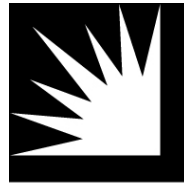


Application No.: 12-12-013
Exhibit No.: SCE-2
Witnesses: Thomas J. Palmisano
David H. Opitz



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(U 338-E)

***Testimony On The Nuclear Decommissioning Of
SONGS 2 & 3 And Palo Verde***

Before the

Public Utilities Commission of the State of California

Rosemead, California
December 21, 2012

Testimony On The Nuclear Decommissioning Of SONGS 2 & 3 And Palo Verde

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1 I.

2 **POLICY**

3 Until Commission Decision 06-11-025, Southern California Edison Company (SCE) owned a
4 75.05% interest in San Onofre Nuclear Generating Station Units 2 and 3 (SONGS 2 & 3), and was the
5 operating agent. In that Decision, the Commission approved the transfer of the City of Anaheim’s
6 (Anaheim) 3.16% share of SONGS 2 & 3 to SCE. However, the Commission ruled that Anaheim would
7 retain its decommissioning trust fund and a reduced portion of the decommissioning liability based on a
8 pro-rata portion of the remaining life of SONGS 2 & 3.¹ Therefore, although SCE now owns a 78.21%
9 interest in SONGS 2 & 3 and remains the operating agent, SCE owns a 76.30% share of the
10 decommissioning liability for SONGS 2, and a 76.35% share of the decommissioning liability for
11 SONGS 3. San Diego Gas & Electric Company’s (SDG&E) 20% interest in the plant ownership and the
12 decommissioning liability of SONGS 2 & 3 remains unchanged.²

13 SCE also owns a 15.8% interest in the Palo Verde Nuclear Generating Station Units 1, 2, and 3
14 (Palo Verde).³ Arizona Public Service Company (APS) owns a 29.10% interest in Palo Verde, and is
15 the operating agent.

16 This testimony provides updated decommissioning cost estimates for SONGS 2 & 3, and for
17 SCE’s share of Palo Verde. After decommissioning is complete for SONGS 2 & 3 and Palo Verde, SCE
18 and SDG&E (herein collectively referred to as “the Utilities”) will return any remaining
19 decommissioning trust balances to customers.⁴

¹ The City of Anaheim’s remaining decommissioning liability for SONGS 2 & 3 through the remainder of the current NRC Licenses is estimated to be 1.91% for SONGS 2 and 1.86% for SONGS 3.

² The City of Riverside owns the remaining 1.79% interest in SONGS 2 & 3, including 1.79% of the decommissioning liability for SONGS 2 & 3.

³ The remaining non-operating owners are Salt River Project (17.49%), El Paso Electric Company (15.80%), Public Service Company of New Mexico (10.20%), the Southern California Public Power Authority (5.91%), and Los Angeles Department of Water and Power (5.70%).

⁴ CPUC Resolution E-3057, dated November 25, 1987, which adopted the Nuclear Decommissioning Master Trust Agreements.

1 The Utilities developed the updated SONGS 2 & 3 decommissioning cost estimate based on an
2 assumption that they will commence decommissioning SONGS 2 & 3 when their Nuclear Regulatory
3 Commission (NRC) operating licenses expire in 2022.⁵

4 In April 2011, the NRC granted a 20-year license extension for Palo Verde Units 1, 2, and 3.⁶
5 Nevertheless, the updated Palo Verde decommissioning cost estimate also continues to be based on an
6 assumption that APS, SCE and the other Palo Verde owners will commence decommissioning the Palo
7 Verde units when their NRC operating licenses expire in 2045, 2046 and 2047, respectively.

8 SCE currently projects that the decommissioning of SONGS 2 & 3 and Palo Verde will not be
9 completed until 2055 and 2075, respectively. Nevertheless, SCE has attempted to accurately estimate
10 the total cost of decommissioning the nuclear units, given the uncertainties associated with work that is
11 projected to commence from one to three decades in the future.

12 The Utilities request that the Commission find that the updated \$4.119 million (100% share,
13 2011\$) SONGS 2 & 3 Decommissioning Cost Estimate is reasonable. In addition, SCE requests that the
14 Commission find that the updated \$513.5 million (SCE share, 2010\$) Palo Verde Decommissioning
15 Cost Estimate is reasonable.

⁵ The NRC operating licenses for SONGS Units 2 & 3 are currently set to expire on February 16, 2022 and November 15, 2022, respectively.

⁶ The NRC operating licenses for Palo Verde Units 1, 2, and 3 are now set to expire on June 1, 2045, March 24, 2046 and November 25, 2047, respectively.

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II.

DECOMMISSIONING COST ESTIMATES

A. Decommissioning Methodology

The Utilities project that they will perform SONGS 2 & 3 decommissioning activities in three phases. During Phase I, the Utilities will decontaminate, dismantle and dispose of the units and the site common facilities. The Utilities will also continue to maintain the integrity and safety of the spent fuel while it remains on the SONGS site. The Utilities will maintain spent fuel in wet storage in spent fuel pools until it can be safely transferred to the SONGS 2 & 3 Independent Spent Fuel Storage Installation (ISFSI) or removed from the site by the U.S. Department of Energy (DOE). To safely store fuel in wet storage, the Utilities must maintain each plant system required for spent fuel pool operation until the fuel is removed. The Utilities will drain, de-energize and secure all other plant systems. After the SONGS 2 & 3 spent fuel pools are empty, the Utilities will decommission the pools and their associated support structures and systems.

During Phase II, the Utilities will continue to monitor the ISFSI until the DOE removes the last SONGS 2 & 3 spent fuel from the site, which is assumed to occur by 2053 based on studies developed from the DOE Acceptance Priority Ranking & Annual Capacity Report (DOE/RW-0567), dated July 2004.⁷

During Phase III, the Utilities will: dismantle and dispose of the ISFSI, all remaining site common facilities and the remaining structural foundations; perform any remaining radiological remediation as necessary to terminate the NRC licenses; and complete the final site restoration work as required to terminate the site lease contracts.⁸

⁷ The July 2004 DOE Acceptance Priority Ranking & Annual Capacity Report, and SCE's studies based on that DOE Report, are provided as Workpapers to Exhibit SCE-1 in this proceeding.

⁸ The Utilities do not own the site upon which the SONGS facility is located. Instead, they are authorized to use the site under several lease contracts and grants of easement from the U.S. Department of the Navy and the California State Lands Commission. To terminate these agreements, the Utilities are required to remove all improvements they installed or constructed on the site, except as agreed by the lessors/grantors, return the site to a condition satisfactory to the grantor, and return the site to the lessors/grantors.

