

**BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON**

AR 506

In the Matter of a Rulemaking to Amend and
Adopt Permanent Rules in OAR 860,
Divisions 024 and 028, Regarding Pole
Attachment Use and Safety

**SECOND ROUND COMMENTS OF
PORTLAND GENERAL ELECTRIC
COMPANY**

Portland General Electric (PGE) appreciates the opportunity to participate in the workshops and formally comment in AR 506. We take this opportunity to commend all the parties involved in this proceeding for continuing to earnestly seek understanding and agreement.

Our May 1, 2006, comments responded to the Oregon Joint Use Association's (OJUA) issues list, the issues raised by the City of Portland, and the rules drafted at the inception of this docket. Since that time, both Public Utility Commission of Oregon Staff (Staff) and other parties have suggested modifications to the proposed rule language. These comments address the draft rules issued by Staff on May 23, 2006. In addition, we note that one of the challenges of a rulemaking docket is that there is a limited opportunity to adequately address "facts" raised by other parties in Comments. We point out in these Comments some of the "facts" raised in this docket that we believe may be misinterpreted or misunderstood.

1. OAR 860-024-0001 Definitions for Commission Safety Rules

OJUA proposes to revise the definition of "Commission Safety Rules" to acknowledge the National Electrical Safety Code (NESC) as the default safety standard that utilities must meet, except where the rules expressly adopt a different standard. We agree with the OJUA's proposed modification to this section.

As Staff noted in its May 1, 2006 Comments in this docket (Staff Comments), Oregon has a longstanding legal tradition of adoption of the NESC, and the NESC remains the “required safety standard” of this state. Staff Comments at 2. For this reason, we were troubled when the NESC standards were eclipsed in Division 24 by “Commission Safety Standards.” Utilities must have clear directives and no ambiguity about which safety standards they are required to maintain. If the Commission believes that an NESC rule is insufficient, or that a different rule should be adopted in the place of an NESC standard, this difference should be called out and expressly noted. Utilities must be able to rely upon the NESC as the default standard, and modification of those standards must be the exception, not the rule.

2. OAR 860-024-0011 - Prioritization of Work

Where it is practical, pole owners and occupants will work together to achieve economic efficiencies. Indeed, OJUA has invested significant time and energy in crafting procedures that will achieve these efficiencies, and has made remarkable steps in working with all participants to craft an economical and efficient system. We support OJUA’s proposal with regard to prioritization of work and joint scheduling of inspections.

3. OAT 860-024-0012 - Prioritization of Repairs

We also support OJUA’s proposal regarding prioritization of repairs. Repairing all infractions within two years (with a tiny fraction to be deferred for an additional year) is a much higher standard than that prescribed by the NESC. It is reasonable and cost-effective to defer repair of incidental infractions and non-hazardous conditions where repair can be accomplished with greater efficiency at some point in the future.

4. OAR 860-024-0014 – Duties of Electric Supply and Communications Structure Owners

We support Staff’s proposal to move this rule to Division 28.

5. Vegetation Clearance Requirements – OAR 860-024-0016

PGE has a number of concerns with the proposed vegetation clearance requirements, many of which were addressed at the May 18, 2006 workshop. PGE's primary concern is that the proposed rules dramatically increase the minimum clearance standards, which have been part of Staff's Tree to Power Line Clearance Policy for over twenty years. These changes would result in substantial cost increases to utilities and their customers. PGE believes, and the data support its belief, that Oregon utilities are among the best in the nation in effective vegetation management, and that the current rules are more than sufficient to ensure that we maintain this excellent track record. We do not support adoptions of more stringent rules that will raise rates for customers in a time of rising energy and fuel prices, when those cost increases are not accompanied by a demonstrated incremental benefit. Our customers deserve a safe system and an efficient system. We do not believe they would support any requirement that the utility spend millions of extra dollars a year without a known increase in levels of safety or reliability.

a. Staff Provides Statistics that do not Support Its Proposed Rules

Staff defends its proposed rules by citing a need to protect the "safety of people and property," and referring to statistics related to tree-related injuries. Staff Comments at 18, 21. There is no evidence, however, suggesting that the new rules are necessary to protect safety, or that the proposed rules would have prevented the tree-related injuries that have occurred in the past. Staff also provided in its Comments general statistics about power line fires, claiming, "This illustrates that maintaining clearances from power lines for the purpose of preventing fires alone is a valid reason for this rule." *Id.* at 19. Yet here also, there is no necessary correlation between the statistics presented and the proposed rules.

Environmental Consultants, Incorporated (ECI), nationally recognized experts in vegetation management, independently examined the statistics cited by Staff and presented their

findings in a report attached to PGE's May 1, 2006 Comments (PGE First Round Comments). ECI noted that of the 74 "incidents" included in Staff's report for a ten year period, only a small percentage resulted in significant injury or death. *See* PGE Comments at Exhibit A page 5. ECI also noted that based on industry practice, utilities generally address these risks through "public education, warning signs and responsiveness to customer requests for assistance in partial clearing of trees away from power lines..." *Id.* Moreover, when PGE personnel examined the incident records publicly available from the OPUC, they found that only a tiny percentage of the total tree-related incidents—less than one incident per year—related to NESC code violations and adequate tree clearance. Rather than justifying an increase in the current standards, these statistics appear to demonstrate that the current standards have been extremely effective in keeping injuries to minimal levels.

PGE personnel also examined available data regarding power line-related fires to determine whether those fires generally were caused by excessive tree growth or poor vegetation management practices. Individual detail of all fires was not available. However, PGE was able to obtain information detailing the cause of all power line related fires in 1993 and 1996. *See* Exhibit 1. In 1993, there were 43 total power line related fires, only one of which could be determined to have been caused by inadequate vegetation management or excessive tree growth. In 1996, there were 37 total power line related fires, four of which could be determined to have involved tree growth. Unfortunately, these are the only years for which PGE was able to obtain detailed data. However, based on conversations with Rick Gibson, the Oregon Department of Forestry Fire Prevention Manager, we believe these years to be representative of longer-term experience. Thus the number of fires related to vegetation management is extremely small, in comparison to the total numbers of power line related fires cited by Staff as justification for their proposed rules.

