To: Parties Interested

From: CAL FIRE Utility Wildfire Mitigation Division (Mike Wilson- 916 208-1365)

Subject: Updating CA Code of Regulations Title 14 Related to Utility Fire Hazards

The California Board of Forestry and Fire Protection's Resource Protection Committee (RPC) has agreed to a review and update the California Code of Regulations CCR Title 14 Sections 1253, 1255, 1257, and possibly other sections to be more in line with current utility provider wildfire safety and possible alignment of other agency rules and regulations.

CCR Title 14 Section 1255 is the electric equipment/hardware exemption regulation that relates to the California Public Resources Code (PRC) 4292 statute/law that requires a cylinder of vegetation removal from the ground to the conductor 10 feet out from the pole.

Reminder, the CA Board of Forestry can adopt changes to the CCR but it takes state legislative action to change the PRC.
Related links:
PRC 4292
https://codes.findlaw.com/ca/public-resources-code/prc-sect-4292.html
CCR Sec 1255
https://govt.westlaw.com/calregs/Document/I8FD6B1F0D48311DEBC02831C6D6C108E?viewType=FullText&originationContext=documenttoc&transitionType=CategoryPageItem&contextData=(sc.Default)

CCR Title 14 Section 1257 is the electrical conductor vegetation clearance exemption regulation that relates to the PRC 4293 electrical clearance statute/law.
Related Links:
PRC 4293
https://codes.findlaw.com/ca/public-resources-code/prc-sect-4293.html
CCR 1257
https://govt.westlaw.com/calregs/Document/IFE42889059C811E1BF69FA09690B95C5?viewType=FullText&originationContext=documenttoc&transitionType=CategoryPageItem&contextData=(sc.Default)&bhcp=1

Areas of Interest and statements of reason:

Section 1255 allows for exemptions to pole clearing (10' radius around poles/towers) at line junctions, dead ends, corner poles, and where certain hardware is supported by the pole/tower (See section 1255 below). Hardware can go through a testing and approval process outlined in the "Current version of the Power Line Fire Prevention Field Guide" that can make the pole exempt from the pole/tower 10' of clearance.

Commented [SH1]: I think this distance could be looked at as what good studies have been done on how far the material is dropped and or thrown from the pole height or blown outside of the 10' clearance area(s). a larger diameter.

There is a need to update this section to address wildfire safety related items as outlined below. However, there is also a trade-off in pole safety and resiliency when a pole becomes

exempt from needing the PRC 4292 required clearance. While the hardware would be more ignition resistant, a combustible pole would become more prone to vegetation fire damage causing potential lines down, additional ignitions, life hazards, blocked ingress/egress, and delays in re-population efforts. It is unknown if regulatory language could mitigate this trade-off or if statutory language would be required.

On April 9 2019 the BoF RPC committee suggested the following.
Consider using and moving the list of exempt hardware and any changes to that list into the Power Line Fire Prevention Field Guide and delegate staff to manage it. The regulations already refer to the Field Guide as it relates to the "hazard tree" section of the Guide. The Board staff will explore the legal ramification of this and thought similar models exist. The goal for the updated Field Guide is to create more of a living document that could be updated in real time.

Section 1257 allows for exceptions to PRC 4293 Conductor Clearing. There is a possible need to add language regarding the flammability of insulated conductor (Tree Wire, Covered Conductor). There is also a need for a definition of Tree Wire vs. Covered Conductor and to use the proper term in the regulation.

There is also a need to balance vegetation clearing when covered conductor is installed to assure there are no trade-offs in safety.

