BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Investigation on the Commission's Own Motion into the Rates, Operations, Practices, Services and Facilities of Southern California Edison Company and San Diego Gas and Electric Company Associated with the San Onofre Nuclear Generating Station Units 2 and 3.	)))))	Investigation 12-10-013 (Filed October 25, 2012 Irvine, CA)
And Related Matters.		Application 13-01-016 Application 13-03-005 Application 13-03-013 Application 13-03-014

OPENING BRIEF OF THE COALITION TO DECOMMISSION SAN ONOFRE IN PHASE 2

November 22, 2013

Coalition to Decommission San Onofre
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Summary of Recommendations

End Date of "Used and Useful"	January 31, 2012
Last date full plant was in Ratebase	No revenue requirement allowed after January 31, 2012, all surplus funds collected from refunded.
Estimated Undepreciated Cost Basis of "Nuclear Waste Operation" (NWO) portion of the plant (7.5% of the plant)	$342M (100% Share, undepreciated)
Net Investment value after depreciation of the NWO, to be returned to investors.	$83M + $69M CWIP (when completed, see below); $152M total (100% Share), paid from funds in the following order: a) Nuclear Waste Funds (DOE Litigation) b) Decommissioning Funds c) Ratebase balancing accounts
Rate of Return	5.54%
Amortization Term	12 years from January 31, 2012, the estimated required service life of the fuel pools.
Non-NWO portion of the Plant	Considered "Abandoned" with no return of principle and 0% ROI to disincentivize failed projects like the SGRP, irrespective of prudency. Salvaging proceeds split 24.2% to investors and 75.6% to ratepayers/decommissioning fund.
Construction Work in Progress (CWIP)	$69M (100% Share) identified as NWO-related, to be completed and included in total Net Investment value to be recovered with 5.54% return. Other CWIP identified as not NWO related, initiated prior to May 7, 2012, receive cost recovery recovered at AFUDC rate. Other CWIP (non NWO, initiated after May 7, 2012) is not recovered.
Materials & Supplies (M&S)	Removed from rate base. Utility should aggressively salvage and resell unused M&S with proceeds split 24.2% to investors and 75.6% to ratepayers; remainder amortized over 12 years with no ROI.
Fuel Inventory Net Investment	Recovered over 12 years with no ROI
Seismic Study Funds	Rescind approval for seismic studies related to relicensing of the plant; remove seismic O&M expenditures already incurred in balancing accounts in current rates. Amounts included in the BRRBA for 2013 as a result of 2012 expenditures should be reversed, and no additional seismic expenditures should be allowed. (Support TURN position).

I. Introduction

In accordance with the Assigned Commissioner's and Administrative Law Judges' Scoping Memo of July 31, 2013, the Coalition to Decommission San Onofre (CDSO) hereby submits its Opening Brief in Phase 2 of this Investigation of the California Public Utilities Commission (CPUC, or "Commission") into the Outage at the San Onofre Nuclear Generating Station (SONGS, or "San Onofre").

CDSO is a grassroots project of Citizens Oversight, Inc., a 501(c)(3) public benefit corporation which encourages increased engagement by the public in the operation of their local, state and federal government to reduce waste, fraud and abuse by public officials. Citizens Oversight DBA Coalition to Decommission San Onofre is unique in its localized, on-the-ground volunteer participation which affords ready consultation with local elected officials and community members regarding the varied impacts of SONGS, as well as the implications of this Investigation. Citizens Oversight, based in San Diego and Orange Counties, has no office in the S.F. Bay Area; therefore effective participation in the CPUC's decision-making process requires additional time, travel and communications expenses. We lack the ratepayer-funded facilities and resources of Southern California Edison, San Diego Gas & Electric and the Commission and we are new Intervenors at the Commission. Our communities in Orange and San Diego Counties most impacted by the SONGS and its admittedly defective nuclear reactors depend upon us – unpaid community members who also have to tend to our businesses/jobs, kids, elderly parents – to represent them in this proceeding as well as in the U.S. Nuclear Regulatory Commission's (NRC) decision-making process for the operation, and now decommissioning, of this defective nuclear power plant. Our neighbors and the media increasingly call upon us with questions about San Onofre, and a large amount of our time is demanded by essential briefings of our elected representatives at the local, state and Federal levels.

II. Core Ratemaking Principles for SONGS

1. **Intergenerational Equity.** A key principle behind the ratemaking and asset recovery used by the Commission is the concept of intergenerational equity, which states simply that those customers who are reaping the benefits of the energy will also pay for the

underlying costs.

For a nuclear plant like SONGS, to fully respect the principle of intergenerational equity, capital investment (such as the construction costs of the plant) should be depreciated and amortized over the useful life of the asset, so that the costs for constructing the plant are spread out over the useful life. Similarly, all retirement and decommissioning costs should be estimated and paid into a trust fund by current ratepayers so that future ratepayers are not required to pay for the retirement and decommissioning of the plant. These two aspects are indeed how the Commission has addressed this issue.

Thus, all costs related to the actual generation of power, including construction of the plant, operation of the plant, and eventual decommissioning of the plant become burdens to the ratepayer who is actually reaping the benefits of that plant at the time the electricity is used, and ideally, other ratepayers do not carry any burden.

2. **Used and Useful.** With regard to cost-of-service approach, "used and useful" starts and ends when the plant goes into service and begins to produce power, and ceases to be "used and useful" when it stops producing power.

(a) According to Public Utilities Code section 455.5, the Commission must be notified when any plant is out of service for nine consecutive months.

> (b) Every electrical, gas, heat, and water corporation shall periodically, as required by the commission, report to the commission on the status of any portion of any electric, gas, heat, or water generation or production facility which is out of service and shall immediately notify the commission when any portion of the facility has been out of service for nine consecutive months.

(b) But there is a provision that if a plant is out of service and it comes back into service, that it is considered "in service" if it "has achieved 100 continuous hours of operation," such that then the plant may be again included in rates.

> (d) Upon being informed by the corporation that any portion of its electric, gas, heat, or water generation or production facility which was eliminated from consideration by the commission in establishing rates for being out of service for nine or more consecutive months pursuant to subdivision (a) or (b), has been restored to service and has achieved at least 100 continuous hours of operation, the commission may again consider that portion of the facility for purposes of establishing rates, and may adjust the corporation's rates accordingly without a

hearing, except that a hearing is required on whether to include, for purposes of establishing rates, any additional plant value added.

(c) We note here an interesting asymmetry. It seems at first glance that a plant should be considered "used and useful" for the entirety of the nine-month period after it shuts down, whereas it should be considered again "used and useful" after only 100 hours when it goes back into service. However, we assert that common sense dictates that the situation is asymmetrical only to avoid immediate review of any outage of more than 100 hours, as these may occur commonly in practice, and do not indicate that the plant is permanently out of service.

(d) It is therefore clear that a plant is considered "in service" only when it is providing the service it was designed to provide, i.e. electrical power. The time delays in PUC 455.5 are only there as an operational convenience to the Commission. The Legislature wanted to make sure the Commission would investigate only "real" service interruptions. This statute does not require notification until after nine consecutive months of service disruption and after at least 100 hours after the service is restarted[1], so as to avoid "thrashing" within the Commission's regulatory processes. These delays, therefore, do not dictate how the Commission should rule regarding whether the plant was indeed "used and useful."

(e) Any electrical power plant will have outages from time to time, and the plant may later return to service. Although the plant is not "used and useful" during any such outage from the perspective of a ratepayer, there is an understanding that the plant may become used and useful after such an outage, whether planned on unplanned, and if it can return to service within nine months, then the Commission will adjust rates for the outage at the next General Rate Case (GRC) proceeding, and no special investigation is broached.

(f) As previously discussed in this brief, PUC section 455.5 provides that the utility must inform the CPUC when any power plant is out of service for nine months, and the

1 Unfortunately, PUC 455.5 does not specify to what percentage the plant must be back in service to be considered to have completed "100 continuous hours of operation," and thus we wind up with efforts to return to service at 70% power (35% of the output of the plant) such as exemplified by the actions of SCE at SONGS during 2012 and 2013.

CPUC will then start an investigation into the outage. Part (c) of this code is of interest at this point in our analysis:

> (c) Within 45 days of receiving the notification specified in subdivision (b), the commission shall institute an investigation to determine whether to reduce the rates of the corporation to reflect the portion of the electric, gas, heat, or water generation or production facility which is out of service. For purposes of this subdivision, out-of-service periods shall not include planned outages of predetermined duration scheduled in advance. The commission's order shall require that rates associated with that facility are subject to refund from the date the order instituting the investigation was issued. The commission shall consolidate the hearing on the investigation with the next general rate proceeding instituted for the corporation. (emphasis added.)

This states that the rates associated with the facility are subject to refund from the date of the order instituting investigation was issued which could be nine months plus 45 days after the plant ceased being used and useful in terms of generating power.[2]

(g) However, we must not miss section (e) of PUC 455.5:

> (e) Nothing in this section prohibits the commission from reviewing the effects of any electric, gas, heat, or water generation or production facility which has been out of service for less than nine consecutive months or planned outages of predetermined duration scheduled in advance. (emphasis added)

(h) Therefore, the entire time from the date the plant ceased to operate is subject to refund to the ratepayer consistent with the Assigned Commissioner's and ALJ's Ruling of April 30, 2013[3].

CDSO asserts that the plant is only to be considered "used and useful" when it is actually operating, from the minute it starts to the minute it stops.

3. **Retirement.** Nuclear plants have extensive and costly retirement requirements known as decommissioning. The NRC has specific requirements for radiological

2 The Order instituting this Investigation was issued on October 25, 2012.

3 From the Ruling of April 30,2013, paragraph 3 & 4:
"3. In this OII, the Commission has authority to conduct the deferred first reasonableness review of SONGS-related expenses (100%) sought in A.10-11-015, the SCE GRC, and to give final approval to post-2011 rates.
4. If the post-2011 SONGS-related expenses finally approved in this OII are less than the associated revenue amounts for which recovery was preliminarily allowed in D.12-11-051, then the Commission may immediately order equalizing refunds to ratepayers."

decommissioning, which specifically do not include the spent fuel pool, Independent Spent Fuel Storage Installation (ISFSI) and related equipment and infrastructure, and does not include "nonradiological" decommissioning, including dismantling outlying buildings, bringing the site up to pre-existing standards, and the like. Decommissioning funds are maintained in the Nuclear Decommissioning Trusts and reviewed by the CPUC in the Nuclear Decommissioning Cost Triennial Proceeding (NDCTP) which is occurring concurrently with this proceeding.

