If managed area widths are wider than these distances, seek to maintain the larger width.

Divide the kV values to calculate widths from the centerline (e.g., 60 kV and 70 kV lines: 50 ft., with 25 ft. on each side of the centerline).

4. MITIGATE incompatible vegetation, which may include any of the following conditions:

   - Vegetation that could encroach on PG&E-defined clearance thresholds for incompatible vegetation for high voltage conductors (Appendix B, Table 10); importantly, these clearances further exceed PG&E-defined minimum clearance requirements as shown in Appendix B, Table 9.
   - Vegetation that presents a significant fire hazard
   - Vegetation that overhangs or which could break the vertical plane of the outside conductor (overhang) within the next year
     - IF above condition exists,

       THEN PROVIDE Routine with vegetation location information to reassess and mitigate condition if necessary.
   - Vegetation that prevents access to the area to allow transmission line personnel and/or equipment to get in and do maintenance, construction, or emergency work.
   - Woody vegetation that obscures the inspection of poles, tower footings, and guy wires. The program should obtain and maintain 10-to-15-foot tower/pole footprint clearances and 5-foot guy wire clearances.

NOTE

Commercial crops and orchards are not in the scope of TIVM. Neither is any portion of a span inside a substation or powerhouse security fence.

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5. IF it is not feasible to remove incompatible vegetation,

   THEN PRESCRIBE heavy pruning to obtain clearance requirements.

6. IF any of the following constraints exist that prevent removal,

   - Environmental or agency restrictions
   - Land right limitations
   - Customer or property owner interference

   THEN the PSC must escalate the exception to the VPM

7. IF any of the following conditions exists, THEN mitigation may NOT be required:

   - Effective border zones
   - Slow-growing trees that won't grow within threshold conductor distances in the next five years
   - Areas of a topographical exclusion where Minimum Ground to Conductor Clearance (MGCC) exceeds 80 feet and where vertical clearance between vegetation and conductor can be maintained at 40 feet or greater. In this case, the vegetation is compatible
   - Trees in an urban street or landscaped area
     - CONSULT the VPM to determine whether urban street or landscaped areas should be in scope for the project.
   - Commercial crops and Orchard trees (i.e., vegetation not managed as part of this program)

5 Management Objectives (Outside the ROW)

5.1 The PSC must PERFORM the following actions:

1. CONDUCT a Level 1 visual assessment from inside the ROW to identify obvious hazard or danger trees with a substantial likelihood that a tree or portion of a tree can impact PG&E facilities.

NOTE

Level 1 visual assessments are limited, meaning they are made from within the ROW instead of a more involved Level 2 assessment of all trees tall enough to strike electric facilities.

6 Performing Inspections

NOTE

IF during inspection, a hazard or danger tree is identified and requires immediate or urgent mitigation,

THEN FOLLOW Utility Procedure TD-7103P-09, "Transmission Vegetation Management Imminent Threat and Hazard Notification Procedure."

6.1 The PSC must PERFORM the following actions:

1. IDENTIFY and MITIGATE incompatible vegetation using professional judgment.

   a. IF unsure whether mitigation is needed,

      THEN CONSULT with the VPM and CVPM.

2. When documenting vegetation to be mitigated, DO the following:

   a. DOCUMENT the acreage of all spans where work is prescribed.

   b. DOCUMENT tree and brush units including:

      - Tree and brush pruning (i.e., trim) units
      - Brush removal units (i.e., brush cut, brush cut and treat, or foliar treat of standing brush)
      - Tree removal units per Table 2 below (i.e., cut or cut and treat)

Table 2. Removal Units

Work Codes	Vegetation Measurements are based on DBH as follows:
Brush	Vegetation less than 4 in.
R1	Trees greater than 4 in. but less than 12 in.
R2	Trees greater than 12 in. but less than 24 in.
R3	Trees greater than 24 in. but less than 36 in.
R4	Trees greater than 36 in. but less than 48 in.
R5	Trees 48 in. or greater

c. IF any of the options in Table 3 below applies,

THEN DOCUMENT the wood and debris management plans(s) for each unit:

Table 3. Debris Management Options Table

Option	Description
1	An Environmental Release to Construction (ERTC) submittal is required.
2	Wood or debris is to be hauled offsite.
3	When Wood or debris is to be relocated onsite.

3. When marking vegetation to be mitigated, DO the following:

   a. MARK vegetation to be felled with an “X” using blue paint.