Discussion Material:

PRC 4292 (Pole/Tower Clearing/Brushing)
Except as otherwise provided in Section 4296, any person that owns, controls, operates, or maintains any electrical transmission or distribution line upon any mountainous land, or forest-covered land, brush-covered land, or grass-covered land shall, during such times and in such areas as are determined to be necessary by the director or the agency which has primary responsibility for fire protection of such areas, maintain around and adjacent to any pole or tower which supports a switch, fuse, transformer, lightning arrester, line junction, or dead end or corner pole, a firebreak which consists of a clearing of not less than 10 feet in each direction

any line which is used exclusively as telephone, telegraph, telephone or telegraph messenger call, fire or alarm line, or other line which is classed as a communication circuit by the Public Utilities Commission. The director or the agency which has primary fire protection responsibility for the protection of such areas may permit exceptions from the requirements of this section which are based upon the specific circumstances involved.
(Amended by Stats. 1976, Ch. 1300.)

Section 1255

Commented [MT2]: Patrols, inspections, maintenance and operational activities around these facilities compel other mitigations in high risk areas. While not necessarily bare-ground firebreaks, the modification of surrounding fuels to disrupt continuity in proximity to these assets will be required in areas identified with elevated or higher risk. PG&E's routine maintenance, construction standards and Community Wildfire Safety Programs incorporate measures to reduce these risks.

Commented [FN3R2]: Suite of tools to off set this: manage fuel continuity and density at ROW; metal/composite poles; leverage landowners and training; use as habitat erosion control. Note: intensity of a fire governs asset damage.

Commented [SH4]: The hardware and or the other issues are causing the ignitions. There could be addition infrastructure damage from the fire to the wooden poles. The wood poles do not cause ignitions. If the fire is already free burning the wood pole could ignite and then would be 2 to 3 hours prior to the pole being compromised, damaged or destroyed. The alternative composite, cement, and/or metal poles have their own issues with heat and fire damage and they too could become compromised. As to the hardware to avian or animal contact with conductor protection also.

Commented [SS5]: This proposal should be explored. Support likely dependent the revision process and utility involvement. .

Commented [SH6]: Again, this need to be addressed for a greater diameter.

Commented [SS7R6]: SCE could support, depending on proposed increased radial distance, assuming the basis for such and increase has a sound technical or scientific foundation.

Exemptions to Minimum Clearance PrAovisions - PRC 4292

The minimum clearance provisions of PRC 4292 are not required around poles and towers, including line junction, corner and dead end poles and towers:

(a) Where all conductors are continuous over or through a pole or tower; or
(b) Where all conductors are not continuous over or through a pole or tower, provided, all conductors and subordinate equipment are of the types listed below and are properly installed and used for the purpose for which they were designed and manufactured;
(c) All non-metal or polymer materials attached to the pole must meet UL94 V0 flammability standard requirements; signage and labeling does not apply.
(d) All Current carrying connectors manufactured using polymers must meet UL94 V0 flammability standard requirements.

(1) Compression connectors.
(2) Automatic connectors. [Automatic connectors should be removed as a result of their high failure rate. Although they are great in emergency restoration, they rarely are followed up with a true repair. Most utilities have already stopped using them.]

(3) Parallel groove connectors. [When excessive torque is applied to fittings the cable tends to bird cage, tear and or fail directly behind the connector. Likewise, under torque will cause arcing from poor connection and lead to failure as well. Correct torque is essential for insuring safe connections. Suggestion would be to make a requirement for engineered shear bolt connections.]

(4) Hot line tap or clamp connectors that were designed to absorb any expansion or
contraction by applying spring tension on the main line or running conductor and tap connector.
(5) Fargo GA 300 series piercing connectors designed and manufactured for use with tree wire. [Remove Fargo GA 300. Not made anymore. Suggest wording "Insulation Piercing Connector with engineered shear bolts designed and manufactured for use with tree wire."]
(6) Flat plate connectors installed with not less than two bolts.
(7) Tapered C-shaped member and wedge connectors.
(8) Solid blade single-phase bypass switches and solid blade single-phase disconnect switches ~~associated with circuit reclosers, sectionalizers and line regulators~~. [I heard that this was in question of being removed. I believe it

Commented [SS8]: Where is the content of current subpart (c)? Is the intent to remove current subpart (c) listed below?

