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**BEFORE THE
PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

Richard G. Wilbur as Trustee for the
Richard G. Wilbur Revocable Trust,

Complainants,

v.

Pacific Gas and Electric Company (U39E),

Defendant.

Case No. C.11-05-014

(Filed May 11, 2011)

**PACIFIC GAS AND ELECTRIC COMPANY
AMENDED RESPONSE TO THE DATA REQUEST OF ALJ KENNEY¹**

(PUBLIC VERSION – APPENDIX A REDACTED)

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Dated: May 24, 2012

¹ The Response is amended only to the extent that it makes public those exhibits previously identified as CE2, CE8 and CE9.

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At the July 8, 2011 Prehearing Conference, ALJ Kenney requested that Pacific Gas and Electric Company (“PG&E”) provide further information and supporting documentation on certain topics by July 15, 2011. On July 14, 2011, ALJ Kenney granted PG&E’s request to extend this deadline to July 22, 2011, and PG&E filed its response on that date. Pursuant to the Ruling of ALJ Kenney on May 21, 2012, PG&E respectfully submits this Amended Response to the Data Request of ALJ Kenney (“Amended Response”). This Amended Response is identical to the Response filed on July 22, 2011 with the sole exception being that PG&E is no longer claiming confidential protection for Exhibits CE 2, CE 8, and CE 9 and they are therefore attached to this public filing.

I. INTRODUCTION

As PG&E stated at the July 8, 2011 Prehearing Conference, the issue before the Commission is larger than the heights and growing patterns of one species of tree, growing solely on one property, under one section of transmission lines, and operating at one particular voltage.

This dispute is before the Commission because, as the California Third Appellate District recognized, it is the Commission which has the “ability to implement statewide

safety protocols from being undermined by an unworkable patchwork of conflicting determinations regarding what constitutes necessary or proper management of power lines.”² To incrementally rule on the application and implementation of PG&E’s Transmission Vegetation Management Program (“TVMP”), by focusing on discrete trees at discrete locations, raises the risk of creating just such an “unworkable patchwork.”

PG&E’s TVMP was designed to comply with the requirements of overlapping regulatory environments, best practices standards and to establish maintenance practices consistent with the goal of providing high quality, safe and reliable electric service. The 115 kV transmission lines at issue here are subject to the operational control of the California Independent System Operator Corporation (“CAISO”). As CAISO recognizes in its Transmission Control Agreement,³ a transmission owner and operator’s maintenance practices need to be flexible to “account for the myriad of equipment, operating conditions and environmental conditions within the ISO controlled grid.” PG&E’s TVMP was designed and implemented to address these “myriad” conditions. Flexibility in the design and implementation of maintenance practices is necessary to achieve the goal of ensuring the safety and reliability of the grid – a fact explicitly recognized by the overlapping responsible regulatory agencies.

The Commission here should determine that PG&E’s CAISO compliant TVMP is neither unreasonable nor unlawful in connection with the Commission’s orders, rules and decision and should deny Complainant’s request for injunctive relief.

² *Sarale et al. and Wilbur et al. v. PG&E* (2010) 189 Cal.App.4th 225, 231.

³ Appendix C, Section 2.

II. PG&E'S RESPONSES TO INFORMATION REQUESTS

Request No. 1: Is a complete copy of PG&E's Transmission Vegetation Management Program ("TVMP") in the record?⁴

PG&E Response: Served herewith and attached as Confidential Exhibit ("CE") 1 to Appendix A is a complete copy of PG&E's current TVMP (excluding the computer applications/databases referenced as *Appendix B* thereto). The TVMP (together with certain of its exhibits) is proprietary, and at the direction of ALJ Kenney, is being served concurrently with a Motion for Leave to File Under Seal.⁵

Request No. 2: Is a copy of the specific CAISO document approving PG&E's TVMP in the record?

PG&E Response: The term which CAISO uses is "adopted" rather than "approved." PG&E's Transmission Owner Maintenance Practices, Electrical Overhead Transmission Lines ("PG&E's Maintenance Practices"), which incorporates PG&E's TVMP, has been adopted by CAISO. PG&E is required by statute to report to CAISO on an annual basis that it has complied with PG&E's Maintenance Practices. As discussed herein, the "adoption" by CAISO of PG&E's Maintenance Practices, which include PG&E's TVMP, constitutes approval of the TVMP by CAISO.

A. The Purpose of CAISO is to Ensure the Efficient Use and Reliable Operation of the Transmission Grid

CAISO was created by statute to "ensure efficient use and reliable operation of the transmission grid consistent with achievement of planning and operating reserve criteria *no less stringent* than those established by the Western Electricity Coordinating Council [(“WECC”)] and the North American Electric Reliability Council [(“NERC”)].”⁶ Although created by state statute, CAISO is regulated by the Federal Energy Regulatory

⁴ Several of the documents responsive to ALJ Kenney's Data Request are confidential and proprietary. The confidential exhibits are included with Appendix A attached hereto and identified as "Confidential Exhibits" ("CE"). PG&E is concurrently serving herewith a Motion for Leave to file each of the documents contained in Appendix A under seal.

⁵ Rule 11.4.

⁶ Public Utilities Code § 345 (emphasis supplied.)

