NRC says Edison knew about steam generator problems

The 9/20/2013 NRC Inspection Report proves Edison knew about the steam generator design problems, but ignored them. If the CPUC requires ratepayers to pay even one dollar of this boondoggle, what kind of message is that sending to the utilities? They can risk destroying California with no significant consequences? See Page 25 below of the NRC's San Onofre Nuclear Generating Station – NRC Confirmatory Action Letter Response Inspection 05000361/2012009 & 05000362/2012009:

Department, which input the gap velocity information into the FIVATS vibration code. However, it was not recognized that the gap velocities input into the vibration code were incorrect.

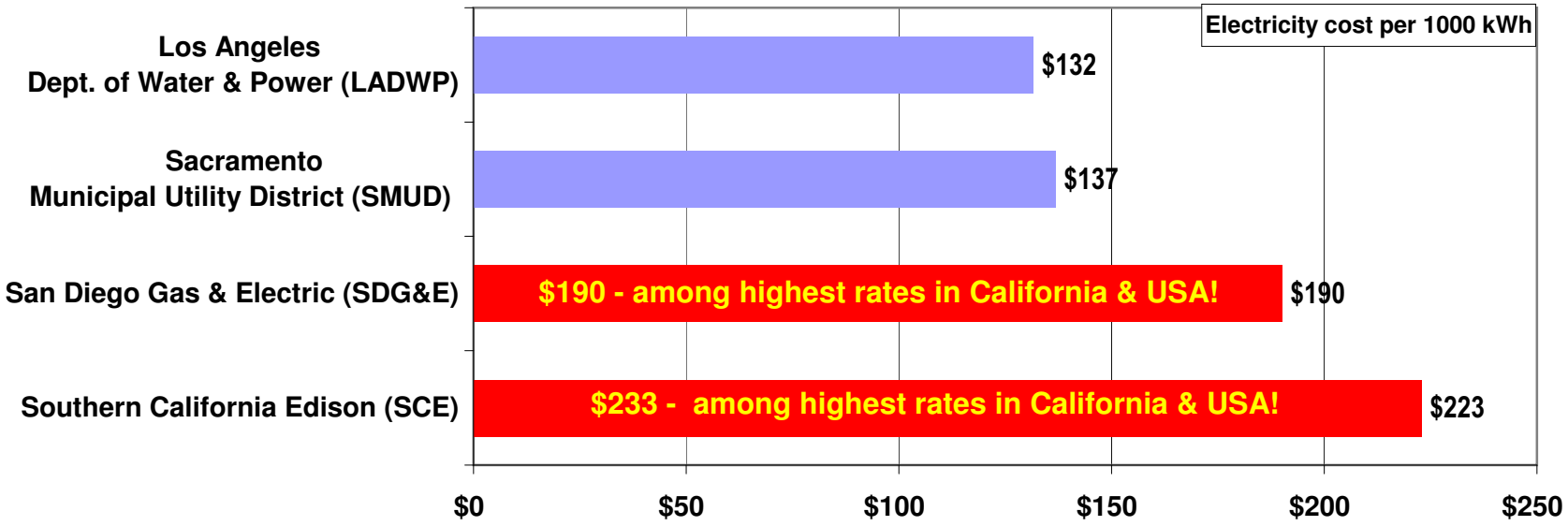
The inspectors determined that the licensee did not ensure that the thermal-hydraulic modeling and flow-induced vibration analysis of the replacement steam generators were adequate with respect to the replacement steam generator design specification. Specifically, the licensee failed to ensure that the design calculations appropriately incorporated the methodology from the ASME BPVC, Section III, Appendix N, standard that was adopted by Mitsubishi for the flow-induced vibration analysis. There were opportunities to identify this error during the early design stage of the replacement steam generators. Licensee personnel questioned the analysis results of FIT-III during design review meetings, but ultimately accepted the model results and resultant design. From shortly after the contract was awarded until 2006, there were letters, e-mails, meeting minutes, action item lists, and internal memoranda that suggested concerns with all three of the elements that cause fluid-elastic instability, which is void fraction, gap velocity, and adequacy of anti-vibration bar tube supports. Regarding concerns raised about FIT-III gap velocities, Mitsubishi compared the velocities to other Mitsubishi designed triangular pitch steam generators that also used FIT-III, but did not compare the results to other similar-sized steam generators.