We would like to eliminate injuries and fires, but the proposed rule will not accomplish that task. People commit unsafe acts, and if the statistics are to be believed, we could prevent far more injuries by continuing to focus our attention on ways to prevent these unsafe acts, rather than spending millions of additional dollars on additional tree-trimming.

b. History of the Rule

It is important to know the evolution of Staff's rule proposal, so that the departure from existing policy can be clear. As Staff notes in its Comments, the original Staff Tree to Power Line Clearance Policy was developed over two decades ago. Staff Comments at 17. This original policy contained the following clause, which described an exception to the rule requiring that minimum clearance areas be kept free of new tree growth between scheduled trimming cycles:

Intrusion of limited small branches and new tree growth into this minimum clearance area can be tolerated so long as it does not contribute to a safety hazard to a person climbing the tree or cause interference with the conductors.

Id. at Exhibit 11 page 6. It is the various modifications Staff has made to this original clause, which appears at draft rule OAR 860-024-0016(5)(c)(B), that PGE continues to dispute.

i) Dispute Over "Interference"

Over the years, Staff and PGE have differed over the proper interpretation of the term "interference." PGE contended that as used in the NESC, "interference" meant damage. Staff interpreted this term to mean " 'tickling,' 'brushing' contacts, brown leaves, desiccation, or any other descriptions, or results of, direct or arching contact with primary conductors..." *Id.* at Exhibit 11 page 3(5) (PGE Stipulation).

This controversy has since been resolved for purposes of determining NESC intent: the Edison Electric Institute Vegetation Management Task Force ("Task Force") recently found that the term "interfere" was being widely misinterpreted, and decided to remove the term from

Rule 218 of the revised NESC, which will be effective January 1, 2007. In comments discussing this decision, the Task Force stated, “The word ‘interfere’ is removed because it has been interpreted to mean all, even incidental, vegetation contact with electric apparatus. ‘Interfere’ has also been used by some regulatory commissions to suggest that incidental contact causes reliability issues. In these instances the regulatory commissions are using NESC -under the guise of safety- to enforce otherwise unjustifiable clearance for reliability purposes.” *See* Exhibit 2.

The Subcommittee #4 of the NESC voted 23 to 0 to recommend to the full committee a change to the code. Where the NESC currently reads, “Trees that interfere with ungrounded supply conductors should be trimmed or removed,” the revised code will read, “Vegetation that may damage ungrounded supply conductors should be pruned or removed.” *Id.*

PGE advocated for removal of the term “interference” from these proposed rules because it believed, and continues to believe, that Staff’s Policy and interpretation of this term exceeds NESC standards and is not necessary to maintain a safe system. PGE stipulated in 1999 to Staff’s definition of the term interference, and PGE intends to fully comply with that Stipulation as long as it is in force. However, PGE strongly disagreed with Staff’s original proposal to memorialize its misunderstanding of the NESC in the Oregon Administrative Rules. If the proposed rules were intended to honor “Oregon’s long standing legal adoption of the NESC,” (Staff Comments at 2) and maintain these basic national safety standards, the term interference should be replaced with damage, and the new and more stringent clearance standards should not be adopted.

ii) Staff’s Current Proposal

PGE appreciates Staff’s efforts to make an alternative proposal and Staff’s recognition that the NESC no longer will include any reference to the term “interference.” However, Staff’s

new proposed rule is even more prescriptive and sets an even higher standard than the old rule.

Staff's proposed rule OAR 860-024-0016(5)(c)(B) reads,

Infrequent intrusion of small new vegetation growth into these minimum clearance areas is acceptable provided the vegetation does not come closer than eighteen inches to the conductor.

Whereas before Staff's Policy was to categorically prohibit any contact with a conductor, or damage to the tree that might be caused by contact, the new rule moves that standard back 18 inches. In workshops, no rationale was offered for this rule change, other than to acknowledge that the NESC no longer uses the term "interference." Staff also suggested that they picked the 18-inch standard because that standard is used in California.

Two things are important to note about the standards adopted in California. First, those rules were adopted after a number of major storm-related outages, and a major power outage and catastrophic fire in mid-1996.¹ Oregon has not had similar concerns about reliability or safety, and in fact, ECI concluded in its evaluation of over 7,000 trees in Oregon that the percentage of tree-to-conductor contact was well below what ECI has observed to be the industry norm. PGE First Round Comments at Exhibit A page 1. These standards translate into outstanding reliability. In its report ECI states, "the number of tree-caused interruptions on the PGE overhead primary system...was found to be among the lowest of any utility in the United States that ECI has examined." *Id.* at 2. Oregon has no need to change its standards simply to mimic those used in California.

Second, the standards adopted in California came at considerable cost. At the May 18, 2006 workshop, Philip M. Charlton, ECI President, noted that Pacific Gas & Electric has had to

¹ See Investigation on the Commission's own motion and order to Show Cause to determine if San Diego Gas & Electric Company should be held in violation of the Commission's General Order 95 for failure to have exercised reasonable tree trimming practices and procedures at 3; I.94-06-012; California Public Utility Commission Decision 97-10-056 (Oct. 22, 1997).

move to a one-year trimming cycle to maintain the mandated clearances, and as a result, has a consulting and trimming staff that numbers in the hundreds.² PGE similarly estimates that to comply with the new rules it would have to move to a one-year trimming cycle, at an added cost of approximately \$4 to \$5 million annually. Such substantial cost increases may have been justified in California, where the lack of appropriate vegetation management practices led to significant reliability and safety concerns, but what justifies this cost increase in Oregon?

iii) “Limited small branches and new tree growth” v. “Infrequent intrusion of small new vegetation growth”

The other difference between Staff’s original Policy and the proposed rule is in the first few words: the original policy begins “Intrusion of limited small branches and new tree growth...can be tolerated” whereas the new rule would read, “Infrequent intrusion of small new vegetation growth...is acceptable.” This may appear an insignificant change, but in fact, this wording alone could cost PGE customers millions of dollars a year.

