

AIR QUALITY FAQ WITH OUR EXPERTS

Energy Trust of Oregon technical experts have answered your frequently asked questions about air pollution control devices (APCD).

Q: How can we limit energy consumption on these air pollution control systems?

Whether you are retrofitting an existing system or adding an additional APCD, Energy Trust recommends considering a Variable Frequency Drive (VFD) on the motor to enable flexibility for tuning. With a direct drive arrangement and a VFD, wear components including belts, sheaves and bearings are eliminated, reducing maintenance costs and improving reliability.

We recommend controlling the VFD to a suction static pressure on the dirty side of the APCD to accomplish a constant flow control method. Excess runtime can be a significant source of unnecessary energy consumption. For more energy savings consider breaking the duct runs into zones fed directly into the APCD, installing dampers and only ventilating when needed.

Q: What conveyance velocity do you recommend in dust collection systems?

The American Conference of Governmental Industrial Hygienists has established best practices in *"The Industrial Ventilation: A Manual of Recommended Practice for Design."* Typical values range from 3,500 fpm to 6,000 fpm depending on the material. Setting conveyance velocity higher than necessary wastes energy and wears out pipes more quickly.

Q: If my filters are fouled do I consume excess energy on my fan?

It depends. If the fan has a VFD or damper and is controlled to maintain a constant flow, then yes, fouled filters can increase fan energy consumption. If the fan is constant speed with no other volumetric controls, then fan energy is typically lower with high pressure and lower flow. Actual impacts depend on the intersection of the fan and system curves.

Q: Is it more efficient to keep motors running during breaks or to stop and then restart them?

A motor that is off will always use less energy than one that is in a starting sequence. Starting up a machine does require a spike of current that's as much as 10 times the running rate, but that spike lasts for just a few seconds or minutes—and over time this is much less energy than used to keep it running when it's not in use. There are limits to how frequently a motor is designed to start up, so we recommend talking with your motor vendor if your facilities is restarting equipment more frequently than 2 times per hour.

Q: How can Energy Trust of Oregon help me figure this all out?

Call us at 1.888.777.4479 and we can connect you with a trade ally contractor, free of charge, to talk about opportunities, products and the upgrade process.



Visit www.energytrust.org/for-business or call 1.888.777.4479 for more resources and information on how you can save energy at your business.

Serving customers of Portland General Electric, Pacific Power, NW Natural, Cascade Natural Gas and Avista. 9/21