



# Arizona Success

Current News and Practical Tips  
for Arizona's Business Community

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**APS**  
THE POWER TO MAKE IT HAPPEN®

## Improving efficiency is a smart move for schools

The APS Solutions for Business Program can help you get started. APS' Solutions for Business program can help you develop a strategy to maximize your energy efficiency improvements. The program offers incentives for a range of energy efficiency measures, from lighting to air conditioning to refrigeration equipment. The program incentives also include retro-commissioning and feasibility studies, as well as design assistance for new construction projects. The Solutions for Business program is celebrating its first year anniversary, and schools in APS service territory have already received nearly \$300,000 in incentives. In fact, two school districts received more than \$100,000 each.

To learn more, call 866-277-5605 between 9 a.m. and 5 p.m. (MST), Monday-Friday, or visit [aps.com](http://aps.com).

## When school's out, efficiency is in

Summer vacation means empty classrooms and easy access for implementing energy efficiency improvements. There are many ways to reduce energy use: lighting retrofits, equipment tune-ups, envelope improvements and more. The ideal approach begins with a comprehensive energy audit to identify and prioritize energy-saving measures. But, you may already have a good idea of needed improvements and can get moving with a few tips and resources.

**Gather Your Energy Clues** – Before the staff scatters for the summer, play a quick game of energy sleuth. Ask teachers, office staff and other support personnel to identify any comfort problems. Are there any broken doors or windows? Hot or cold spots? Mysterious odors? What about noisy equipment? Does dust settle in a particular location? The answers may point to energy-wasting air leaks, faulty equipment, inefficient lighting or poor insulation.

## Start by looking up

Lighting typically consumes the most electricity in schools, it adds to the cooling load, and it's relatively easy to change. So it makes sense to start here for savings. Ask yourself these questions:

Are we still using any incandescent lights? If so, replace them with ENERGY STAR® qualified compact fluorescent lights (CFLs). They use less energy and last longer, which means fewer trips up and down ladders to change bulbs.

Can task lighting substitute for overhead fixtures? A desk lamp or activity-specific lighting may work better and cost less than high overhead lights.

Are we making the best use of natural light? Are window overhangs the proper length and are coverings in working condition? If blinds or shades are difficult to open and close, they probably will not be used.

Have we maximized use of occupancy sensors, timers, photosensors and other controls? Installing occupancy sensors can reduce lighting energy use by 40-50%. An effective control system also reduces maintenance demands.

### **Additional ways to save on lighting:**

- Replace T12 lamps and magnetic ballasts with T8/T5 lamps and electronic ballasts.
- Replace high bay high intensity discharge lamps (often found in gymnasiums) with 4-lamp T5 high output system.
- Install light-emitting diode (LED) exit signs, which typically last from 700,000 to more than 5 million hours, compared with 15,000 hours for typical fluorescent lamps.
- Dust them off! Periodic cleaning of lamps and light fixtures can save up to 15% of lighting energy.

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**Peer Success** – A valley-metro School District replaced 934 inefficient lights at their Elementary School with T8 lamps and electronic ballasts. Over the lifetime of the equipment, the project is expected to save more than 1 million kWh during peak periods. APS provided \$7,472 in incentives from the Solutions for Business Program to implement these energy-saving measures.

## Keep cool for less

Air conditioning is the second-largest component of a school's energy bill and a critical factor in creating a successful learning environment. Ask yourself:

Are we matching the cooling schedule to occupancy patterns? Install controls to raise the temperature set point when students and staff leave. Save money without sacrificing comfort.

Do we have drafts? You may be able to reduce your cooling costs by up to 30% simply by sealing leaks in walls, doors, windows and roofs. Follow drafts to their source and seal with the appropriate material, such as caulk or weather stripping. Plugging these holes will also keep out dust, noise and pests. Look for ENERGY STAR® qualified products when replacing doors and windows.

Does the air leave the register as a blast or a whisper? Leaky ducts can siphon off conditioned air and draw dirty air into the ventilation system. Conduct a visual assessment to locate gaps and seal with fiberglass mesh and mastic, mechanical fasteners, or foil tape, but do not use duct tape.

How old is it? If it's time to upgrade your cooling system, look for the most efficient equipment and be sure that it is sized correctly for your facility. Oversized chillers consume more energy and do not work as effectively.

**Peer Success** – A rural School District used \$3,868 in APS incentives to replace a chiller, pumps and controls in the school auditorium. This improvement is projected to save more than 650,000 kWh during peak periods and 162,000 kWh during off-peak periods over the lifetime of the equipment.

## Think inside the box

Don't forget about other energy hogs like refrigerators, vending machines and office equipment. Replacing aging equipment with energy-efficient models can save big bucks on electricity bills. Consider installing controls to further improve efficiency and extend the life of your equipment. Evaluate your water heating needs and consider using tankless heaters to serve remote locations.

## Retool your maintenance calendar

According to the Dept. of Energy, a well-crafted operation and maintenance (O&M) program and increased awareness of maintenance and instructional staff can save 5% to 20% on energy bills without a significant capital investment.

Your O&M program may include activities such as: cooling tune-up, cleaning coils, changing air and water filters, verifying operation and adjusting setpoints of sensors and controls, calibrating thermostats and humidistats, cleaning light fixtures and group re-lamping. APS also provides Building Operator and Facility Maintenance Training in conjunction with the Electric League of Arizona (ELA). Encourage your building managers and facility maintenance personnel to participate, as APS subsidizes 50% of the tuition for this program (contact the ELA at 602-263-0115 or [www.electricleagueofarizona.org](http://www.electricleagueofarizona.org) for more information).

**If It's Not Broke, Why Fix It?** – It may seem logical to replace bulbs only when they burn out, but it actually wastes valuable labor. Group relamping schedules the replacement of lamps at their maximum economic value, generally at about 70% of their calendar life. Though it means replacing lamps before they expire, group relamping dramatically reduces the time spent replacing each lamp, which can reduce your overall lighting maintenance budget by more than 25%. Planned maintenance reduces costs through bulk-purchase discounts, lowers storage space needs for replacement lamps and avoids disruptions in the classroom.

*Source: ENERGY STAR Building Manual*

## Extend the lesson

Create an army of energy sleuths by integrating efficiency into easy lessons. Find materials at: [www.need.org](http://www.need.org).

## Learn more

- [www.aps.com](http://www.aps.com) – Get Started Now
- [www.electricleagueofarizona.org](http://www.electricleagueofarizona.org)
- [www.energystar.gov](http://www.energystar.gov)
- [www.eere.energy.gov/buildings](http://www.eere.energy.gov/buildings)

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