As part of the team that drafted the original Policy, PGE interpreted the Policy to allow for new tree growth and some small branches in the minimum clearance areas, as limited³ by the requirement that the new growth not interfere with conductors. The proposed rule, on the other hand, would require that new growth into the clearance area be “infrequent,” meaning “not occurring regularly; occasional or rare.”⁴ This is a far higher standard, and as Staff has described in workshops, it is only meant to cover those unique trees, referred to as “cycle busters,” that grow in an unexpected or unusual fashion.

² Not all trees are trimmed annually, but all trees must be inspected annually, and the majority of trees in urban areas and many of the trees in rural areas require annual trimming to maintain the mandatory clearance.

³ “Limited: Confined or restricted within certain limits,” The American Heritage Dictionary of the English Language, Fourth Edition (2000) Houghton Mifflin Company.

⁴ The American Heritage Dictionary of the English Language, Fourth Edition (2000) Houghton Mifflin Company.

To maintain this new clearance requirement, PGE will have to trim its trees further and more frequently, most likely moving to a one-year cycle of trimming—precisely what occurred in California when they adopted an 18-inch standard. This will be a very costly change. PGE will have to increase its tree trimming budget by approximately \$4 to \$5 million dollars annually to comply with the proposed rule. Other costs are less easily quantified, but no less important: they are the costs of a damaged urban forest, potential injury to tree health, diminished property values, and disgruntled customers and residents who will want to know why their trees are being trimmed so severely. *See* Oregon Department of Forestry’s (ODF) letter, AR 506 (May 12, 2006).

ECI reviewed PGE’s vegetation management program for the entire service territory in the fourth quarter of 2005 and considered the impact of the proposed rules on PGE’s current vegetation management practices. As described in ECI’s Report, PGE’s vegetation management practices already demonstrate exceptional safety and have resulted in exceptionally low numbers of tree-related interruptions. ECI states, “Of the tree-caused interruptions that do occur on the PGE system, few have been the result of trees growing into the conductor. The vast majority of interruptions have been attributed to unforeseen or non-preventable tree failure...ECI’s experience shows that most utilities experience a much higher proportion of outages due to tree growth than has PGE.” PGE First Round Comments, Exhibit A at 3. In fact, PGE’s four year average performance exceeded that of a comparable California utility in 2005 for number of primary tree-related interruptions. *Id.* These conclusions lead us back to the same questions—if our record of safety and reliability is so strong, why ask us to spend millions of additional dollars?

iv) PGE's Proposal

PGE proposes two alternatives for compromise on this issue. However, in either case we believe it is imperative that the rule contain the beginning of the original Staff Policy language, which states, "Intrusion of limited small branches and new tree growth...can be tolerated." We see absolutely no reason to modify or deviate from this language. It is not necessary for safety or for general compliance with the NESC. As previously noted, Staff's original Policy far exceeded the NESC, and the NESC only requires trimming of vegetation that will actually damage conductors. The proposed standard is not necessary to improve reliability, address any known safety hazard, or protect the public. It will cost millions of dollars. It simply should not be included in the proposed rule.

We do believe there is room for compromise around the rest of the standard. If Staff believes it is important to remove the term "interference" from the rule, we would suggest a more reasonable minimum acceptable intrusion area of 6 inches, rather than 18 inches. This proposal exceeds the old "interference" standard, but would not result in the extreme cost (both financial and environmental) that would result from Staff's current proposed rule.⁵

Alternatively, although we do not believe it is necessary for safety, PGE would propose going back to Staff's old Policy language defining interference and including that standard in the rule.⁶ Though it would not mirror the NESC, none of Staff's proposals have been modeled after the NESC. In addition, going back to the old proposal would not require massive changes in current utility tree-trimming programs, increased costs or increased damage to trees.

⁵ The new OAR 860-024-0016(5)(c)(B) would read: "Intrusion of limited small branches and new tree growth into these minimum clearance areas is acceptable provided the vegetation does not come closer than six inches to the conductors."

⁶ Under this proposal, the new OAR 860-024-0016(5)(c)(B) would read: "Intrusion of limited small branches and new tree growth into these minimum clearance areas is acceptable provided the vegetation does not cause interference with a conductor."

v) Creating a Threshold

As we worked through the rulemaking process, we became increasingly concerned that the new vegetation management standards would be extremely difficult for Staff to administer without a consistent and unbiased mechanism for evaluation of utility tree-trimming programs. It would obviously make little sense for Staff to evaluate the overall compliance of a utility program based on clearance measurements in one or two trees. But what would be fair? Ten trees? One hundred?

Trees are not like poles; by their very number and dynamic characteristics, they cannot be subjected to a prioritization of repairs standard like the one Staff proposes for other NESC and Commission Safety Staff violations. Yet the rules provide no guidance for the manner in which Staff might systematically determine what constitutes an acceptable vegetation management program. Without such standards, one cannot determine if assessments of vegetation management programs are statistically sound, or what threshold standards should apply before the Commission should determine a vegetation management program to be out of compliance with the OARs.

We asked ECI to provide some guidelines that Staff could use to develop a compliance sampling method and have attached their recommendations as Exhibit 3. Some basic principles of their recommendations include: 1) the utility's service territory should be sampled on a random basis, using a method that excludes observer bias; 2) sample sizes should be determined based on desired sampling error and level of confidence; and 3) a reasonable compliance threshold might be between 90-95% compliance. These principles are very flexible and could be adapted for the specific needs of Oregon and the Safety Staff.