      (1) For multi-stem trees, add the diameters of all the stems to determine DBH and tree removal unit class. NOTE in the tree comments when the tree is multi-stemmed (e.g., “5x-stem”).

   b. MARK vegetation to be pruned with a dot using blue paint

   c. MARK the edges of the managed area to be treated and dense vegetation thickets with flagging where needed for clear delineation.

4. COORDINATE with the CVPM and/or VPM to determine a project TC cost and execution plan, which may include the following:

   a. Direct award to a sourced vendor with approved Master Service Level (MSA) unit rates and/or MSA-approved labor and equipment rates.

   b. Bidding of a project on a unit, lump sum, or not to exceed T&M contract.

7 Documenting Inspections in VMPI2

7.1 THE PSC must UPDATE VMPI2 for each line span assigned for inspection, and CHOOSE the corresponding option as shown in Table 4 below:

Table 4. VMPI2 Span Inspection Options Table

Option	Instruction
1	IF TIVM work is required, THEN CHOOSE **TIVM Required Work,** AND CREATE an associated VMD work location record. **NOTE** AFTER work is verified as complete, UPDATE the line span to **TIVM Completed Work.**
2	IF no TIVM work is required, THEN CHOOSE **TIVM No Work Required.**
3	IF TIVM constraints exists, THEN CHOOSE **TIVM Constraints,** AND AFTER the constraint is resolved, CHANGE the designation, and UPDATE per options one, or two above.

7.2 The CVPM and/or VPM must periodically MONITOR the TIVM project Power BI report to ensure the following:

- All spans within a project are inspected.
- Required work and constrained work spans are moved to completed work.

8 Environmental Review

8.1 The CVPM and/or PSC must PERFORM the following actions:

1. REVIEW Transmission Environmental Constraints Layers (ECL) with all project footprints to determine what work falls within the scope thresholds of the following programmatic ERTCs:
   - Riparian Programmatic ERTCs
   - Programmatic ERTC for the Coastal Zone
   - Green ERTC for Transmission

- Amber ERTC for Transmission
- Purple ERTC for Transmission

2. SELECT an option from Table 5 below that matches the determined scope thresholds:

Table 5. Scope Thresholds Options Table

Option	Instruction
1	IF the work to be performed falls within the thresholds established, THEN the PSC DIRECTS the TC to the Core Share app for the requirements to follow in all applicable programmatic ERTCs.
2	IF the work to be performed does not fall within the thresholds established, THEN the PSC must WORK with the VPM to submit for a site-specific ERTC.
3	IF unsure whether the work to be performs falls inside or outside of the thresholds established, THEN CONSULT with the VPM and LP to determine whether an ERTC will be required. **NOTE** IF it is determined an ERTC is required, THEN the VPM and PSC must OBTAIN an Environmental Release to Construction (ERTC), which includes documentation as required by Land and Environmental Management (L&EM) for submission into the Environmental Portal.

3. REVIEW all draft submission data for quality and completeness before submission.

4. For work planned on private lands, REVIEW the following to determine if further environmental review is needed:

   a. ECL maps

      (1) IF the use of tracked or mastication equipment can cause substantial ground disturbance, or where sensitive habitats or resources are identified not within a Green ECL,

      THEN the PSC must SUBMIT an ERTC request to the Environmental Portal for review.

b. Transmission programmatic ERTCs.

c. Riparian Programmatic ERTCs.

5. For work planned on industrial timberlands (e.g., Sierra Pacific Industries, Mendocino Redwood Company, and Green Diamond timberlands), CONTACT the timberland owner to review and DETERMINE the following:

a. Environmental and cultural constraints and associated protection measures.

b. IF Utility Exemptions or Timber Harvesting Plan (THP) documents exist,

THEN DETERMINE if they are applicable to IVM scope of work.

8.2 The CVPM must PERFORM the following actions:

1. MONITOR weekly ERTC reports and COMMUNICATE updates to the VPM and LP as often as needed, supporting timely releases.

2. MONITOR the Salesforce Project Application and ESCALATE issues to the VPM, PSC, and LP.

3. SCHEDULE as needed weekly or bi-weekly meetings with the LP to address issues.

9 Communicating Required Activities to PG&E Personnel and TC Vendors

9.1 The PSC must PERFORM the following actions:

1. UPDATE the TIVM project reporting workbook every week with the following information:

- Acres set up and worked
- Project forecast and actual completion dates
- Circuit miles inspected
- Project costs

2. SEND all TIVM project reporting workbook updates to the DMS and CVPM by noon on Mondays.

3. Based on VPM direction, EXECUTE options from Table 6 on Page 15:

Table 6. Work Prescription Options Table

Option	Instruction
1	IF WORK = Unit Cost Project, THEN COLLABORATE with DMS to issue work requests (WR) to the TC.
2	IF WORK = Bid Out, THEN CREATE the bid package, HOLD a bid tour, and COLLABORATE with the VPM and DMS to obtain and document the bids received.