(c) On the following areas if fire will not propagate thereon;
(1) fields planted to row crops,
(2) plowed or cultivated fields,
(3) producing vineyards that are plowed or cultivated;
(4) fields in nonflammable summer fallow;
(5) irrigated pasture land;
(6) orchards of fruit, nut or citrus trees that are plowed or cultivated,
(7) Christmas tree farms that are plowed or cultivated; and
(8) swamp, marsh or bog land; or

Commented [SS9R8]:

Commented [SS10]: This needs to be vetted. Why this UL standard? Why does the flammability of a covering or insulating material matter? Where is the study indicating covered or insulated conductors self-ignite? Assuming a covered/insulated conductor is exposed engulfed by an existing fire, how does a UL rated product help? Also, is there a precedent for including UL or similar standards as specifications in the PUC?

Commented [MT11]: We need to clarify intent. This requires discussion on definition(s) of "connectors" vs. "splices"

Commented [SS12R11]: Agreed. This needs clarification.

Commented [WM13]: Pge does not use any more.

Commented [SS14R13]: This should be discussed. I haven't seen evidence of bird caging on ASCR or HD Cu conductors due to overtightening PG connectors. Splices, yes. PG connectors, no. Also, if PG connectors are not allowed, does this mean existing PG connectors must be replaced?

Commented [SS15]: This should be discussed. Even if this Fargo connector is no longer produced, it could still be in use. If this Fargo is not allowed, does this mean existing Fargo connectors must be replaced?

Commented [SH16]: All of the connectors need to be addressed and further testing as they are at time installed from the ground or bucket lift and the torque is not measured. Vibration, wind, and conductor movement can create a loose connection and parts of the connector and or the conductor or jumpers loose and can bead the conductor end and drop hot beads to the ground.

Commented [MT17]:

Commented [FN18R17]: Summary:
1)Current Partial exemption w/ other equip. should be expanded
2)New equip and tools makes partial exemption obs ... [1]

should stay if all operations are manual and local under the direct supervision of a QEW (qualified electrical worker). Remote and automatic operation should be non-exempt unless tested and approved by a qualified test lab.]

(9) Equipment that is completely sealed and liquid filled.
(10) Current limiting, non-expulsion fuses.
(11) Engineered mechanical and electrical shunt with engineered shear bolts
(12) Mechanical connectors with engineered shear bolts.
(14) Pole line accessories that do not carry current or voltage for line sensing and indication.
(15) devices that use Vacuum Interrupter (VI) technology
(16) Surge protection devices with approved spark prevention units
(17) Automatic line splices with approved shunt devices installed

Non-Equipment related exemptions
Current Exemption
(d) Where vegetation is maintained less than 30.48 cm (12 inches) in height, is fire

resistant, and is planted and maintained for the specific purpose of preventing soil erosion and fire ignition.

New Recommendation(s)
"~~A~~ modified (d)" which that incorporates environmental restrictions
(d) Where vegetation is maintained or modified at an appropriate height, eliminates ladder fuels and is planted and maintained for the specific purpose of protecting sensitive habitat, or
preventing soil erosion and reduces risk fire ignition and rapid spread.

Add ~~Below is a~~ an item "e" ~~draft that would legitimize our VMA's (approx.. 35k poles)~~

(e) Where vegetation is maintained as a residential landscape improvement, is compatible with surrounding utility infrastructure , and is planted and maintained in a fire safe manner for the specific non-conflicting purpose that supports soil stability or aesthetics.

PRC 4293 (Conductor Clearance)
Except as otherwise provided in Sections 4294 to 4296, inclusive, any person that owns, controls, operates, or maintains any electrical transmission or distribution line upon any mountainous land, or in forest-covered land, brush-covered land, or grass-covered land shall, during such times and in such areas as are determined to be necessary by the director or the agency which has primary responsibility for the fire protection of such

Commented [SS19]: Removing item (8) could be problematic. The suggestion to require testing/approval for remote operation is also problematic. Assuming there is a acceptable certification process, would this be a one-time certification and/or a time-based or use-based recertification? Is there evidence of need to revise this or other listed exceptions.