It is the intention that the decommissioning trust funds be sufficient for all the costs related to decommissioning such that ratepayers during that period will not be burdened with any of these costs, since they do not benefit from the power that was generated.

III. Nuclear Waste Operation (NWO)

4. **Definition of NWO.** A portion of the plant now provides value in terms of the operation of the spent fuel pools and the ISFSI, so as to deal with the nuclear fuel at various levels of degradation. For purposes of this brief, this portion of the plant will be called the "Nuclear Waste Operation" (NWO). The NWO consists the ISFSI, the two spent fuel pools, and other support structures and equipment.

5. The value of the NWO is logically to the customers who received the power during the operation of the plant. They should be responsible for all shutdown and NWO fuel management and storage costs, if we are to respect the goal of intergenerational equity; current ratepayers should not be burdened with this responsibility.

6. There is no general responsibility of the ratepayer or general public to underwrite the costs for safety of the nuclear waste on the site. The general notion that a service is being provided to the public by keeping this waste safe is misplaced. The public did not ask to have a nuclear waste repository at this location, and it is being established with no real review by the public, local hearings, or California Environmental Quality Act (CEQA) treatment. If any group is to bear the burden of the responsibility for the NWO, it should be the ratepayers who received the benefit of the power at the time it was generated.

7. The ISFSI that exists at SONGS, as a component of the NWO, is adequately designed

to serve the intended purpose of storing the waste, without undue overhead of legacy systems that provide no value to the ISFSI. For the most part, it does not include "extra" infrastructure that exists only because it was part of the larger operating plant. The exception to this statement is regarding security. The plant has a security fence which encompasses the entire plant (except for the Mesa portion) and this secure fence has a longer perimeter than would be optimal for just the NWO (the ISFSI and the Fuel pools while they are in operation).

However, it must be stated that the CDSO does not support a permanent repository at this location, given that it is subject to seismic, tsunami, and terrorist risks, and is in a densely populated area. We are concerned that this permanent nuclear waste dump is being built without obtaining the consent of the public.

8. In contrast, the Spent Fuel Pools are coupled with many other systems of the plant which are not completely required now that the rest of the plant is inoperable in terms of generating power[4]. If the designers would have had perfect foresight, the infrastructure to support the pools could have been designed to require far less of the plant to be operational, and the NWO could be segregated into a small secure area while the rest of the plant is dismantled.

9. The plant was originally designed without the knowledge that there would be a need for the NWO, that is, the ISFSI and fuel pools filled to capacity with spent fuel. Based on information available at the time, designers assumed that the permanent geologic repository would be available. The designers should have been aware, however, that the spent fuel pool would have to operate for a period of time after shutdown to cool the fuel which had just been removed from the reactors before it could be transferred to the federal repository, and so it should have been designed to be possible to segregate it from the larger plant.

10. The current design of the spent fuel pool includes several additional cooling systems that are not essential to the operation of the pool.[5] The pool could be adequately cooled

4 This point is more thoroughly discussed in paragraphs 10 - 12.

5 Transcript, Page 1987, Lines 5-8 Q (Dudney) "...theoretically it would be possible to replace those large pumps with smaller pumps. That would meet the need, or no?" A (Bauder) "It would."

without the circulating water system (where one pump runs at 200,000 gal/min) and with the salt water cooling system alone[6], or even a system that does not rely on the problematic once-through nature of either the saltwater cooling system or the circulating water system[7]. The component cooling system and circulating water cooling system could be excluded from any new design, and many other systems could have been designed to allow the Fuel Pools to be isolated from those systems.

11. In fact, the spent fuel pool thermal dissipation requirements are so much lower than that of the operating plant, it may be feasible to avoid using the once-through cooling systems (the salt-water cooling system and the circulating cooling system). According to SCE[8], one circulating water pump moves 200,000 gallons per minute whereas one salt water pump moves 17,000 gallons per minute. When the plant is in full operation, four circulating water pumps run per unit, or 800,000 gal/min per unit[9], and the conduits to and from the ocean, screens and filters are sized and designed to accommodate that high flow rate. In contrast, to cool the fuel pools, each needs AT MOST one salt water pump to operate, and that is also about 5x the required current. Thus, the capacity of the other systems utilized is 17,000/800,000 = 2.1%.[10]

12. There is evidence that the flow rate actually needed to cool one fuel pool is approximately 2800 gal/min[11] for a generic 1000 MW nuclear power unit as defined by

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6 Transcript, Page 1962, Lines 22+ A (BAUDER) "If you turn the circulating water pumps off, the saltwater cooling pumps all by themselves will pull water in through the intake conduit we discussed in through the traveling screens and into the forebay and into the suction of the saltwater cooling pump, then through the loop that we showed and back out the discharge side. They'll do that all by themselves with the circulating water system totally turned off."

7 Transcript, Page 1861, Lines 20-25, (BAUDER) "So when you see presentations about once-through cooling, generally they are regarding salt water, however -- circulating water. However, salt water is once-through cooling. It is just at a much reduced flow rate."

8 Transcript, Page 1861, Lines 17-19, "a circulating water pump moves about 200,000 gallons per minute and salt water about 17,000 gallons per minute."

9 Transcript, Page 1924, Lines L8-12, "A (BAUDER) In that [full power] configuration, we would have two saltwater cooling pumps running on each unit as well as all four circulating water pumps. So roughly 800,000 gallons of flow rate per unit."

10 The analysis here does not attempt to fully address the fact that backup pumps are required from a safety standpoint, but instead considers what is required in order to get a rough size of the plant. We acknowledge that multiple pumps are included in the system design but such over-sizing for safety concerns is consistent throughout the plant, so on a percentage basis, it can be neglected.

11 Transcript Page 1877 Line 15 Page 1879 Line 19, regarding A4NR-22 which is an extract from the NRC "Draft Generic Environmental Impact Statement" for their waste confidence rulemaking, Table 4-1, which states that the nominal flow rate for a fuel pool on a 1000 MW nuclear plant would need 2800 gal/min. cooling rate.

the NRC. Each of the SONGS Units 2 and 3 are 1,070 MWe and 1,080 MWe net respectively, when operating at 100% capacity[12], and thus a close match to the generic definition by the NRC. Using this figure, the percentage actually needed of full-power flow is 2800/800,000 or 0.35%, just over 1/3 of one percent. This further underlines that the existing saltwater cooling system which pumps at a minimum of 17,000 gal/min. and the circulating cooling system, which pumps a minimum of 200,000 gal/min., when these are run with only a single pump each, are hopelessly oversized for the job, and the notion that these systems are 100% required, as asserted by SCE in SCE-36, is hardly accurate. One saltwater cooling system pump is 607% the size needed to do the job (17,000/2,800) and one circulating water pump is 7,143% the size needed to do the job (200,000/2,800).

13. To burden the NWO with all the costs due to this poor historical design is inappropriate because it overvalues those assets for a purpose where they are only partially used, and makes it appear that the NWO is more expensive than it would be if designed from scratch.

To draw an analogy, consider a large hotel where all but two rooms of the hotel cannot be used for some reason. Assume also that the air conditioning and heating is designed so that the entire hotel must be heated and cooled just to heat and cool the two rooms that are left. What is the value of the two rooms that are left? The value is based on the free market rental rates for those rooms, not the poor design of the rest of the hotel. The rental rates can't be arbitrarily burdened with the costs for cooling the entire hotel as hotelier could not rent the rooms at exorbitant prices just because they have a poor and inefficient design. In a cost-of-service paradigm, it is inappropriate to burden the two rooms with all the expenses of the rest of the hotel, but instead to evaluate the actual value provided.

14. Therefore , the value of the NWO should <u>not</u> be based on the 23% SCE says is required using a "greedy" determination of "used and useful," but instead on the minimal portion reasonably needed to operate the NWO if it were designed from scratch.

15. Although the plant is not "used and useful" for current ratepayers, the NWO portion of the plant does provide value for those ratepayers who purchased power during the

12 Wikipedia, http://en.wikipedia.org/wiki/San_Onofre_Nuclear_Generating_Station

years when the plant was in operation. These ratepayers paid into the decommissioning trust funds (and federal nuclear waste account) with anticipation that those funds would be adequate to fully decommission the plant, both from the perspective of the NRC and from the perspective of the CPUC, including all activities after the moment the plant ceased to produce power and became no longer useful for ratepayers. This includes the post-shutdown interval, the start of the formal decommissioning process, and all activities until license termination.

IV. Rate making

A. End of "Used and Useful" for ratepayers

16. **In General.** As we have argued in Phase 1 of this Investigation[13], it was clear on January 31, 2012, that an emergency did occur and this should have been taken seriously by a "reasonable manager" who places safety above profits. All projects that assumed the plant could be restarted should have been placed on hold, including reloading of the fuel into Unit 2 and expending resources to pursue a possible restart over and above diagnosis and analysis.

17. **Unit 3.** When the emergency shutdown occurred in Unit 3 on January 31, 2012, that unit ceased to operate and was no longer "used and useful."

18. **Unit 2.** On January 31, 2012, Unit 2 was in the middle of a planned Refueling Outage (RFO) which started on January 10, 2012. Therefore, it was not immediately clear that Unit 2 was no longer used and useful until it became clear that it would not be feasible to restart it.

(a) As we have argued in Phase 1 of this investigation[14], upon the release of the Root Cause Evaluation ("RCE", sometimes also called the "Root Cause Analysis") on May 7, 2012, a reasonable manager should have concluded that Unit 2 was also seriously damaged, that the Unit 2 restart was impractical, and that a split-shutdown scenario was not cost effective (as was asserted in the Steam Generator Replacement Project

13 CDSO Reply Brief in Phase 1, filed June 28, 2013.
14 CDSO Reply Brief in Phase 1, filed June 28, 2013, at pp. 7-9.

(SGRP) decision[15]) and the plant would no longer be safe to operate.

(b) Therefore, we claim a reasonable manager would conclude that the entire plant would no longer ever operate on May 7, 2012.

(c) However, from a ratepayer perspective, the unit transitioned from "used and useful" to "shutdown" as of January 10, 2012.