1 SCE projects that APS will carry out Palo Verde decommissioning activities in similar phases,
2 with the last spent fuel being removed by the DOE from the Palo Verde site in 2074.

3 **B. Decommissioning Cost Estimating Methodology**

4 The SONGS 2 & 3 and Palo Verde decommissioning cost studies account for the unique features
5 of the SONGS 2 & 3 and Palo Verde facilities, including their nuclear steam supply systems, electric
6 power generation systems, and site buildings and structures, respectively. These studies are also
7 intended to account for any changes in decommissioning technology, regulation and economics that may
8 have been identified during the most recent triennial period.² The scopes of work required to
9 decommission SONGS 2 & 3 and Palo Verde are different. For example, as explained in Footnote 8,
10 above, the Utilities do not own the site upon which the SONGS facility is located. The lease contracts
11 and grants of easement for the SONGS site require the Utilities to remove all improvements installed or
12 constructed on the site, including all of the SONGS underground foundations and the offshore cooling
13 water conduits. They also require the Utilities to decontaminate the site as required to satisfy NRC
14 license termination criteria. The Utilities must restore the SONGS premises to a condition satisfactory
15 to the requirements of the lease contracts and grants of easement. In contrast, the Palo Verde site is
16 privately owned. Although the Palo Verde owners must decontaminate the Palo Verde site to satisfy the
17 NRC license termination criteria, they are not required to remove all improvements, such as non-
18 contaminated underground foundations, from the site. In addition, the Palo Verde owners may bury
19 non-contaminated concrete rubble from the decommissioning project at the Palo Verde site.

20 As in past NDCTPs, SCE, as agent for the Utilities, retained ABZ, Inc. (ABZ)¹⁰ to assist it in
21 preparing the 2012 site-specific decommissioning cost study and analysis for the SONGS 2 & 3
22 decommissioning. SCE provided information and direction to ABZ for estimating SONGS 2 & 3
23 decommissioning costs that included experience gained during the SONGS 1 decommissioning project.

² California Public Utilities Code §8326.

¹⁰ ABZ, Inc., is an engineering and management consulting firm that has prepared decommissioning estimates and decontamination studies for more than 30 commercial nuclear power plants, including Calvert Cliffs 1 & 2, Duane Arnold, Nine Mile Point 1 & 2, and Vermont Yankee.

1 ABZ used drawings and inventory documents to estimate concrete volumes, steel quantities, numbers
2 and sizes of components, and used a unit cost factor method of estimating (e.g., \$/cubic yard for
3 concrete removal, \$/ton for steel removal). After identifying item quantities and unit cost factors, they
4 estimated the costs by multiplying the item quantities by the respective unit cost factors. ABZ based
5 costs for project management, administration, equipment rental and security on an activity duration
6 critical path for the decommissioning effort. The Utilities' 2012 SONGS 2 & 3 Decommissioning Cost
7 Estimate contains a level of detail similar to the 2009 SONGS 2 & 3 Decommissioning Cost Estimate
8 that was adopted by the Commission.¹¹ And as in 2009, the Utilities applied a contingency factor of
9 25% in the 2012 SONGS 2 & 3 Decommissioning Cost Estimate.¹²

10 APS, the Palo Verde operating agent, retained TLG Services, Inc. (TLG)¹³ on behalf of the Palo
11 Verde owners, to prepare a site-specific decommissioning cost study and analysis in 2010 for the
12 decommissioning of Palo Verde. APS provided direction to TLG consistent with the levels of detail
13 contained in previous Palo Verde decommissioning cost estimates. Similar to ABZ's development of
14 the SONGS 2 & 3 decommissioning cost estimate, TLG used site drawings and associated documents to
15 estimate material volumes, numbers and sizes of components, and used a unit cost factor method of
16 estimating. After TLG identified item quantities and unit cost factors, they estimated the costs by
17 multiplying the item quantities by their respective unit cost and activity contingency factors. TLG based
18 costs for project management, administration, equipment rental and security on an activity duration
19 critical path for the decommissioning effort.

¹¹ The Utilities filed their Joint Application and prepared testimony exhibits and workpapers associated with their 2009 SONGS 2 & 3 and Palo Verde Decommissioning Cost Estimates on November 10, 2009 (i.e., the 2009 NDCTP).

¹² D.07-01-003, the CPUC decision for the 2009 NDCTP, the Commission ordered that "Edison, SDG&E, and PG&E shall serve testimony in their next triennial review of nuclear decommissioning trusts and related decommissioning activities that demonstrates that they have made all reasonable efforts to conservatively establish an appropriate contingency factor for inclusion in the decommissioning revenue requirements." (See Ordering Paragraph No. 8, p. 34.) The basis for the 25% contingency factor used in SCE's 2008 SONGS 2 & 3 Decommissioning Cost Estimate is provided in Section IV.A.3 of Exhibit SCE-1 in this proceeding.

¹³ TLG has prepared estimates for many nuclear and fossil units, and has been involved in the planning, execution, and technical support of the Big Rock Point, Connecticut Yankee, Maine Yankee, Rancho Seco, Trojan and Yankee Rowe decommissioning projects.

1 As discussed above, one of the major differences between the scopes of work in the updated
2 SONGS 2 & 3 and Palo Verde cost studies is that the Palo Verde cost study assumes that APS: (1) will
3 abandon in place structures or foundations deeper than three feet below grade that are not required to be
4 removed to meet the radiological criteria for NRC license termination, and (2) dispose of non-
5 contaminated demolition materials at the Palo Verde site. Therefore, APS avoids removal and disposal
6 costs for materials deeper than three feet below grade and disposal costs for non-contaminated materials
7 regardless of where on site they were located during plant operation. These avoided costs result in a
8 cost difference for Palo Verde decommissioning that SONGS 2 & 3 cannot achieve under the current
9 terms of the SONGS site leases and easements.