Commission (“FERC.”)⁷ To achieve the goal of the efficient use and reliability of the transmission grid, CAISO is required to “*adopt* inspection, maintenance, repair and replacement standards for the transmission facilities under its control,” and to require each transmission facility owner to report annually on its compliance with these standards.⁸

B. To Achieve its Purpose, CAISO Has Adopted Transmission Maintenance Standards

The standards adopted by CAISO are set forth in Appendix C of the Transmission Control Agreement that is part of CAISO’s tariff, which is subject to the jurisdiction of FERC.⁹ These standards apply to all transmission facilities under the operational control of CAISO. PG&E has submitted all of its facilities of 60 kV and above (with a few minor exceptions not relevant herein) to CAISO’s operational control.¹⁰

As set forth in the Transmission Control Agreement, CAISO recognized that flexibility was implicit in the goal of optimizing maintenance across a transmission system containing “diverse environmental and climactic conditions and diverse equipment and design practices.” To that end, CAISO required each PTO (Participating Transmission Operator) to prepare its own confidential Maintenance Practices, consistent with the requirements set forth in Appendix C. Each PTO’s adherence to its own Maintenance Practices is assessed by a CAISO review.¹¹ CAISO requires each PTO to include in its Maintenance Practices “a schedule for any time-based Maintenance activities and a description of conditions that will initiate any performance-based activities.”¹²

⁷ See www.aiso.com.

⁸ Public Utilities Code § 348 (emphasis supplied.)

⁹ See Comments of the California Independent System Operator Commission attached hereto as Exhibit 1 to Appendix B.

¹⁰ Transmission Control Agreement, Appendix C, Section 3, *Facilities Covered by These ISO Transmission Standards*, attached hereto as Exhibit 2 to Appendix B.

¹¹ *Id.* at Section 2, *Introduction*.

¹² *Id.* at Section 5.2.3., *Description of Maintenance Practices*.

C. **Pursuant to its Transmission Maintenance Standards CAISO Reviews and Adopts Each PTO's Maintenance Practices**

Before CAISO assumes operational control of a PTO's facilities, it reviews the proposed Maintenance Practices and may provide recommendations for an amendment. To the extent there are no recommendations, the PTO's Maintenance Practices are *adopted* by CAISO for that particular PTO.¹³

Pursuant to the terms of Appendix C of the Transmission Control Agreement, each PTO is required to adhere to its CAISO adopted Maintenance Practices. Once adopted, no changes can be made to the adopted Maintenance Practices without the express authorization of CAISO.¹⁴

Appendix C of the Transmission Control Agreement also requires each PTO to maintain and provide records to CAISO of its maintenance activities.¹⁵ CAISO may seek FERC permission for the imposition of penalties on a PTO should the PTO (a) exhibit significant degradation trends in availability due to Maintenance; or (b) is grossly or willfully negligent with regard to Maintenance.¹⁶ In addition to other actions or relief, CAISO may also impose a sanction in the amount of \$10,000 on a PTO for failing to take such "operating and maintenance practices necessary to avoid contributing to a major Outage or a prolonged response time."¹⁷

Pursuant to Appendix C of the Transmission Control Agreement, each PTO is required to operate its transmission facilities in accordance with Good Utility Practice, sound engineering judgment, the Transmission Control Agreement and all other

¹³ *Id.* at Section 5.3.1., *Initial Adoption of Maintenance Practices*.

¹⁴ *See, e.g.* April 19, 2011 correspondence from CAISO to PG&E re: Revised Pacific Gas and Electric (PG&E) Electric Overhead Transmission Line Maintenance Practices attached hereto as Exhibit CE 2 to Appendix A.

¹⁵ Transmission Control Agreement, Appendix C, Section 6, *Maintenance Record Keeping and Reporting*, attached hereto as Exhibit 2 to Appendix B.

¹⁶ *Id.* at Section 9.3, *Imposition of Penalties in Absence of a Formal Program*.

¹⁷ CAISO Fifth Replacement Tariff, April 1, 2011, Section 37.2.3.2., attached hereto as Exhibit 3 to Appendix B.

applicable laws and regulations.¹⁸ In the event there is a conflict between safety and reliability, the jurisdictional agency regulations for safety shall take precedence.¹⁹

Here, PG&E has developed its own PG&E Maintenance Practices which were first adopted by CAISO on January 7, 1998. PG&E's Maintenance Practices are attached hereto as Exhibit CE 3 to Appendix A (the Maintenance Practices are also attached as Exhibit CE 1.1 to PG&E's TVMP). PG&E's TVMP (and its appendices) are specifically incorporated by reference into PG&E's Maintenance Practices and have therefore been adopted by CAISO. PG&E is required to report to CAISO annually and confirm compliance with its Maintenance Practices and its TVMP.

Correspondence indicating CAISO approval and adoption of PG&E's Maintenance Practices (which include its TVMP), is attached hereto as Exhibit 4 to Appendix B. Also, attached hereto as Exhibit CE 4 to Appendix A are relevant portions of CAISO's 2010 Maintenance Review - Final Report ("CAISO Maintenance Review"). CAISO states that vegetation management is under "ISO operational control."²⁰ CAISO also confirms that as part of its Maintenance Review, it visited selected line sections, including four 115 kV transmission lines, for the purpose of (among other things) reviewing vegetation management on those 115 kV lines.²¹ Part of CAISO's review entails documenting any "deviations to the maintenance practices."²² This would include "deviations" from the TVMP. CAISO categorizes "deviations" as "findings, concerns, or observations."²³ CAISO further states that "[f]indings' are deviations related to a similar cause that indicates a systemic problem with adherence to the maintenance practices; 'concerns' are deviation(s) related to a similar cause that indicates a local

¹⁸ Transmission Control Agreement, Appendix C, Section 10, *Compliance with Other Regulations/Laws* attached hereto as Exhibit 2 to Appendix B.

¹⁹ *Id.* at Section 10.1, *Safety*.

²⁰ CAISO's 2010 Maintenance Review - Final Report, page 3.

²¹ *Id.* at page 4.

²² *Id.* at page 5.

