

Mapping of FAC-003-2 Draft 2 to FAC-003-2 Draft 3 (Results-based Standard)

Standard FAC-003-2	Draft 2	Comment	Proposed Standard FAC-003-2 RBS (Draft 3)
Standard Development Roadmap		Modified per proposed SCPSC format for RBS	Standard Development Timeline
Definitions of Terms Used in Standard		Modified per proposed SCPSC format for RBS	Definitions of Terms Used in Standard
Effective Dates		Modified per proposed SCPSC format for RBS. This section now contains a table that lists the various Jurisdictions and their associated Effective Dates.	Effective Dates
1. Title: Transmission Vegetation Management		No change	1. Title: Transmission Vegetation Management
2. Number: FAC-003-2		No change	2. Number: FAC-003-2
3. Purpose: To improve the reliability of the electric Transmission system by preventing those vegetation related outages that could lead to Cascading.		No change	3. Purpose: To improve the reliability of the electric transmission system by preventing those vegetation related outages that could lead to Cascading.
4. Applicability: 4.1. Functional Entities: 4.1.1. Transmission Owner 4.1.2. Planning Coordinator 4.2. Facilities: 4.2.1 Transmission lines (“applicable lines”) operated at 200kV or higher, and transmission lines operated below 200kV designated by the Planning Coordinator as being subject to this standard		Modified to remove the Planning Coordinator, to include Exceptions in 4.2 and revised Facilities to include only those that meet specified criterion.	4. Applicability: 4.1. Functional Entities: 4.1.1 Transmission Owners 4.2. Facilities: Defined below, including but not limited to those that cross lands owned by federal ¹ , state, provincial, public, private, or tribal entities: 4.2.1. Overhead transmission lines operated at 200kV or higher. 4.2.2. Overhead transmission lines operated below 200kV having been identified as included in the definition of an IROL. 4.2.3. Overhead transmission lines operated below 200 kV having been identified as included in the definition of one of the Major WECC Transfer Paths in the Bulk Electric System.

¹ EPLA 2005 section 1211c: “Access approvals by Federal agencies”

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	<p>including but not limited to those that cross lands owned by federal, state, provincial, public, private, or tribal entities.</p> <p>4.2.2. Transmission lines operated below 200kV designated by the Planning Coordinator as being subject to this standard become subject to this standard 12 months after the date the Planning Coordinator initially designates the transmission line as being subject to this standard.</p> <p>4.2.3. Existing transmission line(s) operated at 200kV or higher that is newly acquired by a Transmission Owner and was not previously subject to this standard, become subject to this standard 12 months after the acquisition date of the transmission line(s).</p>		<p>4.2.4. This Standard does not apply to Facilities identified above (4.2.1 through 4.2.3) located in the fenced area of a switchyard, station or substation.</p> <p>4.3. Other:</p> <p>4.3.1 This Standard does not apply to any occurrence, non-occurrence, or other set of circumstances that are beyond the reasonable control of a Transmission Owner subject to this Reliability Standard, and are not caused by the fault or negligence of the Transmission Owner, including acts of God, flood, drought, earthquake, major storms, fire, hurricane, tornado, landslides, logging activities, animals severing trees, lightning, epidemic, strike, war, riot, civil disturbance, sabotage, vandalism, terrorism, wind shear, or fresh gales that restricts or prevents performance to comply with this reliability standard's requirements.</p>
		Added new section titled, "Background" per SCPSC format.	<p>5. Background</p> <p>This NERC Vegetation Management Standard ("Standard") uses a defense-in-depth approach to improve the reliability of the electric Transmission system by preventing those vegetation related outages that could lead to Cascading. This Standard is...</p>
R1.	Each Transmission Owner shall have a documented transmission vegetation management program that describes how it conducts work on its Active Transmission Line Rights of Way to avoid Sustained Outages due to vegetation,	Modified R1. by removing prescriptive text in sub parts 1.1 through 1.6. and focused on desired result of requiring competency on the part of	<p>R3. Each Transmission Owner shall have a documented transmission vegetation management program that describes how it conducts work on its Active Transmission Line Rights of Way to avoid Sustained Outages due to vegetation, considering all possible locations the conductor may occupy assuming operation within Rating and Rated Electrical Operating Conditions.</p> <p>R5. Each Transmission Owner shall take interim corrective action when it is</p>