10 SCE used the Palo Verde TLG study as a resource to develop SCE's 2012 Decommissioning
11 Cost Estimate for SCE's share of Palo Verde. While reviewing the Palo Verde TLG study, SCE
12 determined that some of the assumptions it was based on were inconsistent with SCE's knowledge and
13 experience in decommissioning SONGS 1 regarding disposal of the original SONGS 2 & 3 steam
14 generators and assumed actions by the DOE that the DOE has not expressly committed to do.
15 Therefore, consistent with SCE's prior decommissioning cost estimates for Palo Verde, SCE developed
16 and applied appropriate adjustments to the TLG study to develop its 2012 Palo Verde Decommissioning
17 Cost Estimate. In addition, SCE applied a 25% contingency for all costs included in its 2012 Palo Verde
18 Decommissioning Cost Estimate, including LLRW disposal costs, consistent with the 25% contingency
19 factor applied to its decommissioning cost estimates for the SONGS units.¹⁴

20 **C. Decommissioning Schedules**

21 The 2012 SONGS 2 & 3 and Palo Verde decommissioning cost estimates are based on an
22 assumption that decommissioning will commence promptly after the current NRC operating licenses
23 expire.¹⁵ The cost estimates also assume that the DOE will open its permanent repository in 2024,¹⁶ and

¹⁴ See Footnote 12, *supra*.

¹⁵ See Footnotes 5 and 6, *supra*.

¹⁶ *Southern California Edison Company v. United States*, August 23, 2011 Decision re: Case No. 04-CV-109, U.S. Court of Appeals for the Federal Circuit, at 3 ("DOE has yet to accept spent fuel from SONGS. Despite the 1987 amendment, the question of where and how the Government will dispose of the wastes remains unanswered to this date. The

(Continued)

1 will remove the last spent fuel from the SONGS and Palo Verde sites by 2053 and 2074, respectively,
2 based on studies referenced in Section II.B, above. The estimates forecast that Phase III -- including
3 ISFSI demolition and removal, NRC license termination and final site restoration -- will be completed at
4 SONGS 2 & 3 and Palo Verde within two years after removal of all spent fuel from their respective
5 ISFSIs.

6 SCE's 2012 SONGS 2 & 3 and Palo Verde decommissioning cost estimates assume the use of
7 current technologies under current regulations and at current cost levels.¹⁷ The cost estimates contain
8 reasonable estimates of the scope and cost of future work to set aside sufficient funds. These cost
9 estimates are not based on detailed planning studies because these decommissioning activities are not
10 expected to be performed until many years in the future. The Utilities are not presently adopting the
11 schedules or sequences of activities embedded in the estimates for any purpose other than for cost
12 estimation.

13 **D. SONGS 2 & 3 Cost Estimates**

14 Based on the assumptions stated above, Table II-1 provides the updated cost estimates to
15 decommission SONGS 2 & 3:

Continued from the previous page

Government's current estimate is that it will not begin accepting the waste until 2020, if at all."). In the 2012 NDCTP, the utilities assumed that the DOE would commence accepting spent fuel at the federal repository in 2020. Given that four years have passed since the last estimate, the DOE Start Date is assumed to be delayed by an additional four years to 2024.

¹⁷ See Footnote 9, supra.

Table II-1
2012 San Onofre Nuclear Generating Station Units 2 & 3
Decommissioning Cost Estimates
(Base Case – 2022 Shutdown)

Line No.	San Onofre Nuclear Generating Station Units 2 & 3	100% Share, 2011\$ x 1000
1.	Unit 2	2,003
2.	Unit 3	<u>2,116</u>
3.	TOTAL	4,119

1. Reconciliation to Previous SONGS 2 & 3 Decommissioning Cost Estimate

The 2012 SONGS 2 & 3 Decommissioning Cost Estimate increased by \$39 million (100% share, 2011\$) over the 2009 SONGS 2 & 3 Decommissioning Cost Estimate adopted in the 2009 NDCTP. Table II-2 provides a reconciliation of the updated SONGS 2 & 3 decommissioning cost estimate to the 2009 SONGS 2 & 3 Decommissioning Cost Estimate.

Table II-2
Reconciliation of SCE's SONGS 2 & 3 Decommissioning Cost Estimates 2012 Cost Estimate vs. 2009 Cost Estimate

Line No.	San Onofre Nuclear Generating Station Units 2 & 3	100% Share, 2011\$ x 1000
1.	2012 SONGS 2 & 3 Decommissioning Cost Estimate	4,119
2.	2009 SONGS 2 & 3 Decommissioning Cost Estimate	<u>4,080</u>
3.	CHANGE	39
4.	<i>Reconciliation:</i>	
5.	Spent Fuel Storage Costs	145
6.	LLRW Disposal Costs	101
7.	Staffing Costs	(193)
8.	Energy Costs	(84)
9.	Miscellaneous Costs	<u>70</u>
10.	CHANGE	39

a) Spent Fuel Storage Costs

Estimated costs for spent fuel storage during SONGS 2 & 3 decommissioning increased by approximately \$145 million (100% share, 2011\$). In SCE's 2009 SONGS 2 & 3 Decommissioning Cost Estimate, which was adopted by the Commission in D.10-07-047, SCE projected that the DOE would commence accepting fuel from domestic commercial nuclear power plants in 2020, and that the DOE would accept fuel at the take rate published in the DOE's July 2004 Acceptance Priority Ranking

1 & Annual Capacity Report (DOE/RW-0567). Subsequently, the DOE publicly declared that it does not
2 expect to open its permanent repository until 2020.¹⁸ In June of 2008, the DOE submitted its license
3 application for the DOE spent fuel repository at Yucca Mountain, Nevada. Subsequently, at the
4 direction of the NRC Commissioners, the NRC staff closed out its technical review of the Yucca
5 Mountain license application. The Atomic Safety and Licensing Board suspended its adjudicatory
6 hearing on the application in 2011. This matter is now before the U.S. Court of Appeals for the District
7 of Columbia Circuit.¹⁹ The DOE has not provided any new information regarding the possible opening
8 of its deep geologic repository at Yucca Mountain, Nevada, or regarding a schedule for commencing to
9 accept spent fuel. In the absence of any new information, and given that four years have passed since
10 the decommissioning estimates were last updated, the Utilities agreed to assume for purposes of the
11 2012 decommissioning cost estimates that the DOE would start accepting fuel four years later, in 2024.

