9/5/2019

Attendees: KAR RK, JM, Ethan

Response to Comments - PGECOPRO115 R1 Dust Collection Fan VSD

* **Section 1.3, Comment 1:** This is correct. The relationship between “Minimum allowable” and “actual steady flow” CFM in the context of the highlighted sentence is that the baghouse operating conditions are not expected to change throughout the day (thus have a steady state operation) and that the VFD will operate the fan at the lowest possible CFM based on the minimum linear velocity required to keep the particulate in suspension. In other words, the minimum CFM requirement will always be the same since the “system curve” seen by the baghouse will not be changing.
  + **No additional comment. Addressed.**
* **Section 1.3, Comment 2:** Implemented.
  + **No additional comment. Addressed.**
* **Section 2, Comment 1:** When analyzing fan systems with affinity laws, typically an exponent of less than 3 is used (will be anywhere between 2 – 2.9). This is a practice that is mostly done in the analysis of HVAC systems, to help account for system curve changes that happen in HVAC systems. For example, as VAV boxes open and close they affect the pressure and flows through the system. However in systems where the “system curve” does not change, as is the case in the baghouse systems we are analyzing, we could have used an exponent that is very close to 2.9. As a conservative estimate we have taken the exponent down to 2.7, and based on our experience with such systems it is unlikely to be lower than this value.
  + **JM: Does not have any alternative number to offer. Lower on HVAC system. Could also put in a factor for static head? Still concerned that 2.7 without static head is too high.**
  + **Is there a mechanism that can be implemented? Are there custom installations?**
  + **Ethan: 2.4 and 2.7 varying on static pressure.**
  + **Ricardo/Erik: 2.7 most common on industrial systems. In reports that we have done then 2.7 is best.**
  + **KAR to discuss with CPUC staff today.**
* **Section 4.2, Comment 1:** Agree - it looks like we did not include a differential pressure transmitter in the cost estimate. This will be updated accordingly with parts and labor. Motor costs are not included because NEMA premium is assumed to be standard practice and as such the savings and costs associated with any motor replacement have been excluded.
  + **JM: If existing system with constant speed systemgeneral purpose and add a VFD. Cost would be the cost of the VFD and the motor.**
  + **Randy: AOE is full cost of measure assuming host equipment is in working condition.**
  + **The host equipment cannot accommodate AOE.**
  + **Randy: Assumption would have to say replace motor to standard NEMA motor. So if add on the VFD.**
* **Attachment, Comment 1:** We have used NEMA premium efficiencies in our analysis. We will remove this reference as we had finally decided to not use it.
* **JM: General comment. In ES calculations. Worked out big variance 74-95% Does this seem typical**
* **Ethan: Baghouse larger system is more likely to have large variance. Seems typical.**