4. Before TC work begins, COLLABORATE with the CVPM to inform local division VM staff (T&D as needed) of project details, which may include, but are not limited to, the following:

   - Scope of work
   - Expected vegetation/tree work start date
   - VPM, CVPM, PSC, and TC contact information

5. IF a community outreach plan was developed during the project planning phase,

   THEN the PSC must work with the CVPM and VPM to inform additional internal and external stakeholders of project status and any landowner or community concerns.

9.2 The DMS must PERFORM the following actions:

1. UPDATE PMD and the TIVM project/budget dashboard file.
2. If applicable, PREPARE and PROVIDE bid record(s) to the VPM.

9.3 The CVPM and/or VPM must PERFORM the following actions:

1. DISCLOSE the winning bidder and INITIATE the contracting process.
2. INFORM additional internal and external stakeholders of project status.
3. LEAD coordination with all stakeholders regarding community outreach plan (if applicable).

10 Communicating Required Activities to the Customer or Property Owner

10.1 The PSC must PERFORM the following actions:

1. REQUEST the DMS to send notification letters to all customers or property owners except for agency landowners.

NOTE

Notification letters provide notice that PG&E is inspecting and, when necessary, conducting vegetation maintenance work at ETL locations.

2. UPDATE the Project Binder as needed.

3. INITIATE discussions with property owners, land managers, and agencies regarding work-required activities whenever necessary.

NOTE

Agency interaction is supported by and potentially led by Environmental Land Planners (LP). PSC will CONSULT with VPM, CVPM, LP, and agency as needed.

10.2 The DMS must PERFORM the following actions:

1. VERIFY the status of customer refusal/interference, enterprise, safety, and VMD alerts after project binder creation BEFORE initiating inspections and PROVIDE as needed.

2. SEND customers or property owners the notification letter before starting inspections and tree marking.

11 Performing Mitigation Activities

11.1 The PSC must PERFORM the following actions:

1. VERIFY with the DMS that there are no new customer refusal/interference, enterprise, safety, or VMD alerts.

   a. IF new customer refusal/interference, enterprise, safety, or VMD alerts are identified,

      THEN COMMUNICATE that information to the TC.

2. PROVIDE project management oversight of TC work to ensure adherence to the project scope and environmental requirements, including Vegetation Best Management Practices (BMPs).

3. MONITOR and UPDATE WR fields to reflect any changes, including, but not limited to, the following:

a. IF trees or brush are later determined not to need work,

THEN the PSC must WRITE “No Work Needed” on the WR and INITIAL.

b. REVIEW and VALIDATE WRs before and after field work to ensure accuracy.

c. COMMUNICATE WR changes to the VPM regarding added units that affect TC vendor payout.

11.2 The TC must PERFORM the following actions:

1. PERFORM all mitigations as prescribed in the bid packet, or WR issued to them in accordance with the project scope and environmental requirements, including Vegetation Management BMPs.

2. MONITOR and UPDATE WR fields to reflect any changes, including, but not limited to, the following:

a. IF trees or brush are identified to have already been removed before TC arrival,

THEN INDICATE “No Work – Already Removed’ on the WR AND Initial.

b. DOCUMENT tree and brush unit additions associated with field work.

c. SEND COMPLETED WRs (i.e., notated and signed) to the DMS.

11.3 THE PSC and TC must PERFORM the following actions:

1. IF herbicides are to be used,

THEN the PSC or TC company must PROVIDE and HAVE a valid Pest Control Recommendation (PCR) from a licensed Pest Control Advisor (PCA).

2. IF herbicide applications include foliar, basal stem, hack and squirt or any other application besides cut stump,

THEN the TC company must have a valid Qualified Applicator License (QAL) holder with Category C - ROW on-site during applications.

3. IF cut stump treatments are prescribed,

THEN the PSC ENSURES TC performs stump treatment within 5 minutes of making the final stump cut. The TC should also be in contact with their QAL with Category C - ROW.

12 Management of Vegetation Refuse

12.1 The PSC must PERFORM the following actions:

1. DOCUMENT and COMMUNICATE the wood and debris management plans to the TCs performing the work to ensure adherence to the project scope.