²³ *Id.*

problem with adherence to the maintenance practices; and ‘observations’ are deviation(s) that do not indicate a systemic or local problem.”²⁴

Request No. 3: Has PG&E’s TVMP been formally approved by any of the following entities: WECC, NERC or FERC?

PG&E Response: FERC, and in turn NERC, delegated responsibility for auditing PG&E’s Maintenance Practices to WECC. PG&E’s Maintenance Practices (including its TVMP) have been audited by WECC and found to be in compliance.²⁵ The relationship between PG&E and these federal agencies is set forth in more detail herein.

A. The Bulk Power System

FERC, NERC and WECC have various oversight and control with respect to the bulk power system. The “bulk power system” has been described as including “generating units, transmission lines and substations, and system controls.”²⁶ The transmission component (*generally operated at 100 kV or higher*) provides for the movement of power in bulk to points of distribution for retail customers.²⁷ The distribution system moves the electricity to where the retail customers consume it at a home or business.²⁸ Here, the lines at issue are 115 kV transmission lines and therefore form part of the bulk power system.

B. The Delegation of Authority to NERC and WECC

Pursuant to 16 U.S.C. § 824o(a)(2), Electric Reliability, FERC was required to certify an organization, identified as an Electric Reliability Organization (“ERO”), whose purpose is “to establish and enforce reliability standards for the bulk-power system,

²⁴ *Id.*

²⁵ See WECC Compliance Audit Report, Public Version, November 16-19 2010, attached as Exhibit 5 to Appendix B, and relevant portions of WECC Compliance Audit Report, Confidential Non-Public Version, November 16-19 2010, attached as Exhibit CE 5 to Appendix A.

²⁶ See excerpts from the Mandatory Reliability Standards for the Bulk Power System, 18 CFR Part 40, Issued March 16, 2007, page 10, fnt. 20, page 26, fnt. 47, attached as Exhibit 6 to Appendix B. See also 16 U.S.C. 824o(a)(1).

²⁷ *Id.*

²⁸ *Id.*

subject to Commission review.” FERC designated NERC as the ERO.²⁹ NERC was granted the authority to delegate authority to a regional entity for the purpose of proposing reliability standards and enforcing same.³⁰ WECC is one such regional entity.

C. **The Mandatory Reliability Standards**

Although some Reliability Standards established and enforced by WECC, NERC and FERC apply to transmission lines operated at 100 kV and above, at this time the Reliability Standards pertaining to vegetation management apply only to transmission lines operated at 200 kV or higher, and those lines deemed critical to reliability.³¹ FERC rejected a request by the CPUC that individual states should have discretion over what lines should be deemed critical stating that FERC “has been given the responsibility to approve Reliability Standards that assure the Reliable Operation of the Bulk-Power System, including which facilities are covered by the Reliability Standards. We cannot delegate that responsibility as proposed by the CPUC.”³²

NERC and WECC have developed a Compliance Monitoring and Enforcement Program to “monitor, assess and enforce compliance with Reliability Standards.” This Compliance Program includes an audit of PG&E’s (and other utilities’) records and activities to determine whether PG&E has met the requirements of the applicable Reliability Standards. PG&E’s TVMP is included in those audits to ensure that it is in compliance with FAC-003-1.³³

²⁹ *Id.* at page 1.

³⁰ 16 U.S.C. § 824o(e)(4).

³¹ FAC-003-1

³² See excerpts from the Mandatory Reliability Standards for the Bulk Power System, 18 CFR Part 40, Issued March 16, 2007, at page 201, ¶ 707; see also FERC comments on Transmission Vegetation Management Program (FAC-003-1) at pages 198 – 209; ¶¶ 694 – 735, attached as Exhibit 6 to Appendix B.

³³ See WECC Compliance Audit Report, Public Version, November 16-19 2010, attached as Exhibit 5 to Appendix B, and relevant portions of WECC Compliance Audit Report, Confidential Non-Public Version, November 16-19 2010, attached as Exhibit CE 5 to Appendix A.

Request No. 4: Has WECC, NERC or FERC formally approved or ratified CAISO’s approval of PG&E’s TVMP?

PG&E Response: FERC, NERC and WECC are federal entities. CAISO is an entity created by state statute, but which is regulated by FERC.³⁴ PG&E is unaware of specific federal approval of CAISO’s adoption of PG&E’s TVMP. However, FAC-003-1 requires the establishment of a vegetation management program and the WECC audit confirms that PG&E’s TVMP is in compliance with FAC-003-1. Investigation is continuing and PG&E respectfully reserves the right to amend and/or supplement this response.

Request No. 5: Is PG&E’s vegetation management for the 115 kilovolt transmission line on Complainant’s property subject to the jurisdiction of WECC, NERC or FERC?

PG&E Response: At this time, the NERC vegetation management reliability standard (FAC-003-1) is applicable only to transmission lines operating at 200 kV and above (and certain other lines deemed “critical”). As such, the transmission lines on Complainant’s property are not “NERC lines” for purposes of vegetation management. However, since the 115 kV transmission line is part of the bulk power system and since FERC, NERC and WECC have various other oversight responsibilities regarding the bulk power system, including lines 100 kV and above, the 115 kV line is subject to their jurisdiction. Certainly FERC has expressed its “concern[] that the bright-line applicability threshold of 200 kV (for vegetation management) will exclude a significant number of transmission lines that could impact Bulk-Power System reliability.”³⁵ Investigation is continuing and PG&E respectfully reserves the right to amend and/or supplement this response.

³⁴ www.caiso.com

³⁵ See excerpts from the Mandatory Reliability Standards for the Bulk Power System, 18 CFR Part 40, Issued March 16, 2007, page 200, ¶ 706, attached as Exhibit 6 to Appendix B.

Request No. 6: Is the 115 kV transmission line on Complainant’s property subject to NERC Standard FAC-003-1?

