

ENTERGY NEW ORLEANS, INC.
CITY OF NEW ORLEANS
Docket No. UD-16-01

Response of: Entergy New Orleans, Inc.
to the Second Set of Data Requests
of Requesting Party: Alliance for Affordable
Energy

Question No.: AAE 2-7

Part No.:

Addendum:

Question:

To the extent not already done, please provide a copy of:

- a. ENO's vegetation management plan; and
 - b. Any proposed modifications to ENO's current vegetation management plan.
-

Response:

- a. Attached is the Transmission ENO Vegetation Management Work Plan for 2016. The Distribution Vegetation Management Plan in New Orleans is managed on a circuit basis. The following circuits are scheduled to be completed in 2016:

Network	Substation	Circuit	Circuit Miles
East Orleans	ALMONASTER	616	7.5
East Orleans	ALMONASTER	617	6.8
East Orleans	ALMONASTER	622	13
East Orleans	GULF OUTLET	1203	4.9
East Orleans	GULF OUTLET	1204	24.4
East Orleans	GULF OUTLET	1205	8
East Orleans	PATERSON	1002	8.1

Network	Substation	Circuit	Circuit Miles
East Orleans	PATERSON	1009	8.9
East Orleans	PATERSON	1010	12.8
East Orleans	Pauger	1702	11.3
East Orleans	TRICOU	2325	11.7
East Orleans	TRICOU	2347	16.6
Tulane	AVENUE C	402	2.4
Tulane	AVENUE C	406	7.8
Tulane	AVENUE C	409	6.5
Tulane	AVENUE C	410	7.5
Tulane	Joilet	2016	11.6
Tulane	Joilet	2024	5.3
Tulane	Joilet	2026	13.6
Tulane	JOLIET	2011	12.1
Tulane	MARKET	2132	10.4
Tulane	MARKET	2135	9.3
Tulane	MARKET	2147	11.2
Tulane	Midtown	907	12.3
Tulane	Napoleon	1914	8.2
Tulane	Napoleon	1915	12.3
Tulane	Napoleon	1916	0.9
Tulane	Napoleon	1917	10.8
Tulane	Napoleon	1921	7.9
Tulane	Napoleon	1923	7.9
Tulane	Pauger	1704	18.4
Tulane	Pauger	1708	7.5
Tulane	Pauger	1713	3.5
Tulane	Pontchartrain Park	510	7.4
Tulane	Pontchartrain Park	513	14.3
Tulane	Sherwood Forest	1601	12.6
Tulane	Southport	B0527	10.5
Tulane	Southport	B0525	2
		Total Miles	368.2

- b. There are no proposed modifications to the Vegetation Management Plan at this time.

PROCEDURE TITLE: Entergy Transmission Vegetation Management Program

EFFECTIVE DATE: JUNE ¹⁵ 10, 2015 DW

PROCEDURE OWNER (PRINT NAME)	DON WOODS
TITLE	SR TRANSMISSION SPECIALIST
SIGNATURE AND DATE	<i>Don Woods</i> 6/10/2015
PROCEDURE OWNER'S MANAGER (PRINT NAME)	JEFF GUY
TITLE	MANAGER, TRANSMISSION LINES AM
SIGNATURE AND DATE	<i>Jeff Guy</i> 6/10/2015

CHANGE DESCRIPTION

- Due to a NERC Advisory published May 14, 2015, Minimum Vegetation Clearance Distance (MVCD) numbers were updated using the Gallet equation with an adjusted value of 1.0 for elevations over 2,000 ft. up to 3,000 ft. as noted in Section 5.1.5.2.

Are actions directed by this procedure designed to address compliance with regulations, standards or requirements?

YES

Will this procedure result in a need to be reviewed by Entergy Legal Counsel?

NO

Refer to Procedure Owner Responsibilities.

TABLE OF CHANGES

REVISION	EFFECTIVE DATE	CHANGE DESCRIPTION
00	N/A	Initial Version was issued as Revision 01
01	January 1, 2008	<p><u>BASIS STATEMENT</u> - Reformat ETVMP in accordance with RC-AD-001.</p> <p>This procedure applies to all transmission lines operated at 200 kV and above and to any lower voltage lines designated by the RRE as critical to the reliability of the electric system in the region. (Cf. A.4.3)</p> <p>As of January, 2009, there are no lines on the Entergy System operated at voltages less than 200kV that have been identified as critical to the reliability of the electric system in the region.</p> <p>Incorporate the Entergy TVMP into the TMM process and format.</p>
02	September 1, 2008	Revisions incorporating lessons learned from the 2008 FAC-003 Spot Check and June 13, 2008 Baxter Wilson to Grand Gulf outage."
03	January 27, 2009	Revisions incorporating lessons learned from the mitigation process for the June 13, 2008 Baxter Wilson to Grand Gulf outage.
04	August 25, 2010	<ul style="list-style-type: none"> - Changes made to accurately reflect the new Entergy Vegetation Management Structure resulting from the recent T & D Integration - Appropriate documents that were previously Attachments to the procedure are now utilized as References - Clarification language was added throughout document in an effort to more accurately represent intent of associated Requirements. - AM-SV-FAC-001 supersedes AM-ERS-FAC-001; the procedure number was changed in accordance with RC-TC-AD-001, R10.
05	January 5, 2011	<ul style="list-style-type: none"> - Changes made to reflect the revisions of referenced document TO0404, and the creation of and reference to document EO0401. The reference to document TO0404 is being removed from this procedure due to the Vegetation specific information being removed from TO0404, and is being replaced with the reference to document EO0401 which will now contain the Vegetation Specific information. This revision is due to the associated editorial only changes to document TO0404, and no procedural changes are being made in association with the document edits. The reference to the vegetation specific information that was listed in TO0404 was moved to a new document that was created specifically for the Vegetation Group. This new document is EO0401. - Changes were made to reflect the recent Job Title revision of the Transmission Specialists. The titles of these individuals were changed from Transmission Specialists to Operations Coordinators. There are no changes in Job Duties associated with this title change.
06	July 1, 2014	<ul style="list-style-type: none"> - Changes made to align with the new version of the NERC FAC-003-3 Transmission Vegetation Management Standard. Overall program components were previously in place to ensure compliance and did not change, however additional documentation requirement updates were added to ensure continued compliance. - Definitions were revised to align with the updated NERC Glossary of Terms. - Changes were made to reflect the Reintegration of the Transmission Group. Titles and position updates were updated in the document.