Developing a specific sampling method and compliance threshold seems beyond the reach of the present rulemaking, but we believe it is a necessary part of the adoption of these

rules. We therefore recommend that the Commission adopt the following addition to OAR 860-024-0016:

(8) Within one year of the establishment of these rules, Commission Safety Staff shall provide to the Commission and interested parties a draft compliance sampling method for evaluation of vegetation management programs, and recommendations for threshold requirements for compliance.

c. Placement of Tree Trimming Requirements in Division 28 – OAR 860-024-0016

We believe it is not necessary to extend tree trimming requirements to communication companies, and recommend this section be deleted. However, we do not oppose moving this proposal to Division 28 and continuing the discussion regarding this proposal with those rules.

6. Generic Waiver – OAR 860-024-0012(4)

We support the addition of this section. It is necessary for situations in which a pole owner does not strictly adhere to a particular safety rule, but is able to maintain an equivalent level of safety. However, we feel it is important to acknowledge that the waiver provision does not replace the need for a reasonable rule regarding prioritization of repairs. Many infractions that could qualify for a waiver recur, and seeking a waiver for each specific installation would be costly and time-consuming. Particularly for cases in which a rule infraction does not pose a significant hazard to the public or utility employees, it would be more efficient and cost-effective to have a prioritization standard that allows for routine deferral than to rely on a waiver provision.

7. Costs Benefit – All Proposed Rule Changes

After multiple workshops, it continues to be unclear what incremental benefit customers would be buying for the additional costs that the implementation of this draft rule would require. PGE estimates that the vegetation rules alone would require a \$4 to \$5 million dollar increase in our annual budget. We urge the Commission to adopt reasonable rules that maintain Oregon's

current exceptional safety and reliability, without unnecessarily burdening utilities and their customers with additional costs and heightened standards.

Conclusion

We appreciate the opportunity to comment and we look forward to further participating in this rulemaking. We have only commented on the language where our viewpoints diverge. We thank Staff for their willingness to consider the industry's viewpoint and we commend ALJ Smith for encouraging consistent forward movement and compromise among parties.

DATED this 25th day of May, 2006.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I certify that I have caused to be served the foregoing **SECOND ROUND COMMENTS OF PORTLAND GENERAL ELECTRIC** in OPUC Docket No AR 506, by electronic mail, and for the parties who have not waived paper service, by First Class US Mail, postage prepaid and properly addressed, upon each party on the attached service list, pursuant to Oregon Administrative Rule 860-013-0070.

DATED this 25th day of May, 2006.

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Legal Department
121 SW Salmon Street • Portland, Oregon 97204
(503) 464-7832 • facsimile (503) 464-2288

Inara K. Scott
Assistant General Counsel

May 25, 2006

Via Electronic Filing and U.S. Mail

Oregon Public Utility Commission
Attention: Filing Center
PO Box 2148
Salem OR 97308-2148

Re: In the Matter of a Rulemaking to Amend and Adopt Permanent Rules in OAR 860,
Divisions 024 and 028, Regarding Pole Attachment Use and Safety
OPUC Docket No. AR 506

Attention Filing Center:

Enclosed for filing in the above-captioned docket is Portland General Electric's Second Round Comments. This document is being filed by electronic mail with the Filing Center.

An extra copy of this cover letter is enclosed. Please date stamp the extra copy and return it to me in the envelope provided.

Thank you in advance for your assistance.

Sincerely,

/s/ INARA K. SCOTT

Inara K. Scott

IKS:am

cc: AR 506 Service List

Enclosure

1983 FIRES INVOLVING POWERLINES REPORTED BY OREGON DEPARTMENT OF FORESTRY FIELD OFFICES
UPDATED: 20 JANUARY 1984

COF DISTRICT FIRE NUMBER	UTILITY OR LINE OWNER	FIRE NAME DATE	FIRE SIZE COF SUPPRESSION COST	COMMENTS
Eastern Lane 717719004 *	Emerald PUD	Marcota Road 08 July	.08 acres. \$0.	Clearing crew dropped limb onto line. *
West Oregon 715518111 *	Consumers Power	Lone Star 01 October	.25 acres \$95.00	Cattle knocked down pole thought to have been abandoned.
West Oregon 715518313	Central Lincoln PUD	East Slope	\$62.00	Non-statistical.
West Oregon 715518324 *	Consumers Power	Jon 15 October	.01 acre \$0	Insulator blew up, causing line to break.
Northeast Oregon 719719508 *	Umatilla Electric Cooperative	Car #2/Elphant Rock 17 July	.01 acres. \$126.00	Cut tree fell across line.
Northeast Oregon 719719311 *	Oregon Trail Electric Cooperative	Woodgale 11 September	.15 acres. \$323.00	30-40 MPH winds caused swaying lines to arc in a long span between poles. Cause not certain.
Klamath-Lake 718819143 *	Pacific Power & Light	Calhwell Banker 13 November	.50 acres. \$0	40 MPH wind caused lines to break. Cause not certain.
Klamath-Lake 718819141 *	Pacific Power & Light	Coachmen 13 November	.10 acres. \$0.	Wind caused rotten tree to fall across line. *
Klamath-Lake 718819A60 *	Pacific Power & Light	Rainbow 10 May	.10 acres. \$0.	Wind caused tree to fall across line.
Klamath-Lake 718819A72 *	Midstate Electric Cooperative	Diamond Lake Junction 10 May	.10 acres. \$0.	Wind caused tree to fall across line.
Coos 717219020 *	Central Lincoln PUD	Harry Creek 29 August	.10 acres. \$325.00	Overgrown limbs. *
Coos 717219005 *	Coos-Curry Electric Cooperative	Laurel Lake 06 July	.10 acres. \$68.00	Wind caused top of snag to fall across line.
Coos 717219013 *	Douglas Electric Cooperative	Wildcat Creek 01 August	3.00 acres \$486.00	Sag broke a corroded and previously spliced line, on a hot day.
Coos 717219064 *	Coos-Curry Electric Cooperative	Doyle Point 05 November	.75 acres \$216.00	Fatigued line broke.