PG&E Response: The 115 kV transmission line on Complainant’s property is not currently subject to NERC Standard FAC-003-1.

Request No. 7: Does PG&E’s TVMP preempt the Commission’s General Order 95 with respect to the vegetation management on Complainant’s property?

PG&E Response:

A. PG&E’s TVMP Complies with and Complements GO 95

The Commission has recognized that its “rules were not intended to represent an exhaustive scheme of rules and procedures.”³⁶ In its Amicus Curiae Brief, the Commission confirmed that with respect to mandated vegetation clearance distances: “We are selecting a safe minimum standard to insure system safety and reliability, but we are not adopting comprehensive rules and proceduresIn recognition of this circumstance, we decline to adopt a declaration of our jurisdiction. . . .In our view such a course would be fraught with the danger of acting outside the scope of our authority in this proceeding.”³⁷

PG&E’s TVMP complies with and complements GO 95 in that it has been designed and implemented to meet the minimum standards and guidelines contained in GO 95 in order to ensure the safe and reliable operation of bulk transmission facilities and to prevent vegetation outages that could lead to widespread cascading failures. In addition, the TVMP is designed to ensure that PG&E meets or exceeds other state and federal laws and regulations including:

1. PG&E’s Transmission Maintenance Practices, approved and enforced by CAISO. (CAISO has operational control over the transmission facilities and it has reviewed and adopted PG&E’s Maintenance Practices, which include PG&E’s TVMP. The standards adopted by CAISO are the most stringent and PG&E is required to follow them.)

³⁶ See, Amicus Curiae Brief of the Public Utilities Commission of the State of California Upon Request of the Court of Appeal, page 14, filed May 17, 2010 in the *Sarale et al. and Wilbur et al. v. PG&E* (2010) 189 Cal.App.4th 225, 231 (“Amicus Curiae Brief”), attached hereto as Exhibit 7 to Appendix B.

³⁷ *Id.* (citing *Re San Diego Gas and Electric Company* [D:97-01-004] (1996) 68 Cal.P.U.C.2d 693, 699.)

2. Public Resource Code 4292 (Power lines, firebreaks.)
3. Public Resource Code 4293 (Fire protection responsibility, power line owners or operators.)
4. North American Electric Reliability Council (NERC) Standards for Vegetation Management, FAC-003-01.

B. Limiting PG&E to Trimming to a Height of 12 Feet Would Be Contrary to the Commission’s Practice of Not Setting Maximum Clearances

GO 95 sets minimum clearance standards for vegetation management – it does not set maximum clearance standards. The practical effect of restricting PG&E to a 12 foot trim is to set a maximum clearance standard.³⁸ This is something the Commission has previously refused to do. To the contrary, it has held that “[t]he question of appropriate tree trimming standards and practices has a broad reach, encompassing issues of worker safety, public safety, fire suppression, and environmental consequences, as well as those relating to individual property owners’ aesthetic values and property rights. The issues are complex and interrelated.”³⁹ The Commission has further held:

“Rule 35, as it is presently drafted, does not fix a maximum limit on the amount of trimming which a utility is permitted to do on easements under its power lines. The intent of the rule is to “insure adequate service and secure safety to persons engaged in the construction, maintenance, operation or use of overhead electrical lines and to the public in general.” (GO 95, Rule 11.) It must, therefore, be construed to fix a minimum, rather than a maximum, standard to effectuate the general safety and reliability purposes of GO 95. *We disagree that the reasonableness language in Rule 35 should be construed as a safeguard for the individual property owner.*”⁴⁰

³⁸ PG&E notes that trimming Complainant’s walnut trees to a height of 12 feet ensures compliance with the minimum clearance levels in PG&E’s CAISO adopted TVMP only if PG&E trims multiple times per year.

³⁹ *Bereczky v. SoCal Edison* (1996) 65 C.P.U.C.2d 145 *7 (Attached hereto as Exhibit 8 to Appendix B.)

⁴⁰ *Id.* at * 4-5 (emphasis supplied.) See also, *Morgan v. PG&E* (1987) 25 C.P.U.C.2d 393 *2(“There is no statute or regulation which sets maximum separations. GO 95 requires a tree trimming program but specifies the objectives to be achieved, not specific clearances.”)(Attached hereto as Exhibit 9 to Appendix B.)

Request No. 8: Will the reconductoring project increase the required minimum clearance or time of trim clearance under GO 95 or the TVMP?

PG&E Response: The reconductoring project affects only two of the three transmission lines traversing Complainant's property. It will not increase the minimum clearance or time of trim clearance guidelines under GO 95 or the TVMP requirements.

Request No. 9: Will the reconductoring project increase the voltage rating of the transmission lines on Complainant's property?

PG&E Response: No.

Request No. 10: Does PG&E know the actual height of the transmission line conductors at all points on Complainant's property?

PG&E Response: PG&E owns and operates 113,000 miles of distribution lines and 19,500 miles of transmission lines throughout its service territory in Northern California. To put this in perspective, combined, these power lines would stretch around the earth 5 times. PG&E's vegetation management program inspects every mile, of every line, every year for vegetation clearance issues, which involves approximately 50 million trees. Because the height of electric power lines (and especially transmission lines) can vary significantly depending on weather, load, terrain, length of span and many other factors, the PG&E vegetation management program must assume that the power lines may sag to the minimum ground-to-line clearances allowed by General Order 95, and manages the trees below and adjacent to those lines accordingly. It would be neither practical nor realistic to expect the vegetation management program to establish precise line heights for each span on each circuit (which would require consulting engineering design drawings or doing engineering calculations based on surveys to establish the exact "as built" height) and vary its trimming of millions of trees to match.

