

10 CFR 50.82  
10 CFR 72.30

March 14, 2019

ATTN: Document Control Desk  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555-0001

Subject: **Docket Nos. 50-206, 50-361, 50-362, and 72-41**  
**10 CFR 50.82(a)(8)(v-vii) and 10 CFR 72.30(c)**  
**Decommissioning Funding Status Report 2018**  
**San Onofre Nuclear Generating Station Units 1, 2, and 3**  
**and Independent Spent Fuel Storage Installation**

Dear Sir or Madam:

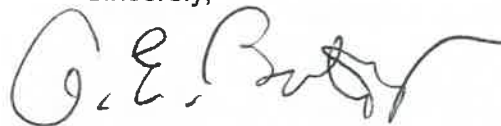
As required by 10 CFR 50.82(a)(8)(v), 10 CFR 50.82(a)(8)(vii), and 10 CFR 72.30(c), this letter provides the status of the decommissioning funding for San Onofre Nuclear Generating Station (San Onofre) Units 1, 2, and 3 and the San Onofre Independent Spent Fuel Storage Installation (ISFSI) as of December 31, 2018.

Based on the requirements in 10 CFR 50.82(a)(8)(v) and 10 CFR 50.82(a)(8)(vii), this information is reported on an annual basis for SONGS Units 1, 2, and 3 because the units were permanently shut down and site-specific decommissioning cost estimates (DCEs) have been submitted for each of these units. In addition, based on the requirements in 10 CFR 72.30(c), information demonstrating the adequacy of funding for the San Onofre ISFSI is reported at intervals not to exceed three years, and is included. The required information for Southern California Edison, San Diego Gas & Electric, the City of Anaheim, and the City of Riverside is provided in the Enclosure.

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

If you have any questions regarding this matter, please contact me at (949) 368-6945.

Sincerely,



Enclosure: San Onofre Nuclear Generating Station Units 1, 2, and 3 and ISFSI  
Decommissioning Funding Status Report for Calendar Year 2018

cc: S. Morris, Regional Administrator, NRC Region IV  
M. G. Vaaler, NRC Project Manager, San Onofre Units 1, 2, and 3

**Enclosure**

**San Onofre Nuclear Generating Station Units 1, 2, and 3  
and Independent Spent Fuel Storage Installation (ISFSI)  
Decommissioning Funding Status Report  
for Calendar Year 2018**

**San Onofre Nuclear Generating Station Units 1, 2, and 3  
and Independent Spent Fuel Storage Installation (ISFSI)  
Decommissioning Funding Status Report  
For Calendar Year 2018**

San Onofre Unit 1 was a pressurized water reactor (PWR) rated at 1347 MWt. San Onofre Units 2 and 3 were pressurized water reactors (PWR) rated at 3438 MWt. Provided below is the information required by 10 CFR 50.82(a)(8)(v) and (vii) for San Onofre Units 1, 2, and 3; and the information required by 10 CFR 72.30(b) for the San Onofre ISFSI. This information is reported every year for San Onofre Units 1, 2, and 3 because they are permanently shut down and site-specific decommissioning cost estimates (DCEs) have been submitted for them.

The San Onofre ISFSI is located on the partially decommissioned site of San Onofre Unit 1, and is operated under a 10 CFR 72 General License issued to the holders of a 10 CFR 50 license.

The SONGS Unit 1 co-owners are reported as follows:

Southern California Edison (SCE)	80.00 %
San Diego Gas & Electric (SDG&E)	<u>20.00 %</u>
	100.00 %

The San Onofre Units 2 and 3 co-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 1 Decommissioning Liability	Unit 2 Decommissioning Liability	Unit 3 Decommissioning Liability
SCE	80.00%	75.7363%	75.7475%
SDG&E	20.00%	20.0000%	20.0000%
Anaheim	0.00%	2.4737%	2.4625%
Riverside	0.00%	1.7900%	1.7900%

All dollar amounts are in 100% share, 2018 dollars.