Central Oregon 719519S23	*	Midstate Electric Cooperative	Hellrock #1 02 August	.05 acres \$145.00	Old party cut tree fall across line.
Central Oregon 719519L28	*	Midstate Electric Cooperative	Pinarose #1 13 June	0 acres \$97.00	Snags hit adjacent green tree which then fell across line.
Central Oregon 719519L26	*	Midstate Electric Cooperative	Soth Street #1 11 May	8.00 acres \$17,068.00	Wind caused tree to fall across line.
Central Oregon 719519L25	*	Midstate Electric Cooperative	Pine Street #1 10 May	0 acres \$39.00	Wind caused tree to fall across line.
Central Oregon 719519M10	*	Columbia Power Cooperative	Lower Alkali Flats 22 September	3.00 acres \$1,065.00	Transformer fuse.
Central Oregon 719519P04		Central Electric Cooperative	Lamonia 07 August	3.00 acres \$1,048.00	Cause not certain. Non-statistical.
Central Oregon 719519S17		Central Electric Cooperative	Glaze Meadow #12 28 July	\$228.00	Non-statistical.
Central Oregon 719519S38		Central Electric Cooperative	Fadgur Lane #1 04 September	2.00 acres \$120.00	Non-statistical.
Central Oregon 719519S04		Central Electric Cooperative	Substation #1 Metolious 08 October	\$98.00	Non-statistical.
Central Oregon 719519T11		Pacific Power & Light	Riverdale Road 07 July	.01 acre \$62.00	Down line. Non-statistical.
Central Oregon 719519T40		Northern Wasco County PUD	View Crest 16 September	10 acres \$114.00	Cause not certain. Non-statistical.
Walker Range 719919208	*	Midstate Electric Cooperative	Sunforest #1 11 May	.10 acres. \$147.00	
Walker Range 719919204		Midstate Electric Cooperative	Two Rivers #1 10 May	\$232.00	Wind caused a tree to fall on the lines. Non-statistical.
Clackamas-Marion 715919040	*	Portland General Electric	Linda #2 05 September	.10 acre \$90.00	Landowner felled tree into line.
Clackamas-Marion 715919073		Portland General Electric	Lorence Road #1 29 September	\$77.00	Cause not certain. Non-statistical.
Clackamas-Marion 715919096		Portland General Electric	Cluster 08 October	\$77.00	Cause not certain. Non-statistical.

Southwest Oregon 717118018	*	Pacific Power & Light	PP E3822 08 August	.10 acres \$190.00	Wind blew down line.
Southwest Oregon 717118060	*	Private landowner, Bob Carroll	Dutchman View #2 27 September	.10 acre \$46.00	Power surge from inside the house (oven shorted, breakers did not function) caused a wire connection at the pole to melt.
Southwest Oregon 717118062	*	Pacific Power & Light	PP #C3138 03 October	.01 acre \$55.00	Fuse link at the top of a pole failed.
Southwest Oregon 717118078	*	Pacific Power & Light	Strainman - PP#E3948 02 November	24.00 acres \$5,582.00	Wind caused a snag to fall into the line. *
Southwest Oregon 717118401			Newland Road	2.00 acres \$234.00	Wind caused awaying lines to arc. Non-statistical. *
Southwest Oregon 717118A14	*	Pacific Power & Light	PP R8187 11 July	\$89.00	Tree felled across line.
Southwest Oregon 717118A40	*	Pacific Power & Light	PP #A5588 16 August	\$0	Car hit pole during a police chase.
Southwest Oregon 717118A41	*		Speaker Road 16 August	\$44.00	Faulty wiring to an out building.
Southwest Oregon 717118A55	*	Pacific Power & Light	Power Pole #A8862 24 August	2.00 acres \$840.00	Squirrel shorted transformer mounted on pole.
Southwest Oregon 717118A93	*	Pacific Power & Light	Power Pole #D2680 08 October	\$114.00	Car vs pole.
Southwest Oregon 717118C89	*	NA	Meadowbrook Lane 29 June	.01 acre \$49.00	Irrigation pump wires shorted.
Douglas 717318501		Douglas Electric Cooperative	Kirkendahl Road 07 July	\$70.00	Rotten pole fell, allowing lines to make contact with the roof of an adjacent building. Non-statistical.
Douglas 717318512		Pacific Power & Light	Homestead Lane	\$107.00	Transformer failed. Non-statistical.
Forest Grove 715318043		Portland General Electric	Cove Orchard Car 12 September	.03 acre \$130.00	Car vs pole. Non-statistical.