19. **Commission Policy on Used and Useful Should be Clear.** We assert that it is important for the Commission to draw a hard and clear line regarding "used and useful" in terms of generating power. Subjective tests based on what a reasonable manager may have thought or arbitrary announcement dates should not be used, as these are easily manipulated by greedy profiteers. Instead, the dates should be observed retroactively in terms of when the plant *actually generated power.*

20. **Logical Date.** Unit 3 became no longer "used and useful" on January 31, 2012 and Unit 2 became no longer "used and useful" on January 10, 2012. It may be convenient, however, to split the difference and treat the entire plant as no longer being used and useful as of January 21, 2012, as many aspects of the plant are not split up by unit. We believe the Commission should adopt this reasonable and fair position for ratebase and investor return calculations, as it eliminates the difficulty of allocating assets and costs that are not easily allocated to a specific unit.

21. **Pragmatic Date.** If this date is not legally possible or convenient to the Commission for some reason, we will accept the convenient date of used-and-useful ending on January 31, 2012 and the post-shutdown phase starting on February 1, 2012. We understand there have been other rulings that have mentioned this later date and moving to the logical date of January 21, 2012, may be correct but difficult to accomplish within the regulatory framework already established.

B. Post-Shutdown Period

22. The post-shutdown period started no later than February 1, 2012.

23. For the post-shutdown period, there are three potential sources of funds for allowed

15 CPUC D.05-12-040

costs, as follows, and to be used, when possible, in this order:

(a) **Nuclear Waste Funds.** Funds from the U.S. Department of Energy (DOE) for nuclear waste management and storage, including costs to operate the NWO.

i. These funds are accessed from the federal government through lawsuits which are regularly filed and executed by SCE and SDG&E.

ii. In a recent case, 97% of the requested costs were recovered in this activity[16].

(b) **Decommissioning Trust Funds**. These funds can be split into two parts:

i. Funds used for "radiological decommissioning" required by the NRC to be described in the Post-Shutdown Decommissioning Activities Report (PSDAR), which are regulated by the NRC in terms of being sufficient to the task, and

ii. Funds that are not included in "radiological decommissioning", and are used for nonradiological decommissioning activities and including activities in the interval after shutdown but before the PSDAR is submitted. This portion of the decommissioning funds are not regulated by the NRC.

(c) **Ratebase**, i.e. requiring that current customers pay for costs at the plant which is now out of service, and no longer "used and useful" in terms of generating electricity. We believe this source of funds should be not be used so that the goal of intergenerational equity can be respected.

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16 This was disclosed by SCE's Dr. Hunt in the Nuclear Decommissioning Cost Triennial Proceeding (NDCTP, A.12-12-012/013) See Transcript 474 for that proceeding starting on Line 16:
(FREEDMAN) Q How much is Edison intending to request for interim disbursements from the trust?
(HUNT) A ...we can spend three percent of a designated amount on planning activities. And we do not need prior approval from the Commission for that purpose. There is another 20 percent which we have which we can spend from the trust once we submit the PSDAR report to the Nuclear Regulatory Commission. There are additional amounts that we can spend from the trust from the Nuclear Regulatory Commission perspective after we submit our detailed site-specific decommissioning plan that we're planning to submit in 2014. That's a little bit off your question. I just cannot recall precisely what we may be seeking in the advice letter.
Q So is it approximately three percent of the trust balance? Is that order of magnitude what Edison would be proposing?
A No. It's actually a smaller amount, if I recall correctly, because there is a letter that we submit to the Nuclear Regulatory Commission either on -- I believe it is on an annual basis. We submitted that report in March 27, 2013. And then that report has a minimum amount according to an NRC prescribed methodology that is about $1,040,000,000. That's the decommissioning cost amount according to this particular formula. And it's split evenly between SONGS 2 and 3. We are allowed to spend three percent of that amount. That amount is considerably less than what is currently in the trust.

24. Although the NRC does review the PSDAR for compliance with its published standards, the NRC does not formally "approve" it[17]. The NRC monitors the decommissioning process for compliance with its published standards to insure safety.

25. The NRC is concerned only with safety, and therefore provides only limited oversight regarding access to decommissioning trust funds and does not review reasonableness of actions by SCE. The CPUC is the only entity that provides this function.

26. After the plant ceased to operate, a number of phases of activity have or will occur, as follows:

2012-01-10	RFO shutdown of Unit 2.
2012-01-21	Logical plant shutdown for the purposes of ratebase calculations.
2012-01-31	Actual shutdown of Unit 3.
2012-01-31	Pragmatic date for plant shutdown. This ends the "used and useful" period in terms of power generation.
2012-02-01	Post shutdown interval starts.
2013-06-07	SCE announces plans to abandon the plant.
2013-11-18	SCE filed an Advice Letter 2968-E[18] to withdraw up to $214 million from the Nuclear Decommissioning Trust.
mid 2014	SCE to submit the Post-Shutdown Activities Report (PSDAR).
>90 days later	SCE to file an Advice Letter accessing additional funds to proceed with active decommissioning.

17 From "Frequently Asked Questions About Reactor Decommissioning" (http://www.nrc.gov/about-nrc/regulatory/decommissioning/faq.html) "Although the NRC will determine if the information is consistent with the regulations, NRC approval of the PSDAR is not required. However, should the NRC determine that the information requirements of the regulations are not met in the PSDAR, the NRC will inform the licensee in writing of the deficiencies and require that they be addressed before the licensee initiates any major decommissioning activities."

18 https://www.sce.com/NR/sc3/tm2/pdf/2968-E.pdf -- Advice Letter 2968-E Subject: "Request for (1) Authorization of Disbursements from the Master Trusts for San Onofre Nuclear Generating Station; (2) Approval of Tier 2 Advice Letter Process for Future Disbursements; (3) Designation of Trust Amounts Set Aside for NRC License Termination; and (4) Approval of Balancing Account"

27. **SGRP Provided No Value.** If the Steam Generator Replacement Project (SGRP) had never been attempted, SCE expected SONGS Units 2 & 3 to remain in service roughly until the same time that they ultimately failed on January 31, 2012, or later. According to the Commission decision approving the SGRP[19], the original steam generators (OSGs) would likely have continued to run longer than the replacement steam generators (RSGs) actually did run. Finding of Fact 62:

> 62. The most recent DEI forecasts indicate a 32% probability of Unit 2 reaching the plugging limit by RFO 17 in July 2011, and a 70% probability of reaching the plugging limit by RFO 18 in April 2013. These forecasts also indicate a 46% probability of Unit 3 reaching the plugging limit by RFO 19 in January 2016. This means that without the SGRP, there is approximately a 50% probability that Unit 2 will operate until mid-2012, and that Unit 3 will operate until the beginning of 2016. (D.05-12-040 at p. 84)

(a) The defects in the design of the RSGs became apparent at the first opportunity to inspect them, in the first RFO of Unit 2 after installation of the new steam generators (January 10, 2012). At that time, an extensive inspection was planned so as to determine any unusual wear and to validate the quality of the design. These inspections were underway when the failure occurred in Unit 3.

(b) Therefore, the steam generators never did run reliably, as they did not complete their first inspections without severe and unprecedented wear.

(c) The ratepayer received no benefit for the entire steam generator replacement project, and in fact the plant may have run longer without incurring any of the costs to replace them. Regardless of who may have been at fault in terms of the defective design of the RSGs, the ratepayer should not be expected to shoulder such costs since they received absolutely no value, as the RSGs were not reliably placed into service.

28. **End of Ratepayer Responsibility.** The entirety of the plant should remain in ratebase no later than January 31, 2012, due to the reasons described above.

29. **Refunds to Ratepayers.** Ratepayers should receive a refund for any surplus amounts in ratebase or already paid to SCE that reflect investment in the defective steam

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generators, as these provided no real value to the ratepayer. All surplus funds collected from ratepayers for the plant after January 31, 2012, should be refunded to ratepayers.

V. Asset Valuation and Return to Shareholders

30. To determine the effective value of the plant so as to properly compensate investors, we unfortunately find that SCE historically has used an astonishingly simplistic accounting system, they do not use an Enterprise Asset Management (EAM) system[20], they have only recently converted to using a world-class accounting system which is commonly used by other corporations of this scale (SAP)[21], and as a result, historical data from the SONGS Unit 1 decommissioning are apparently hopelessly lost, and no system-oriented asset reports can be produced.[22]

31. We find that the use of this exceptionally simplistic accounting system is imprudent, unreasonable, and an embarrassment. CDSO is extremely distraught that the Commission has allowed operation of a plant by a company using such shoddy business practices, and should mandate that regulated utilities maintain concise and complete asset data that allows reporting to be performed to more accurately segregate plant subsystems.

32. As a result of SCE's poor accounting methodology, SCE cannot create accurate asset reports that are oriented to systems that will be useful for required NWO activities, despite being aware that such calculations would be necessary at plant shutdown.

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20 Transcript Page 2073 Line 19: Q (Lutz) Okay. Well, I'd like to then refer to CDSO-19. Nineteen is a brochure from SAP describing what many state-of-the-art enterprises use to handle their assets as asset management system. Are you familiar with the terminology "enterprise asset management"? A (Fisher) I'm familiar with the terminology, but it covers a broad range of actions or things that a company can do. Q Okay. Are you familiar with the SAP enterprise asset management at all? A No, not specifically.

Transcript Page 2074 Line 27 (Lutz) Q "So has your department ever considered constructing a database of assets to track them?" A (Fisher) "No."

Transcript Page 2076 Line 1 (Lutz) Q "Okay. So you're saying that you do not have a list of your capital assets in the plant and where they're located? (Fisher) A I don't possess that list. Q Okay. But your firm -- I'm talking to you as someone who prepared these testimonies. Is your testimony that your firm does not have such a list? A I'm not familiar with it.

21 Transcript Page 1842 Line 8, (Perez) "The software that's used for financial purposes as well as work management purposes is SAP. Q (Lutz) SAP. Do you use an enterprise asset management subsystem within SAP because they do offer it? A That I don't know."

22 Determined From Nuclear Decommissioning Cost Triennial Proceeding (NDCTP) 2012 (A.12-12-012/013) that SCE used software developed in-house called U1DCOM that was based on a DOS operating system and interfaced with their CARS mainframe, and this is no longer available.