2. ENSURE that chips, wood, brush, and debris are properly removed and handled when working on PG&E-owned properties.

   a. IF access makes it unsafe or impractical to do so,

      THEN CONSULT the VPM (Fee Program Manager).

12.2 The TC must PERFORM the following actions:

1. DISPOSE of all cut vegetation by masticating, chipping, or by lopping, and scattering.

2. CUT all trees as close as possible to ground level, leaving stumps no taller than 12 in. measured from the uphill side.

   a. EXCEPTION: IF embedded debris, rocks, or metal prevent/obstruct the stump from being cut,

      THEN cut the tree stump as low as safely possible.

3. CHIP OR REMOVE any of the following vegetation in locations accessible to equipment (i.e., within 100 ft. of an access road).

NOTE

Chips must be spread back onsite or in a manner agreeable to individual landowners.

- Limbs
- Portions of stems up to 4 in. diameter
- Brush
- Slash

   a. Exception: If the vegetation is inaccessible to equipment (i.e., greater than 100 ft. of an access road).

      THEN limbs and tops must be LOPPED and SCATTERED to a maximum height of 18 in. above the ground unless otherwise specified in an easement or land-owner agreement.

NOTE
Lopped and scattered vegetation must not be left within the tower, pole or guy wire footprints.

12.3 IF the area contains dense brush or extensive small debris,

THEN a mastication machine **(**i.e., excavator type machine with masticator head [spinning, toothed drum] or tracked vehicle with masticator drum**)** may be used to grind the debris in place, as long as the slope is less than 35%, AND ground disturbance will NOT occur.

1. IF ground disturbance will occur,

   THEN an approved programmatic ERTC or site-specific ERTC is required as described in Section 8, "Environmental Review."

13 Documenting TIVM Projects

13.1 The PSC must PERFORM the following actions:

1. PROVIDE project management oversight of the TCs performing the work to ensure adherence to project scope.
2. CONDUCT follow-up inspections of the work areas after the TC has finished the initial vegetation removal and debris management to verify that work has been completed as prescribed.
   a. IF missed vegetation, debris, or additional vegetation is identified,

      THEN:

      (1) MARK the vegetation.

      (2) SEND the TC back to complete the required work.

      (3) WRITE any new work added on the WR and INITIAL.
3. RECORD the project completion information in their reporting workbook and VMPI2 (i.e., the current system of record), AND TRANSMIT that information to the DMS by close of business (COB) Monday for work completed the previous week.
4. CONSULT with VPM and CVPM to determine if additional control method efficacy assessments should be performed after the next growing season.
   a. IF an additional assessment is performed,

      THEN the PSC, VPM, and CVPM must DOCUMENT the results, which will help inform the future year's project planning.

13.2 The DMS must UPDATE the PMD and TIVM project and budget dashboard file(s).

14 Maintaining Fee Parcels

14.1 The CVPM and FV must PERFORM the following actions:

1. VERIFY the fire district (FD) jurisdiction, compliance requirements, and compliance due dates for each parcel before the end of February.

   a. If the compliance requirements are not published or the FD does not establish the due dates,

      THEN DOCUMENT all communication and regularly communicate to determine compliance requirements and due dates.

NOTE

IF current year compliance requirements and due dates aren't yet determined,

THEN USE the previous year's information as a basis until current requirements and due dates are determined.

2. DEVELOP and DOCUMENT outreach to FD and their Inspectors to support open communication, coordination, and compliance.

3. CONSULT with the VPM when FVs escalate resource or compliance issues and unsafe conditions and DETERMINE when a Corrective Action Plan (CAP) submittal is recommended.

14.2 The FV must PERFORM the following actions:

1. IMPLEMENT regular inspections and IVM controls to ensure compliance as dictated by each FD.

   IVM Control methods may include but are not limited to the following:

   - Pre/post herbicide applications to prevent or slow growth
   - Mowing and/or string trimming
   - Masticating and/or discing where ground disturbance is authorized
   - Tree and brush removal, pruning, limbing, and spacing
   - Grazing

2. MONITOR resource availability and approval to work qualifications to ensure FVs are qualified to maintain parcels according to compliance and FD requirements.

3. ESCALATE any FV resource and compliance issues with CVPM and/or VPM (e.g., FV is falling behind schedule or unable to safely perform work such as tree removal).

4. DOCUMENT and COMMUNICATE all inspections and work completed to the DMS and CVPM weekly.

5. REMOVE all trash and debris from the parcel when feasible.

   a. IF not feasible,

      THEN REPORT the location and PROVIDE pictures to the CVPM and Land Agent to manage debris removal.