DETAIL DATA ON POWERLINE RELATED FIRES, 1996

SUBJECT TO REVISION
15 JANUARY 1997

DATE	COUNTY	LEGAL LOCATION	LANDOWNER SIZE / INTERFACE FIRE	ODF COST	UTILITY	FIRE CAUSE
05 JUL	BENTON	10S-05W-34	LARGE	138		
17 JUL	CLACKAMAS	04S-04E-11	LARGE	58	PORTLAND GENERAL ELECTRIC	LOGGING ACTIVITY
25 JUL	CLACKAMAS	06S-02E-08	SMALL/INTERFACE	42		AIRCRAFT WARNING LIGHT ON TOWER MELTED TREE FELL ON LINE AFTER TREE HIT BY TRUCK LOAD
19 JUN	COOS	26S-13W-10	SMALL/INTERFACE	81	PACIFIC POWER	UNKNOWN
10 JUN	CURRY	32S-15W-36	SMALL/INTERFACE	165	COOS CURRY ELECTRIC COOP	WIND BLEW TREE INTO LINE
28 JUL	DESCHUTES	18S-12E-21	SMALL/INTERFACE	14	CENTRAL ELECTRIC COOP	BIRD
21 SEP	DESCHUTES	17S-11E-23	SMALL/INTERFACE	0	PACIFIC POWER	
23SEP	DESCHUTES	21S-10E-16	SMALL/INTERFACE	39	MIDSTATE ELECTRIC	
21 AUG	DOUGLAS	22S-08W-20	LARGE/INTERFACE	889	DOUGLAS ELECTRIC COOP	VEGETATION TOUCHING LINE
05 AUG	DOUGLAS	27S-03W-11	SMALL/INTERFACE	1,230	PACIFIC POWER	CAR HIT POLE
22 AUG	DOUGLAS	27S-03W-11	SMALL/INTERFACE	245	PACIFIC POWER	TELEPHONE COMPANY WORK CAUSED POLE TO BREAK
10 SEP	DOUGLAS	24S-05W-21	LARGE	3,121	PACIFIC POWER	FUSE ACTIVATION CAUSED BY BIRD ACTIVITY
09 OCT	DOUGLAS	26S-04W-34	LARGE/INTERFACE	201	DOUGLAS ELECTRIC COOP	POWER SURGE CAUSED BY LIGHTNING
13 AUG	HOOD RIVER	02N-10E-20	SMALL/INTERFACE	597	PACIFIC POWER	FUSE ACTIVATED WHEN TRIM CREW CAUSED LINES TO TOUCH
12 JUL	JACKSON	36S-03W-35	SMALL/INTERFACE	87	PACIFIC POWER	TREE FELL ON LINE
17 JUL	JACKSON	35S-01W-19	SMALL/INTERFACE	154	PACIFIC POWER	INSULATOR FAILED
22 JUL	JACKSON	37S-01W-12	LARGE	2,411	PACIFIC POWER	LINE SAGGED INTO TREES
26 JUL	JACKSON	36S-02W-11	LARGE/INTERFACE	0		SHORTING BETWEEN LINES AND GROUND SUPPORT WIRE
10 AUG	JACKSON	32S-01E-13	LARGE	58	PACIFIC POWER	OVERLOAD CAUSED INSULATOR TO EXPLODE
10 AUG	JACKSON	38S-01W-01	SMALL/INTERFACE	55	PACIFIC POWER	LINE BROKE
10 AUG	JACKSON	35S-02W-10	SMALL/INTERFACE	796	PACIFIC POWER	CAR HIT PHONE LINE - BOUNCED NEUTRAL UP TO FEEDER
29 AUG	JACKSON	33S-01E-27	LARGE/INTERFACE	633	PACIFIC POWER	
29 AUG	JACKSON	40S-04E-06	SMALL	283		
02 JUL	JOSEPHINE	38S-05W-12	LARGE/INTERFACE	694	PACIFIC POWER	BEAVER FELL TREE ON LINE
06 JUL	JOSEPHINE	39S-08W-22	SMALL/INTERFACE	91	PACIFIC POWER	TREE GROWTH CONTACT WITH LINE
17 JUL	JOSEPHINE	39S-08W-35	SMALL/INTERFACE	1,254	PACIFIC POWER	LIGHTNING ARRESTER FAILURE
04 AUG	JOSEPHINE	39S-07W-28	LARGE	90	PACIFIC POWER	SNAG FELL ON LINE
14 AUG	JOSEPHINE	36S-05W-33	SMALL	290	PACIFIC POWER	TREE TOP FELL ON LINE
10 OCT	JOSEPHINE	35S-06W-20	LARGE	185	PACIFIC POWER	FUSE ACTIVATION
30 JUL	KLAMATH	38S-11E-34	SMALL	334	PACIFIC POWER	SHORTING BETWEEN LINES WHEN CROSS ARM BOLT BROKE
08 MAY	LANE	19S-01E-29	SMALL/INTERFACE	83	LANE ELECTRIC COOP	LINE SEPARATED FROM TRANSFORMER
22 AUG	LANE	15S-09W-12	SMALL/INTERFACE	56	CONSUMER POWER	WIND BLEW TREE ACROSS LINE
31 AUG	LANE	18S-04W-35	SMALL	360	LANE ELECTRIC COOP	SNAG FELL ON LINE
02 FEB	LINN	11S-01E-08	SMALL/INTERFACE	123	PACIFIC POWER	BRANCH FELL ACROSS LINE
10 SEP	LINN	13S-01W-22	LARGE	110		REPAIR CREW REENERGIZED LINE FOULED IN TREES
02 SEP	TILLAMOOK	01N-07W-03	LARGE	255		RAISED DUMP TRUCK BED CAUGHT LINE
29 AUG	UMATILLA	01S-33E-06	LARGE	0		TREE GROWTH CONTACT WITH LINE

EXHIBIT 1
PAGE 4

DETAIL DATA ON POWERLINE RELATED FIRES, 1996

SUBJECT TO REVISION
15 JANUARY 1997

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02 SEP	TILLAMOOK	01N-07W-03	LARGE	255		
29 AUG	UMATILLA	01S-33E-06	LARGE	0		TREE GROWTH CONTACT WITH LINE

PLTFIRE6.ODF

EXHIBIT 1
PAGE 5

Rule 218A and 218B

CP 2789

Submitter

Thomas Sullivan

Proposed Change

Change Rule 218 as follows:

218. Tree Trimming Vegetation Management

A. General

1. Trees that interfere with ungrounded supply conductors should be trimmed or removed.

NOTE: Normal tree growth, the combined movement of trees and conductors under adverse weather conditions, voltage, and sagging of conductors at elevated temperatures are among the factors to be considered in determining the extent of trimming required.

A. Vegetation growing into conductors and trees with obvious defects in proximity to conductors should be pruned or removed.