As to the Wilbur property, PG&E owns, operates and maintains two sets of 115kV transmission lines and associated towers which cross Complainant's Property on PG&E's easement. One is a double circuit 115kV line and the other is a single circuit

115kV line.⁴¹ PG&E can provide the following information with respect to the heights of the conductors:

Palermo-East Nicolaus (Double Circuit line):

Attached hereto as Exhibit CE 6 to Appendix A are the engineering design profiles for that portion of the reconductoring project traversing Complainant's property. These profiles show the line between structure 23/179 (Existing tower number) and structure 24/184 (Existing tower number). The profile catenary curve is based on the maximum allowable conductor operating temperature of 185 degrees Fahrenheit for the proposed new line. The proposed line was designed based on a survey performed in 2006.

Pease-Rio Oso (Single Circuit Line):

Attached hereto as Exhibit CE 7 to Appendix A is an engineering design profile for the single 115 kV line that is not being affected by the reconductoring project. The profile shows the line between structure 23/171 and structure 24/176. The profile catenary curve is based on the maximum allowable conductor operating temperature of 120 degrees Fahrenheit.⁴² The minimum distance to ground shown on the profile was calculated based on a survey conducted in March 2011 on the section in question.

Request No. 11: Can PG&E state whether there has ever been physical contact between the transmission line conductors on the property and the walnut trees?

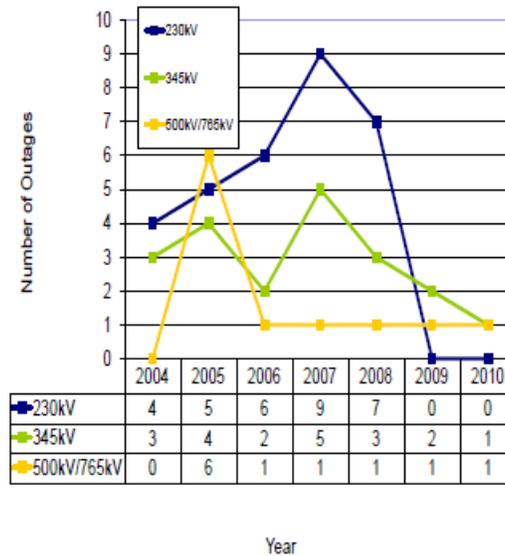
PG&E Response: PG&E is not aware of actual physical contact between the transmission line conductors on the property and the walnut trees at the Wilbur orchard. PG&E is continuing to investigate this issue. However, PG&E has had to do additional and repeated inspections and pruning to ensure that the walnut trees remain in compliance with the clearance levels set forth in its TVMP and prevent any physical

⁴¹ See photograph at Exhibit 10 to Appendix B.

⁴² The maximum allowable operating temperature and associated rating for this line has been reduced following a recent engineering assessment that one span on the line going over the Wilbur property would otherwise be out of compliance. PG&E is adjusting the line in that one span to again allow normal transmission operation.

contact during the pendency of the litigation with Complainant.⁴³ PG&E can provide the following information about both the general transmission industry experience associated with vegetation contacts as well as specific instances of contacts in California and elsewhere.⁴⁴

Figure 2: Category 1—Grow-In Vegetation Related Outages of 230 kV and Higher Transmission by Voltage Class



Over the past five years, PG&E has experienced 214 vegetation related outages on its high-voltage transmission power lines, 207 of which were on “non-NERC lines” (i.e. outages were on 115 kV and 60/70 kV lines). One of these was a growth related incident wherein a century plant flowered and grew 25 feet in a 5 week period, and contacted a “NERC” line. As to outages caused by walnut trees during this time period on 115 kV lines, there were two; one was caused in May 2011 by a branch failure on a black walnut tree, while the other occurred in May 2010 when a contractor, using equipment to take down walnut trees in an orchard, pushed an approximately 48 foot English walnut tree into the 115 kV line.

⁴³ See also PG&E’s Response to Request No. 13.

⁴⁴ Graphic excerpted from NERC Vegetation-Related Transmission Outage Report, Fourth Quarter 2010, attached as Exhibit 11 to Appendix B.

Other examples include an August 28, 2004 interruption in service which occurred on the 230 kV Bellota line as a result of contact with a walnut tree. In this case, the property owner had a history of resisting tree trimming. At the time of scheduled trimming the PG&E contractor did not achieve the clearances required by PG&E's standards (although minimum clearances were obtained), which later resulted in this service interruption.

As a further example, on July 9, 2002, a 230 kV line in the Sierra Division sagged due to load and high temperatures into a single cottonwood (not an orchard tree). This resulted in a momentary outage. A sustained outage on that line could have resulted in rolling blackouts throughout California and potentially the entire West Coast. The cottonwood is a fast growing species which can grow to heights that will conflict with the maximum sag level of a transmission line. It is incompatible growth beneath a high voltage power line and, to avoid incidents such as this, PG&E's TVMP now calls for removal of such trees.

There are examples of outages on lines owned and operated by other utilities which have experienced outages as a result of vegetation grow-ins. The 2003 East Coast blackout, which affected portions of the Northeastern and Midwestern United States and Canada, was determined by a joint federal task force to have been principally caused by a walnut tree coming into contact with transmission lines. Similarly, two west coast blackouts occurred in 1996 due to vegetation grow-ins. Additionally, in 2007 an almond tree contacted a 230 kV line owned by the Modesto/Turlock Irrigation District causing an outage.

Request No. 12: Is the status quo still in effect such that PG&E is currently trimming to a height of 12 feet?

PG&E Response: PG&E is currently trimming walnut trees in the Wilbur orchards to a height of 12 feet. (See photographs attached hereto as Exhibit 12 to Appendix B.)