6. IF any of the following are identified:

   - Homeless encampments,
   - Third-party encroachments that prevent work,
   - Illegal dumping
   - Broken, damaged, or missing gates/fences,
   - Other notable or 'unsafe' conditions,

   THEN REPORT the location and PROVIDE pictures to the CVPM and Land Agent.

14.3 The DMS must DOCUMENT all work completed in PMD.

END of Instructions

DEFINITIONS

Border Zone: A section of an electric transmission ROW that extends a specific distance from either side of the wire zone to the ROW edge, usually managed to promote mixed vegetation below a specified height (contrast with wire zone). See Appendix A, Figure 2, "Wire Zone and Border Zone."

Constraint: A situation that occurs when a customer, property owner, or agency obstructs or delays PG&E pre-inspection work or the completion of the intended vegetation work.

Danger Tree: Any tree located on or adjacent to a utility right-of-way or facility that could damage utility facilities should it fall where (1) the tree leans toward the right-of-way, or (2) the tree is defective because of any cause, such as: heart or root rot, shallow roots, excavation, bad crotch, dead or with dead top, deformity, cracks or splits, or any other reason that could result in the tree or main lateral of the tree falling. (Cal. Code Regs., Title 14, § 895.1)

Easement: An interest in land owned by another person or entity that gives the owner of the easement limited right to that land for a specific, defined purpose. It is a non-possessory,

restricted right for a specific use or activity on the land of another that is less than ownership. Used interchangeably with right-of-way.

Effective Border Zone: A modification of the traditional border zone concept where a high-voltage line has sufficient ground-to-conductor clearance to accommodate mixed vegetation including trees and shrubs throughout the ROW. See Appendix A, Figure 1, "Effective Border Zone."

Fall-in LiDAR Detection: Tree detection points where the tree is outside of the wire zone and is tall enough to strike or come within flash over distances if it should fail.

Fee Properties: PG&E parcels that are owned in "fee" which are subject to state and local weed abatement and defensible space fire ordinances, and which ideally should have wire zone-border zone management conditions.

Felling: Dropping or cutting down a tree.

Grow-in LiDAR Detection: Tree detection point where tree location is within the wire zone and has the potential to grow into the minimum required clearance distances.

Hazard Trees: A whole or partial tree that is dead, exhibiting signs of disease, decay, or ground/root disturbance and may fall into or otherwise impact electric facilities.

- **All lines:** Trees that are dead or show signs of disease, decay, or ground or root disturbance which might fall into or otherwise impact the conductors, towers, or guy wires before the next inspection cycle.
- **NERC lines only:** In addition, trees within the easement with a likely potential to fail within the next two years which would pass within the PG&E minimum clearance requirements.
- **All lines in HFTD:** In addition to traditional arboricultural evaluation of trees for hazard, transmission VM has both LiDAR and wind modeling that can be used to further inform decision making.

High Fire Risk Area (HFRA): An area designated by PG&E for use in scoping Public Safety Power Shutoff events, where risk factors for the potential of catastrophic fire from utility infrastructure ignition during offshore wind events is higher.

High Fire-Threat District (HFTD): Those areas comprised of the following:

- Zone 1 is Tier 1 of the latest version of the United States Forest Service (USFS) and CAL FIRE's joint map of Tree Mortality High Hazard Zones (HHZs). (Note: The map may be revised regularly by the USFS and CAL FIRE.)
- Tier 2 is Tier 2 of the CPUC Fire-Threat Map.
- Tier 3 is Tier 3 of the CPUC Fire-Threat Map.

Transmission Integrated Vegetation Management Right-of-Way Maintenance

Incompatible Vegetation: Plant forms that are inconsistent with the intended use of a site. For electric transmission ROWs, this includes any vegetation that can grow to a height that encroaches into PG&E's minimum vegetation clearance distances, presents a potential fire hazard, impedes access, or obscures the inspection of facilities.

Integrated Vegetation Management (IVM): A system of managing plant communities in which compatible and incompatible vegetation are identified, action thresholds are considered, control methods are evaluated, and selected controls are implemented to achieve specific objectives.

LiDAR: Light detection and ranging technology used to determine vegetation conditions, predominantly distances and clearances, in relation to electric conductors and easement boundaries.

Managed Area: Areas, including the wire zone and border zone, where vegetation maintenance is occurring. This may include vegetation within the formal easement or ROW along with areas outside of the easement where widening is agreed upon or may have occurred.