		- Vegetation process clarifications were added to support vegetation management program.
07	April 30, 2015	<ul style="list-style-type: none"> - Adjusted title of Procedure Owner to SR TRANSMISSION SPECIALIST - Adjusted Supervisor, Vegetation Management to Supervisor(s), Vegetation Management - Adjusted abbreviation for Operation Coordinators from OC to OC's - Added: 4.4.13 Review and verify Entergy Monthly and Quarterly Vegetation Updates with the Supervisor(s), Vegetation group and develop necessary Management, Compliance and/or SERC report information as needed. - Adjusted MVCD Table based on 3,000 ft. to 4,000 ft. Elevations to 2,000 ft. to 3,000 ft. Elevations.
08	June 10, 2015	- Due to a NERC Advisory published May 14, 2015, Minimum Vegetation Clearance Distance (MVCD) numbers were updated using the Gallet equation with an adjusted value of 1.0 for elevations over 2.000 ft. up to 3.000 ft. as noted in Section 5.1.5.2.

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1.0 PURPOSE

- 1.1 The Entergy Transmission Vegetation Management group is dedicated to providing internal and external customers with safe, reliable service at minimum cost, always focusing on environmental stewardship.
- 1.2 The purpose of this program is to prevent vegetation-caused outages and encroachments into the MVCD through the application of scientifically proven industry standards and practices as well as through the use of company maintenance strategies, processes, and procedures. Specifically, this program is intended to provide a basis for the management of vegetation on and along the Transmission ROW's in a manner that prevents encroachments from vegetation into the MVCD in order to prevent the risk of vegetation related outages that could lead to cascading.
- 1.3 This document, along with the attachments and references listed, is intended to outline the Transmission Vegetation Management Program in a manner that ensures that the Requirements of FAC-003-3 are met to prevent vegetation encroachments into MVCD and outages that could lead to cascading. This document includes Entergy's:
 - 1.3.1 Maintenance Strategies
 - 1.3.2 Approved Procedures, Processes, and Practices
 - 1.3.3 Work Standards / Specifications

2.0 REFERENCES

- 2.1 External References:
 - 2.1.1 FERC Order 693
 - 2.1.2 NERC Standard FAC-003-3
 - 2.1.3 ANSI Standard A300, "Tree Care Operation – Tree, Shrub and Other Woody Plant Maintenance"
 - 2.1.3.1 Part 1: Standard Practices – *Pruning*
 - 2.1.3.2 Part 7 Standard Practices – *Integrated Vegetation Management a. Electric Utility Rights – of – way (IVM)*
 - 2.1.4 IEEE Standard 516-2003, "Guide for Maintenance Methods on Energized Power lines."
 - 2.1.5 ANSI Standard Z133.1-2006

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2.1.6 OSHA regulation CFR 1926.451(6)

2.2 Internal References

2.2.1 Entergy Work Management Process

2.2.2 Annual Transmission Vegetation Work Plan (Annual Work Plan and Line Inspection Schedule)

2.2.3 Entergy Transmission Vegetation List of Impediments

2.2.4 Entergy Quarterly Vegetation Updates

2.2.5 Transmission Consolidated Outage System (COS)

2.2.6 Vegetation Work Management System (VWMS)

2.2.7 Entergy Standards

2.2.8.1 Tree Pruning and Tree Removal - EO010500

2.2.8.2 Transmission Line Mechanical Side Pruning – EO010600

2.2.8.3 Chemical Herbicide Applications – EO010700

2.2.8.4 Mechanical Re-Clearing/Mowing – EO010800


2.2.8.5 Vegetation Maintenance Interval Guidelines – EO0401

2.2.8.6 Transmission Vegetation Removal Notification Process – EO0402

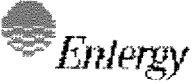
3.0 DEFINITIONS

3.1 Entergy Transmission Vegetation Management Program – Entergy's Vegetation Management Program that includes our maintenance strategies, procedures, and processes that are used to prevent the encroachment of vegetation into the MVCD of our applicable lines. This program is designed to support the layered protection approach of utilizing Performance-based, Risk-based, and Competency-based capabilities to help prevent flashover of vegetation into our applicable lines that could lead to cascading outages.


3.2 Annual Transmission Vegetation Work Plan (Line Inspection Schedules and Annual Work Plan) – Annual Plan of Transmission Lines that will have vegetation preventative maintenance performed, documenting aerial inspections, and is flexible enough to allow for an anticipated level of corrective maintenance. NOTE: This Plan is generally referred to as the "Work Plan or Annual Plan".

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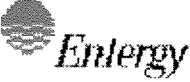
- 3.3 Transmission Consolidation Outage System (COS) – database system used by Entergy to document and track details for transmission line outages. This database can be queried for summary reports on outage frequency, causes, durations, etc.
- 3.4 Vegetation Work Management System (VWMS) – database system used by Entergy to document and track identification and completion of preventative and corrective vegetation work maintenance.
- 3.5 Vegetation Action Threshold Distance – The distance that is used to determine the corrective maintenance Priority based on vegetation distance from energized Transmission Line facilities.
- 3.6 Immediate - For the purposes of this program, the term immediate is defined as no intentional time delay by Entergy.
- 3.7 Right of Way (ROW) - The corridor of land under a transmission line(s) needed to operate the line(s). The width of the corridor is established by engineering or construction standards as documented in either construction documents, pre-2007 vegetation maintenance records, or by the blowout standard in effect when the line was built. The ROW width in no case exceeds the applicable Transmission Owner's or applicable Generator Owner's legal rights but may be less based on the aforementioned criteria. – See: NERC Glossary of Terms
- 3.8 Vegetation Inspection - The systematic examination of vegetation conditions on a Right-of-Way and those vegetation conditions under the applicable Transmission Owner's or applicable Generator Owner's control that are likely to pose a hazard to the line(s) prior to the next planned maintenance or inspection. This may be combined with a general line inspection. – NERC See: Glossary of Terms
- 3.9 Minimum Vegetation Clearance Distance (MVCD) - The calculated minimum distance stated in feet (meters) to prevent flash-over between conductors and vegetation, for various altitudes and operating voltages. – See: NERC Glossary of Terms
- 3.10 Sustained Outage - The de-energized condition of a transmission line resulting from a fault or disturbance following an unsuccessful automatic reclosing sequence and/or unsuccessful manual reclosing procedure. – See: NERC Glossary of Terms
- 4.0 **RESPONSIBILITIES**
- 4.1 The Manager, Transmission Lines AM, or designee is responsible for:

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- 4.1.1 Reviewing and approving, at least annually, the Entergy Transmission Vegetation Management Program. The Document will be revised as necessary.
- 4.1.2 Supporting the development and completion of necessary mitigation plans that are developed by the Operations Coordinators (OC's) and Supervisor(s), Vegetation Management for removing any impediments to attaining proper vegetation clearances.
- 4.1.3 Approving the Annual Transmission Vegetation Work Plan before January 30th of that year.
- 4.1.4 Drafting and updating the outline of the Integrated Vegetation Management (IVM) program, collecting grid work plans in consultation with the Supervisor(s) Vegetation Management and Entergy Vegetation Operations Coordinator(s), and ensuring that the overall program is in compliance with the requirements of the Vegetation Management Standard FAC-003-3.
- 4.1.5 Participating and performing the required actions for completing the Imminent Vegetation Threat Process in the event that is needed.
- 4.1.6 Performing Annual Training and Documentation for the Communication of the Imminent Vegetation Threat process.
- 4.1.7 Participating on industry Vegetation Management teams that help to promote and ensure program compliance.
- 4.2 The Supervisor(s), Vegetation Management, or designee is responsible for:
 - 4.2.1 Ensuring the completion and documentation of aerial and/or ground line inspections are completed according to schedule.
 - 4.2.2 Scheduling and executing required vegetation maintenance as identified from aerial and/or ground inspections to prevent encroachment into the MVCD of applicable lines.
 - 4.2.3 Identifying and removing vegetation which could encroach within the MVCD of applicable lines in a timely manner.
 - 4.2.4 Completing and submitting to the Manager, Transmission Lines AM the Entergy Quarterly Vegetation Updates by the end of the month following the completion of a calendar quarter, and as requested.
 - 4.2.5 Ensuring work is performed in compliance with proper contract agreements and work standards.

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- 4.2.6 Ensuring that appropriate auditing of the vegetation maintenance work through aerial and / or ground patrols is occurring by the OC's.
- 4.2.7 Supporting the OC's in the development of necessary mitigation plans to remove any impediments to attaining proper vegetation clearances.
- 4.2.8 Authorizing employees to adjust the inspection schedule for changing conditions, and ensuring that the documentation of the modifications are accurate in VMWS.
- 4.2.9 Documenting and tracking of Annual Transmission Vegetation Work Plan in VMWS to ensure that the work is completed to 100%.
- 4.2.10 Completing the development of the Annual Transmission Vegetation Work Plan before January 1st of each year.
- 4.2.11 Participating and performing the required actions for completing the Imminent Vegetation Threat Process in the event that is needed.
- 4.2.12 Completing Imminent Vegetation Threat process training, at least annually.
- 4.3 Vegetation Operations Coordinators (OC's), or designees are responsible for:
 - 4.3.1 Developing and coordinating the Annual Transmission Vegetation Work Plan before January 1st of each year.
 - 4.3.2 Documenting and tracking of Annual Transmission Vegetation Work Plan in VMWS to ensure that the work is completed to 100%.
 - 4.3.3 Completing and documenting aerial and / or ground line inspections.
 - 4.3.4 Identifying and removing vegetation which could encroach within the MVCD in a timely manner.
 - 4.3.5 Scheduling and executing required vegetation maintenance as identified from aerial and/or ground inspections.
 - 4.3.6 Scheduling corrective maintenance following the Entergy Work Management process, and documenting the work in VMWS.
 - 4.3.7 Ensuring work is performed in compliance with proper contract agreements and work standards.
 - 4.3.8 Inspecting assigned work projects, including work auditing and invoice tracking / approval.

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4.3.9 Participating and performing the required actions for the Imminent Vegetation Threat Process.

4.3.10 Developing mitigation plans to remove any impediments to attaining proper vegetation clearances to ensure that no MVCD violations occur prior to the next annual work plan.

4.4 The SR Transmission Specialist, or designee is responsible for:

4.4.1 Reviewing new and proposed Federal/State/Local regulations that may affect the Transmission Vegetation Management Program and make recommendations to the Entergy Vegetation Management Team.

4.4.2 Communicating with the Transmission Vegetation Group on implementation of all required regulations.

4.4.3 Reporting of all required compliance documentation to Federal/State/Local governing bodies.

4.4.4 Assisting in the retention of all compliance documentation.

4.4.5 Reviewing COS data to verify that appropriate details are recorded accurately for Compliance reporting requirements

4.4.6 Completing the Quarterly Outage Review and submitting the SERC Quarterly Vegetation outage report into the SERC Portal.

4.4.7 Reviewing Entergy Transmission Vegetation Management Program annually and providing necessary updates and/or changes as appropriate.

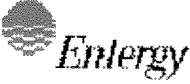
4.4.8 Updating the Transmission Vegetation List of Impediments.

4.4.9 Assisting with the development of mitigation plans to remove any impediments to attaining proper vegetation clearances.

4.4.10 Participating in and performing the required actions to support the Imminent Vegetation Threat Process.

4.4.11 Participating on industry Vegetation Management teams that help to promote and ensure program compliance.

4.4.12 Supporting overall Transmission Vegetation Management Program to help ensure full compliance with FAC-003-3.

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4.4.13 Review and verify Entergy Monthly and Quarterly Transmission Vegetation Updates with the Supervisor(s), Vegetation group and develop necessary Management, Compliance and/or SERC report information as needed.

4.5 Security Superintendent, or designee, is responsible for:

4.5.1 Entering new records into the COS system when transmission outages occur.

4.5.2 Participating and performing the required actions for the Imminent Vegetation Threat Process.

4.6 Supervisor, Transmission Lines, or designee is responsible for:

4.6.1 Participating and performing the required actions for the Imminent Vegetation Threat Process.

4.7 Manager, Grid, or designee is responsible for:

4.7.1 Participating and performing the required actions for the Imminent Vegetation Threat Process.

4.8 Director, System Operations Center (SOC), or designee is responsible for:

4.8.1 Participating and performing the required actions for the Imminent Vegetation Threat Process.

4.9 Manager, Transmission Operational Planning, or designee is responsible for:

4.9.1 Participating and performing the required actions for the Imminent Vegetation Threat Process.

5.0 DETAILS


5.1 Entergy Transmission Vegetation Management Program

5.1.1 Manager, Transmission Lines AM will review and approve, at least annually, the Entergy Transmission Vegetation Management Program. The Document will be revised as necessary.

5.1.2 Vice President, Asset Management, or designee, will approve the annual review of the Transmission Vegetation Management Program.