Commented [MT20]: Clarify surge protection vs. lightning arresters

Commented [MT21]: Check with SCE

Commented [MT22]: Additional suggestions for surrounding vegetation and exemptions

Commented [MT23]: Residential landscaping that is maintained and in fire safe locations or are surrounded by fire safe breaks, such as roads, sidewalks, driveways, etc.

Commented [MT24]: Residential landscaping that is maintained and in fire safe locations or are surrounded by fire safe breaks, such as roads, sidewalks, driveways, etc.

Commented [SS25]: These additions suggested by PG&E are not problematic, but need to be discussed further. A better description or examples of the vegetation in new items (d) and (e) might be useful.

Also, if all of the current and proposed exceptions were removed from Section 1255 and placed into the Guide, including explanations would be prudent.

areas, maintain a clearance of the respective distances which are specified in this section in all directions between all vegetation and all conductors which are carrying electric current:

(a) For any line which is operating at 2,400 or more volts, but less than 72,000 volts, four feet.

(b) For any line which is operating at 72,000 or more volts, but less than 110,000 volts, six feet.

(c) For any line which is operating at 110,000 or more volts, 10 feet.

In every case, such distance shall be sufficiently great to furnish the required clearance at any position of the wire, or conductor when the adjacent air temperature is 120 degrees Fahrenheit, or less. Dead trees, old decadent or rotten trees, trees weakened by decay or disease and trees or portions thereof that are leaning toward the line which may contact the line from the side or may fall on the line shall be felled, cut, or trimmed so as to remove such hazard. The director or the agency which has primary responsibility for the fire protection of such areas may permit exceptions from the requirements of this section which are based upon the specific circumstances involved.

(Amended by Stats. 1976, Ch. 1300.)

[Old version]

Section 1257

Minimum Clearance Provisions - PRC 4293

The minimum clearance provisions of PRC 4293 are not required:

(a) Where conductors are;

(1) Insulated tree wire, maintained with the high density, abrasion resistant outer covering intact, or,

(2) Insulated self-supporting aerial cable, maintained with the insulation intact, or,

(b) On areas described in 14, CCR, 1255 (c);

(c) Except;

(1) Dead and decadent or rotten trees, trees weakened by decay or disease, leaning trees and portions thereof that are leaning toward conductor(s) and any other growth which may fall across the conductor and break it are removed or trimmed to remove such hazard.

(2) The trunk of any tree is not required to be removed when sound and living, and is the supporting structure to which conductor(s) are attached.

[Proposed]

§ 1257. Exempt Minimum Clearance Provisions - PRC 4293.

(a) The minimum clearance provisions of PRC 4293 applicable in State Responsibility Areas are exempted:

(1) Where conductors are:

(A) insulated tree wire, maintained with the high density, abrasion resistant outer covering intact, and

(B) Insulation is Fire Retardant meeting the flammability requirements of UL94 V0, or

(C) insulated self-supporting aerial cable, maintained with the insulation intact, and

(D) Insulation is Fire Retardant meeting the flammability requirements of UL94 V0 or

(E) supported by sound and living tree trunks from which all dead or decadent branches have been removed.

Commented [SS26]: This needs to be vetted. Why this UL standard? Why does the flammability of a covering or insulating material matter? Where is the study indicating covered or insulated conductors self-ignite? Assuming a covered/insulated conductor is exposed or engulfed by an existing fire, how does a UL rated product help? Also, is there a precedent for including UL or similar standards as specifications in the PUC?