12 Given that the current NRC operating licenses for SONGS 2 & 3 will expire in 2022, this change
13 to the assumed DOE start date impacts the estimated spent fuel storage costs for SONGS 2 & 3. As in
14 the 2009 SONGS 2 & 3 decommissioning cost estimate, SCE assumes that the DOE will accept SONGS
15 spent fuel in the following sequence: (1) SONGS 1 fuel from the General Electric facility at Morris,
16 Illinois; (2) SONGS 2 & 3 fuel directly from the SONGS 2 & 3 spent fuel pools during the 12-year post-
17 shutdown cooling period for high-burnup fuel; (3) SONGS 1 fuel from the ISFSI; and (4) SONGS 2 & 3
18 fuel from the ISFSI. Because the 2012 estimate assumes that the DOE will commence accepting fuel
19 four years later than assumed in the 2009 estimate, the DOE will also necessarily start accepting fuel
20 directly from the SONGS 2 & 3 spent fuel pools four years later than previously assumed. As a result,
21 the DOE will be able to remove less fuel from the pools than previously assumed. Under the 2020 DOE
22 start date assumption used in the 2009 decommissioning cost estimates, SONGS 2 & 3
23 decommissioning funds would have been required to provide pad space, advanced horizontal storage
24 modules (AHSMs), and canisters for approximately 881 fuel assemblies. Under the 2024 DOE start

¹⁸ See A.09-04-009, Exhibit SCE-2, at p. 6, line 16.

¹⁹ See NRC Fact Sheet on Licensing Yucca Mountain, available at <http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/fs-yucca-license-review.html> (last accessed on December 8, 2012).

1 date assumption used in the 2012 decommissioning cost estimates, however, SONGS 2 & 3
2 decommissioning funds would be used to provide pad space, AHSMs and canisters for approximately
3 1,679 fuel assemblies, resulting in a cost increase of \$111 million (100% share, 2011\$).

4 b) LLRW Disposal Costs

5 Estimated costs for LLRW disposal during SONGS 2 & 3 decommissioning increased by
6 approximately \$101 million (100% share, 2011\$). This increase resulted from two factors. First, the
7 2012 SONGS 2 & 3 decommissioning estimate assumes that the disposal rates for Class A waste at the
8 EnergySolutions facility in Clive, Utah will be applied to a slightly larger quantity of material than had
9 been identified in the previous estimate. This incremental volume was identified by ABZ in an analysis
10 that was undertaken for the purpose of facilitating comparison to PG&E's 2012 Decommissioning Cost
11 Estimate for Diablo Canyon, as developed by TLG. Second, the joint LLRW burial cost study that was
12 used to develop their 2009 decommissioning cost estimates used disposal rates for Class B & C wastes
13 from the Chem-Nuclear facility in Barnwell, South Carolina (Barnwell) because that was the only
14 facility for which Class B & C rates were available, even though access to the Barnwell facility for non-
15 Atlantic Compact states expired as of July 1, 2008. Subsequently, a new facility operated by Waste
16 Control Specialists LLC in Andrews County, Texas (WCS Texas) became available both to Texas
17 Compact states and to states that do not currently have access to disposal facilities within their own
18 interstate LLRW disposal compacts. Because SCE now has access to ship Class B & C waste to the
19 WCS Texas facility, SCE applied the WCS Texas rates for Class B & C waste, which are higher than the
20 Barnwell rates, to the Class B & C waste in the 2012 SONGS 2 & 3 decommissioning cost estimate.

21 c) Staffing Costs

22 Estimated staffing costs for 2012 SONGS 2 & 3 decommissioning decreased by approximately
23 \$193 million (100% share, 2011\$). This decrease is due primarily to a reduction in the level of Security
24 staffing that is projected to be required during Phases I and II of the decommissioning project. This
25 decrease was partially offset, however, by an increase in prevailing utility labor rates and craft labor
26 rates from the San Diego union hall, which have increased at a rate slightly higher than the Consumer
27 Price Index since the 2009 SONGS 2 & 3 decommissioning cost estimate was developed.

1 d) Energy Costs

2 Estimated costs for projected electrical energy usage decreased by \$84 million (100% share,
3 2011\$) due to a downward adjustment to the assumed price of purchased power, as compared to the
4 price that was assumed in the 2009 SONGS 2 & 3 decommissioning cost estimate.

5 e) Miscellaneous Costs

6 Estimated costs for other miscellaneous SONGS 2 & 3 decommissioning costs increased by
7 approximately \$70 million (100% share, 2011\$). These costs reflect increased costs associated with
8 changes in the project scope and schedule, lessons learned from industry experience in steam generator
9 removal and disposal, and non-distributed costs, offset by a decreased estimated cost to segment the
10 SONGS 2 & 3 reactor pressure vessels based on recent industry experience.

11 **E. The Utilities’ Efforts to Obtain Clarification of SONGS Site Restoration and Remediation**
12 **Standards in Site Lease Contract**

13 In D.10-07-047, Ordering Paragraph No. 10, the Commission issued the following order:

14 Within one year of the date of this decision, the Commission’s Executive Director, on
15 behalf of the entire California Public Utilities Commission, shall make a formal written
16 request along with Southern California Edison Company and San Diego Gas & Electric
17 Company, to the United States Department of the Navy to clarify the applicable site
18 restoration and remediation standards that will be required to terminate the San Onofre
19 Nuclear Generating Station site lease, and shall meet and confer with the United States
20 Department of the Navy to attempt execution of an amended site lease contract that
21 explicitly reflects such clarified standards, prior to the development of the San Onofre
22 Nuclear Generating Station cost estimates for the next Nuclear Decommissioning Cost
23 Triennial Proceeding. Southern California Edison Company and San Diego Gas &
24 Electric Company shall report to the Commission any responsive information received by
25 either utility in their next Nuclear Decommissioning Cost Triennial Proceeding
26 application.

27 On July 1, 2011, Mr. Paul Clanon, Executive Director of the California Public Utilities
28 Commission, submitted a formal written request to Mr. Christopher Haskett, Manager, Navy Facilities
29 Engineering Command Southwest (NAVFAC), on behalf of SCE and SDG&E, to request “clarification
30 ... regarding the applicable site restoration and remediation standards that will be required to terminate
31 SCE/SDG&E’s Grant of Easement (Easement) for the SONGS site ...” and to request “an amendment

1 of the Easement to reflect agreed upon modified standards.”²⁰ This formal request initiated a
2 correspondence and discussions between NAVFAC and the Utilities regarding the requested
3 clarifications.

4 On August 30, 2011, Mr. Haskett submitted a formal written response to Mr. Clanon. In this
5 response, Mr. Haskett stated NAVFAC’s position that “Because the Easement does not expire until May
6 12, 2023, it is premature to discuss any modification to the Easement until the Government has reviewed
7 the Utilities’ proposed decommissioning and restoration plan.” Mr. Haskett further stated that
8 “Modification of the Easement at the juncture may also be premature, given that SCE is apparently
9 considering seeking an extension of the SONGS 2 & 3 operating licenses for an additional 20-year term.
10 Presumably the operating license extension would necessitate an extension of the current Easement or
11 the development of a new one.”²¹ The Utilities participated in at least one follow-up meeting with
12 representatives of NAVFAC and Camp Pendleton, but NAVFAC remained firm in its position that it
13 was premature to consider any modifications to the Easement at that time.

