

ComEd's new Lab Technical Assistance Service helps organizations identify and fund energy-saving measures

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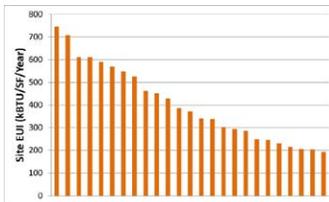
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## Exhaust stacks are for chemicals, not money!

Laboratories are energy-intensive due to high exhaust requirements, 24 hours per day. Labs can use 3X to 10X as much energy as a typical office building (on a per-square-foot basis). Lab-control strategies are now available to reduce the need for exhaust air while maintaining a safe research environment.

### New laboratory program by ComEd

ComEd recently announced the Laboratory Technical Assistance Service (TAS) program: a new initiative designed to help lab facilities identify energy-saving measures and match appropriate projects with incentive funding. Laboratories larger than 50,000 square feet are required to contribute \$10,000 toward the cost of a TAS study, which is worth up to \$50,000. Smaller facilities are not required to make a co-payment. Owners can use the program to study entire laboratory buildings or to examine laboratory zones inside larger facilities.



Data from the I<sup>2</sup>SL Benchmarking Tool shows that laboratory facilities subjected to Chicago weather use 200 kBtu/sf/year to 750 kBtu/sf/year, depending on fume hood density and ratio of laboratory space to administrative functions. G/BA can help your facility benchmark energy use and determine potential energy-reduction strategies.

Typical retrofits resulting from a laboratory TAS analysis include:

- **Air-handling unit** improvements (for instance, low-pressure-drop filters and airflow reductions).
- **Fume hood and space occupancy controls** and variable air volume (VAV) retrofits.
- Installation of **high-performance fume hoods**, VAV hoods, automatic sash closers, and sash stops.
- Heat recovery from exhaust or process equipment, reduction of reheat, and other methods to **optimize ventilation and cooling systems**.

### Incentives and financing opportunities

Laboratory-specific project incentives are available from ComEd:

- **New fume hoods operating at a face velocity of 50 to 60 feet per minute:** \$400 per linear foot of hood, depending on factors that will be evaluated during the laboratory TAS analysis.
- **Variable air volume fume hood retrofit from constant volume:** \$250 per linear foot of hood for laboratories whose ventilation rates are determined by fume-hood quantity.

- Fume hood occupancy controls:** \$100 per linear foot of hood for installing controls that automatically reduce face velocity from 100 feet per minute to 75 feet per minute (or less) based on occupancy.
- **Automatic fume hood sash closers:** \$150 per linear foot of hood when automatic sash-closing equipment is retrofitted to a VAV-capable fume hood.
- **Sash stops :** \$5 per linear foot of hood if a sash stop is installed on a hood that lacks one.
- **Low-pressure-drop HEPA filters:** \$50 per 1,000 cfm for high-performance HEPA filters (0.8 inches w.c.) installed on existing VAV air-handling units that are designed for 380 fpm face velocity or higher.
- **Low-pressure-drop pre-filters:** \$15 per 1,000 cfm for high-performance filters (0.48 inches w.c.) installed on existing VAV air-handling units that are designed for 380 fpm face velocity or higher.
- **Reduce/optimize air-changes per hour (ACH):** \$0.75/cfm incentive to reduce ventilation rates in the laboratory by 10% or more, if other prescriptive incentives mentioned above are not utilized. This measure can be used for existing laboratories that already have VAV and fume hood controls.

**Natural gas incentives** are also available for measures that reduce electricity and heating loads, such as reduced air changes per hour or VAV retrofits.

Many of the “standard” incentive options available to all commercial facilities also apply to laboratories:

- **Variable-speed drives for HVAC fans:** \$60/horsepower to install a VFD with addition of automatic control equipment where none exists. Installation of VFDs to replace inlet guide vanes or variable-pitch blades may use a custom incentive of \$0.07/kWh based on calculations from the TAS.
- **Chiller replacements:** Ranging from \$20/ton to \$50/ton (for large centrifugal chillers that are more efficient than 0.49 kW/ton IPLV). If your facility is considering a chiller replacement in the next two to five years, use the TAS as a screening tool for incentives down the road. Varying incentives are available for chillers of different size, compressor type, and method of heat rejection.
- **DDC controls:** Up to \$0.35/square foot of controlled space based on new features as part of a new building energy management system.
- **Wireless DDC thermostats:** \$100 per thermostat that replaces a pneumatic thermostat, in conjunction with a central building energy management system that can utilize the DDC outputs.
- **Electronically commutated motors:** \$50 per EC motor installed on fan-powered box or fan-coil unit.
- **High-efficiency pumps:** \$15/horsepower for pumps less than 20 horsepower for impeller trimming, VFDs for balancing purposes, or pump replacement to optimize flow and pressure. Larger pumps are eligible for a custom incentive based on \$0.07/kWh saved.
- **Cogged V-belts:** \$5/horsepower for replacing standard V-belts on HVAC fan motors with cogged V belts.
- **Indoor and outdoor lighting:** A wide range of incentives for adding lighting controls and improving overall efficiency of lighting systems through ballast upgrades or installation of LEDs.

Incentive money alone may not be enough. Third-party financing may be used as an alternative source of capital to implement projects. G/BA can help facility owners evaluate the benefits of self-financing compared with implementation

by an energy services company, or help you develop an energy services agreement.

#### **Pursue low-cost measures with RCx**

For measures with fairly short payback periods, consider participating in ComEd's retro-commissioning program. A minimum commitment to implement measures with paybacks less than 1.5 years is required to participate.

#### **Persistent savings with MBCx**

ComEd has a new program that has great applicability to laboratories: monitoring-based commissioning. MBCx uses the existing building automation system, often in conjunction with a third-party overlay, to automatically identify variances from intended operation of the HVAC systems. G/BA can review the available software options with your operations staff to determine which offers the best opportunities for energy and maintenance savings.

#### **Additional resources**

ComEd offers a process efficiency program for clients with electric service greater than 10 MW. This program provides up to \$30,000 to offset the cost of a whole-facility energy assessment, along with other incentives. For sites less than 10 MW, ComEd offers specific programs for process cooling, refrigeration, and compressed air projects that document energy savings, involving custom incentives at \$0.07/kWh.

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