Minimum Ground to Conductor Clearance (MGCC): The closest the lines can sag to the ground based on clearances listed in CPUC General Order 95, Rule 37, Table 1, and Case 4. MGCC is provided through engineering analysis of "as-flown" LiDAR data which have been analyzed to determine maximum conductor sag along the line span.

Overhang: A tree and/or limb breaking the vertical plane of the outside conductor. As part of both routine and other transmission VM operations, management of overhang is accomplished by removing limbs substantially beyond the vertical plane.

Programmatic Environmental Release to Construction (ERTC) descriptions:

- **Green:** There are no known environmental issues in the area and the crew can perform work including ground disturbance. Crew must follow the guidance within the regional Green Programmatic ERTC.
- **Amber:** There are potential environmental concerns within the area. The crew cannot perform ground disturbing activities and must follow the additional avoidance and minimization measures (AMM).
- **Purple:** The area has a site specific ERTC that had been issued and the crew must follow the instructions contained within the Site Specific ERTC.

Project Binder: Electronic and/or hard copy documents that support project planning and execution.

Right-of-Way (ROW): See easement definition.

Topographical Exclusions: Areas below the conductors, such as canyons or ravines, where sufficient vegetation-to-conductor clearance is always achieved without vegetation

management and where heat damage to conductors from a wildfire passing below would be minimal.

Wire Zone-Border Zone Concept: The wire zone is managed to develop low-growing plant communities dominated by grasses, herbs, and small shrubs. The border zone is the remainder of the ROW. It is managed to establish shrubs and trees that are compatible with electric facilities.

Wire Zone: The section of an electric transmission ROW under the wires and extending out both sides to a specified distance, usually managed to promote low-growing vegetation (contrast with border zone). For 60/70 kV facilities, the wire zone is the section of the corridor located between the outside conductors plus 10 feet on each side. For 115 kV and 230 kV facilities, the wire zone is the section of the corridor located between the outside conductors plus 15 feet on each side. For 500 kV facilities, the wire zone is the section of the corridor located between the outside conductors plus 20 feet on each side. See Appendix B, Table 8, and Appendix A, Figure 1.

Limited Visual Assessment (Level 1): A visual assessment from a specified perspective such as a foot, vehicle or aerial (airborne) patrol of an individual tree or a population of trees near specified targets to identify conditions or obvious defects of concern.

- Walk-by: A limited visual inspection, usually from one side of the tree, performed as the tree risk assessor walks by the tree(s).
- Drive-by/windshield assessment: A limited visual inspection from only one side of the tree, performed from a slow-moving vehicle.
- Aerial patrol: Overflights of a utility right-of-way, large areas, or individual trees in a defined area to record the location of trees that are likely to fail and cause harm.

Basic Assessment (Level 2): A detailed visual inspection of a tree and surrounding site that may include the use of simple tools. It requires that a tree risk assessor inspect completely around the tree trunk looking at the visible aboveground roots, trunk, branches, and site.

IMPLEMENTATION RESPONSIBILITIES

The VM transmission team is responsible for the implementation, communication, and maintenance of this procedure and its associated standard.

- The VM program managers communicate this procedure to the VM stakeholders.
- The VM supervisors communicate this procedure to the operational work teams.

GOVERNING DOCUMENT

TD-7111S, “Vegetation Management Transmission Right-of-Way (ROW) Maintenance and ROW Expansion Programs”

Transmission Integrated Vegetation Management Right-of-Way Maintenance

COMPLIANCE REQUIREMENT / REGULATORY COMMITMENT

Records and Information Management:

Information or records generated by this procedure must be managed in accordance with the Enterprise Records and Information (ERIM) program Policy, Standards and Enterprise Records Retention Schedule (ERRS). REFER GOV-7101S, "Enterprise Records and Information Management Standard" and related standards. Management of records includes, but is not limited to:

- Integrity
- Storage
- Retention and Disposition
- Classification and Protection

REFERENCE DOCUMENTS

Developmental References:

California Power Line Fire Prevention Field Guide

ANSI A300, "Tree Care Standards," Tree Care Industry Association (TCIA)

- Tree Care Industry Association (TCIA), Tree, Shrub, and Other Woody Plan Management—Standard Practices, ANSI A300 (Part 7)-2018, "Integrated Vegetation Management (IVM)"

International Society of Arboriculture (ISA), Best Management Practices, "Integrated Vegetation Management" by Randall H. Miller

Supplemental References:

TD-7103P-09, "Transmission Vegetation Management Imminent Threat and Hazard Notification Procedure"

TD-7111P-02, "Vegetation Management Transmission Right-of-Way Expansion (ROWX) Procedure"