14 **F. Pro-rata Shares of the Utilities’ Decommissioning Funds Accumulated to Meet NRC**
15 **License Termination Requirements for SONGS 2 & 3**

16 In D.10-07-047, Ordering Paragraph No. 9, the Commission issued the following order:

17 In the next Nuclear Decommissioning Cost Triennial Proceeding, Southern California
18 Edison Company, San Diego Gas & Electric Company, and Pacific Gas and Electric
19 Company shall report the pro rata share of funds accumulated for Nuclear Regulatory
20 Commission License termination (radiological decommissioning to meet the Nuclear
21 Regulatory Commission standard for license termination) and provide copies of their
22 most recent funding assurance letters (pursuant to 10 C.F.R. § 50.75) sent to the Nuclear
23 Regulatory Commission.

24 SCE submits decommissioning funding assurance letters to the NRC pursuant to 10 C.F.R. §
25 50.75(f)(1) on behalf of itself and the other SONGS 2 & 3 co-owners on a biennial basis. SCE
26 submitted its most recent funding assurance letter for SONGS 2 & 3 on March 30, 2011. At that time,
27 NRC regulations did not mandate that the portion of the SONGS 2 & 3 site-specific decommissioning

²⁰ The July 1, 2011 letter from Paul Clanon to Christopher Haskett is provided as a Workpaper to this Exhibit.

²¹ The August 30, 2011 letter from Christopher Haskett to Paul Clanon is provided as a Workpaper to this Exhibit.

1 cost estimate that applied to the NRC standard for license termination, or the corresponding pro-rata
2 share of funds accumulated for that portion of the total SONGS 2 & 3 decommissioning obligation, be
3 itemized in the letter. Nevertheless, a copy of SCE's March 30, 2011 decommissioning funding
4 assurance letter for SONGS 2 & 3 is provided as Appendix B to this testimony.

5 SCE will submit its next biennial decommissioning funding assurance letter for SONGS 2 & 3
6 by March 31, 2013. Under new NRC regulations that became effective in the interim, SCE is now
7 required to report the portion of the SONGS 2 & 3 site-specific decommissioning cost estimate that
8 apply to the NRC standard for license termination, and the corresponding pro-rata share of funds
9 accumulated for that portion of the total SONGS 2 & 3 decommissioning obligation. SCE will provide
10 copies of that letter to the Commission when it is available.²²

11 **G. Decommissioning Cost Estimate For SONGS 2 & 3 License Renewal Scenario**

12 In D.10-07-047 Ordering Paragraph No. 8, the Commission ordered the Utilities to provide
13 contribution estimates that assume successful completion of license renewal for SONGS 2 & 3.
14 Accordingly, the Utilities developed an alternate SONGS 2 & 3 decommissioning cost estimate for this
15 scenario, which assumes that the units' operating lives would be extended by 20 years to 2042. Table II-
16 3 provides the estimated costs to decommission SONGS 2 & 3 under the license renewal scenario:

²² SCE's March 2013 decommissioning funding assurance letter will also be based on SCE's 2009 SONGS 2 & 3 decommissioning cost estimate because that estimate is the last one that has been adopted by the Commission. Although SCE's 2012 SONGS 2 & 3 decommissioning estimate has been filed in this proceeding, it will not supersede the 2009 estimate for any external reporting purposes until it has been adopted in a Commission decision.

Table II-3
2012 San Onofre Nuclear Generating Station Units 2 & 3
Decommissioning Cost Estimates
(License Renewal Case – 2042 Shutdown)

Line No.	San Onofre Nuclear Generating Station Units 2 & 3	100% Share, 2011\$ x 1000
1.	Unit 2	1,905
2.	Unit 3	<u>2,008</u>
3.	TOTAL	3,913

1 Due to the assumed 20 additional years of SONGS 2 & 3 operations, the corresponding
2 accumulation of additional spent fuel and the DOE’s fuel acceptance constraints and priority ranking
3 schedule, SCE projects that spent fuel from SONGS 2 & 3 would remain in the ISFSI until 2068. In the
4 SONGS 2 & 3 license renewal case, therefore, Phase III of SONGS 1 decommissioning would
5 commence concurrently with Phase III of SONGS 2 & 3 decommissioning in 2069. Assuming that the
6 DOE commenced accepting spent fuel at its permanent repository in 2024, the DOE would be able to
7 remove all of the fuel that would be discharged to the SONGS 2 & 3 spent fuel pools from 2028 through
8 the end of the license renewal period directly from the pools by the end of the 12-year post-shutdown
9 spent fuel cooling period. Because SCE would not be required to place any SONGS 2 & 3 spent fuel
10 into dry storage after 2027, no decommissioning funds would be required to place any SONGS 2 & 3
11 fuel into dry storage. This would result in an avoided cost of more than \$200 million (100% share,
12 2011\$) compared to the 2022 shutdown case.

13 The contribution estimates for the SONGS 2 & 3 license renewal scenario are provided in
14 Exhibit Utilities-3.

15 **H. Palo Verde Decommissioning Cost Estimates**

16 Based on the assumptions stated above, Table II-4 provides the updated cost estimates to
17 decommission Palo Verde 1, 2, & 3:

Table II-4
2012 Palo Verde Nuclear Generating Station
Decommissioning Cost Estimates

Line No.	Palo Verde Nuclear Generating Station	SCE Share, 2010\$ x 1000
1.	Unit 1	157.0
2.	Unit 2	169.8
3.	Unit 3	<u>187.7</u>
4.	TOTAL	513.5

1. Palo Verde Cost Changes

SCE's 2012 Palo Verde Decommissioning Cost Estimate is \$513.5 million (SCE Share, 2010\$). This amount represents a decrease of \$173.5 million (SCE Share, 2010\$), or approximately 25%, below SCE's 2009 Palo Verde Decommissioning Cost Estimate. Table II-5 provides a comparison of SCE's updated Palo Verde decommissioning cost estimate to SCE's 2009 Palo Verde Decommissioning Cost Estimate adopted in the 2009 NDCTP.