Request No. 13: **Historically, how often has PG&E trimmed the walnut trees?**

PG&E Response:

PG&E provides herein a history of trimming in the Wilbur orchards (both for the mature orchard and for the orchard planted in the 2005/06 time period) since the initiation of litigation by Complainant.⁴⁵

HISTORY OF VEGETATION MANAGEMENT AT THE WILBUR ORCHARDS	
<u>2008 Trimming Season:</u>	
<u>Date</u> Activity	<u>Performed</u>
12/10/2007 Annual	inspection at which it was determined that the walnut trees in the mature orchard needed to be trimmed to 7 feet to ensure compliance with minimum clearance levels.
02/15/08	PG&E meets with Complainant to discuss the planting and trimming of walnut trees in close proximity to the high voltage electric lines.
02/27/08	PG&E offers Complainant the Orchard Removal Program.
03/14/08	PG&E again offers Complainant the Orchard Removal Program, which is rejected. PG&E is advised that Complainant was self-trimming the trees.
05/13/08 PG&E	measures and documents tree heights.
05/15/08	PG&E offers Complainant a “re-Growth Test” to determine growth rates, which is rejected by Complainant.
05/22/08	TRO granted limiting PG&E to 12 feet trimming in the

⁴⁵ In this case, the trial court properly found that PG&E was “not limited to ‘historical’ use of the easement, but may comply with the commission requirements, even to the extent that compliance exceeds ‘historical use.’” This finding was not disturbed on appeal. *Sarale et al. and Wilbur et al. v. PG&E, supra*, at 235, 246. Indeed, the Court pointedly noted that commission requirements with respect to minimum mandated clearances can change over time without affecting a utility’s easement rights. “The commission’s tree trimming regulation does not apply a new, different, or additional use to the easement but seeks only to correct a practice that turned out to be unsafe under previous formulation. In short, the commission’s guidelines for tree trimming addresses continuing safety concerns applicable to overhead power lines.” (*Id.* at 241).

It is well-established that an express easement is not limited to historical use and is intended to accommodate future needs. *See e.g. Camp Meeker Water System, Inc. v. Public Utilities Commission* (1990) 51 Cal.3d 845, 867. *See, also, Faus v. Los Angeles* (1967) 67 Cal.3d 350 (easement will accommodate future needs such that easement originally granted to transportation agency for trolley use can be used for bus service.)

	easement.
5/27/2008	PG&E measures and marks trees in the easement.
5/29/2008	First trimming of walnut trees in the easement (mature orchard) to only 12 feet to comply with TRO.
6/19/2008 PG&E	measures growth of trees since 05/27/08 trimming.
6/26/2008	PG&E again measures growth of trees since 05/27/08 trimming.
7/22/2008	Second trimming of same walnut trees in the mature orchard to only 12 feet to comply with the TRO.
8/1/2008	Third inspection to determine growth. Noted: irrigation was pinched off (stopped) only on trees growing within the easement.
8/15/2008	Fourth inspection to determine growth. Noted: Wilbur is self-trimming water sprout growth (shoots which grow from where tree last trimmed). ⁴⁶
8/29/2008 PG&E	measures/documents trees heights.
9/12/2008	Third trimming of same trees in the mature orchard to only 12 feet to comply with the TRO. This completed trimming for the 2008 growth period.

<u>2009 Trimming Season:</u>	
<u>Date</u> Activity	<u>Performed</u>
11/19/2008 Annual	inspection.
1/30/2009	First trimming of trees within the mature orchard to only 12 feet to comply with the TRO.
5/21/2009	Documentation of tree growth.
7/1/2009	Further documentation of tree growth.
7/7/2009 Second	inspection.
7/8/2009	Second trimming of same trees within mature orchard and first trimming of trees in young orchards to only 12 feet to comply with the TRO.
8/20/2009	Documentation of tree growth.
9/10/2009	Documentation of tree growth.
9/16/2009	Second trimming of same walnut trees in young orchard to only 12 feet to comply with the TRO.
9/25/2009	Third trimming of same walnut trees in mature orchard to only 12 feet to comply with the TRO. This completed trimming for the 2009 growth period.

⁴⁶ PG&E had previously sent Complainant notification of the hazards of hiring his own contractor or attempting to do his own line clearance pruning; the letter also advised of the various regulations in place governing same. See Exhibit 14 to Appendix B.

<u>2010 Trimming Season:</u>	
<u>Date Activity</u>	<u>Performed</u>
12/23-28/2009 Annual	inspection.
4/19/2010	PG&E noted that Complainant had <u>self-trimmed</u> to the previous cuts (12 feet) and therefore cancelled the first scheduled trimming.
8/3/2010 Second	inspection to document tree growth.
8/4/2010	<u>“Second” trimming</u> (first was a self-trim) of both orchards to 12 feet only.

<u>2011 Trimming Season:</u>	
<u>Date Activity</u>	<u>Performed</u>
1/6/2011 Annual	inspection.
5/23-24/2011	<u>First trimming</u> of both orchards to 12 feet only.

Request No. 14: **How much will a mature, pruned 12 foot walnut tree grow per year?**

PG&E Response: The growth rate of a mature walnut tree is dependent on numerous factors including, but not limited to, the species of walnut tree, irrigation practices, age of orchard, extent of pruning, etc. Attached hereto as Exhibit CE 8 to Appendix A is a chart documenting the average re-growth of walnut trees during a six month growing period in an orchard in San Joaquin County in 2006. This orchard is similar to Complainant’s orchard. Trees were initially trimmed to 7 feet, 12 feet and 20 feet. Re-growth rates were as follows:

<u>Height of Tree</u>	<u>Rate of Re-Growth</u>	<u>Potential Tree Heights After Re-Growth⁴⁷</u>
8 feet	Average of 15 feet; 17 feet was the most re-growth.	25 feet
11 feet	Average of 12 feet; 15 feet was the most re-growth.	26 feet
19 feet	Average of 9 feet; 13 feet is the most re-growth	32 feet

For trimming purposes, PG&E needs to use the most re-growth; it takes only one tree to cause a public safety hazard or power outage.