LAND-3003P-01, "Fee Property Clean-Up Procedure"

APPENDICES

Appendix A, Visual Examples of Managed Areas

Appendix B, Managed Area Widths and Clearance Distances

Transmission Integrated Vegetation Management Right-of-Way Maintenance

ATTACHMENTS

NA

DOCUMENT RECISION

TD-7103P-04, “Transmission Integrated Vegetation Management (TIVM)” 10/01/2016

DOCUMENT APPROVER

[redacted], Director, Vegetation Management

DOCUMENT OWNER

[redacted], Senior Manager, Vegetation Management

DOCUMENT CONTACT

[redacted], Principal Program Manager

REVISION NOTES

Where?	What Changed?
Subsection1	Added Project Plan Development section which replaces Work List and Annual plan in old procedure.
Subsection 2	Added Planning and Performing Inspection sections which replaces Work Set Up and IVM Maintenance Prescriptions sections in old procedure.
Subsection 3 and 12	Added Planning Fee Projects and Maintaining Fee Projects sections.
Subsection 4	Added Management Objectives section.
Subsection 7	Added Environmental Review section.
Subsections 8, 9, and 10	Added Communicating Required Activities, Performing Mitigation Activities, and Management of Vegetation Refuse sections which replace Project Initiation section in old procedure.
Subsection 11	Added Documenting TIVM Projects section which replaces Ongoing Project Management section in old procedure.
Definitions	Added definition of effective border zone.
Appendix A	Added appendix showing visual of wire-zone border zone concept for understanding of critical wire zone(s) and effective wire zone(s)
Appendix B	Added appendix describing managed widths and clearance distances. Added diagram of visual example of managed areas.