5.1.3 Maintenance work specifications for the Transmission Vegetation Management Program include: (Internal References Section 2.2)

5.1.3.1 Mechanical Re-Clearing/Mowing

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5.1.3.2 Chemical Herbicide Applications

5.1.3.3 Transmission Line Mechanical Side Pruning

5.1.3.4 Tree Pruning and Tree Removal


5.1.4 Inspections (**FAC-003-3 R6**)

5.1.4.1 All Entergy transmission lines operated at 200kV and above and any lower voltage lines that are an element of an IROL are inspected by air and/or ground at least three times per calendar year. This frequency has proved to be adequate based on the anticipated growth and typical growing environment for the Entergy system. Additional inspections may be added as needed to evaluate the effects of natural disasters. The Flight Data and Progress of these inspections are tracked by line mileage complete and documented in VWMS. (Internal References Section 2.2)

5.1.4.2 The annual vegetation inspections for all FAC-003-3 applicable lines are performed by Entergy Vegetation Management Personnel (Vegetation OC's, Supervisor, Vegetation Management, Manager Transmission Lines A.M., SR Transmission Vegetation Specialist, etc...)

5.1.4.3 The Supervisor(s), Vegetation Management and Manager, Transmission Lines AM are empowered with the latitude to adjust the routine inspection schedule to account for changing condition. Abnormal rainfall, temperature, or other environmental factors may indicate the need for more frequent aerial and/or ground inspections.

5.1.4.4 During the aerial and/or ground inspection, the vegetation inspector shall note on the approved Entergy Vegetation Inspection Form (Attachment 1, Section 9.1) the line name, number, and span number(s) where encroaching or threatening / Priority vegetation is identified. The type of encroachment and the recommended mitigation measures which are required to remove this possible threat (pruning, mowing, herbicide application, tree or vine cutting, etc...) shall be noted.

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- 5.1.4.5 Any vegetation identified that could intrude into the Vegetation Action Threshold Distance within intervals specified in the Vegetation Maintenance Interval Guideline (Internal Reference Section 2.2) will be recorded in the Vegetation Work Management System (VWMS) (Internal Reference Section 2.2). This data is then prioritized using the Entergy Work Management Process (Internal Reference Section 2.2).
- a. Priority 1 (P1), an urgent corrective maintenance issue. May intrude into the Vegetation Action Threshold Distance within 24 hours. NOTE: A Verified P1 mandates that we activate the Imminent Vegetation Threat Process. See Section 5.5 for Details.
 - b. Priority 2 (P2), an urgent corrective maintenance issue. May intrude into the Vegetation Action Threshold Distance within 7 days.
 - c. Priority 3-H (P3H), a corrective maintenance issue. May intrude into the Vegetation Action Threshold Distance in 30 days.
 - d. Priority 3-M (P3M), a corrective maintenance issue. May intrude into the Vegetation Action Threshold Distance in 120 days.
 - e. Priority 3-L (P3L) is defined as cyclic maintenance and does not threaten to intrude into the Vegetation Action Threshold Distance. P3L items are typically bundled with Preventative Maintenance Work items, and completed as scheduled.
- 5.1.4.6 A verified P1 will be reported to SERC immediately following the Imminent Threat process if it has violated the MVCD distances. If no violation of the MVCD has occurred, the P1 will be completed and documented within VWMS appropriately.
- 5.1.4.7 P2 and P3H observations will be reported to the appropriate vendor by the close of business the day following the patrol.

- 5.1.4.8 Entergy Vegetation Operations Coordinators conducting inspection patrols will issue prioritized lists to the appropriate vendors with clear expectations for the work to be completed and the date the work must be completed by. The vendors will report the completed work items back to the appropriate Vegetation Operations Coordinator (or designee) as directed.
- 5.1.4.9 The due dates to complete corrective maintenance will not be changed without approval from the Supervisor, Vegetation Management.
- 5.1.4.10 The documented and prioritized vegetation conditions are entered into VWMS and completed according to Priority. The completed items are then documented appropriately. During the prioritization of the identified vegetation, such factors as rain fall and adjacent silvicultural treatment methods are taken into consideration for anticipating vegetation growth and condition.

5.1.5 Transmission Vegetation Work Distances

- 5.1.5.1 Vegetation Maintenance Clearing Distance is based on the Legal ROW of the associated Transmission Line. It serves as the intended vegetation clearance to be achieved at the time of vegetation management work. This distance varies with each line, but is set to be the EDGE OF ROW in each case. This distance is to help manage the vegetation within the ROW boundaries in accordance with the Vegetation Management Standards (Internal Reference Section 2.2) to the limits as shown in the Table below. NOTE: See ROW info on Pg. 17 of FAC-003-3 for support info.


Normal Design Voltage (KV)	Vegetation Pruning Distance
69	Edge of ROW
115	Edge of ROW
138	Edge of ROW
161	Edge of ROW
230	Edge of ROW
345	Edge of ROW
500	Edge of ROW

5.1.5.2 Vegetation Action Threshold Distance – Distances based upon those set forth in the Institute of Electrical and Electronics Engineers (IEEE) Standard 516-2003 (Guide for Maintenance Methods on Energized Power Lines) and are specified in the Table below. This distance is used to determine the corrective maintenance Priority based on vegetation distance from energized Transmission Line facilities.

NOTE: This distance is greater than MVCD to allow a time and safety buffer to complete the referenced vegetation work to help ensure that no vegetation enters the MVCD:

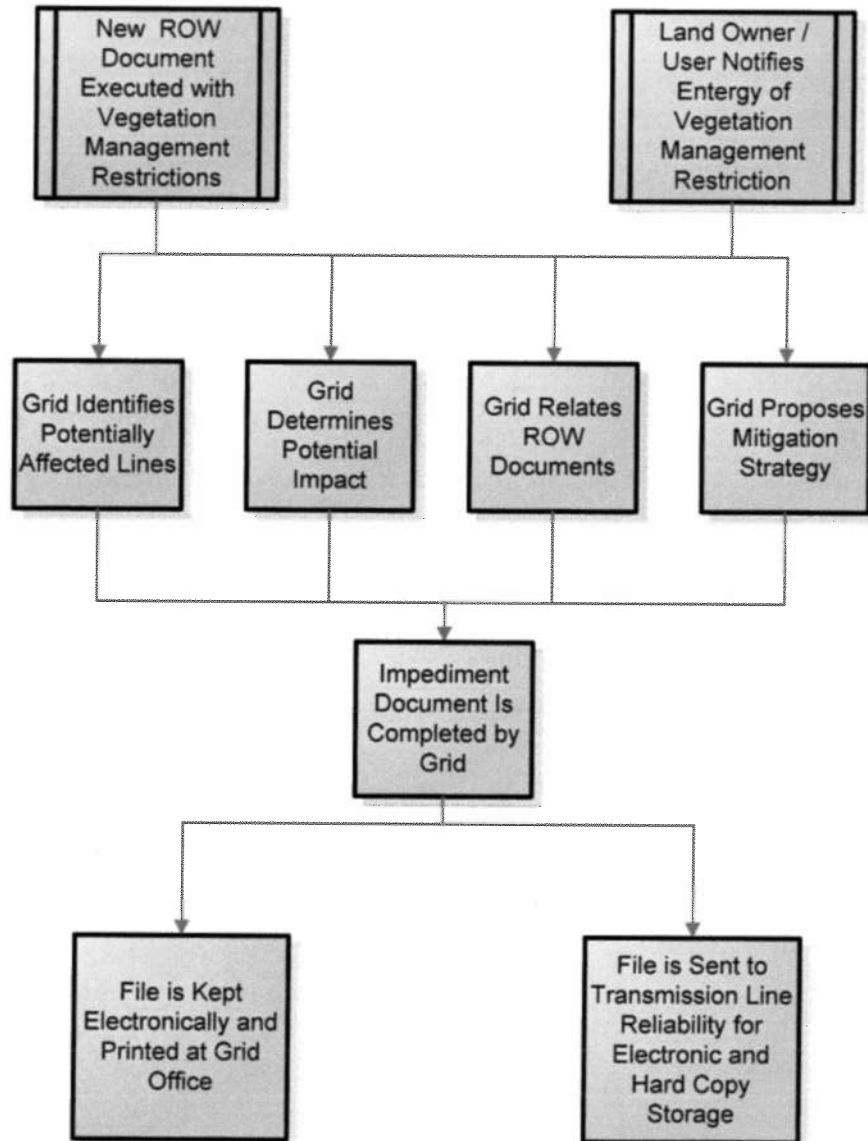
Normal Design Voltage (KV)	*Minimum Vegetation Action Threshold Distance (Ft)	MVCD (Ft) [Calculations derived from the May 4, 2015 NERC [Advisory using Gallet Equation with an adjusted value of 1.0 for elevations over 2,000 ft. up to 3,000 ft.]
69	2.45'	1.2'
115	2.45'	2.0'
138	2.94'	2.4'
161	3.42'	2.9'
230	5.14'	4.3'
345	9.44'	4.5'
500	14.68'	7.4'

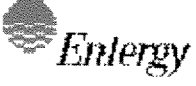
5.2 Impediments: When vegetation maintenance work is restricted from attaining required clearances on vegetation and that restriction will cause the vegetation to encroach into the MVCD prior to the next annual work plan. When a vegetation impediment occurs, the following process is required to ensure that corrective action is taken to prevent encroachment into the MVCD:

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- 5.2.1 Manager, Transmission Lines AM will support the Supervisor, Vegetation Management and OC in the development and mitigation plans to address identified vegetation impediments, as needed.
- 5.2.2 Supervisor, Vegetation Management will work with OC's and available resources (Legal, Right of Way, SR. Transmission Specialist, survey, etc...) to develop mitigation plans to remove any impediments to attaining proper vegetation clearances.
- 5.2.3 Manager, Transmission Lines AM, during the annual Transmission Vegetation Management Program review, will ensure the Entergy Transmission Vegetation List of Impediments is updated as appropriate. (Internal Reference Section 2.2)
- 5.2.4 SR Transmission Specialist will work with Vegetation Management Teams to support resolution of impediment.

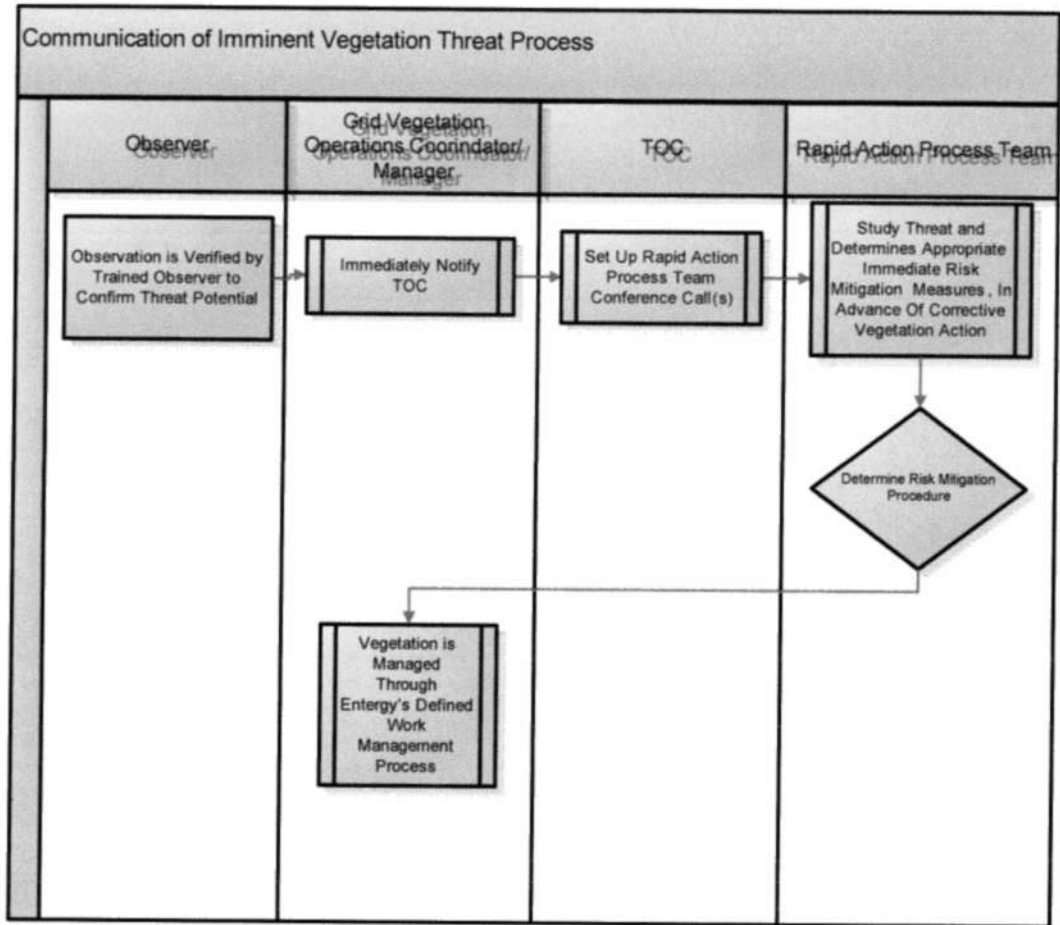
Entergy Transmission Vegetation Management Impediment Documentation Process



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5.3 Imminent Vegetation Threat Process