Table II-5
Comparison of SCE's Palo Verde Decommissioning Cost Estimates
2012 Cost Estimate vs. 2009 Cost Estimate

Line No.	Palo Verde Nuclear Generating Station	SCE Share, 2010\$ x 1000
1.	2012 Palo Verde Decommissioning Cost Estimate	513.5
2.	2009 Palo Verde Decommissioning Cost Estimate	<u>(687.0)</u>
3.	CHANGE	<u>(173.5)</u>

2. SCE Adjustments to 2010 Palo Verde TLG Study

SCE developed its 2012 Palo Verde Decommissioning Cost Estimate by reviewing the most recent site-specific Palo Verde decommissioning cost study that was developed for APS by TLG. This Palo Verde TLG Study was developed in 2010, and was expressed in 2010 dollars. SCE compared the major cost drivers in the Palo Verde TLG Study and their underlying assumptions to SCE's understanding of the factors that influence those cost drivers, including lessons learned throughout Phase I of the SONGS 1 decommissioning project. Based on this analysis, SCE developed a number of adjustments to the Palo Verde TLG Study that are consistent with SCE's decommissioning experience

1 and knowledge of current factors that impact decommissioning costs. SCE explains these adjustments
 2 below. As shown in Table II-6 below, based on SCE's adjustments to the 2010 Palo Verde TLG Study,
 3 SCE's 2012 Palo Verde Decommissioning Cost Estimate is \$513.5 million (SCE Share, 2010\$).

Table II-6
Comparison of SCE's Palo Verde Decommissioning Cost Estimates
2012 Cost Estimate vs. 2009 Cost Estimate

Line No.	Palo Verde Nuclear Generating Station	SCE Share, 2010\$ x 1000
1.	2010 Palo Verde TLG Study	357.4
2.	<i>SCE Adjustments:</i>	
3.	Class A LLRW Disposal Costs	90.5
4.	Class B & C LLRW Disposal Costs	16.6
5.	Spent Fuel Monitoring Costs	22.9
6.	Contingency	<u>26.1</u>
7.	TOTAL SCE Adjustments	<u>156.1</u>
8.	2012 Palo Verde Decommissioning Cost Estimate	513.5

4 a) Class A LLRW Disposal Costs

5 The 2010 Palo Verde TLG Study assumes that approximately 454,000 cubic feet of Class A
 6 LLRW will be generated at each of the three Palo Verde units. Based on SCE's SONGS 1
 7 decommissioning experience and benchmarking of the volumes that were disposed of at other completed
 8 decommissioning projects, SCE believes that value may be representative of the quantity of physical
 9 material that is likely to require burial at a licensed LLRW disposal facility, but not of the quantity of
 10 Class A LLR that Palo Verde will ultimately have to pay for in order to effectuate the disposal of that
 11 material.

12 While decommissioning SONGS 1, SCE discovered that its original site-specific
 13 decommissioning cost estimate underestimated (1) the quantity of materials from the unit that would
 14 require disposal as Class A LLRW and (2) the full cost to dispose of the increased quantity of Class A
 15 LLRW due to several previously unknown factors and constraints associated with the packaging,
 16 shipping and delivery of Class A LLRW shipments to the licensed disposal facility. SCE, therefore,
 17 made several upward adjustments of its Class A LLRW volumes throughout the performance of Phase I
 18 of the SONGS 1 decommissioning project, and documented these lessons learned. Subsequently, a

1 detailed discussion of these factors and constraints was published in Chapter 9 of the Electric Power
2 Research Institute (EPRI) SONGS 1 Decommissioning Experience Final Report, dated December 2008.

3 Near the end of Phase I of the SONGS 1 decommissioning project, ABZ independently
4 attempted to quantify the impact of the lessons learned from SONGS 1 into a factor that could be
5 applied to the projected volumes of Class A LLRW from SONGS 2 & 3 to adjust the cost estimates to
6 more realistic levels. Based on this review, ABZ developed an adjustment factor of 64%, which was
7 applied to the estimated volume of Class A LLRW in the 2005 SONGS 2 & 3 Decommissioning Cost
8 Estimate.

9 Given SCE's knowledge of, and experience with, these factors and given the relatively modest
10 projected volumes of Class A LLRW in the 2010 Palo Verde TLG Study, SCE has applied a similar
11 64% adjustment to the volume of Class A waste in the 2010 Palo Verde TLG Study. This adjustment
12 resulted in an increase of \$90.4 million (SCE share, 2010\$) to the estimated disposal cost for Palo
13 Verde's Class A waste.

14 b) Class B & C Disposal Costs

15 As discussed above, the LLRW burial cost study that was used by SCE and PG&E to develop the
16 2009 decommissioning cost estimates for SONGS and Diablo Canyon used disposal rates for Class B &
17 C wastes from the Barnwell facility because that was the only facility for which Class B & C rates were
18 available, even though access to the Barnwell facility for non-Atlantic Compact states expired as of July
19 1, 2008. Subsequently, a new facility operated by WCS Texas became available both to Texas Compact
20 states and to states that do not currently have access to disposal facilities within their own interstate
21 LLRW disposal compacts. Because Palo Verde currently has no alternative but to ship its Class B & C
22 waste to the WCS Texas facility, SCE made an adjustment to apply the WCS Texas rates to the
23 projected volume of Palo Verde Class B & C LLRW. This adjustment resulted in an increase of \$16.6
24 million (SCE share, 2010\$) to the estimated disposal cost for Palo Verde's Class B & C waste.

1 c) Spent Fuel Monitoring Costs

2 The 2010 Palo Verde TLG Study is based on an assumption that the DOE will take over the Site
3 Specific Part 72 License²³ and be responsible for continued operation and maintenance of the Palo
4 Verde ISFSI beginning in 2058 after plant decommissioning is completed.²⁴ As a result, the 2010 Palo
5 Verde TLG Study does not include any funding for ISFSI monitoring and maintenance after 2057.

6 The DOE has an ongoing contractual duty to accept spent fuel at each nuclear plant site and
7 transport it to a permanent repository. In addition, many nuclear plant owner/operators, including SCE,
8 have received damages awards for costs incurred to place and maintain their spent fuel in dry storage.
9 However, SCE has no knowledge that the DOE has committed to APS or to any other nuclear plant
10 owner/operator that it will use monies from the Nuclear Waste Fund to assume all of the costs to
11 maintain spent fuel at a remote location, such as the Palo Verde ISFSI, after decommissioning of the
12 power plant site is completed. Given that the DOE is already in partial breach of its duty to commence
13 removing fuel from the plant sites beginning in 1998, and vigorously litigates nearly every licensee
14 claim to recover spent fuel maintenance costs, SCE has no information that supports an assumption that
15 the DOE will assume all ISFSI costs completed from some date certain until it is eventually ready to
16 remove the fuel to its permanent disposal facility.

