## Advanced Rooftop HVAC Unit Controls

Heating and air conditioning account for over 25 percent of the energy use of commercial buildings, and rooftop units serve 40 percent of commercial floorspace. Upgrading to a more efficient model is often expensive, and even for older units, does not achieve the savings necessary to justify the investment. A more cost-effective option, especially for small businesses, is to upgrade the system controls to operate their existing units more efficiently. Recent advances in the cost and compatability of controls have made this a promising retrofit option for a variety of building types.



Retrofitting the roof top unit controls on existing systems presents an opportunity for businesses to reduce their heating and cooling energy use.

However, these technologies are not widely adopted for rooftop unit retrofits, and requires field testing to confirm savings and resolve operations issues. The Advanced Rooftop HVAC Unit Controls Pilot will determine the expected energy savings and cost effectiveness of three market-ready advanced control strategies that look promising, but have not been implemented or evaluated on a large scale.

CEE staff are field monitoring 60 units on Minnesota buildings to verify real building savings potential. They are assessing the non-energy benefits including reliability, maintenance costs, and occupant comfort. In addition, the research team has been testing the optimization packages on rooftop units serving CEE's main downtown office using wireless communication technology. CEE staff can control the operation of the unit through a web interface, to change settings remotely in real time.



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