- 1) The estimated costs to decommission San Onofre Units 1, 2, and 3, and the San Onofre ISFSI, including all decommissioning and spent fuel storage costs estimated to be required pursuant to 10 CFR 50.75(b) and (c); 10 CFR 50.54(bb); and 10 CFR 72.30(b) are shown below:

The site-specific estimates for decommissioning include the following radiological decommissioning costs associated with terminating the site license pursuant to 10 CFR 50.75(b); non-radiological site restoration costs; spent fuel storage costs pursuant to 10 CFR 50.54(bb); and ISFSI decommissioning costs pursuant to 10 CFR 72.30(b):

	<u>San Onofre Unit 1<sup>(1)</sup></u>
Estimate of License Termination Costs	\$ 78.8 million
Less: Lic. Term. Costs during 2018	<u>\$ 1.5 million</u>
"To Go" License Termination Costs	\$ 77.3 million
Estimate of Fuel Storage Costs	\$ 47.2 million
Less: Fuel Storage Costs during 2018	<u>\$ 2.3 million</u>
"To Go" Fuel Storage Costs	\$ 44.9 million
Estimate of ISFSI Decommissioning Costs	\$ 5.4 million
Estimate of Site Restoration Costs	\$ 94.7 million
Less: Site Restor. Costs during 2018	<u>\$ 0.4 million</u>
"To Go" Site Restoration Costs	\$ 94.3 million
Total Unit 1 "To Go" Costs as of 1/1/2019	\$ 221.9 million
	<u>San Onofre Unit 2<sup>(2)</sup></u>
Estimate of License Termination Costs	\$1,045.0 million
Less: Lic. Term. Costs through 12/31/2018	<u>\$ 345.7 million</u>
"To Go" License Termination Costs	\$ 699.3 million
Estimate of Fuel Storage Costs	\$ 705.7 million
Less: Fuel Storage Costs through 12/31/2018	<u>\$ 314.8 million</u>
"To Go" Fuel Storage Costs	\$ 390.9 million
Estimate of ISFSI Decommissioning Costs	\$ 19.4 million
Estimate of Site Restoration Costs	\$ 541.7 million
Less: Site Restor. Costs through 12/31/2018	<u>\$ 99.9 million</u>
"To Go" Site Restoration Costs	\$ 441.8 million
Total Unit 2 "To Go" Costs as of 1/1/2019	\$1,551.4 million

	<u>San Onofre Unit 3<sup>(2)</sup></u>
Estimate of License Termination Costs	\$1,035.2 million
Less: Lic. Term. Costs through 12/31/2018	<u>\$ 346.4 million</u>
"To Go" License Termination Costs	\$ 688.8 million
Estimate of Fuel Storage Costs	\$ 743.8 million
Less: Fuel Storage Costs through 12/31/2018	<u>\$ 312.0 million</u>
"To Go" Fuel Storage Costs	\$ 431.8 million
Estimate of ISFSI Decommissioning Costs	\$ 19.4 million
Estimate of Site Restoration Costs	\$ 765.7 million
Less: Site Restor. Costs through 12/31/2018	<u>\$ 114.7 million</u>
"To Go" Site Restoration Costs	\$ 651.0 million
Total Unit 3 "To Go" Costs as of 1/1/2019	\$1,791.0 million

The site-specific decommissioning cost estimates for San Onofre Units 1, 2, and 3 and the San Onofre ISFSI include: (1) the cost to perform all decommissioning activities; (2) the cost of meeting the 10 CFR 20.1402 radiological criteria for unrestricted site use; and (3) adequate contingency factors for all costs.

- 2) Each San Onofre co-owner has established one or more external sinking trust fund accounts as provided in 10 CFR 50.75(e)(1)(ii) for their respective shares of the San Onofre Units 1, 2, and 3 decommissioning obligation, which also includes the San Onofre ISFSI. The Decommissioning Trust Fund amounts remaining at the end of calendar year 2018 (net of pending Trust Fund withdrawals and estimated capital gains taxes) are:<sup>(3)(4)(5)</sup>

<u>Co-Owner</u>	<u>San Onofre Unit 1</u>	<u>San Onofre Unit 2</u>	<u>San Onofre Unit 3</u>
SCE	\$ 289.4 million	\$ 1,085.6 million	\$ 1,267.5 million
SDG&E <sup>(5)</sup>	\$ 149.3 million	\$ 333.9 million	\$ 387.5 million
Anaheim <sup>(5)</sup>	N/A	\$ 51.4 million	\$ 51.4 million
Riverside <sup>(5)</sup>	N/A	<u>\$ 26.9 million</u>	<u>\$ 29.8 million</u>
TOTAL	\$ 438.7 million	\$ 1,497.8 million	\$ 1,736.2 million

- 3) Each San Onofre co-owner deposits its decommissioning fund contributions into their respective external sinking fund accounts as provided in 10 CFR 50.75(e)(1)(ii). The annual amounts projected to be collected in 2018 are:

<u>Co-Owner</u>	<u>San Onofre Unit 1</u>	<u>San Onofre Unit 2</u>	<u>San Onofre Unit 3</u>
SCE	\$ 0.0 million	\$ 0.0 million	\$ 0.0 million
SDG&E <sup>(5)</sup>	\$ 0.0 million	\$ 0.0 million	\$ 0.0 million
Anaheim <sup>(5)</sup>	N/A	\$ 0.0 million	\$ 0.0 million
Riverside <sup>(5)</sup>	N/A	<u>\$ 0.0 million</u>	<u>\$ 0.0 million</u>
TOTAL	\$ 0.0 million	\$ 0.0 million	\$ 0.0 million

- 4) The amounts spent on San Onofre Units 1, 2, and 3 decommissioning work performed during 2018 are summarized below:

<u>Cost Category</u>	<u>San Onofre Unit 1</u>	<u>San Onofre Unit 2</u>	<u>San Onofre Unit 3</u>
License Term.	\$ 0.1 million	\$ 32.0 million	\$ 35.4 million
Spent Fuel Storage	\$ 1.8 million	\$ 48.4 million	\$ 50.2 million
ISFSI Decom.	\$ 0.0 million	\$ 0.0 million	\$ 0.0 million
<u>Site Restoration</u>	<u>\$ 0.2 million</u>	<u>\$ 6.7 million</u>	<u>\$ 9.6 million</u>
TOTAL	\$ 2.1 million	\$ 87.1 million	\$ 95.2 million

- 5) The composite escalation rate and after tax investment rates of return for San Onofre Units 1, 2, and 3 Decommissioning are summarized below:

<u>Composite Rate</u>	<u>San Onofre Unit 1</u>	<u>San Onofre Unit 2</u>	<u>San Onofre Unit 3</u>
Rate of Return	2.95%	3.04%	3.04%
<u>Escalation</u>	<u>2.69%</u>	<u>2.92%</u>	<u>2.92%</u>
Real Earnings Rate	0.26%	0.12%	0.12%

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

- 6) None of the co-owners of San Onofre Units 1, 2, and 3 or the San Onofre ISFSI is 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.
- 7) The amounts of decommissioning funds available as of December 31, 2018 for San Onofre Units 1, 2, and 3 License Termination, Site Restoration, Spent Fuel Management, and ISFSI Decommissioning costs are shown in the tables below:<sup>(4)</sup>

San Onofre Unit 1	Estimated "To Go" Decommissioning Cost	Cost Ratios	12/31/2018 Net Trust Balance
License Termination Costs	\$ 77.3 million	34.8%	\$ 152.8 million
Spent Fuel Management Costs	\$ 44.9 million	20.2%	\$ 88.8 million
ISFSI Decommissioning Costs	\$ 5.4 million	2.4%	\$ 10.7 million
<u>Site Restoration Costs</u>	<u>\$ 94.3 million</u>	<u>42.5%</u>	<u>\$ 186.4 million</u>
TOTAL	\$ 221.9 million	100.0% <sup>(7)</sup>	\$ 438.7 million

San Onofre Unit 2	Estimated "To Go" Decommissioning Cost	Cost Ratios	12/31/2018 Net Trust Balance
License Termination Costs	\$ 699.3 million	45.1%	\$ 675.5 million
Spent Fuel Management Costs	\$ 390.9 million	25.2%	\$ 377.4 million
ISFSI Decommissioning Costs	\$ 19.4 million	1.2%	\$ 18.0 million
<u>Site Restoration Costs</u>	<u>\$ 441.8 million</u>	<u>28.5%</u>	<u>\$ 426.9 million</u>
TOTAL	\$ 1,551.4 million	100.0%	\$ 1,497.8 million

San Onofre Unit 3	Estimated "To Go" Decommissioning Cost	Cost Ratios	12/31/2018 Net Trust Balance
License Termination Costs	\$ 688.8 million	38.5%	\$ 668.4 million
Spent Fuel Management Costs	\$ 431.8 million	24.1%	\$ 418.4 million
ISFSI Decommissioning Costs	\$ 19.4 million	1.1%	\$ 19.1 million
<u>Site Restoration Costs</u>	<u>\$ 651.0 million</u>	<u>36.3%</u>	<u>\$ 630.3 million</u>
TOTAL	\$ 1,791.0 million	100.0%	\$ 1,736.2 million

8) Key assumptions pertaining to spent fuel storage and ISFSI decommissioning:

San Onofre Unit 1:

- Permanently retired on November 30, 1992
- 395 fuel assemblies in 17 canisters are located in the ISFSI
- 1 canister of Greater Than Class C (GTCC) waste is located in the ISFSI
- The U.S. Department of Energy (DOE) will commence transporting spent fuel assemblies in 2028<sup>(6)</sup>
- DOE will remove last SONGS Unit 1 fuel from the ISFSI by 2034

San Onofre Unit 2:

- Permanently ceased operations on June 7, 2013
- 1,000 fuel assemblies in 33 canisters are currently located in the ISFSI
- Transfer of the remaining 726 fuel assemblies from the spent fuel pool to the SONGS ISFSI is scheduled to be completed during 2019
- Greater Than Class C (GTCC) waste will be placed in the SONGS ISFSI per schedule to be developed by Decommissioning General Contractor
- DOE will commence transporting spent fuel assemblies in 2028<sup>(6)</sup>
- DOE will remove last SONGS Units 2 & 3 fuel from the ISFSI by 2049



San Onofre Unit 3:

- Permanently ceased operations on June 7, 2013
- 865 fuel assemblies in 29 canisters are currently located in the SONGS ISFSI
- Transfer of the remaining 869 fuel assemblies from the spent fuel pool to the SONGS ISFSI is scheduled to be completed during 2019
- Greater Than Class C (GTCC) waste will be placed in the SONGS ISFSI per schedule to be developed by Decommissioning General Contractor
- DOE will commence transporting spent fuel assemblies in 2028<sup>(6)</sup>
- DOE will remove last SONGS Units 2 & 3 fuel from the ISFSI by 2049

San Onofre ISFSI:

- The San Onofre ISFSI will be decommissioned and the remaining plant and ISFSI site will be decontaminated to meet 10 CFR 20.1402 site release criteria for unrestricted use as required to terminate the Part 50 General License by 2051.

Notes:

- (1) The new site-specific decommissioning cost estimate for San Onofre Unit 1 that was submitted to the California Public Utilities Commission (CPUC) on March 15, 2018, includes the radiological costs associated with terminating the site license, site restoration costs, and fuel storage costs.
- (2) The new site-specific decommissioning cost estimate for San Onofre Units 2 and 3 that was submitted to the CPUC on March 15, 2018 includes the radiological costs associated with terminating the site license, site restoration costs, and fuel storage costs.
- (3) During the period between June 7, 2013 and December 31, 2018, SCE incurred costs of \$760.4 million for San Onofre Unit 2 and \$773.1 million for San Onofre Unit 3 (100% share, 2018\$). In 2018, SDG&E and the City of Riverside did not withdraw funds for all or part of these costs from their Decommissioning Trusts. Therefore, their Net Balances are the differences between the December 31, 2018 Decommissioning Trust Balances and the 2013-2018 incurred or accrued costs.
- (4) Pursuant to 10 CFR 72.30(e)(5), power reactor licensees are authorized to use the financial assurance methods provided for in 10 CFR 50.75(e). All four San Onofre co-owners recover the cost of decommissioning pursuant to cost-of-service rate regulation and, therefore, are eligible to provide assurance using the external sinking fund method provided for in 10 CFR 50.75(e)(1)(ii). To the extent the decommissioning costs are fully funded and annual deposits are no longer required, the Co-Participants provide assurance using the prepayment method provided for in 10 CFR 50.75(e)(1)(i).

SCE and SDG&E are also required to accumulate sufficient funds to decommission the SONGS facility under the California Nuclear Facilities Decommissioning Act, CA Public Utilities Code Section 8321, et seq. The CPUC has construed the SONGS decommissioning obligation to include: (1) radiological decommissioning as required to terminate the NRC licenses, (2) spent fuel storage (including ISFSI decommissioning), and (3) site restoration as required to terminate the SONGS site lease contracts granted by the U.S. Department of the Navy and the California State Lands Commission.

Under CA Public Utilities Code Section 8326(a)(2), SCE and SDG&E are required to update their site-specific nuclear facility decommissioning cost estimates periodically to reflect changes in decommissioning regulation, technology, and economics, for the purpose of adjusting contribution levels to their decommissioning trust.

Under CA Public Utilities Code Sections 8326(b), 8327, 8328, and 8329, the CPUC periodically reviews SCE and SDG&E's site-specific decommissioning cost estimates for the purpose of considering changes in electrical rates to ensure that sufficient funds will be available for payment of all decommissioning costs. The Cities of Anaheim and Riverside are not under the jurisdiction of the CPUC.

- (5) SCE is submitting information with respect to the San Onofre co-owners, SDG&E, Anaheim, and Riverside, on their behalf, and they are responsible for the completeness and accuracy of their respective information.
- (6) The current site-specific decommissioning cost estimates for San Onofre Unit 1 and for San Onofre Units 2 and 3 assume that the DOE will commence transporting spent fuel assemblies in 2028. This assumption may be updated periodically due to the ongoing uncertainties regarding the availability of a permanent repository for spent fuel.
- (7) Some numbers may not add precisely due to rounding. Any such errors are immaterial to the substantive information presented in this report.