- 5.3.1 Communication of Imminent Vegetation Threats - When a Transmission Vegetation Management Employee verifies a condition that is currently breaking Minimum Vegetation Action Threshold Distance, or that presents an imminent threat of breaking Minimum Vegetation Action Threshold Distance within 24 hours on a 200kV or higher transmission line, or any other line that is an element of an IROL, the Vegetation Management Employee will immediately initiate the Imminent Vegetation Threat Process as defined below. This process will engage the Imminent Vegetation Threat Team to determine the appropriate actions needed to relieve the threat. NOTE: If a P1 is verified to have violated MVCD, then it will be reported to SERC immediately following the Imminent Threat process. If no violation of the MVCD has occurred, the P1 will be completed and documented within VWMS appropriately.
- 5.3.2 Upon viewing the threat, the Transmission Vegetation Management Employee shall immediately notify the appropriate Transmission Operations Center (TOC). This notification will be recorded in the TOC Dispatcher notes. The TOC must notify the Team of the threat and send out the first conference call request within one hour of receiving initial notification. The TOC is responsible for ensuring that the entire Team is contacted.
- 5.3.3 Once formed, the Team's purpose is to study the threat, determine the appropriate actions to take to mitigate the risk of an unplanned outage, including but not limited to temporary reduction in line rating, switching the line out of service until the threat is relieved, and executing those actions. NOTE: Vegetation Personnel are not to perform any work tasks on the observed vegetation without direction from the Team. See the flowchart below.



5.3.4 Training - Annual training of Communication on Imminent Vegetation Threats will be conducted and documented by the Manager, Transmission Lines AM, or his designee.

5.3.5 Imminent Vegetation Threat Team members:

5.3.5.1 Vegetation Operations Coordinator

5.3.5.2 Supervisor, Vegetation Management

5.3.5.3 Manager, Transmission Lines AM


5.3.5.4 SR Transmission Specialist

5.3.5.5 Asset Management Transmission Line Supervisor

5.3.5.6 Sr. Manager, Grid

5.3.5.7 Transmission Operations Center (TOC)


5.3.5.8 System Operations Center (SOC)

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5.3.5.9 Transmission Operational Planning (TOP)

5.4 Annual Transmission Vegetation Work Plan (Internal Reference Section 2.2).

- 5.4.1 The Annual Transmission Vegetation Work Plan shall be complete to 100% of applicable lines to ensure that no vegetation encroachments occur within the MVCD. Modifications to the work plan in response to changing conditions or to findings from vegetation inspections may be made (provided they do not allow encroachment of vegetation into the MVCD) and must be documented in VWMS. The percent completed calculation is based on the number of line miles completed divided by the number of line miles in the final amended plan.
- 5.4.2 Supervisor, Vegetation Management shall complete development of the Annual Plan before January 1st of each year, under normal circumstances.
- 5.4.3 Manager, Transmission Lines AM shall approve the annual plan before January 30th of that year, under normal circumstances.
- 5.4.4 The annual plan shall take into consideration the time required to obtain permissions and any special permits from landowners or Regulatory, Federal, or State authorities/agencies and will prevent vegetation from encroaching into the MVCD.
- 5.4.5 The Supervisor, Vegetation Management has the flexibility to adjust the Annual Work Plan in response to changing conditions affecting the plan, taking into consideration anticipated growth of vegetation and all other environmental factors that may have an impact on the reliability of the transmission systems.
- 5.4.6 The Supervisor, Vegetation Management and authorized employees (OC's) shall document adjustments to the plan as they occur. These adjustments shall be noted in VWMS and updates submitted to the Manager, Transmission Lines AM.
- 5.4.7 The Supervisor, Vegetation Management and authorized employees (OC's) shall document and track the planned vegetation management work in the VWMS database.

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- 5.4.8 The Supervisor, Vegetation Management ensures that their authorized employees (OC's) perform appropriate inspections of reported completed contractor work and use subsequent aerial and/or ground inspections to ensure that the vegetation management work was completed according to Entergy work standards. All information regarding the completion of this work is recorded in VWMS. Payment of contractor invoice is contingent upon completion of the work.
- 5.4.8.1 Transmission vegetation management work is audited through a combination of aerial patrols and/or ground inspections. Any encroaching vegetation is listed as requiring preventive or corrective maintenance within Entergy's Work Management Process (WMP), using the standard Entergy Vegetation Inspection Form.
- 5.4.8.2 Any divergence on the part of a vendor from fully complying with the contractual work obligations, per Entergy's Contract Standards, are recorded and submitted to that vendor. Any related invoices will not be approved for payment until all specified work and/or related business matters have been properly satisfied, and/or completed by that contract vendor.
- 5.4.9 Vegetation maintenance will be completed in accordance with ANSI standard A300, "Tree Care Operation – Tree, Shrub and Other Woody Plant Maintenance for Part 1: Practices – *Pruning* and Part 7 Standard Practices – *Integrated Vegetation Management a. Electric Utility Rights – of – way (IVM)* (External Reference Section 2.1)
- 5.4.10 Vegetation maintenance will be completed in accordance with IEEE Standard 516-2003, "Guide for Maintenance Methods on Energized Power lines." (External Reference Section 2.1)
- 5.4.11 Vegetation maintenance will be completed in accordance with Standard ref ANSI Z133.1-2006 (External Reference Section 2.1)
- 5.4.12 Vegetation maintenance will be completed in accordance with OSHA regulation CFR 1926.451(6) (External Reference Section 2.1)
- 5.4.13 The Annual Transmission Vegetation Work Plan shall include, but not be limited to the following:
- 5.4.13.1 Preventative Maintenance

- a. The list of scheduled preventive maintenance for the current year is listed in VWMS. This Plan lists lines and spans targeted, work types, and methodologies to be used. The work types and methodologies are listed in the Table below:

<u>Work Type</u>	<u>Methodology</u>
Floor	Herbicide, Manual, Mowing
Sides	Jarraff, Manual, Bucket, Helicopter
Skylining	Jarraff, Manual, Bucket, Helicopter
Risk Tree	Jarraff, Manual, Bucket, Helicopter, Special Equipment

- b. Vegetation Maintenance Interval Guideline - Transmission Vegetation Maintenance is targeted for a Schedule as indicated on the Vegetation Maintenance Interval Guideline (Internal Reference Section 2.2).

5.4.13.2 Aerial Patrol Inspection

- a. Under normal circumstances, each Transmission Grid shall conduct annual aerial and ground patrol inspections of its' electrical transmission system by utilizing Entergy Vegetation Management Personnel (Vegetation OC's, etc...) for vegetation inspections on FAC-003-3 applicable lines. Exceptions will require approval from the Manager, Transmission Lines AM.
- b. Grids may conduct more frequent aerial patrol inspections as determined necessary by the Grid.
- c. Records shall be handwritten on the Entergy Vegetation Inspection Form. (Attachment 1, Section 9.1)
- d. The Grid shall keep records of the inspection results, for each patrol, for a minimum of 8 years. The records will be kept / documented in the VWMS Database.


