

# Managing energy costs in multifamily residences

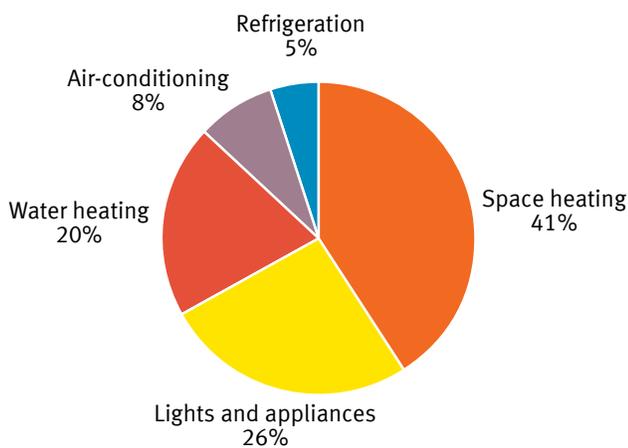
Reducing energy consumption is one way to improve both the profitability and the value of any property. As attractive as the benefits of saving energy may seem, energy management in multifamily residences can present challenges. The most prominent of these is the complexity that arises due to the different—and sometimes conflicting—interests of property managers and their tenants.

## How residential properties use energy

There are plenty of opportunities for property managers to reduce energy consumption and improve the bottom line for their properties and clients. The U.S. Energy Information Administration estimates that, as of 2005, multifamily units accounted for 15% of U.S. energy consumption and that owners and tenants pay more than \$30 billion a year to purchase that energy. According to the U.S. Department of Energy, utilities typically amount to 25% to 35% of overall operating costs, making them the single largest controllable cost in multifamily housing (Figure 1).

**FIGURE 1: Multifamily building end-use energy consumption.**

According to data from the U.S. Energy Information Administration’s Residential Energy Consumption Survey, space heating is the single biggest energy consumer in multifamily buildings.



© E Source; data from U.S. Energy Information Administration (2005)

## Ways to save energy

Owners and managers of multifamily buildings can realize significant energy savings quickly and easily by making basic changes to existing equipment and its operation. Once you’ve built momentum and experience, you can move on to more expensive and complex actions.

### Quick fixes

To ramp up your energy management program, first take advantage of small opportunities that require little up-front capital investment. For example, turning off equipment that provides little or no amenity to residents is as simple and inexpensive as energy management gets.

**Educate your team.** Instruct building staff to turn off unnecessary lights, minimize the use of heating and cooling when possible, turn off computer equipment and appliances that are not in use, make sure model and vacant units are operated efficiently, and take notice of malfunctioning controls such as broken or maladjusted photosensors. Educate your vendors and any contractors working on the property of the steps being taken to save energy.

**Remove excess lamps.** Reduce lighting in public and common spaces by removing lamps in areas where natural lighting is available or dimming lights in proportion to the availability of sunlight. Measure lighting levels and compare them to the recommendations of local building codes or national standards. Where lighting levels exceed recommendations, remove lamps and measure again.

**Manage vacant units.** Turn off breakers where freezing and security are not a concern, turn heating and cooling off or down to minimal temperature settings, adjust refrigerators and freezers to their warmest settings, and turn off water heaters. Regularly review vacant units’ energy bills to identify unnecessary energy use and walk through the space to ensure that lights and thermostats are off and that windows and blinds are closed.

*(continued on reverse)*

**Clean and maintain HVAC equipment.** A clean heat-transfer surface can provide energy savings of up to 10%. Conduct regular preventive maintenance on heating and cooling equipment, including checking and replacing filters regularly; cleaning dampers, blower units, housing units and motors; inspecting fans, bearings and belts; and making sure that terminal fan coil units and baseboards are not blocked.

**Keep lights clean and calibrate sensors.** Cleaning light fixtures can boost light output by 10% indoors and up to 60% outdoors. Replacing discolored lenses will boost output by up to 20%, and calibrating occupancy sensors and photocells to restore correct operation can reduce energy use by up to 50%.