(c) Except;
(1) Dead and decadent or rotten trees, trees weakened by decay or disease, leaning trees and portions thereof that are leaning toward conductor(s) and any other growth which may fall across the conductor and break it are removed or trimmed to remove such hazard.
(2) The trunk of any tree is not required to be removed when sound and living, and is the supporting structure to which conductor(s) are attached.

(2) On areas described in 14 CCR 1255(c).

(3) For mature trees ("Exempt Trees") whose trunks and major limbs are located more than six inches, but less than the distance required for clearance by PRC 4293, from primary distribution equipment (conductor and energy carrying hardware, generally less than 35 kilovolts).

(A) Exempt Trees must meet all of the following criteria, as confirmed by a Certified Arborist or a Registered Professional Forester:

1. The tree or limb must be six (6) inches or more from the line at all times.

2. The size of the tree or limb at the conductor level must be at least six (6) inches in diameter.

3. The tree must not have “scaffold branches,” below eight and one-half feet from the ground (so the tree can not be easily climbed).

(B) All Utility Companies with primary distribution conductors in State Responsibility Areas (SRA) of California shall:

1. Inspect Exempt Trees annually to verify they continue to meet the criteria in 14 CCR 1257(a)(3).

2. Maintain a database of information about Exempt Trees that includes 1) location, using the format of latitude/longitude in decimal degrees (DDD.DDDD Datum WGS84); 2) species; and 3) last date of inspection. If any Utility does not currently maintain such a database it must establish one and provide its initial report to CAL FIRE by July 1, 2013. Utilities may request, and the Director may approve, an extension of time in which to achieve compliance with this reporting requirement.

3. Report the information required pursuant to 14 CCR 1257(a)(B)(2) above, in an electronically researchable format, annually to CAL FIRE by July 1 of each year for the previous calendar year.

4. When constructing, installing, replacing, or maintaining primary distribution equipment, prevent the creation of new Exempt Trees, to the extent feasible.

(C) Where there are site specific indications that a conductor has or will come into contact with an Exempt Tree, or portion thereof as described above, the condition will be corrected either by altering the tree or by applying an engineering solution. The actions taken will be documented in that utility's Exempt Tree database.

(b) These exemptions do not apply to “Hazard Trees” as identified and explained on pages 1-20 through 1-24 in the Department's “Powerline Fire Prevention Field Guide” [Current version~~] dated November 2008 and~~ posted on the Department's website at: http://cdfdata.fire.ca.gov/pub/fireplan/fpupload/fppguidepdf126.pdf.

Commented [SH27]: This date could be looked at to change. By the time they submit it is in the middle of summer and if work is required it keeps moving out in the fall hazardous fire weather times.

Commented [SS28R27]: The July 1 reporting date is not associated with VM inspections or pending work. It is only a list of current MWS known to the utility.

Proposed Update to CCR Title 14 Sec 1253

[Consider changing it to “Time when burn permits are required…”

Article 4. Fire Prevention Standards for Electric Utilities

14 CCR § 1253

§ 1253. Time When PRC 4292-4296 Apply.

The minimum firebreak and clearance provisions of PRC 4292-4296 are applicable during the declared California Department of Forestry and Fire Protection fire season for a respective county. The Director shall post the declaration on the official Department web site.

Note: Authority cited: Sections 4292 and 4293, Public Resources Code. Reference: Sections 4125-4128, 4292 and 4293, Public Resources Code.

HISTORY

1. Repealer and new section filed 10-24-2005; operative 11-23-2005 (Register 2005, No. 43).

This database is current through 3/22/19 Register 2019, No. 12
14 CCR § 1253, 14 CA ADC § 1253

Page 3: [1] Commented [FN18R17] **Fischer, Niel** **4/8/2019 10:24:00 AM**

Summary:

1) Current Partial exemption w/ other equip. should be expanded
2) New equip and tools makes partial exemption obsolete;
3) Manually operated with QEW with fire suppression gear.
4) Exemption plus safe practices makes for 100% exempt configurations for Ca. Utilities