Although SCE does know the exact location of many assets that are tracked throughout the plant, the company has not been utilizing an asset management system, and does not even attempt to place assets into their respective locations within the 28-system view of the plant, even though SCE admits this is possible[23]. SCE has recently upgraded to use the accounting system provided by SAP instead of an internally designed database U1DCOM that interfaces with the CARS mainframe system, but this transition only has exacerbated the difficulty of the parties to access historical data, and further obfuscates the asset values of the plant.

33. Furthermore, SCE apparently does most of its internal work without any meeting minutes or written documentation. Data requests for meeting minutes, approval documents, etc. tend to come up empty[24]. The Commission should not tolerate these shoddy business practices, and should demand and require that meeting minutes, reports, and written approval documents be created and maintained for review.

34. Due to their lack of detailed accounting capability, SCE provided an estimation of the assets "used and useful" in SCE-36 using a crude system of estimation, where asset accounts are categorized into one of four categories:

(a) **0% "used and useful"**,

(b) **100% "used and useful"** -- This category includes on item which is 50% "used and useful" and half the asset value was included,

(c) **Staff-Level Allocated** --They estimate the portion remaining of these are 39% based on the 1147 employees just prior to the shutdown announcement and the 575 currently targeted at the plant[25], and

(d) **Plant Condition Allocated** -- The Plant Allocated items are allocated according to the fraction of systems that are deemed to be "used and useful" among the 28 systems

23 Transcript Page 1852 Lines 4-11, Q (LUTZ) I'm just asking about could you list -- since you know where the valves are you have -- each one supposedly has a number. You could allocate them to the 28 systems that are engineering definitions of the systems, correct, it could be done?
A (BAUDER) It could be done. It is within the scope of possibility.

24 DRA-05, Data request response by SCE "No meeting minutes were issued."

25 Transcript Page 1865 Lines 7-11: (LUTZ) "So then there is a calculation made that the reduction in common assets would be 575 divided by 1470, or around 39 percent, correct? (BAUDER) A Right."

used in the analysis, including a fudge factor for the system complexity. This methodology includes a vast margin of error as the complexity factor and the percentage used have very minimal granularity, and relies upon subjective evaluations.

35. **Questionable Methodology.** The SCE analysis was performed entirely by SCE employees[26] who all worked together for about three weeks[27] to determine the allocation of the plant. There was no third party assessment and there were no outside experts[28] and the group was not split up into competing factions[29], and no other method of analysis was utilized. No meeting minutes, reports, or approval documents were created or maintained[30] other than the appendices of SCE-36. The group admitted that they have no knowledge of this method being used to estimate asset allocations for any other plant entering decommissioning[31]. They did no check that their estimation process comes up with reasonable results[32].

36. The Commission should admonish SCE for using such poor accounting practices that such approximations are even considered as necessary. We find the method used by SCE is a disgraceful and greedy attempt by SCE to treat more of the plant as "used and useful" than is appropriate, to unfairly maximize their profits and mistreat ratepayers.

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26 CDSO-16, Response to Data Request by SCE listing experts and their job descriptions

27 Transcript Page 1898 Lines 14-17 "WITNESS BAUDER: A Just from my knowledge of what the team had to do and put together over a three-week period, I believe the team spent a lot of time together."

28 CDSO-16, Response to Date Request by SCE "No third party assessment was performed."

29 Transcript Page 1898 Lines 14-17 "WITNESS BAUDER: A ...I believe the team spent a lot of time together."

30 DRA-05, Data request response by SCE "No meeting minutes were issued."

31 Transcript 1888 Line 19-25, Q (Venskus) Now to your knowledge, has this, quote, methodology, end quote, that this team utilized ever been used in connection with the shut down of another nuclear plant? WITNESS PEREZ: A I don't know. WITNESS BAUDER: A Not to my knowledge.

32 Transcript Page 1974 Line 2 (ALJ Dudney) "Q I'm asking did you make an attempt to check your work essentially by looking at the costs of some of the assets that are easily identifiable into one of the systems to see whether a back-of-the-envelope estimate of that cost of that system would sort of match the system assessment that was given?
WITNESS PEREZ A No. We don't have any of the cost information available by these systems here."

Table IV-5
Net Investment Summary (SCE Share)

5/31/2013

Category	Plant	Accumulated Depreciation	Net Investment	Allocation	NI Required
Not Required	1,030	306	724	0%	-
Staff Level	73	57	16	39%	6
Plant Condition	3,078	2,702	376	40%	150
Still Required	938	813	124	100%	124
Total	5,119	3,878	1,240	23%	281

Illustration 1: SCE-36 Table IV-5, "Net Investment Summary (SCE Share)

37. SCE, using this method, determined the adjacent summary, (Illustration 1, Table IV-5 from SCE-36) which concludes that 22.66% of the plant (281/1240) is needed for the NWO. They also assert that certain decommissioning tasks should be included in the "used and useful" category. We do not agree with this latter characterization, and suggest that the Commission make a clean split between used-and-useful based on three activities and time periods:

(a) when the plant generated power,

(b) the NWO, and

(c) decommissioning activities, involving the rest of the plant, which are supposed to be funded by the decommissioning trust funds.

38. **Current Depreciation.** According to SCE-36 Table IV-5, the "Total" line states that the accumulated depreciation of the plant is $3,878 out of $5,119 leaving $1,240 as the net investment value. Thus the remaining undepreciated fraction of the plant is 1240/5119 = 24.2%. This fraction will be applied to basis values to determine the net asset values of portions of the plant described below, since it is the practice to depreciate the plant as a whole[33].

39. Although the SCE analysis has many steps, there is significant subjectivity included

33 Transcript Page 2086, Line 24: "A (FISHER) If I could be clear here, that the existing depreciation life of these assets is the license life. So we've had that in place I believe since we started going back to cost-of-service ratemaking as of 2002 or 2003. The license life is 2022. So every asset that we have in place, the remaining life is through 2022. We don't depreciate these assets as units, as individual pieces. We depreciate them as a whole group. So they are being amortized through the existing license life.

in the analysis, which generally assumes that anything is either 100% useful or 0%. For example, all structures on the site are rated at required 100%[34]. Similarly the superstructures on site are placed in the 100% category[35], even though many of the buildings are no longer useful for the fuel pool and ISFSI activities, and some may be only partially used. Furthermore, the revised allocation of superstructures from 40% to 100% was done somewhat arbitrarily and without executive officer review or approval, and casts doubt on the propriety of the SCE process as a whole.[36]

40. **Staff-Level assets incorrectly calculated.** In SCE-36, "Staff Level" assets are allocated based on the reduction in employees, asserting that 39% of these assets are "used and useful" because the number of employees has been reduced 39%, i.e. from 1474 to 575[37].

(a) However, the staffing level at full-power operation was 2250[38]. CDSO asserts that the staff-level calculations are incorrect, as it is clear that the fraction should be 575 / 2250 at the most, which is about 25.5%, and not 39% as SCE proposes.

(b) SCE admits they have not liquidated all assets[39] related to the reduction in staff from 2250 to 1747, and we find no substantiation showing that any assets have been liquidated and appropriately removed from the asset accounting reports. In general, calculations they are performing are based on original basis and depreciation, and there is no reduction to match staffing level reductions. Therefore, any calculation should utilize the full-power staffing level of 2250, and probably the near future

34 Transcript Page 1869 Lines 5-7:
ALJ DARLING: Every structure in Appendix A is deemed 100 percent?
WITNESS PEREZ: Yes."

35 Transcript Page 1769 Line 25, "WITNESS BAUDER: A I believe in the submittal, we specify the area had been -- we had the super structures at 40 percent, and we -- we reallocated that percentage to 100 percent."

36 Transcript Page 1875 Lines 4-12 "MR. GEESMAN: Q Was that decision reviewed by anyone other than the two of you and Mr. Worden?
A (PEREZ) I don't know.
WITNESS BAUDER: A I concurred with the decision.
Q You were the final authority, Mr. Bauder?
A Yes.

37 Transcript Page 1865 Lines 7-11: (LUTZ) "So then there is a calculation made that the reduction in common assets would be 575 divided by 1470, or around 39 percent, correct? (BAUDER) A Right."

38 Transcript Page 1864 Lines 4-5 "WITNESS PEREZ: A I'll substantiate that it is 2250."

39 Transcript Page T1867 Lines 14-18 (LUTZ) "Q Okay. So then did SCE liquidate all staffing level assets related to those earlier reductions? (PEREZ) A It has not been completed. It is in the process."

number of 400.

(c) If the correct staffing number for estimating used and useful for the purposed of the Fuel Pool and ISFSI is no more than 400[40], this would provide a fraction 400/2250 = 17.8%. However, recognizing that the 300 security personnel are fixed, the actual ratio of non-security personnel shows staffing levels need to be only 100/1950 = 5.1%.

(d) We note, however, that in the SCE analysis, the entire "staff level" category is wholly without any consequence as the percentage 39% vs. the "plant level" assets are said to be useful at 40%, only differ by 1%. Since both these numbers are subjective approximations, we may as well just ignore the staff level allocations and just use the plant level allocations, since the amount of staff is obviously tied to the amount of the plant actually in use. This does make sense. To a great degree, the square footage of the plant in operation will correlate with the staff needed to operate it.

(e) Although we do not agree with the fraction of the plant SCE says is needed for operation of the NWO, the notion that the staffing level is tied to the fraction of the plant allocated to the NWO makes logical sense, is inadvertantly supported by SCE in the two percentages (39% and 40%), and is reflected in our analysis below.

41. **Alternative Analysis.** The analysis by SCE exaggerates the portion of the plant that is useful for purposes of the NWO. CDSO therefore proposes an alternative analysis, based on the notion that the plant be conceptually split into two parts:

(a) **NWO Assets**, i.e. the portion which will continue to be "used and useful" to handle the nuclear spent fuel, in the fuel pools, ISFSI, fuel pool cooling, and transfer of spent fuel from the fuel pool to the ISFSI.

(b) The remainder of the plant, which can be decommissioned and dismantled.

Our analysis is detailed in the sections that follow.