Attached hereto as Exhibit 13 to Appendix B are photographs showing “water sprout” or “shoot” growth in an orchard in San Joaquin County. These show growths of above 15 feet in one year. PG&E has documented growth on a walnut tree as much as 18 feet in one year.

PG&E respectfully reserves the right to submit expert testimony on this and other related issues.

III. OTHER ISSUES RELEVANT TO THE DATA REQUEST OF ALJ

KENNEY

A. PG&E’s Orchard Removal Program

PG&E recognizes that its need to obtain necessary tree-line clearance through pruning can impact nut production in orchards. Accordingly, since 2005, PG&E has offered a financial incentive through its Orchard Removal Program to qualified growers to remove incompatible trees such as walnuts and almonds from under transmission lines and replace them with compatible vegetation such as row crops, vines, trees that reach a mature height no higher than ten (10) feet and manually-harvested fruit trees that are maintained no higher than fifteen (15) feet. To date, over 100 orchard owners, representing a total of 1,200 acres have participated in this program. PG&E has offered

⁴⁷ PG&E’s TVMP requires a 10 foot clearance (“no-grow zone”) between the vegetation and the GO 95 minimum ground-to-line clearance of 27 feet; this would allow a maximum tree height of 17 feet **after regrowth**.

Complainant the Orchard Removal Incentive Program. Complainant however, has refused to participate.

B. PG&E's UC Davis Study

In 2008, in a further effort to work with orchard growers, PG&E commissioned a study with UC Davis to test whether certain walnut stock can be trained to grow to a height not exceeding 17 feet at natural maturity. In connection with this study, certain orchard growers agreed to “work collectively, collaboratively and within specific terms and conditions in order to test the agronomic and economic feasibility of establishing and maintaining walnut trees in high density and mature tree heights not exceeding 17 feet.”⁴⁸ This study is still ongoing. PG&E estimates that it will take several more years of growth before definitive conclusions can be drawn.

C. PG&E's Efforts to Educate Property Owners About Compatible Growth

Since at least 2005, PG&E has been periodically sending letters to various property owners who had a transmission line traversing their properties, advising that vegetation growing within certain distances of transmission lines can create safety hazards and the potential for widespread power outages. In 2010, PG&E began sending such letters to *all* property owners with transmission lines traversing their properties. Included with these later letters is a brochure, “Trees and Reliable Power,” which provides further detail.⁴⁹ As a property owner with transmission lines traversing his property, Complainant received at least one copy of this letter and brochure.

⁴⁸ Memorandum of Understanding for Short Stature Walnut Plantings for Electrical Transmission Corridors – New Plantings Test. This document and certain other documents relating to the UC Davis study are attached hereto as Exhibit CE 9 to Appendix A.

⁴⁹ 2010 and 2011 versions of this letter, together with the referenced “Trees and Reliable Power Brochure” are attached hereto as Exhibit 15 to Appendix B.

Additionally, PG&E alerted growers through the press of the dangers of planting beneath power lines.⁵⁰

D. PG&E’s TVMP Supports Worker Safety

Various employee safety standards have been developed to ensure worker safety in the vicinity of transmission lines.⁵¹ The importance of taking these standards into consideration when developing minimum clearances levels was upheld by FERC. FERC rejected a request that Institute of Electrical and Electronics Engineers (“IEEE”) Standard 516 be used as the basis to develop minimum clearances noting:

[FERC] declines to endorse the use of IEEE 516 as the only minimum clearance because it is intended for use as a guide by highly-trained maintenance personnel to carry out live-line work using specialized tools under controlled environments and operating conditions, not for those conditions necessary to safely carry out vegetation management practices. Further, the allowable clearances in the IEEE standard are significantly lower than those specified by the relevant U.S. safety codes. As such, use of IEEE clearance provision as a basis for minimum clearance prior to the next tree trimming as a Requirement in vegetation management is not appropriate for safety and reliability reasons. For example, the IEEE Standard 516-2003 specifies a 2.45-foot clearance from a live conductor for the 120 kV voltage class, whereas the ANSI Z-133 standard specifies 12 feet, 4 inches as the approach distance for the 115 kV voltage class.⁵²

Cal OSHA also sets forth regulations for minimum approach distances (“MAD”) for power lines.⁵³ Cal. Code Regs., tit. 8, § 2946 includes two tables – Table 1 applies to

⁵⁰ Attached hereto as Exhibit 16 to Appendix B is an article entitled “Look Up Before You Plant”, by Bob Fratini of PG&E’s Vegetation Management Department printed in the October 2007 edition of the County Farm Bureau October 2007 Newsletter (circulated to all Central Valley County Farm Bureau members.)

⁵¹ These standards include, but are not limited to CalOSHA standards, Fed OSHA standards, ANSI Z133.1 standards, IEEE 516 standards, Cal. Penal Code § 385(b) (“Any person who either personally or through an employee or agent, or as an employee or agent of another, operates, places, erects or moves any tools, machinery, equipment, material building or structure within six feet of a high voltage overhead conductor is guilty of a misdemeanor.”)

⁵² Mandatory Reliability Standards for the Bulk Power System, 18 CFR Part 40, Issued March 16, 2007, page 208, ¶ 731, attached hereto as Exhibit 6 to Appendix B.