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	<p>considering all possible locations the conductor may occupy under the effects of sag and sway throughout its operating range under rated conditions. The transmission vegetation management program shall: [Violation Risk Factor: Lower][Time Horizon: Long-term planning]</p> <p>1.1. Specify the methodologies that the Transmission Owner uses to control vegetation.</p> <p>1.2. Specify a Vegetation Inspection frequency of at least once per calendar year that takes into account local and environmental factors.</p> <p>1.3. Require an annual work plan that identifies the applicable lines to be maintained and associated work to be performed during the year. It shall be flexible to adjust to changing conditions and to findings from Vegetation Inspections. Adjustments to the plan within the year are permissible. The plan shall take into consideration permitting and scheduling requirements from landowners or regulatory authorities. It shall support the objectives of the transmission vegetation management program and utilize the methodologies outlined in the transmission vegetation management program.</p> <p>1.4. Require a process or procedure for response to imminent threats of a vegetation-related Sustained Outage. The process or procedure shall specify actions which shall include immediate communication of the threat to the Transmission Operator or proper operating authority. The process or</p>	<p>Transmission Owner.</p> <p>Elevated interim corrective actions to a standalone requirement to focus on desired result of working around impediments.</p> <p>Moved VRF and Time Horizon.</p>	<p>temporarily constrained from performing planned vegetation work, where a transmission line is put at potential risk due to the constraint.</p>

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	<p>procedure shall specify what conditions warrant a response.</p> <p>1.5. Specify an interim corrective action process for use when the Transmission Owner is constrained from performing vegetation maintenance as planned.</p> <p>1.6. Specify the maintenance approach used (such as minimum vegetation-to-conductor distance or maximum vegetation height) to ensure that Table 1 clearances are never violated. The maintenance approach shall consider the sag and sway of the conductor throughout its operating range under rated conditions.</p>		
R2.	Each Transmission Owner shall implement its imminent threat process or procedure when the Transmission Owner has actual knowledge of such a threat, obtained through normal operating practices.	<p>Revised to focus on desired result to notify of imminent threats.</p> <p>Moved VRF and Time Horizon.</p>	R4. Each Transmission Owner shall notify the responsible control center when it has verified knowledge of a vegetation imminent threat condition. A vegetation imminent threat condition is one which is likely to cause a Sustained Outage at any moment.
R3.	Each Transmission Owner shall conduct Vegetation Inspections of all applicable lines (as measured in line miles) in accordance with the frequency specified in its transmission vegetation management program, unless constrained by natural disasters. When constrained by a natural disaster, the Transmission Owner shall conduct the Vegetation Inspection(s) within six months or a period agreed to by its Regional Entity, whichever is greater.	<p>Revised to focus on desired result of inspecting for vegetation annually and to eliminate prescriptive text.</p> <p>Moved VRF and Time Horizon.</p>	R6. Each Transmission Owner shall perform a Vegetation Inspection of all applicable lines once per calendar year, at a minimum.

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<p>R4. Each Transmission Owner shall prevent encroachment of vegetation into the Minimum Vegetation Clearance Distances (MVCD) listed in FAC-003-2 - Attachment 1 for its applicable lines as observed in real-time operating between no-load and their Rating, with the following exceptions: <i>[Violation Risk Factor — Medium][Time Horizon — Real Time]</i></p> <p>Encroachment into the MVCD listed in FAC-003-2-Attachment 1 resulting from natural disasters.²</p> <p>Encroachment into the MVCD listed in FAC-003-2-Attachment 1 resulting from human or animal activity.³</p> <p>Encroachment into the MVCD listed in FAC-003-2-Attachment 1 resulting from falling vegetation.</p> <p>R5. Each Transmission Owner shall prevent Sustained Outages⁴ of applicable lines that are identified as an element of an Interconnection Reliability Operating Limit (IROL) (or Major WECC Transfer Path) due to vegetation growing into a conductor operating between no-load and its Rating, with the following exceptions: <i>[Violation Risk Factor — High][Time Horizon — Real Time]</i></p> <ul style="list-style-type: none"> • Sustained Outages of applicable 	<p>Revised to focus on desired result of keeping vegetation out of a minimum clearance distance from transmission lines and to improve clarity. Combined R4, R4, R6, R7, and R8 into two standalone requirements.</p> <p>Moved VRFs and Time Horizons.</p>	<p>R1. Each Transmission Owner shall prevent vegetation from encroaching within the Minimum Vegetation Clearance Distance (MVCD) of line conductors that are identified as an element of an IROL or Major WECC Transfer Path (operating within Rating and Rated Electrical Operating Conditions) to avoid a Sustained Outage.</p> <p>R2. Each Transmission Owner shall prevent vegetation from encroaching within the Minimum Vegetation Clearance Distance (MVCD) of applicable line conductors, which are not elements of an IROL and are not a Major WECC Transfer Path, (operating within Rating and Rated Electrical Operating Conditions) to avoid a Sustained Outage.</p>	