40 Transcript Page 1864 Lines 22-24 (BAUDER) "our plans are to reduce to approximately 400 Edison employees next year."

A. NWO Assets

42. **Subsystems Evaluation:** To determine the portion of the plant useful for the NWO (fuel pools and ISFSI), we are unfortunately forced to use estimation methods which are no better than the ones used by SCE. First, we will use a similar method to that used by SCE. Using the same figures from Table III-3 of SCE-36 on page 8, and considering the subset of the 28 systems used by the NWO[41], the minimal systems necessary are as follows:

TABLE 1. 28-Systems Method to Value NWO.

Num.	System	System Assessment	Percentage in Service	Weighted Factor
14	Radwaste	50	100%	50
25	Radwaste HVAC	25	100%	25
27	Salt Water Cooling	100	100%	100
28	Fuel Pool	50	100%	50
	All other systems	1525	0%	0
	TOTAL	1650		125

(a) To determine the fraction of the plant used by the NWO, we calculate 125/1650 = 7.5%

(b) In this method, we are not suggesting that the four systems above are the only equipment operating in the plant to support the NWO, even though we assign 0% to all the other systems in the initial calculation. Thus, although there are many parts of the plant which are not specified by the 28 system approach[42], this method

41 We admit that it is difficult to partition the plant into NWO and non-NWO subsets but based on the testimony of SCE, we used our judgment to select the systems most obviously critical for the NWO from the list of 28 subsystems.

42 Transcript Page 1971 Lines 9-14: "Q (ALJ DUDNEY) Okay. So all assets at SONGS would be represented somewhere in those 28 systems. Is that accurate?
A (PEREZ) No. Structures is not one of these systems here. It's not one of the 28 systems."
Line 21: (ALJ DUDNEY): "Q All right. So if you could -- so you just gave me an example of a system that's -- or a category of assets that wouldn't be included in those 28 systems. But could you give me a general sort of definition of the kinds of assets that wouldn't be included in those 28 systems?
WITNESS PEREZ: A A system that's not included on this list -- another one would be the switchyard.
Q So I'm looking for sort of a rule of thumb for what types of assets would not be included.
A I can give you the converse of that, and that is that these systems are those that are in the plant that supported

approximates a percentage of the total plant which provides value for the years when the NWO is in operation. This is the same method used by SCE in their analysis, but we simply chose those systems based on a minimal approach rather than a "greedy" maximal method which includes any system at 100% if it is partially used in any respect.

(c) We did not include the circulating water cooling system because it is not absolutely required to operate to cool the fuel pools, as will be further detailed in the following paragraphs. Similarly, the component cooling system, although required in the current design, would not be required in an optimal design, so it is omitted, so as to not create an artificially large percentage in the 28-systems analysis.

(d) In other words:

i. The 28 systems are assumed to be a "good sample" of the systems and assets in the remaining plant. This is the same assumption that SCE made in their analysis, as we know that the 28 systems do not comprise the entirety of the plant.

ii. We considered only those systems which are actually used in the NWO activity, so as to generate a percentage of the entire plant that is in service for the NWO.

iii. We applied the same weighting factors as did SCE.

iv. This percentage value is used to determine how much of the entire plant is actually used by the NWO activity, including those systems weighted at 0 above, and elements of the plant that are not in the list at all.

v. This calculation results in a 7.5% fraction.

operations of electricity."

43. **Square footage method to estimate NWO Value.**

To check our estimate, we employed a second method to approximate the portion of the plant which will continue to operate in the NWO activity. This method simply considers the area of the main plant that will continue to be in use compared with the rest of the primary plant area (See Illustration 2). When this done, we outline the area directly used in the NWO, i.e. the fuel pools, saltwater cooling system areas, and ISFSI. We are not including any of the area of the Mesa portion of the plant, so this is conservative (results in a higher percentage fraction), even though we do not include absolutely every little item in the plot plan that may be used. We know, for example, that the switchyard will be partially used but we do not outline that because only a small portion of that system is still in use and <u>will be estimated by this method.</u>

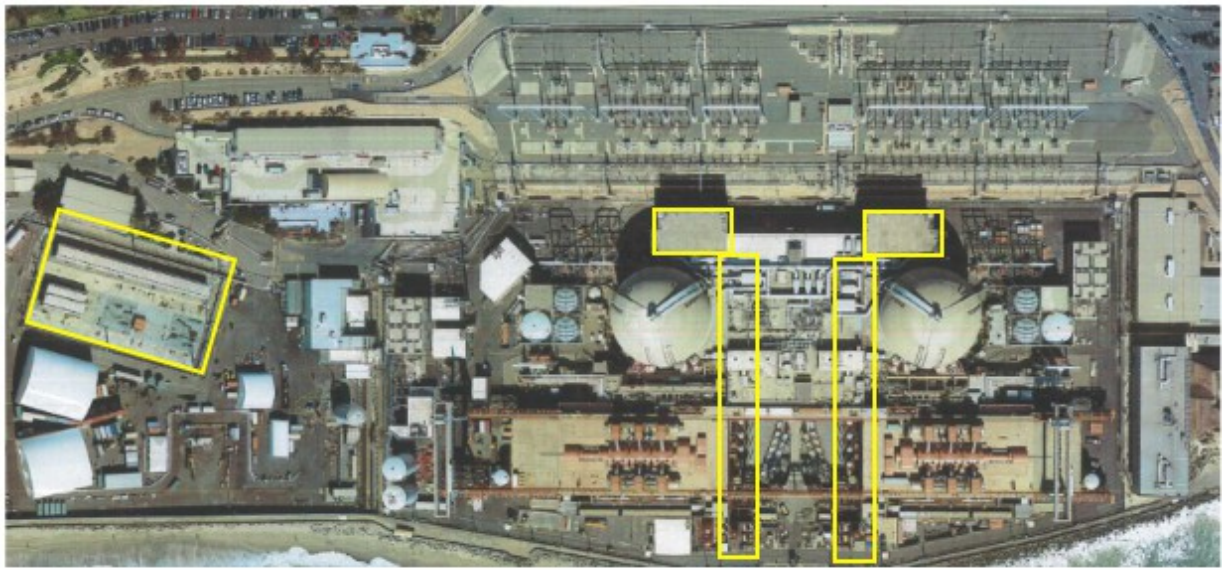

Illustration 2: Square Footage Method to Estimate NWO Value (Image from SCE-45)

The result from this analysis is that the portion of the plant useful for the NWO is 2.51 square units whereas the total plant is 33.4 square units. Dividing, 2.51/33.4 = 7.51%, which corroborates the estimate generated from the 28-systems approach. This nearly identical result is a bit of a surprise because the analysis was performed independently

and we did not attempt to match the figures.

Our approach is superior to that used by SCE because we provide a second method which checks the estimate, and they had no sanity test of their method.

44. **Staffing Level.**

Given the 7.5% estimate for the portion of the plant which will be useful for the NWO, we can also estimate the likely appropriate staffing level by applying this fraction. In general, the staff needed is roughly comparable to the portion of the plant that remains in the NWO. To be fair, we understand that the security personnel will not be able to be reduced by the same proportion, so we will subtract the 300 security staff level[43] from the total, then add it back in. We start with the total staffing level of 2250, subtract away the security personnel, apply the fractional proportion, then restore the security personnel.

Thus the equation is 7.5% * (2250-300) + 300 = 446. This correlates with a point between the proposed staffing level of 575 to start with and a future staffing level of 400, roughly suggesting what may be a daily average staffing level over the time when those levels are declining. Although crude, this analysis is no worse that what SCE has used, and it estimates that the staff, on average, will be slightly higher than the goal of 400.

45. The fact that our estimate of the size of the NWO matches the stated target staffing levels proposed by SCE further buttresses our estimate of 7.5%

46. Historically, there has been a roughly constant capital investment in the plant when no large project like the SGRP is being executed, and associated other costs.[44] However, there are other capital expenditures that are related to the SGRP but not explicitly included in the calculation. To estimate this, we turn to Appendix A of the Commission decision on the SGRP[45]. When these values are adjusted for inflation and averaged over the period when the SGRP was not included, we find an average value in 2012 dollars of about $115M invested per year.

43 Transcript Page 1763 Lines 16-19 (BAUDER) "A I believe the 575 number is in our testimony. And when you remove the 300 number for security, you come up with the 275 that I just mentioned.

44 See Appendix A of this Brief for all the calculations.

45 D.05-12-040.

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ATTACHMENT A

Table of Adopted O&M Costs and Capital Additions
(2004 dollars)

Year	O&M Costs ($thousands)	Capital Additions ($thousands)
2009	483,009	90,458
2010	499,781	97,583
2011	523,769	92,834
2012	525,820	93,271
2013	516,780	92,645
2014	518,086	91,983
2015	521,096	94,976
2016	521,212	95,939
2017	579,514	94,162
2018	447,402	94,105
2019	590,119	76,667
2020	510,288	57,716
2021	524,595	33,517
2022	456,044	16,675

Notes: 1. Capital additions exclude taxes, return, and administrative and general expenses (A&G).

2. O&M includes labor insurance, and fuel, but excludes A&G and franchise fees.

3. This table shows 100% of the O&M and capital additions. The amount authorized for SCE will be its ownership portion times the above amounts. For example, if SCE owns 90.10% of SONGS, SCE would be authorized a maximum of 90.10% of the values shown in the table.

(END OF ATTACHMENT A)

40. Using this average value, we find that SCE spent about $768M more than the steady-state expenditure rate, which accounts not for the cost of the SGRP but for other capital overhead, related to the fact that the life of the plant had been extended by the SGRP and therefore certain capital expenditures became reasonable, but would not be attempted if the SGRP had never been attempted. We are frankly worried that SCE has inappropriately allocated some capital expenditures to other accounts rather than the SGRP so as to avoid the trigger of an automatic reasonableness review.

41. The plant can be valued as follows, as of October 31, 2012[46]:

46 CDSO-18, SCE Response to CDSO Data Request, Set 1, Question 4.

October 31, 2012			
Cateogry	Plant	Accumulated Depreciation	Net Investment
Not Required			
Staff Level			
Plant Condition			
Still Required	5,190	3,937	1,253
Total	5,190	3,937	1,253
Less:			
SGRP	595	51	544
HP Turbine Project	33	0	32
Total	4,562	3,886	676

Illustration 3: From SCE-36 Page 12, Table IV-5

Total investment basis value:[47]	$5190M
Less SGRP + HPT (595+33)[48]	$ 628M
Net basis value (undepreciated)	$4562M

42. **NWO portion of the plant**

The portion of the plant that continues to operate as the NWO has been estimated using a square-footage and the 28-systems methods, and the two methods agree. Furthermore, this fraction also accurately estimates the future staffing levels. These methods are presented above. This percentage fraction will be utilized here to estimate the basis value and net asset value of the plant used for the NWO.