As a result of the failure to verify the adequacy of the thermal-hydraulic and flow-induced vibration design, both Unit 3 replacement steam generators experienced fluid-elastic instability in a localized area of the tube bundle leading to rapid, significant, unexpected tube-to-tube wear. The tube degradation progressed to the point of causing a primary-to-secondary leak in Steam Generator 3E0-88 through Tube R106C78. Additionally, from March 13-21, 2012, the licensee conducted in-situ pressure testing of the suspect tubes in both Unit 3 steam generators and identified a total of eight tubes (including the leaking tube) that failed to meet the performance criteria in plant Technical Specifications. The in-situ pressure testing identified that Tubes R106C78, R102C78, R104C78, R100C80, R107C77, R101C81, R98C80, and R99C81 in Steam Generator 3E0-88 failed to meet the structural integrity criterion in Technical Specification 5.5.2.11. In addition to failing the structural integrity criterion, Tubes R106C78, R102C78, and R104C78 also failed to meet the accident-induced leakage criterion in Technical Specification 5.5.2.11.

Southern California Edison completed a review of the tube failures, including conducting a deterministic root cause, an organization and programmatic root cause (still ongoing), three different operational assessments, modification testing, and submittal of a response dated October 3, 2012 (ML12285A263) to the NRC's March 27, 2012, Confirmatory Action Letter (ML 12087A323). The organizational and programmatic root cause evaluation has not been completed as of the issuance of this report, in order to identify the causes of the breakdown in design control such that comprehensive corrective actions can be taken to not only prevent recurrence, but prevent the failures of other important structures, systems, and components that may be subject to the same or similar design problems.

Compare Your Electric Rates

SCE and SDG&E – among the highest rates in California and the nation!



April 2012 residential rate per 1000 kWh *(includes base rate, fuel adjustment charge & applicable franchise fees)*

Publicly owned utility. *Not regulated by California Public Utility Commission (CPUC).*

LADWP: 5.7% owner of Palo Verde Nuclear Power Plant, AZ. (11% of power mix).

SMUD: Rancho Seco Nuclear Power Plant shut down June 1989 as a result of public vote. Nuclear waste still stored on-site (ratepayer funded).

Investor owned utility. *Regulated by CPUC.*

SDG&E: 20% owner of San Onofre Nuclear Power Plant (0% of power mix since 1/31/2012*).

SCE: Operator and 78.2% owner of San Onofre Nuclear Power Plant (0% of power mix since 1/31/2012*). 15.8% owner of Palo Verde N.P.P.

*San Onofre Unit 2 offline since 1/10/2012 & Unit 3 offline since 1/31/2012 due to radiation leak & unprecedented steam generator tube wear.

Sources: http://www.nrc.gov/info-finder/reactor/songs/tube-degradation.html; http://www.nrc.gov/info-finder/decommissioning/power-reactor/rancho-seco-nuclear-generating-station.html; Dept. of Public Utilities, Orangeburg, SC http://www.orbgdpu.com/ratecomparison.htm; Jacksonville Electric Authority, FL https://www.jea.com/Manage_My_Account/Get_Help/Understand_My_Bill/JEA_Rates/Electric_Rate_Comparison.aspx; U.S. EIA Table 5.6.A Average Retail Price of Electricity to Ultimate Customers by End-Use Sector, by State, May 2012 & 2011 http://www.eia.gov/electricity/monthly/epm_table_grapher.cfm?t=epmt_5_06_a

SanOnofreSafety.org