NOTE: Public safety is threatened by vegetation growing into conductors and by trees with obvious defects that would cause mechanical damage to electric facilities if they were to fail. Service reliability is affected by tree limbs contacting conductors creating a sufficient path to ground or cross phase resulting in an interruption of service.

NOTE: Vegetation should be managed to provide adequate clearances to meet cyclic maintenance requirements. Factors to consider in determining clearances should include, but are not limited to, species' growth rates and failure characteristics, the vegetation's location in relation to the conductors, the potential combined movement of vegetation and conductors during routine winds, and sagging of conductors due to elevated temperatures or icing.

2. Where trimming or removal is not practical, the conductor should be separated from the tree with suitable materials or devices to avoid conductor damage by abrasion and grounding of the circuit through the tree.

B. At Line Crossings, Railroad Crossings and Limited Access Highway Crossings

The crossing span and the adjoining span on each side of the crossing should be kept free from over hanging or decayed trees or limbs that otherwise might fall into the line.

B. Where pruning or removal is not practical, utility companies may mitigate safety conflicts through construction alternatives.

C. During emergencies which threaten public safety, such as where vegetation presents an immediate threat of falling into conductors and other electrical apparatus, the operating utility, or its designated representatives should perform pruning or removal work necessary to clear the electrical hazard.

NOTE: Standards for pruning should comply with ANSI A-300: Performance standards for the Care and Maintenance of Tree, Shrubs, and other Woody Plants; and ANSI Z-133.1: Pruning, Trimming, Repairing, Maintaining, and Removing Tree and Cutting Brush—Safety Requirements.

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OF THE NATIONAL ELECTRICAL SAFETY CODE

Standards for clearance should comply with The Uniform Fire Code and The Urban-Wildland Interface Code, where applicable.

Supporting Comment

In paragraph A:

We suggest using the term vegetation instead of tree. Vegetation includes trees, shrubs, herbaceous plants, and vines that may grow into electric equipment. The term "management" is appropriate since clearing vegetation

away from power lines involves more than just trimming. Furthermore, the word prune is substituted for trim to provide consistency between NESC and other forestry and arboricultural standards.

The word "interfere" is removed because it has been interpreted to mean all, even incidental, vegetation contact with electric apparatus. "Interfere" has also been used by some regulatory commissions to suggest that incidental contact causes reliability issues. In these instances the regulatory commissions are using the

NESC —under the guise of safety—to enforce otherwise unjustifiable clearance for reliability purposes. Given these issues we wish to strike the word “interfere.” The *NOTE* on reliability is added to provide information on how contact with vegetation causes outages. The second *NOTE* is a revision of the present NESC *NOTE* and includes the terms clearance and utility cyclic vegetation management work. This discussion clarifies how electric utilities carry out programs to comply with the NESC.

Existing paragraph B:

The Edison Electric Institute Vegetation Management Task Force recommends existing paragraph B should be removed since these comments should apply to all spans, not just the spans highlighted in this section.

In new paragraph B:

The proposed text is more general in nature and leaves the utility greater flexibility in mitigating facility/vegetation problems where vegetation cannot be removed or pruned.

In new paragraph C:

In emergency situations where vegetation presents an imminent threat to electric facilities, that may in turn cause an electrical safety hazard to workers or the public, the utility should perform pruning or removal work

as needed. There is no provision in the existing NESC to address emergency situations.

Note: Reference to other safety related standards:

NESC Section 015 defines *NOTES* to be material or discussion included to provide information related to or

clarification of the Code requirements. The 3 references provided in this *NOTE* are: ANSI A-300, ANSI Z-133, and Uniform fire Code and Urban-Wildland Interface Code.

The ANSI A-300 provides industry standards for the care of trees, shrubs, and other woody vegetation.

ANSI

A-300 includes a section on electric utility pruning.

ANSI Z-133 is the industry safety standard for working on vegetation in proximity to electric apparatus.

The

standard includes minimum working distances from energized conductors, criteria for qualified lineclearance

tree workers, and safety training for line-clearance tree workers.

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PREPRINT PROPOSALS FOR THE 2007 EDITION

The Uniform Fire Code and The Urban-Wildland Interface Code are fire code standards related to electric apparatus as a source of ignition. Where these codes are locally adopted, they specify vegetation clearance required from electric apparatus to prevent fires. Certainly fires caused by electric apparatus can be a public safety issue.

We recommend these standards be “noted” in the NESC.

Subcommittee 4 Recommendation

Accept as modified.

Subcommittee 4 Comment

Change Rule 218 as follows:

218. ~~Tree Trimming~~ Vegetation Management

~~A. General~~

~~1. Trees that interfere with ungrounded supply conductors should be trimmed or removed.~~

~~*NOTE:* Normal tree growth, the combined movement of trees and conductors under adverse weather conditions, voltage, and sagging of conductors at elevated temperatures are among the factors to be considered in determining the extent of trimming required.~~

A. General

1. Vegetation that may damage ungrounded supply conductors should be pruned or removed.

Vegetation management should be performed as experience has shown to be necessary.

NOTE: Factors to consider in determining the extent of vegetation management required include, but are not limited to: line voltage class, species' growth rates and failure characteristics, right-of-way limitations, the vegetation's location in relation to the conductors, the potential combined movement of vegetation and conductors during routine winds, and

sagging of conductors due to elevated temperatures or icing.

2. Where pruning ~~trimming~~ or removal is not practical, the conductor should be separated from the tree with suitable materials or devices to avoid conductor damage by abrasion and grounding of the circuit through the tree.

B. At Line Crossings, Railroad Crossings and Limited-Access Highway Crossings

The crossing span and the adjoining span on each side of the crossing should be kept free from over-hanging or decayed trees or limbs that otherwise might fall into the line.