(a) Total Net Basis value (undepreciated)	$4562M
(b) Fraction of the plant	7.5%
(c) NWO (cost basis value, nominal$)	$ 342M
(d) Net Asset Value after depreciation (24.2% of basis[49])	**$ 83M**

43. Sanity Test 1A: Assets directly related to the NWO

As a further test for this method, we can check a number of accounting line items which

47 SCE-36 Page 12, Table IV-5
48 We do not include the SGRP nor the HPT (high pressure turbine) projects in the total. See CDSO-18
49 See Paragraph 38 for the derivation.

are directly used by the ISFSI and fuel pool activities (the NWO),[50] to see if the cost basis value ($342M) is sufficient to include these items, as well as those assets that we know are partially used.

(a) 321-105 Yard drainage relates to the ISFSI	$ 2.9M
(b) 321-160 Yard Lighting System - Directly needed by ISFSI	$ 4.6M
(c) 321-200 Fueling System, vehicles and Equipment	$ 0.69M
(d) 322-172 Handling machine, Spent fuel	$ 1.55M
(e) 322-195 Underwater lighting system	$ 0.35M
(f) 322-205 Spent fuel storage racks	$ 12M
(g) 322-236 High Integrity Radioactive Waste System	$ 50M
Total directly used asset items (100% share, cost basis)	**$ 75M**

44. **Sanity Test 1B: Assets partially used by fuel pool system**

SCE provided testimony that the cooling system of the fuel pool uses the intake structure, intake, and offshore piping to provide cooling water for the fuel pool. However, these structures are over-sized for the purposes of the fuel pool. As described earlier in this brief, the amount "used and useful" in this configuration is 2800/800,000 = 0.35%. However, because the 7.5% rate is applied to all parts of the plant, we are essentially applying a usage factor of 7.5% instead of 0.35%, pointing out that our estimate is very generous.

(a) 323-605 Intake Structure	$ 44M
(b) 323-606 Intake Offshore Piping	$ 35M
(c) 323-621 Discharge Offshore Piping	$ 78M
Total (100% share, cost basis value)	$157M
Partial value (7.5%)	**$ 12M**

45. **Sanity Test 1:** Thus, in this sanity test, we note that the estimated basis for the NWO in its present form, of $342M easily accommodates the itemized line items, which we see sum to $87M. Thus, the estimate seems reasonable from this standpoint.

46. **Sanity Test 2:** To test this estimate, we must ask if the NWO could be built today for $342 million (uncorrected for inflation). This seems like a generous estimate if we correct for inflation, and then compare with the cost of the steam generator replacement project, which involved a much more sophisticated design, tight tolerances, and computer

50 SCE-36 Appendix "A", and Transcript Pages 1822-1824.

modeling, whereas the fuel pools are not much more than sophisticated swimming pools, and estimates of the cost of dry casks in the ISFSI are about $1M per canister[51]. There are 52 horizontal storage modules and 42 canisters[52] in the ISFSI so far, therefore worth about $52M. Therefore, this passes the sanity test.

47. **Term.** The most obvious term for depreciation/amortization would be the estimated life of the fuel pool, which has been estimated to be required for 12 years or longer after the date of shutdown, according to SCE[53]. This is different from considering amortization of other cases of abandoned plants use terms of about six years[54], since this portion of the plant is still viable for its intended purpose. If a shorter term may encourage movement of the fuel from the fuel pool as soon as practicable, and if the funds are to be derived from ratebase, then we prefer the shorter term to respect intergenerational equity as much as possible. We acknowledge that the life of the ISFSI is indeterminate, and does not influence our proposal in for the term.

Our official proposal is to use the 12-year term (Feb. 1, 2012 to Feb. 1, 2024).

48. **Rate of Return**. The full authorized rate of return is 7.9%[55]. A reduced rate of return suggested by SCE is 5.54%[56] for portions of the plant which are no longer generating electricity. This reduced rate of return is appropriate for the NWO because it is not used-and-useful in terms of newly generated electricity, and is still a generous return in today's investment marketplace.

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51 Per NRC estimates, from ML13133A132 "Consequence Study of a Beyond-Design-Basis Earthquake Affecting the Spent Fuel Pool for a U.S. Mark I Boiling Water Reactor", June 2013, page D-26, Table 90 "Incremental Unit Cost Estimates" lists unit costs in $2012: "Canister, $780,000, Concrete Overpack $208,000, Loading of Canister $312,000. Thus capital assets of Canister and Overpack total $988K or roughly $1M, for our budgetary purposes.

52 Transcript Page 1751, Lines 14-17: (BAUDER) "So we have 52 horizontal storage modules in the Unit 1 industrial area now. We have fuel in 42 canisters in that area."

53 Transcript Page 1789 Lines 19-24: (PEREZ) "...some fuel assemblies cannot be transferred from the SONGS 2 and 3 spent fuel pools to dry storage until 12 years after they are discharged from the reactor, because they require up to 12 years of thermal cooling before they can be placed in dry storage."

54 SCE-42 Page 40, Table VIII-4 "Commission decisions regarding amortization periods"

55 SCE-40 Page 18 Lines 8-11, "SCE is also proposing to initially use its currently-authorized full rate of return (i.e., 7.90%) to calculate the return on rate base. Beginning in 2018 when the shorter three-year amortization begins, SCE is proposing to use a reduced rate of return of 5.54% because SCE's expectation is by that date most of SONGS' assets would be retired.

56 SCE 40 Appendix A Note 1: "After 2017, the plant is earning a reduced rate of return where equity return is equal to the weighted average of long term debt & preferred equity rates.

49. **Therefore, it is appropriate for investors to receive $83M investment value at 5.54% rate of return, amortized over a 12 year term for the NWO.** It is preferred that these funds be accessed from the following sources, in this preferred order:

(a) Nuclear Waste Funds (from litigation with the DOE)
(b) Decommissioning trust funds
(c) The ratebase (this option disrespects the goal of intergenerational equity, and if required to be accessed, then the shorter term should be considered).

B. Non-NWO portion of the Plant

50. **Considered "Abandoned"**

The non-NWO portion of the plant is considered no longer used-and-useful, abandoned, and will likely be rapidly decommissioned and dismantled over the course of the next few years. Although certain functions of this portion of the plant remain useful in the process of decommissioning, those uses are fleeting and temporary, much like a central column is useful to hold up a building that is being dismantled. The column provided temporary service, but only in the process of ripping the building down. Therefore, this portion of the plant is not used and useful and is considered "abandoned."

51. **Return on investment implies risk**

Investors are keenly aware of the risk/reward tradeoff. In general higher returns imply higher risk. Investors in utilities receive exceptionally high return rates compared with the general securities marketplace for investments with virtually no risk. Thus the notion that investors will be "scared away" from SCE due to appropriate handling of this bad investment is baseless, and the Commission should not base its decision on the idea that capital will no longer be available.

52. **Investors Invest in the Entire Company, not discrete projects**

Investors do not invest in individual production facilities like SONGS. They invest in the entirety of SCE and Edison International Corporation, which is far larger, as witnessed by the profits reported by SCE and Edison International since the San Onofre closure announcement on June 7, 2013[57]. One failed project will not significantly affect the overall profitability of the entire utility company, and therefore, the Commission should

57 CDSO-13, pp. 4-5

not base its decision on the profitability of the company.

53. Failed Projects must be Disincentivized

SCE argues that it is good policy for investors to achieve a relatively high return on investment on plants that are no longer "used and useful" to compensate for plants that continue to operate long after investors have made their profit[58]. CDSO disagrees with this, and asserts instead that it is poor policy, since it will encourage utilities to be careless in their evaluation of projects, will promote projects that have little actual value, and will encourage similar project failures, like the SGRP that did not make it past its first inspection. Regardless of prudence, to compensate the company as if the project was fully successful flies in the face of reason.

We believe it is essential and good policy for investors to make the highest return on projects that are used and useful. Projects that are abandoned, particularly in this case, which is due to poor design of the steam generators, should provide no return. And if the project is a complete failure, as this one was (regardless of any claims of prudence), there should be no return on investment, and the principle of the investment should be forfeited. This is the case in most investment opportunities. Regardless of prudence, some investments are failures, and very frequently, this is the outcome even if the managers of the business acted prudently at every step.

54. Original Investors have already recovered their investment

It is important to understand that the original investment in the plant has been recovered with full return as of 2002. Based on information from SCE in CDSO Data Request Set 2, Question 2[59], the chart in Illustration 4 was generated. It is important to note that the original plant was fully depreciated as of 2001. Residual book value of the plant is due to more recent capital expenditures, which include the SGRP and other additions.

58 SCE-40, Pages 3-8. Of note is this Page 7, Lines 17-18 "The Commission's historical ratemaking treatment of retired assets is consistent with cost-of service ratemaking and is good policy."

59 See Appendix B.

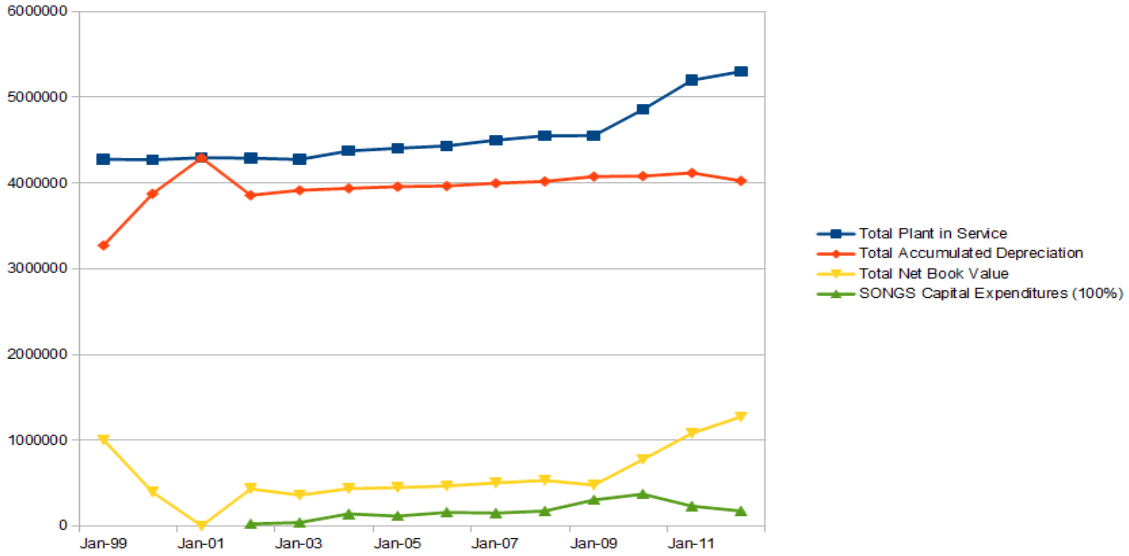

Illustration 4: Chart of SONGS Investment Value

55. Therefore, since original plant investors have already received the investment value and return on investment as of 2001, coupled with the fact that the SGRP was a failed project that should be disincentivized (regardless of whether SCE executed the project prudently or not,) CDSO asserts that SCE should recover $0 of the remaining abandoned plant, with 0% return on investment.