⁵³ Attached hereto as Exhibit 15 to Appendix B.

situations where there is no mechanical boom-type equipment being used, while Table 2 applies when there is lifting equipment used around the conductors.

For a 115-kV line, Cal OSHA requires 13 feet of clearance *at all times* for unqualified line workers. This Cal OSHA distance is distinct from the "time of trimming" term used in Rule 35, Appendix E. An orchard tree that is trimmed only to 10 feet from the conductor at the time of trimming (minimum set forth in Appendix E) means the orchard worker (unless he is a qualified line worker) would be in violation of Cal OSHA if using equipment on a tree that is within 13 feet of the electric line. PG&E attaches hereto as Exhibit 16 to Appendix B a chart setting forth the minimum approach distances required by Cal OSHA, Fed OSHA and ANSI Z133.1 1994.

IV. CONCLUSION

PG&E thanks the Commission for the opportunity to provide this additional information. PG&E can provide further information where needed and may supplement should additional responsive information become available.

Respectfully submitted,

By: 

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Dated: May 24, 2012

Table of Contents

Appendix A Exhibits (Confidential Materials)

Exhibit Number	Title
Exhibit CE 1	PG&E’s Transmission Vegetation Management Program (“TVMP”)
Exhibit CE 2*	<p>April 19, 2011 correspondence from CAISO to PG&E re: Revised Pacific Gas and Electric (PG&E) Electric Overhead Transmission Line Maintenance Practices</p> <p>*PG&E no longer seeks confidential treatment for this document and it is attached to the public version of PG&E’s Amended Response to the Data Request of ALJ Kenney.</p>
Exhibit CE 3	PG&E’s Transmission Owner Maintenance Practices
Exhibit CE 4	CAISO 2010 Maintenance Review
Exhibit CE 5	“WECC” Compliance Audit Report, Confidential Non-Public Version, November 16-19 2010
Exhibit CE 6	Engineering Drawings for Portion of Reconductoring Project Traversing Complainant’s Property (Palermo East-Nicolaus)
Exhibit CE 7	Engineering Drawings for Single 115 kV Line Not Affected by Reconductoring Project (Pease-Rio Oso)
Exhibit CE 8*	<p>Chart Documenting the Average Re-growth of Walnut Trees for Six-Month Period in San Joaquin County (2006)</p> <p>*PG&E no longer seeks confidential treatment for this document and it is attached to the public version of PG&E’s Amended Response to the Data Request of ALJ Kenney.</p>
Exhibit CE 9*	<p>Memorandum of Understanding for Short Stature Walnut Plantings for Electrical Transmission Corridors - New Plantings Test; New Plantings Test Program Grower Proposal; Grower Cooperator Site Plan</p> <p>*PG&E no longer seeks confidential treatment for this document and it is attached to the public version of PG&E’s Amended Response to the Data Request of ALJ Kenney.</p>

Appendix B Exhibits
(Including CE 2, 8, 9)

Exhibit Number	Title
Exhibit 1	Comments of the California Independent Systems Operator Commission
Exhibit 2	Transmission Control Agreement
Exhibit 3	CAISO Fifth Replacement Tariff, April 1, 2011
Exhibit 4	Correspondence Indicating CAISO Approval and Adoption of PG&E's Transmission Maintenance Practices (November 6, 2008)
Exhibit 5	"WECC" Compliance Audit Report, Public Version, November 16-19 2010
Exhibit 6	Mandatory Reliability Standards for the Bulk Power System, 18 CFR Part 40, Issued March 16, 2007; FERC comments on Transmission Vegetation Management Program (FAC-003-1)
Exhibit 7	Amicus Curiae Brief of the Public Utilities Commission of the State of California Upon Request of the Court of Appeal, page 14, filed May 17, 2010 in the Sarale et al. and Wilbur et al. v. PG&E (2010) 189 Cal.App.4th 225
Exhibit 8	<i>Bereczky v. SoCal Edison</i> (1996) 65 C.P.U.C.2d 145
Exhibit 9	<i>Morgan v. PG&E</i> (1987) 25 C.P.U.C.2d 393
Exhibit 10	Aerial Photograph Showing the Location of PG&E's Transmission Facilities and Complainant's Orchards
Exhibit 11	NERC Vegetation-Related Transmission Report, Fourth Quarter 2010
Exhibit 12	Tree Trimming Photographs (trimming to a height of 12 feet)
Exhibit 13	"Water sprout" or "Shoot" Growth Photographs from an Orchard in San Joaquin County
Exhibit 14	Letter dated March 3, 2008 from PG&E to Mr. Wilbur (redacted to exclude Mr. Wilbur's address)
Exhibit 15	2010 and 2011 Property Owner Letter re PG&E High Voltage Transmission Lines – easement restrictions; Trees and Reliable Power Brochure
Exhibit 16	"Look up before you plant," by Bob Fratini of PG&E's Vegetation Management Department. Printed in the October 2007 edition of the County Farm Bureau October 2007 Newsletter (circulated to all Central Valley County Farm Bureau members).
Exhibit 17	Cal OSHA Regulations for Minimum Approach Distances
Exhibit 18	Chart for Minimum Approach Distances Required by Cal OSHA, FED OSHA and ANSI Z133.1 1994
Exhibit CE 2	April 19, 2011 correspondence from CAISO to PG&E re: Revised Pacific Gas and Electric (PG&E) Electric Overhead Transmission Line Maintenance Practices *PG&E no longer seeks confidential treatment for this document

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APPENDIX B (including Exhibits CE 2, CE 8, and CE 9) is not E-filed with the Amended Response to the Data Request of ALJ Kenney

Instead, due to their size, these documents were separately submitted in Paper form (Original) and in CD-ROM form (copies), and were separately filed in this Docket.