

response to the ED comments and questions.

Item #1, Post Fan Performance – The number of fans required in the post case is based on the project sponsors analysis and assumptions. Page 1 of the PA review (under Project Description) describes proposed controls technology and how it is used to reduce the number of CRAH fans in operation. See below.

Customer plans to install Vigilant Data Center controls systems at their facilities. The vendor (Vigilant) claims on their website that their dynamic data center cooling controls system with intelligent energy management reduces cooling energy consumption by as much as 50%, which appears to be optimistic in this case. The controls strategy is to minimize the number of computer room air handling (CRAH) and air conditioning (CRAC) units in operation while maintaining uniform temperature control in the space. The Vigilant controls system utilizes wireless mesh technology that reads space temperatures and developments thermal load profiles for each zone in real time. This data is used to determine if redundant cooling capacity is in operation and which CRAH/CRAC units can be shut down. The system also turns on non-operational equipment in the event of equipment failure to insure continuous and sufficient cooling capacity. There are 16 CRAH and 10 CRAC units serving the data centers, switch rooms and battery rooms. The existing fans are all constant speed. The units are controlled based on space/return temperature. A list of the existing CRAH/CRAC units with system specifications can be found in the "Review Calcs" tab."

In both the pre and post case scenarios, site inspections and short-term monitoring will be used to verify fan operation. It is understood by all parties involved that performance of this controls technology is uncertain. PG&E and PL Energy raised this issue with [REDACTED] prior to approving any of the Vigilant project applications that had been submitted to PG&E.

Item #2, Cooling Valve Position – The point of collecting the cooling load (valve position data) is intended to demonstrate the cooling load profile (constant vs. variable) and relative size of the existing capacity versus demand. This information is not being used to estimate savings; therefore, concerns regarding the potential "inaccuracy if the valves have significant non-linearity in their response" are not warranted. The estimated incentive does not include interactive (chiller) savings. Therefore, the suggested chiller M&V activities do not seem to be appropriate for this project.

Item #3, Fan Power Monitoring – We agree that field measurements should be taken to verify power factor when using amperage as a proxy for power. We will work with the customer and project sponsor to make sure that PF is or has been directly measured. However, in the absence of such measurements, motor part-load performance curve or conservative (low) estimate of power factor are a reasonable/conservative alternative to direct measurements."