56. Proceeds from Salvaging. The plant now represents a virtual gold mine that can be harvested by salvaging and reselling the components, many of which are virtually new. Salvaging proceeds should be split according to the current depreciated fraction[60], with net proceeds split 24.2% to investors and 75.6% to ratepayers or to offset needs of the decommissioning trust fund.

VI. Construction Work In Progress (CWIP)

57. SCE attempts to apply the same methodology that was used for assets to determine the "used and useful" portions of CWIP, by classifying each CWIP project in to one of the four categories, i.e. (a) Unused, (b) Staff Allocated 39%, (c) Plant Allocated

60 See paragraph 38.

(40%), and (d) 100% required[61]. We disagree with the use of this method for CWIP since the projects are directly attributable to portions of the plant, and can be aborted for areas that are about to be demolished.

58. We have found through several estimation methods above that the asset value of the plant attributable to the NWO is 7.5%. This method is not as useful for CWIP, because CWIP represents current projects that are influenced by recent events. The data provided by SCE in SCE-42 Appendix A is dated May 31, 2013, over a year after SCE knew, or should have known, that the plant would never restart. Projects listed as CWIP may have been started specifically with an eye toward possible permanent shutdown, and so in that case, the 7.5% number may result in an allocation that is too low. Therefore, we will use a slightly different approach.

59. We can calculate the NWO-allocated CWIP roughly as follows:

(a) Total CWIP (all categories)[62]	$230M
(b) NWO Fraction of complete plant	7.5%
(c) CWIP fraction for NWO (7.5% of 230M)	$17.3M
(d) CWIP directly identifiable as NWO related[63]	$51.6M
(e) Total CWIP in NWO (c + d)	**$69M**

This estimate for NWO CWIP, to be added to the asset value of the NWO, and paid with return along with other NWO assets, does not include some line items from the 100% useful category as supplied by SCE that were clearly inappropriate. However, we included the additional 7.5% of the value of the entirety of the CWIP to ensure we allocated enough to cover other accounts that were partially used. During this decommissioning phase, detailed review of capital projects by an oversight panel is critical to go into further detail than is possible in this cursory review.

60. Capital projects that are not directly related to the NWO should all be aborted and salvaged. Capital Projects related to the NWO should proceed and should be added to the

61 SCE-42, Appendix A.
62 SCE-42, Page A15
63 Appendix C

net investment value of the NWO, and paid according to the preference order already established:

(a) Nuclear Waste Funds (From DOE through litigation processing).

(b) Decommissioning Trust Funds

(c) Ratebase

61. Given the time constraints of the Phase 2 proceedings, it was not feasible to get a full picture of the CWIP projects that are in process, when they were started, how far along they are, etc. and yet all this is important in making detailed and sound judgments regarding the disposition of CWIP.

62. CDSO recommends that the Commission support the notion of a Citizens Oversight Panel (COP) that will review projects both in progress and proposed during decommissioning and operation of the NWO, to ensure that they are indeed required for the NWO and/or for the decommissioning projects. A similar proposal has been made in relation to the Nuclear Decommissioning Cost Triennial Proceeding[64].

VII. Materials & Supplies (M&S)

63. Immediately and retroactively remove M&S from rate base. Utility should aggressively salvage and resell unused M&S, with funds split according to the depreciation fraction[65], 24.2% to investors and 75.6% to ratepayers; remainder amortized over 12 years with no ROI.

VIII. Fuel Inventory Net Investment

64. Recover over 12 years with no ROI. Fuel recently removed from Unit 2 was never used in power generation and should be resold and/or remanufactured for use by other nuclear plants.

65. Options for partially used fuel should be studied to ascertain if it can be used in other nuclear plants and resold if possible.

64 A.12-12-012/013, exhibit CDSO-20 Pg. 9 (CDSO Testimony for that proceeding).
65 See Paragraph 38.

IX. Seismic Study Funds

66. The Commission should rescind approval for seismic studies related to relicensing of the plant; remove seismic O&M expenditures already incurred in balancing accounts in current rates. Amounts included in the BRRBA for 2013 as a result of 2012 expenditures should be reversed, and no additional seismic expenditures should be allowed. CDSO generally supports the position TURN has asserted.

X. Conclusion

A summary of our recomendations regarding issues relevant to this Phase 2 of this investigation is provided in the Summary at the beginning of this brief.

Appendix A - Determination of "extra" capital expenditures

CDSO Submitted a Data Request Set 02, Question 02 to SCE and received the following response:

Southern California Edison
SONGS OII I.12-10-013

DATA REQUEST SET CDSO-SCE-02

To: CDSO
Prepared by: John McCarson
Title: Manager, Capital Asset Accounting
Dated: 10/16/2013

Question 02:

Originator: Martha Sullivan

Data Request 2-1

Please provide for San Onofre Units 1, 2 and 3 a table showing, for each year of operation, the:

- estimated capital expenditures
- actual capital expenditures
- basis for depreciation
- recovery period, convention, method, (per IRS definitions like on Form 4562)
- depreciation,
- net investment value

If the above can be broken out by Unit (i.e., 1, 2, 3), that will be helpful – that is, separate columns for each Unit, or a repeated table for each Unit.
We are open to using your conventions for this -- the way you normally report this is probably fine if our assumptions above are invalid.

Response to Question 02:

Please see the attached files for the following:

- SONGS budgeted capital expenditures compared to SONGS actual capital expenditures from 2002 to 2012.
- Book basis for depreciation and net book value split out by unit from 1999 to 2012, as well as the book recovery period/convention authorized in the appropriate GRC.

SCE did not provide results for all years of operation, but only for the recent 10 year period. We were hoping to see more of the history to be able to derive the steady-state capital burn rate. But we will work with the limited response the best we can. If the Commission can get additional information, the calculations can be based on actual values rather than an extrapolation, but it will likely not produce significant results.

SCE provided the following table summarized capital expenditures, SCE share, apparently in nominal dollars (1000s).

Southern California Edison Company
Songs Capital Expenditures
(SCE's share. Excludes capitalized overhead)
2002 - 2012

Year	Plan	Actual	Variance
2012	188,221	140,258	47,963
2011	208,701	185,362	23,339
2010	320,715	297,539	23,176
2009	259,303	243,273	16,030
2008	137,016	139,309	(2,293)
2007	131,859	120,959	10,900
2006	140,720	127,151	13,569
2005	125,700	92,223	33,477
2004	117,561	113,368	4,193
2003	31,732	32,175	(443)
2002	21,783	19,327	2,456

We have added a few columns to these data, to produce the table that follows. The calculations in the spreadsheet are as follows:

1. Column 1 is the Year, this is the same as what was provided by SCE but with the additional years added from 2012 to 2022, the end of the license.
2. Column 2 is the capital expenditure plan, 2009 to 2022, from the SGRP decision (D.05-12-040) Attachment A, which is 100% share, 2004 dollars.
3. Column 3 is Column 2 adjusted for inflation to create 2012 dollars (multiply by 1.22). Also, values for the years 2002 through 2008 were extrapolated from the average of the values for the years 2009 through 2018, which is the time when we can observe that the burn rate of capital expenditures is roughly consistent, whereas the last few years show a slowdown. This steady-state burn rate is about $114M / year.
4. Columns 4,5,6 are from the table supplied by SCE (above), SCE Share, 2012 dollars with no changes.
5. Column 7 (100% Share, Actual) is column 5 (Actual, SCE Share) adjusted to create 100% share (divide Column 5 by 80%)
6. Column 8 (variance) is the difference between Column 3 and column 7. This represents the additional capital expenditures over the plan from the SGRP Decision Appendix A.

7. Finally, the value $767,565K is the sum of the years 2006 through 2012, when the SGRP was active and other capital projects were started based on the theory that the SGRP would be successful. This is rounded up to $768M.

	Function Wizard		Southern California Edison Company					
			Songs Capital Expenditures					
			(SCE's share. Excludes capitalized overhead)					
	2004 Dollars	2012 Dollars	2002 - 2012					
	100% Share	100% Share	SCE Share	SCE Share	SCE Share	100% Share		
Year	Plan in SGRP Doc		Plan	Actual	Variance	Actual	variance	
2022	16675	20344						
2021	33517	40891						
2020	57716	70414						
2019	76667	93534						
2018	94105	114808						
2017	94162	114878						
2016	95939	117046						
2015	94976	115871						
2014	91983	112219						
2013	92645	113027						
2012	93271	113791	188,221	140,258	47,963	175323	61,532	
2011	92834	113257	208,701	185,362	23,339	231703	118,445	
2010	97583	119051	320,715	297,539	23,176	371924	252,872	
2009	90458	110359	259,303	243,273	16,030	304091	193,732	
2008		114431	137,016	139,309	(2,293)	174136	59,706	
2007		114431	131,859	120,959	10,900	151199	36,768	
2006		114431	140,720	127,151	13,569	158939	44,508	
								767,564
2005		114431	125,700	92,223	33,477	115279	848	
2004		114431	117,561	113,368	4,193	141710	27,279	
2003		114431	31,732	32,175	(443)	40219	(74,212)	
2002		114431	21,783	19,327	2,456	24159	(90,272)	

Appendix B - SONGS Historical Net Investment Value

Historical data of SONGS investment value. This data was provided by SCE in data request CDSO Set 2 Question 2.