Appendix A, Visual Examples of Managed Areas

Images courtesy of International Society of Arboriculture

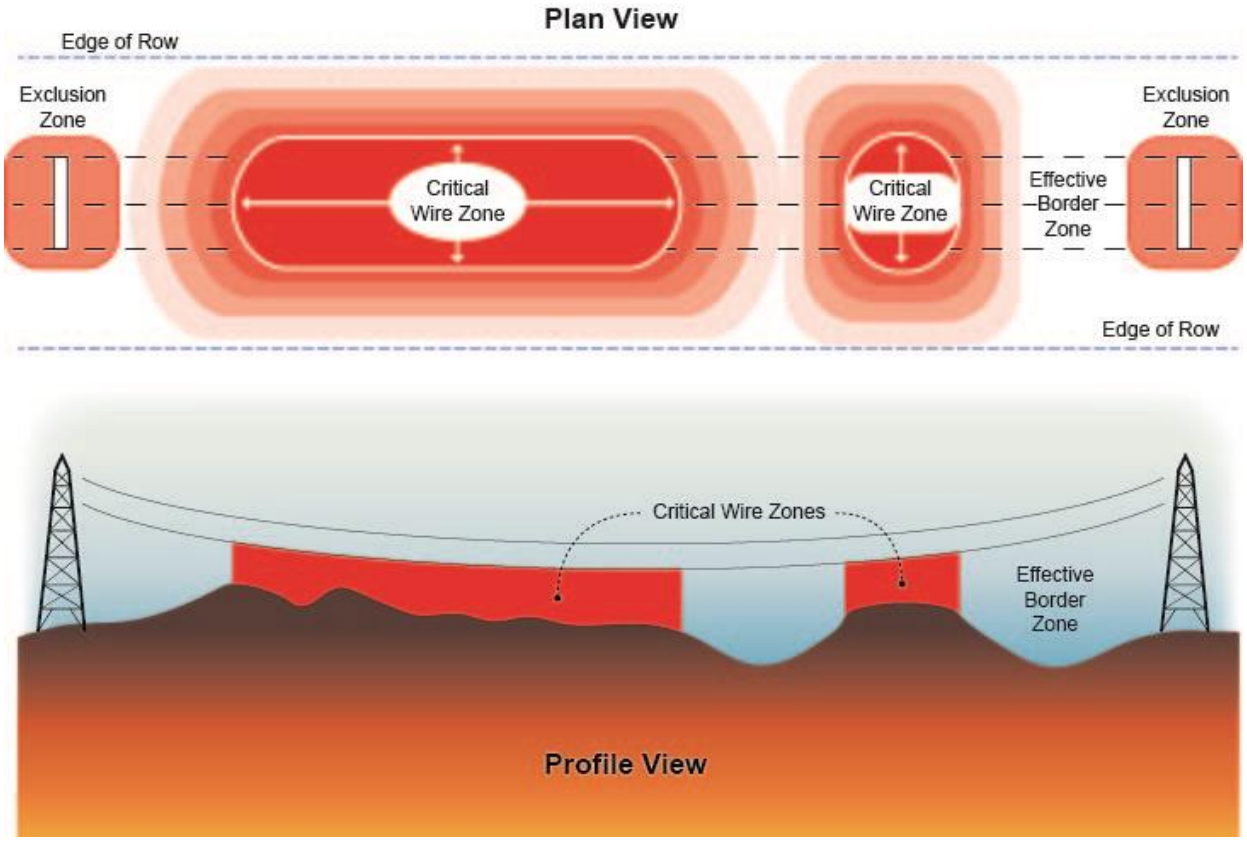

Figure 1. Effective Border Zone

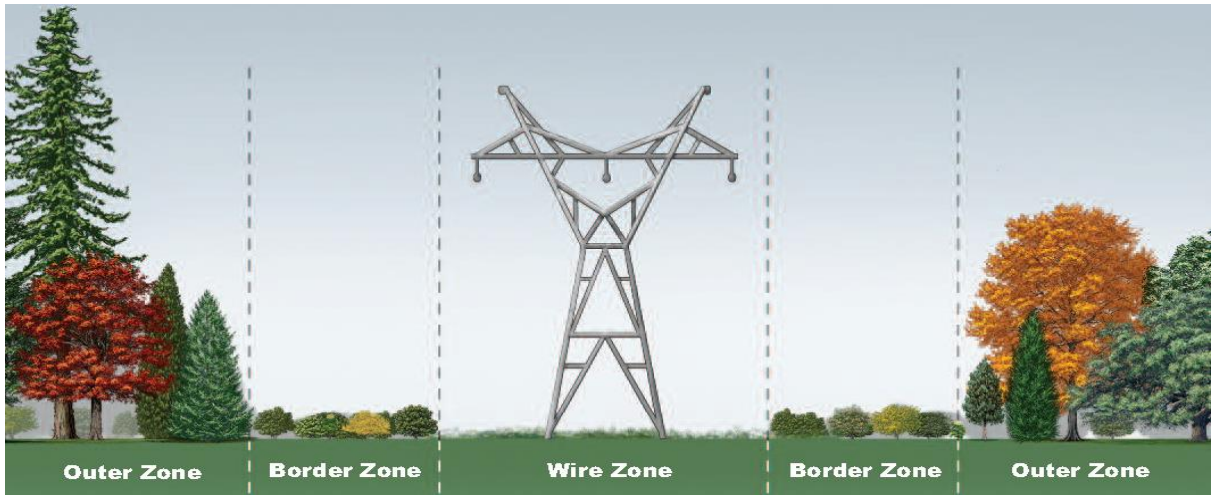

Figure 2. Wire Zone and Border Zone

Appendix B, Managed Area Widths and Clearance Distances

Table 7. Targeted Width of the Managed Area following ROWX

	60/70 kV	115 kV	230+ kV
Targeted Width of the Managed Area	80 ft.	100 ft.	120 ft.

Note:

- PG&E manages the existing managed area, which in some areas is wider than the targeted width.
- Divide the width values to calculate widths from the centerline (e.g., 60 kV and 70 kV lines: 80 ft., with 40 ft. on each side of the centerline).

Table 8. Wire Zone Width

	60/70 kV	115 kV	230 kV	500 kV
Wire zone width, beyond the outside conductors on each side	10 ft.	15 ft.	15 ft.	20 ft.

Note: See Appendix A, Figure 2 for a diagram of the wire zone.

Table 9. PG&E Minimum Clearance Requirements Around Transmission Lines

	60/70 kV	115 kV	230 kV	500 kV
PG&E Minimum Clearance Requirement	4 ft.	10 ft.	10 ft.	15 ft.

Note: The PG&E-defined minimum clearance distances are designed to meet or exceed all applicable regulatory requirements, including NERC Reliability Standard FAC-003-4 and CPUC GO 95, Rule 35.

Table 10. Clearance Thresholds for Incompatible Vegetation

	60/70 kV	115 kV	230 kV	500 kV
Clearance Thresholds for Incompatible Vegetation	6 ft.	12 ft.	12 ft.	22 ft.

Note: Trees or vegetation that could grow within these threshold distances are considered incompatible and using professional judgement should be mitigated (pruned or felled) with felling typically being the preference. The primary concern is trees in the wire zone, but trees in the border zone that could also grow into the threshold distances should be mitigated.