5.4.13.3 Ground Patrol Inspection

- a. All routine scheduled patrols (3/yr) will be performed aerially unless specifically stated and planned otherwise (Ground, etc...).
- b. Transmission Lines located within geographical areas where aerial inspection patrols are not permitted (e.g. within cities and restricted flight areas, etc) will have Ground Patrols conducted annually, or more often as determined by the Grid.
- c. Under normal circumstances, each Transmission Grid shall conduct annual aerial and ground patrol inspections of its' electrical transmission system by utilizing Entergy Vegetation Management Personnel (Vegetation OC's, etc...) for vegetation inspections on FAC-003-3 applicable lines. Exceptions will require approval from the Manager, Transmission Lines AM.
- d. Records will be handwritten on the Entergy Vegetation Inspection Form. (Attachment 1, Section 9.1)
- e. The Grid shall keep records of the inspection results, for each patrol, for a minimum of 8 years. The records will be kept / documented in the VVMS Database.


5.4.13.4 Corrective Maintenance

- a. The Annual Transmission Vegetation Work Plan will be flexible to incorporate Corrective maintenance as identified and prioritized according the Entergy Work Management Process (Internal Reference Section 2.2).
- b. Identify and schedule the lines and spans targeted for Corrective Maintenance actions and the methods to be used: The work types and methodologies are listed in the Table below:

<u>Work Type</u>	<u>Methodology</u>
Floor	Herbicide, Manual, Mowing
Sides	Jarraff, Manual, Bucket, Helicopter
Skylining	Jarraff, Manual, Bucket, Helicopter
Risk Tree	Jarraff, Manual, Bucket, Helicopter, Special Equipment

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- 5.4.13.5 Using the encroachments identified during the aerial and/or ground inspections and entered into the VWMS database, the Vegetation Operations Coordinator(s) shall prioritize and schedule the appropriate pruning, mowing or tree cutting work needed to achieve the required Vegetation Maintenance Distance clearance.
- 5.4.13.6 Urgent corrective maintenance is generally limited to P1 and P2 vegetation issues.
- 5.4.13.7 P3 High and P3 Medium observations are also considered Corrective Maintenance and require a high level of management effort but will not be considered urgent corrective maintenance.
- 5.4.13.8 Call-Ins: Vegetation issues/concerns received from internal or external customers shall be documented. These observations shall be correlated with existing records, prioritized by the Vegetation Operations Coordinator, scheduled for completion and re-inspected as necessary, and documented in VWMS.
- 5.4.13.9 Entergy will perform the verification and document that all P1 and P2 corrective maintenance work was completed by the due date assigned as follows:
- a. P1 corrective maintenance will be verified complete before the end of the next business day following the assigned due date.
 - b. P2 corrective maintenance will be verified complete before the end of the third business day following the assigned due date.
- 5.4.13.10 Upon completion of the scheduled corrective maintenance work, the Supervisor, Vegetation Management and Vegetation Operations Coordinator(s) will ensure the VWMS database is updated to reflect that the scheduled work is complete.
-
- 5.4.14 The Supervisor, Vegetation Management verifies the quarterly progress report updates (See REFERENCE: Entergy Quarterly Vegetation Updates). These updates shall be submitted up to the level of Manager, Transmission Lines AM by the end of the month following the end of a calendar quarter.

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5.4.15 The quarterly reports shall include, but not be limited to the following:

5.4.15.1 Line miles scheduled to be inspected vs. line miles inspected

5.4.15.2 Work identified vs. work scheduled

5.4.15.3 Work scheduled vs. work completed

5.4.15.4 Vegetation line outages for the current year, including

a. the name of the circuit(s) outaged,

b. the date, time and duration of the outage;

c. a description of the cause of the outage (noting the appropriate outage category number);

d. other pertinent comments; and

e. any countermeasures taken by Entergy.

5.4.15.5 Adjustments to the annual plan since the last submittal.

5.5 Reporting Vegetation Outages


5.5.1 Internal Outage Reporting

5.5.1.1 The TOC creates an outage in Transmission Consolidated Outage System (COS) database, in accordance with the TOC process.

5.5.1.2 A follow-up investigation is made by ground or by air to determine the cause of the outage.

5.5.1.3 The outage cause (lightning, animal, vegetation, etc.) is added to the COS record for the outage.

5.5.1.4 The Vegetation Operations Coordinator(s) reviews the COS outage data monthly to verify the vegetation outage info for their respective area is updated and correct.

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5.5.2 External Reporting to the SERC

5.5.2.1 As requested by SERC, Entergy will report all qualifying sustained transmission line outages determined by Entergy to have been caused by vegetation. The SR Transmission Specialist, or designee, shall summarize the outages, review the information for complete information, and prepare the vegetation outage report for submittal to SERC.


5.5.2.2 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. (FAC-003-3 Footnote 6)

5.5.2.3 Entergy is not required to report and shall not report to SERC certain sustained transmission line outages caused by vegetation as follows (FAC-003-3 Footnote 4):

- a. This requirement does not apply to circumstances that are beyond the control of an applicable Transmission Owner or applicable Generator Owner subject to this reliability standard, including natural disasters such as earthquakes, fires, tornados, hurricanes, landslides, wind shear, fresh gale, major storms as defined either by the applicable Transmission Owner or applicable Generator Owner or an applicable regulatory body, ice storms, and floods; human or animal activity such as logging, animal severing tree, vehicle contact with tree, or installation, removal, or digging of vegetation. Nothing in this footnote should be construed to limit the Transmission Owner's or applicable Generator Owner's right to exercise its full legal rights on the ROW.