17 As a result, SCE has applied an adjustment to the 2010 Palo Verde TLG Study to provide for
18 ISFSI monitoring and maintenance from the end of plant decommissioning until 2074, which is the year
19 in which SCE projects that the DOE will remove the last fuel from the Palo Verde ISFSI. This
20 adjustment resulted in an increase of \$22.9 million (SCE share, 2010\$) to the estimated cost of spent
21 fuel storage during the decommissioning period at Palo Verde.

²³ 2010 Palo Verde TLG Study, at Section 3, p. 45 of 163 (“This study assumes that the ISFSI is converted to a Part 72 license, which is transferred to DOE in 2057.”).

²⁴ *Id.*, at Section 3, pp. 45-46 of 163 (“The OA has included costs for ISFSI operations until 10 years have elapsed from Unit 3 shutdown, i.e., through 2057. It is expected that at that time the DOE will assume all costs for operations and maintenance of the ISFSI facility and all canister handling and transfer costs until removal of all spent fuel and GTCC canisters is completed. Once these canisters have been removed from the site, the dry storage facility will be decontaminated and demolished.”).

1 d) Contingency

2 The 2010 Palo Verde TLG Study applied contingency factors ranging from 13.39% to 19.98%
3 for various decommissioning activities. As explained in detail in Exhibit SCE-1, a contingency factor of
4 25% is appropriate for industrial projects that are in a preliminary state of development, scheduled
5 several years in the future, prior to the development of detailed engineering studies or work plans or the
6 issuance of contracts to perform work.²⁵ In D.10-07-047, the Commission adopted and affirmed the
7 appropriateness of the use of a 25% contingency factor for nuclear facility decommissioning cost
8 estimates in their current state of development. As a result, SCE adjusted all of the contingency factors
9 in the 2010 Palo Verde TLG Study to 25%. This resulted in an upward cost adjustment of \$26.1 million
10 (2010\$, SCE share) that is reflected in SCE's 2012 Palo Verde Decommissioning Cost Estimate.

²⁵ See Footnote 12.

Appendix A
Witness Qualifications

SOUTHERN CALIFORNIA EDISON COMPANY
QUALIFICATIONS AND PREPARED TESTIMONY
QUALIFICATIONS OF THOMAS J. PALMISANO

1
2
3
4 Q. Please state your name and business address for the record.

5 A. My name is Thomas J. Palmisano, and my business address is 5000 South Pacific Coast
6 Highway, San Clemente, California 92674-0128.

7 Q. Briefly describe your present responsibilities at the Southern California Edison Company.

8 A. I serve as the Vice President of Engineering, Projects, and Site Support at the San Onofre
9 Nuclear Generating Station.

10 Q. Briefly describe your educational and professional background.

11 A. Prior to joining SCE, I served as vice president of Nuclear Oversight for Entergy Nuclear located
12 in Mississippi. I have also held leadership roles as site vice president for Prairie Island Nuclear
13 Generating Plant and Cooper Nuclear Station. I have also served as site vice president, general
14 plant manager, operations manager, and systems engineering manager at Palisades Nuclear Plant.
15 I began my career by serving as an officer in the U.S. Navy Nuclear Propulsion Program. I hold
16 an MBA from Saginaw Valley State University, and a bachelor's degree in electrical engineering
17 from Ohio Northern University.

18 Q. What is the purpose of your testimony in this proceeding?

19 A. The purpose of my testimony in this proceeding is to sponsor the Policy testimony in Exhibit
20 SCE-2 "*Testimony On The Nuclear Decommissioning of SONGS 2 & 3 and Palo Verde*" as
21 identified in the Table of Contents above.

22 Q. Was this material prepared by you or under your supervision?

23 A. Yes, it was.

24 Q. Insofar as this material is factual in nature, do you believe it to be correct?

25 A. Yes, I do.

26 Q. Insofar as this material is in the nature of opinion or judgment, does it represent your best
27 judgment?

1 A. Yes, it does.

2 Q. Does this conclude your qualifications and prepared testimony?

3 A. Yes, it does.

1 Q. Does this conclude your qualifications and prepared testimony?

2 A. Yes, it does.

Appendix B

2011 March 30, 2011 Decommissioning Funding Assurance Letter

10 CFR 50.75

March 30, 2011

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555

Subject: **Docket Nos. 50-361 and 50-362**
10 CFR 50.75(f)(1) Decommissioning Funding Report
San Onofre Nuclear Generating Station Units 2 and 3

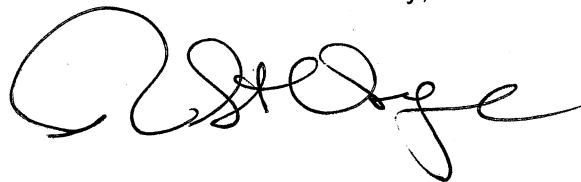
Dear Sir or Madam:

As required by 10 CFR 50.75(f)(1), this letter provides the status of the decommissioning funding for San Onofre Units 2 and 3 as of December 31, 2010. The required information is provided in the enclosure for SCE, San Diego Gas & Electric and the Cities of Anaheim and Riverside. Based on the requirements in 10 CFR 50.75(f)(1), SCE is reporting this information for San Onofre Units 2 and 3 on a biennial basis.

There are no new commitments contained in this letter or its enclosure.

If you have any questions regarding this matter, please feel free to contact Ms. Linda Conklin at 949-368-9443.

Sincerely,



Enclosure: San Onofre Units 2 and 3 Decommissioning Funding Status Report

cc: E. E. Collins, Regional Administrator, NRC Region IV
R. Hall, NRC Project Manager, San Onofre Units 2 and 3
G. G. Warnick, NRC Senior Resident Inspector, San Onofre Units 2 and 3

**San Onofre Nuclear Generating Station Units 2 and 3
Decommissioning Funding Status Report**

Provided below is the information required by 10 CFR 50.75(f)(1) for San Onofre Units 2 and 3. This information is reported every other year for San Onofre Units 2 and 3 as required for operating plants.