FOLLOWING SUMMARY is in thousands		Dec-00	Dec-01	Dec-02	Dec-03	Dec-04	Dec-05	Dec-06	Dec-07	Dec-08	Dec-09	Dec-10	Dec-11	Dec-12
Total Plant in Service	4277577	4270227	4294982	4289755	4274863	4373820	4405644	4432787	4499345	4550512	4552698	4856145	5198632	5299514
Total Accumulated Depreciation	3272494	3874378	4293114	3857028	3915042	3937843	3957625	3965440	3997162	4018763	4075596	4080670	4117599	4025179
Total Net Book Value	1005083	395849	1869	432727	359821	435977	448018	467347	502183	531749	477102	775476	1081033	1274336
SONGS Capital Expenditures (100%)				24159	40219	141710	115279	158939	151199	174136	304091	371924	231703	175323
Songs Capital Expenditures (SCE Share)				19327	32175	113368	92223	127151	120959	139309	243273	297539	185362	140258

Appendix C - CWIP Useful for NWO

CWIP has been split into the four buckets of allocation, unused, staff level, plant condition, and 100% used, from SCE-42, Appendix A.

Directly Identifiable CWIP accounts related to NWO

The following table has been extracted from the data of SCE-42, Appendix A, the 100% required category. These line items are identifiable as directly related to the NWO, according to SCE testimony[66] or our best estimate based on the description. The total is 51.6M.

Oral testimony by SCE representatives clarified that "U3 Boraflex" is used in spent fuel assemblies, SWCP means Salt Water Cooling Pumps, CCW means Component Cooling Water. These are all needed for operation of the NWO.

The Commission should direct SCE to critically review the projects in CWIP to see if they are required for the NWO, now that full-power operation is no longer an option, so as to reduce the number of projects or push them out to a later time.

66 Testimony Pages 1948-1953, 2014-2024

ORDER	DESCRIPTION	NET $	REQD%	REQD$
800000232	013 Unit 2/3 ISFSI AHSM's Cycle 15	385,821	100.00%	385,821
800000242	017 Unit 2/3 ISFSI Canisters Cycle 15	100,077	100.00%	100,077
800000390	114 U3 Boraflex	62,416	100.00%	62,416
800000257	123.1 Security Monitoring System Upgrade	(103)	100.00%	(103)
800083542	123.1 Security Monitoring System Upgrade	(161)	100.00%	(161)
800085055	123.1 Security Monitoring System Upgrade	147	100.00%	147
800000329	220 U2 SWCP Replacement	(2,879)	100.00%	(2,879)
800128343	220 U2 SWCP Replacement	3,509	100.00%	3,509
800000403	222 U3 SWCP Replacement	3,718,804	100.00%	3,718,804
800039929	222 U3 SWCP Replacement	(463,655)	100.00%	(463,655)
800128342	222 U3 SWCP Replacement	554	100.00%	554
800494511	222 U3 SWCP Replacement	(2,849)	100.00%	(2,849)
800494513	222 U3 SWCP Replacement	(2,142)	100.00%	(2,142)
800803497	222 U3 SWCP Replacement	534,064	100.00%	534,064
800000181	335 Replace Thermal Cameras	94,415	100.00%	94,415
800000207	335 Replace Thermal Cameras	(3,195)	100.00%	(3,195)
800699092	Common Allocation-U2 & U3 Spent Fuel Han	909	100.00%	909
800941571	FER U2 Spent Fuel Pool Instrumentation	191,385	100.00%	191,385
800457716	Fuel Move	65,884	100.00%	65,884
800471702	Fuel Move	(24,439)	100.00%	(24,439)
800621933	Fuel Move	14,286	100.00%	14,286
800541574	Intrusion Detection System -Cap	(3,921)	100.00%	(3,921)
800650276	ISFSI Canister Fabrication	2,148	100.00%	2,148
800737510	ISFSI Canister Fabrication	3,140,449	100.00%	3,140,449
800815448	ISFSI Canister Fabrication	8,835,189	100.00%	8,835,189
800815451	ISFSI Canister Fabrication	164,440	100.00%	164,440
800447859	Replace Diesel Generator	471,131	100.00%	471,131
800588550	Replace Diesel Generator	10,420	100.00%	10,420
800606029	Replace Diesel Generator	(7,401)	100.00%	(7,401)
800769077	Replace Diesel Generator	8,716	100.00%	8,716
800825915	Replace Diesel Generator	(13,889)	100.00%	(13,889)
800832924	Replace Diesel Generator	(3,175)	100.00%	(3,175)
800847784	Replace Diesel Generator	3,271	100.00%	3,271
800661531	Security Rule Implementation	39,996	100.00%	39,996
800923306	SGI Storage Container Mods	2,337,908	100.00%	2,337,908
800359179	U2 CCW Heat Exhanger	397,368	100.00%	397,368
800719625	U2 CCW Heat Exhanger	356,507	100.00%	356,507
800850737	U2 CCW Heat Exhanger	1,410	100.00%	1,410
800851754	U2 CCW Heat Exhanger	(5)	100.00%	(5)
800267122	Unit 2/3 ISFSI AHSM's Cycle 16	14,043,038	100.00%	14,043,038
800000215	Unit 2/3 ISFSI Canisters Cycle14	(5,249)	100.00%	(5,249)
800501634	Units 2&3 Canisters New Design	870,605	100.00%	870,605
800606034	Units 2&3 Canisters New Design	10,317,225	100.00%	10,317,225
800891942	U2 LOED (Large Organism Exclusion Device)	3,125,222	100.00%	3,125,222
800895874	U3 LOED (Large Organism Exclusion Device)	2,856,741	100.00%	2,856,741
	TOTAL REQD FOR NWO			**51,620,990**

Directly Identifiable CWIP accounts NOT related to NWO

The following line items were not included in the CWIP required for the NWO, for a total of $11.2M, the lion's share of which is the "Phase 1 Control Room Upgrade" for about $10M, which is likely not necessary now that the plant is being decommissioned.

ORDER	DESCRIPTION	NET $	REQD%	REQD$
800000369	064 U2 1E Inverters	53	100.00%	53
800000418	106.2 U3 1E DC System Battery -2011 Work	32	100.00%	32
800204704	106.2 U3 1E DC System Battery -2011 Work	(549)	100.00%	(549)
800000396	181 U3 Disconnect 4KV RAT	41,775	100.00%	41,775
800065077	181 U3 Disconnect 4KV RAT	37	100.00%	37
800077047	181 U3 Disconnect 4KV RAT	(19,665)	100.00%	(19,665)
800077876	181 U3 Disconnect 4KV RAT	10,893	100.00%	10,893
800067662	331.1 U2 Y12B15B16 Battery Replacement	(8,115)	100.00%	(8,115)
800225656	331.2 U3 Y12B15B16 Battery Replacement	(180,968)	100.00%	(180,968)
800085206	450 Cathodic Protection	3	100.00%	3
800068817	668 U3 Increase 1E 480V Capacity	8,721	100.00%	8,721
800505337	668 U3 Increase 1E 480V Capacity	55	100.00%	55
800000358	669 U2 Increase 1E 480V Capacity	241	100.00%	241
800130487	669 U2 Increase 1E 480V Capacity	31,864	100.00%	31,864
800287492	669 U2 Increase 1E 480V Capacity	(129)	100.00%	(129)
800872238	CNO Flex Inititive	152,969	100.00%	152,969
800976301	CNO Flex Inititive	34,750	100.00%	34,750
800349460	EP ERF Status Board Upgrade	(885)	100.00%	(885)
800227017	HVAC Unit Replacements	40,043	100.00%	40,043
800228461	HVAC Unit Replacements	25,264	100.00%	25,264
800713832	HVAC Unit Replacements	341,483	100.00%	341,483
800770567	HVAC Unit Replacements	11,935	100.00%	11,935
800603647	Phase 1 Control Room Upgrade	10,813,266	100.00%	10,813,266
800650538	Phase 1 Control Room Upgrade	72	100.00%	72
800700364	Phase 1 Control Room Upgrade	1,187	100.00%	1,187
800611711	PowerSource for EDG Annuciators	374,207	100.00%	374,207
800611712	PowerSource for EDG Annuciators	43,584	100.00%	43,584
various	SONGS FI Conversion	(2,061,771)	100.00%	(2,061,771)
800440147	U2 - Diesel Generator controls	9,416	100.00%	9,416
800502210	U2 - Diesel Generator controls	5,982	100.00%	5,982
800884862	U2 - Redundant HVAC to Y012 Rooms	1,413,103	100.00%	1,413,103
800529482	U2 Buried Effluent Line	1,592	100.00%	1,592
800158099	U2 DCS Boron Addition & Dilution Concent	678	100.00%	678
800000375	U2 Disconnect 4KV Bus RAT	53,258	100.00%	53,258
801048956	U2 Flex Modification Fukushima	5,461	100.00%	5,461
800225652	U2 Y005 Inverter Capital Project	(16,014)	100.00%	(16,014)
800525819	U3 Inverter Y005 & Charger B005-20018736	(9,573)	100.00%	(9,573)
800447854	U3 New DCS Boration Dilution	60,282	100.00%	60,282
800447855	U3 New DCS Boration Dilution	5,282	100.00%	5,282
	TOTAL NOT REQD FOR NWO			**11,189,820**

We note also that the following systems were mistakenly included in the 100% category. For example, the U2 and U3 Digital Control System regarding Boron concentration, these are only useful for power operation[67]. Thus, these are not related to the NWO.

67 Transcript Page 1948 Lines 7-22 (BAUDER) "A Right. What that stands for is Unit 2 Digital Control System for Dilution. I don't know why we cut off the word "concentrator" or "concentrate." We can look that up. What

800158099	U2 DCS Boron Addition & Dilution Concent	677.86
800447854	U3 New DCS Boration Dilution	60,282.24
800447855	U3 New DCS Boration Dilution	5,282.32

this is is an electronically controlled system we installed in the -- during the steam generator outages. So for Unit 2, we installed the system in late 2009 early 2010 time frame. And for Unit 3 -- well, this is just Unit 2 so I'll just discuss that -- for Unit 3 and the following outage. This is an electronic control system for the operators to adjust boron and dilution concentrations in the reactor cooling system during power operation."