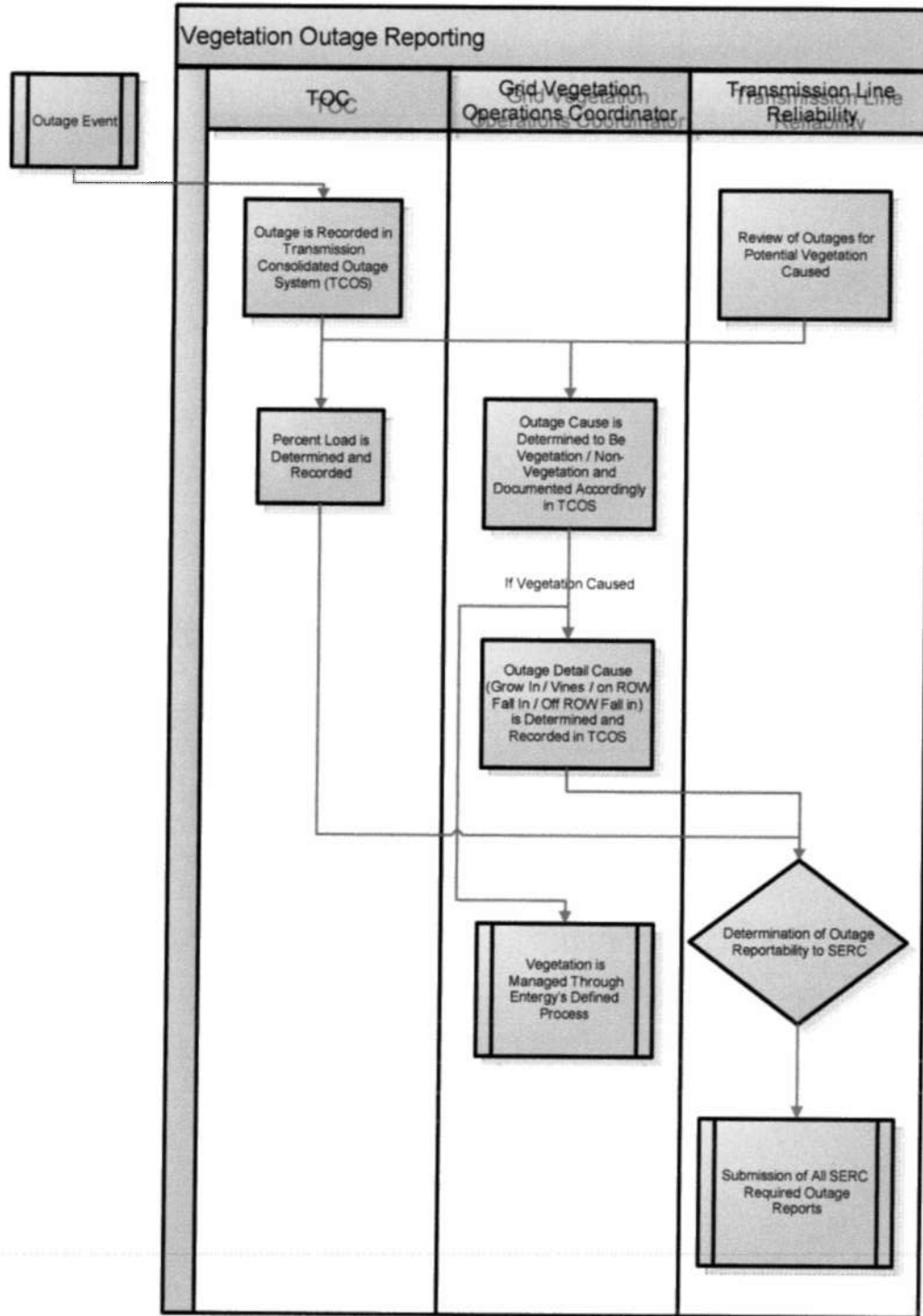
5.5.2.4 Entergy shall report all vegetation-related outages on lines operated at 200kV or above and any lower voltage lines designated by the RE as critical to the reliability of the electric system in the region. Entergy shall report at a minimum to SERC:


- a. the name of the circuit(s) outaged
- b. the date, time and duration of the outage
- c. the voltage of the circuit
- d. a description of the cause of the outage (noting the appropriate outage category number);

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- e. other pertinent comments as necessary detailing the Vegetation specific information details
- f. any countermeasures taken by Entergy,

5.5.3 The vegetation outage reporting process is described in the flowchart below:



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5.5.4 Current Standard Outage Categories: Sustained vegetation outages shall be categorized as one of the following:

5.5.4.1 Category 1A — Grow-ins: Sustained Outages caused by vegetation growing into applicable lines, that are identified as an element of an IROL or Major WECC Transfer Path, by vegetation inside and/or outside of the ROW

5.5.4.2 Category 1B — Grow-ins: Sustained Outages caused by vegetation growing into applicable lines, but are not identified as an element of an IROL or Major WECC Transfer Path, by vegetation inside and/or outside of the ROW

5.5.4.3 Category 2A— Fall-ins: Sustained Outages caused by vegetation falling into applicable lines that are identified as an element of an IROL or Major WECC Transfer Path, from within the ROW

5.5.4.4 Category 2B— Fall-ins: Sustained Outages caused by vegetation falling into applicable lines, but are not identified as an element of an IROL or Major WECC Transfer Path, from within the ROW

5.5.4.5 Category 3 — Fall-ins: Sustained Outages caused by vegetation falling into applicable lines from outside the ROW


5.5.4.6 Category 4A— Blowing together: Sustained Outages caused by vegetation and applicable lines that are identified as an element of an IROL or Major WECC Transfer Path, blowing together from within the ROW

5.5.4.7 Category 4B— Blowing together: Sustained Outages caused by vegetation and applicable lines, but are not identified as an element of an IROL or Major WECC Transfer Path, blowing together from within the ROW.

5.5.5 The Regional Entity (SERC) will report the outage information provided by applicable Transmission Owners and applicable Generator Owners, as per the above, quarterly to NERC, as well as any actions taken by the Regional Entity as a result of any of the reported Sustained Outages.

6.0 RECORDS

6.1 Data generated by this procedure is listed on the OoR as RS # **2276**, if applicable. (SERC Filings)

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- 6.2 Data generated by this procedure is listed on the OoR as RS # **2161**, if applicable. (Transmission Annual Details Vegetation Plan)
- 6.3 Data generated by this procedure is listed on the OoR as RS # **2161**, if applicable. (Entergy Quarterly Vegetation Updates)
- 6.4 Data generated by this procedure is listed on the OoR as RS # **2276** if applicable. (Impediment List)
- 6.5 Data generated by this procedure is listed on the OoR as RS # **2276**, if applicable. (Annual Qualifications of Entergy Vegetation Management Personnel)
- 6.6 Data generated by this procedure is listed on the OoR as RS # **2276**, if applicable. (Imminent Threat training Documentation)
- 6.7 Data generated by this procedure is listed on the OoR as RS # **2276**, if applicable. (Other training documentation)
- 6.8 Data generated by this procedure is listed on the OoR as RS # **2276**, if applicable. (Approval documentation)
- 6.9 Data generated by this procedure is listed on the OoR as RS # **1919**, if applicable. (Inspection Reports)


7.0 **REGULATIONS, STANDARDS, AND REQUIREMENTS**

- 7.1 FERC Order 693
- 7.2 NERC Reliability Standard FAC-003-3

8.0 **KEY WORDS**

- 8.1 MVCD
- 8.2 Vegetation
- 8.3 Vegetation Management
- 8.4 Imminent Threat
- 8.5 VWMS
- 8.6 ROW
- 8.7 COS

9.0 **ATTACHMENTS**

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9.1 Attachment 1, Typical Entergy Vegetation Inspection Form