Vote on Subcommittee 4 Recommendation

Affirmative: (23) Bednarz, Blackley, Bohlk, Bullinger, Clapp, Crawford, Crowell, Engdahl, Gunter, Henry, Hooper, Howard, Johnson, Jr, Komassa, Neubauer, Olinick, Oswald, Reding, Schwarz, Slavin, Tomaseski, Young, Young

Negative: (0)

Abstention: (0)

3. This rule does not require protection or marking of anchor guys located outside of the traveled ways of roadways or established parking areas.

NOTE: Experience has shown that it is not practical to protect guys from contact by out of control vehicles operating outside of established traveled ways.

CP
2789

218. Tree-trimming Vegetation management

A. General

1. ~~Trees that interfere with ungrounded supply conductors should be trimmed or removed.~~

~~NOTE: Normal tree growth, the combined movement of trees and conductors under adverse weather conditions, voltage, and sagging of conductors at elevated temperatures are among the factors to be considered in determining the extent of trimming required.~~

A. General

1. Vegetation that may damage ungrounded supply conductors should be pruned or removed. Vegetation management should be performed as experience has shown to be necessary.

NOTE: Factors to consider in determining the extent of vegetation management required include, but are not limited to: line voltage class, species' growth rates and failure characteristics, right-of-way limitations, the vegetation's location in relation to the conductors, the potential combined movement of vegetation and conductors during routine winds, and sagging of conductors due to elevated temperatures or icing.

2. Where pruning trimming or removal is not practical, the conductor should be separated from the tree with suitable materials or devices to avoid conductor damage by abrasion and grounding of the circuit through the tree.

B. At line crossings, railroad crossings and limited-access highway crossings

The crossing span and the adjoining span on each side of the crossing should be kept free from overhanging or decayed trees or limbs that otherwise might fall into the line.

EXHIBIT 2
PAGE 4



520 BUSINESS PARK CIRCLE, STOUGHTON, WI 53589-3399 • (608) 877-1170 - FAX: (608) 877-1172

VIA e-Mail

May 23, 2006

Mr. David Van Bossuyt
Portland General Electric Company
4245 Kale Street NE
Salem, OR 97305

RE: OPUC Compliance Evaluation Process

Dear Dave:

Attached are some suggested processes the OPUC staff might utilize to effectively evaluate compliance with whatever rules are established by the OPUC in regard to tree clearances.

Please let us know if you have any comments or questions or would like us to expand this in any way.

Sincerely,

Paul J. Appelt
Vice President, Consulting Services

Information Regarding Compliance Sampling Methods for Vegetation Management and Compliance Thresholds

Sampling Methods

As a reference, the OPUC staff may want to review the American National Standards Institute (ANSI) ASQ-Z1.4-2003 standard for "Sampling Procedures and Tables for Inspection by Attributes". This standard, used in manufacturing, provides guidance for establishing a sampling system and an "acceptance quality limit", or threshold, for the quality level that is the worst tolerable process average. While this standard is not designed for biological system sampling, as described below, it is a valid reference for quality assurance programs.

Biometric sampling methods used to estimate attributes of biologic systems are used commonly by the forest industry and many other disciplines needing to measure population characteristics through statistically valid sampling methodology. Biometric sampling methods applicable to determining compliance with tree-to conductor clearance standards by each of the electric utilities in Oregon should contain the following components:

1. Random samples should be taken from each utility's service territory, using a process that excludes "observer bias". Random selections should always be made before assigning audit sites to the inspector. Inspectors naturally gravitate toward some sites and away from others, due to presence or absence of certain attributes, ease of access or efficiency concerns. Designation of randomly selected sample points in advance of the survey or audit helps avoid this source of sampling bias.
2. Random samples may be collected from all possible locations within each utility's service territory. GIS can be used to plot numbered poles on maps, provided poles are numbered, exist in a database and are linked to maps. Random number tables or random number generators should be used select sample poles from a pole database. Other options include geographic selection of points from distribution system operating maps using random numbers on a grid overlay to determine sample locations.
3. Cluster sampling can be used to improve efficiency of the sampling process, whereby data would be gathered from several spans in the vicinity of a randomly selected point. Strict protocols need to be established, defining how to select components of the cluster.
4. Selection of sample size should be established through analysis of variance to achieve a desired sampling error for a specified level of confidence, i.e. ± 5 percent at the 95 percent level of confidence.
5. The various tests can be used to determine the statistical precision of the sample. Some tests could involve specialized computer programs, but regardless of the test used, they will all be comparing binomial or yes/no responses. The higher the level of compliance, the lower the number of sample points necessary to achieve a given level of precision. If the level of compliance were generally around 90 percent, then a smaller number of samples would be required than if the level of compliance were only around 60 percent.

Compliance Thresholds

It does not seem reasonable to establish a compliance threshold of 100 percent, since the cost of attainment, especially regarding tree clearance, would exceed the benefit of achieving 100 percent compliance. A 100 percent compliance threshold for most quality measures is reserved for highly critical activities. A more reasonable, but stringent threshold might be in the range of 90 to 95 percent compliance. This would mean that 5,000 to 10,000 trees out of every 100,000 trees could fail the clearance requirement before the program was out of compliance. Given that, in our view, there is little safety or reliability risk associated with initial non-compliance this might be a reasonable threshold. More important is the length of time an individual trees remain non-compliant. For example one non-compliant tree in 100,000 may be insignificant in terms of safety or reliability risk. However, if that individual tree remained non-compliant and continued to grow for several years, it could become a significant source of safety or reliability risk at that site.

There could also be different thresholds for different clearances prescribed. Because "infrequent" has not been quantified, perhaps it could be defined as less than 10 percent have branches closer than 3 feet to the conductors. Of the 10 percent allowed to be closer than 3 feet, perhaps no more than 5 percent of those could be allowed to "interfere" with conductors.

Since there is no risk basis to guide compliance thresholds these suggestions are arbitrary and have little relationship to changes in reliability or safety risks.