### Longer-term solutions

Once your energy management program has demonstrated success with the items above, you're ready for measures that require financial investment and detailed planning.

**Track your energy use.** Simple tools can be used to calculate an index of energy consumption per square foot that will enable you to compare individual buildings, either across your portfolio or against their past performance.

**Upgrade your operations and maintenance (O&M) program.** One simple way to improve the energy efficiency of buildings with little or no capital investment is to ensure that the building shell—and the expensive systems within it—are properly operated and maintained. Implementing a rigorous O&M program requires the buy-in of senior management and O&M staff alike.

**Install lighting controls.** Set up timers in areas where occupancy is predictable and occupancy sensors where it's not. Install two-level lighting—which lowers light levels during low-usage times, when less light is sufficient—for corridors, stairways or other areas that need to have the lights on 24/7. Check with building codes to determine what areas require 24-hour lighting.

**Replace old appliances with ENERGY STAR® approved appliances.** An ENERGY STAR refrigerator uses at least 20% less energy than required by current federal standards and 40% less than a conventional 2001 model. An ENERGY STAR clothes washer can reduce energy costs by more than a third and water costs by more than half; and an ENERGY STAR dishwasher uses at least 41% less energy than conventional dishwashers.

**Reduce hot water demand.** Low-flow showerheads and aerator faucets can be placed both in common areas and in individual units to reduce the flow of hot water and, thereby, the demand on water heaters.

### Getting tenants involved in energy savings

In units where utility costs are included as part of the rental payment, energy use represents an uncontrolled expense for property managers because there are typically few limits on the energy that tenants may consume and no economic incentives to conserve. Retrofitting facilities by adding submetering equipment to such units is one way to encourage those tenants to take control of their own energy expenditures.

In buildings where tenants pay their own energy costs, offering “green leases” provides a vehicle by which building owners can invest in efficiency improvements in tenant space and recoup the costs by raising the rent in the middle of the term. This can allow tenants and property managers to share both the costs and benefits of energy efficiency upgrades.

### Resources

#### Focus on Energy

[focusonenergy.com/Business/Apartments-and-Condos/](http://focusonenergy.com/Business/Apartments-and-Condos/)

Focus helps multifamily building owners and developers enjoy lower operating costs and a better bottom line through their Apartment and Condo Program.

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**MGE partners with Focus on Energy to bring energy-saving resources and incentives to our customers.**



Focus on Energy works with eligible Wisconsin residents and businesses to install cost-effective energy efficiency and renewable energy projects. Focus information, resources, and financial incentives help to implement projects that otherwise would not be completed, or to complete projects sooner than scheduled. Its efforts help Wisconsin residents and businesses manage rising energy costs, promote in-state economic development, protect our environment, and control the state's growing demand for electricity and natural gas. For more information, call **800-762-7077** or visit [focusonenergy.com](http://focusonenergy.com).

**U.S. Environmental Protection Agency’s ENERGY STAR Program**

[www.energystar.gov/index.cfm?c=home.index](http://www.energystar.gov/index.cfm?c=home.index)

ENERGY STAR provides details on equipment and appliance efficiency as well as tools for monitoring and managing building energy use.

**U.S. Department of Housing and Urban Development**

*Energy Conservation for Housing—A Workbook*

[www.abtassoc.com/reports/D19980034.pdf](http://www.abtassoc.com/reports/D19980034.pdf)

This workbook contains an O&M checklist and suggestions for additional O&M measures.

**Building Owners and Managers Association International**

*BOMA’s Guide to Writing a Commercial Real Estate Lease, Including Green Lease Language*

<http://shop.boma.org/showItem.aspx?product=GL2008&session=EE01536F059D4DAD898A3B7D14A4FF01>

Though written for commercial properties, some aspects of this green lease guide can be applied to multifamily buildings.

**New York State Energy Research and Development Authority**

*Residential Electrical Submetering Manual*

[www.submeteronline.com/pdf/subman2001.pdf](http://www.submeteronline.com/pdf/subman2001.pdf)

This manual describes the costs and benefits likely to be associated with unit submetering.