All dollar amounts are in 2010 dollars, and the owners are reported as follows:

Southern California Edison (SCE)	78.21%
San Diego Gas & Electric (SDG&E)	20.00 %
City of Anaheim (Anaheim)	0.00%
City of Riverside (Riverside)	1.79 %

The decommissioning liability is shared between the current owners and former owner, Anaheim, as set forth below for each unit:

Owner	Unit 2 Decommissioning Liability	Unit 3 Decommissioning Liability
SCE	76.30%	76.35%
SDG&E	20.00%	20.00%
Anaheim	1.91%	1.86%
Riverside	1.79%	1.79%

- 1) The decommissioning fund estimated to be required pursuant to 10 CFR 50.75(b) and (c) is the following:
 - a) The minimum amount calculated by the method prescribed by 10 CFR 50.75(c).

<u>San Onofre Unit 2</u>	<u>San Onofre Unit 3</u>
\$ 470.9 million	\$ 470.9 million

- b) The San Onofre Units 2 and 3 site-specific estimate ⁽¹⁾ for decommissioning includes the following radiological decommissioning costs associated with terminating the site license:

<u>San Onofre Unit 2</u>	<u>San Onofre Unit 3</u>
\$ 1,148.8 million	\$ 1136.1 million

- 2) The amounts accumulated at the end of calendar year 2010 (net of estimated capital gains taxes) are:

<u>Owner</u>	<u>San Onofre Unit 2</u>	<u>San Onofre Unit 3</u>
SCE	\$ 1,054.0 million	\$ 1,223.8 million
SDG&E ⁽²⁾	\$ 278.6 million	\$ 331.6 million
Anaheim ⁽²⁾	\$ 56.6 million	\$ 61.6 million
Riverside ⁽²⁾	\$ 31.6 million	\$ 34.2 million
TOTAL	\$ 1420.8 million	\$ 1,651.2 million

- 3) The annual amounts projected to be collected in 2011 are:

<u>Owner</u>	<u>San Onofre Unit 2</u>	<u>San Onofre Unit 3</u>
SCE	\$ 17.6 million	\$ 5.1 million
SDG&E ⁽²⁾	\$ 5.8 million	\$ 2.2 million
Anaheim ⁽²⁾	\$ 0.0 million	\$ 0.0 million
Riverside ⁽²⁾	\$ 0.9 million	\$ 0.7 million
TOTAL	\$ 24.3 million	\$ 8.0 million

Each owner either (A) recovers, directly or indirectly, the estimated total cost of decommissioning through rates established by "cost of service" or similar rate making regulation, including entities that establish their own rates and are able to recover their cost of service allocable to decommissioning, or (B) has as its source of revenues for its external sinking fund a "non-bypassable charge," the total amount of which, with earnings, provides the funds estimated to be needed for decommissioning.

- 4) The composite escalation rates for San Onofre Units 2 and 3 Decommissioning are forecast as follows:

<u>Owner</u>	<u>Escalation Rate</u>
SCE	
Burial Costs	6.93 %
Other Costs	2.32 %
SDG&E ⁽²⁾	
Burial Costs	6.93 %
Other Costs	2.32 %
Anaheim ⁽²⁾	4.00 %
Riverside ⁽²⁾	4.00 %

The composite escalation rate is 2.78 % for all costs.

- 5) The investment rates of return for the Decommissioning Trust Funds forecast by each owner are the following:

<u>Owner</u>	<u>Return on Investment</u>
SCE	4.46 %
SDG&E ⁽²⁾	4.14 %
Anaheim ⁽²⁾	4.00 %
Riverside ⁽²⁾	3.87 %

The composite investment rate of return is 4.38%. The composite investment rate of return less the composite escalation rate yields a composite real earnings rate less than the 2% real rate of return allowed under 10 CFR 50.75(e)(1)(ii).

None of the owners of San Onofre Units 2 and 3 are relying on any contracts for the purposes of providing decommissioning funding pursuant to 10 CFR 50.75(e)(1)(v). There have been no modifications to the method of providing financial assurance.

Notes:

- (1) The site-specific decommissioning cost estimate for San Onofre Units 2 and 3 that was provided to the California Public Utilities Commission (CPUC) on April 3, 2009, includes the radiological costs associated with terminating the site license; post-operation used fuel transfer and storage costs; and non-radiological costs which include the costs to excavate and dispose of all structures, appurtenances, and foundations from the onshore site, and to perform site restoration, as required under the current site lease contract(s) with the U.S. Department of the Navy, and to excavate and dispose of the Units 2 & 3 offshore circulating water conduits in their entirety as required under the current easement-lease granted by the California State Lands Commission. The CPUC approved the Units 2 & 3 decommissioning cost estimate on July 29, 2010.
- (2) SCE is submitting information with respect to its current co-owners, SDG&E and Riverside and its former co-owner, Anaheim, on their behalf, and they are responsible for the completeness and accuracy of their respective information.

CERTIFICATE OF SERVICE

I hereby certify that, pursuant to the Commission's Rules of Practice and Procedure, I have this day served a true copy of the documents stated below, on all parties identified on the attached service list(s) **A.09-04-007, A.09-04-009**. Service was effected by one or more means indicated below:

- **SCE-1: TESTIMONY ON SONGS 1 DECOMMISSIONING WORK COMPLETED AND REMAINING WORK SCOPE**
- **SCE-2: TESTIMONY ON THE NUCLEAR DECOMMISSIONING OF SONGS 2 & 3 AND PALO VERDE**
- **UTILITIES 3: TESTIMONY IN SUPPORT OF 2012 NUCLEAR DECOMMISSIONING COST TRIENNIAL JOINT APPLICATION**

- Transmitting the copies via e-mail to all parties who have provided an e-mail address.
- Placing the copies in sealed envelopes and causing such envelopes to be delivered by hand or by overnight courier to the offices of the Commissioner(s) or other addressee(s).

Timothy Alan Simon
Commissioner, CPUC
505 Van Ness Avenue
San Francisco, CA
94102

Melanie Darling
ALJ, CPUC
505 Van Ness Avenue
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- Placing copies in properly addressed sealed envelopes and depositing such copies in the United States mail with first-class postage prepaid to all parties for those listed on the attached non-email list.
- Directing Prographics to place the copies in properly addressed sealed envelopes and to deposit such envelopes in the United States mail with first-class postage prepaid to all parties.

Executed this **December 21, 2012** at Rosemead, California.

/s/ Raquel Ippoliti

Raquel Ippoliti
Project Analyst
SOUTHERN CALIFORNIA EDISON COMPANY

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