² Examples include, but are not limited to, earthquakes, fires, tornados, hurricanes, landslides, wind shear, fresh gale, major storms as defined either by the Transmission Owner or an applicable regulatory body, ice storms, and floods.

³ Examples include, but are not limited to, logging, animal severing tree, vehicle contact with tree, arboricultural activities or horticultural or agricultural activities, or removal or digging of vegetation.

⁴ Multiple Sustained Outages on an individual line, if caused by the same vegetation, shall be considered as one outage regardless of the actual number of outages within a 24-hour period.

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	<p>lines that result from natural disasters.</p> <ul style="list-style-type: none"> • Sustained Outages of applicable lines that result from human or animal activity. <p>R6. Each Transmission Owner shall prevent Sustained Outages of applicable lines that are not an element of an IROL (or major WECC Transfer Path) due to vegetation growing into a conductor operating between no-load and its Rating, with the following exceptions: <i>[Violation Risk Factor — Medium][Time Horizon — Real Time]</i></p> <ul style="list-style-type: none"> • Sustained Outages of applicable lines that result from natural disasters. • Sustained Outages of applicable lines that result from human or animal activity. <p>R7. Each Transmission Owner shall prevent Sustained Outages of applicable lines due to the blowing together of vegetation and a conductor within an Active Transmission Line Right of Way (operating within design blow-out conditions) with the following exception: <i>[Violation Risk Factor — Medium][Time Horizon — Real Time]</i></p> <p>Sustained Outages of applicable lines that result from natural disasters or wind-blown debris.</p> <p>R8. Each Transmission Owner shall prevent Sustained Outages of applicable lines due to vegetation falling into a conductor from within an Active Transmission Line Right of Way with the following exceptions: <i>[Violation Risk Factor —</i></p>		

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	<p><i>Medium] [Time Horizon — Real Time]</i></p> <ul style="list-style-type: none"> • Sustained Outages of applicable lines that result from natural disasters or wind-blown debris. • Sustained Outages of applicable lines that result from human or animal activity. 		
R9.	Each Transmission Owner shall implement its annual work plan for vegetation management to accomplish the purpose of this standard.	Moved VRF and Time Horizon.	R7. Each Transmission Owner shall execute a flexible annual vegetation work plan to ensure no encroachments within the MVCD.
R10.	Each Planning Coordinator shall prepare and review annually, a list of lines that are operated below 200kV, if any, which are subject to this standard. Each Planning Coordinator shall consult with its Transmission Owner(s) and neighboring Planning Coordinators to obtain input to develop the list.	Revised to add applicability sections 4.3.2 and 4.3.3 and eliminated this requirement.	<p>4.3.2. Overhead transmission lines operated below 200kV having been identified as elements of an IROL.</p> <p>4.3.3. Overhead transmission lines operated below 200 kV having been included in the definition of one of the Major WECC Transfer Paths in the Bulk Electric System.</p>
R11.	Each Planning Coordinator shall develop and document its method for assessing the reliability significance of sub-200kV transmission lines whose loss would place the grid at an unacceptable risk of instability, separation, or cascading failures.	Revised to add applicability sections 4.3.2 and 4.3.3 and eliminated this requirement.	<p>4.3.2. Overhead transmission lines operated below 200kV having been identified as elements of an IROL.</p> <p>4.3.3. Overhead transmission lines operated below 200 kV having been included in the definition of one of the Major WECC Transfer Paths in the Bulk Electric System.</p>