



Arizona Success

Current News and Practical Tips
for Arizona's Business Community

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Energy Information Services program

APS Solutions for Business launched its Energy Information Services (EIS) program on November 16th. The EIS program is targeted to large customers that register 200 kW or more on their electric meter. The program can help save money on energy bills and give a better understanding of a facilities' electric use. EIS provides data not only regarding usage and demand, but can also provide when, where and how much power is used in specific areas of each facility. This detailed information allows you to fine-tune equipment use and operations and to document the impact of those changes to optimize energy consumption.

"Customers that utilize EIS get real-time energy usage data that will help them better plan, control and benefit from electricity improvements in their facilities" said Wayne Dobberpuhl, EIS Program Manager. "Furthermore, with access to load profile information, customers will be able to track the effects of specific operational variables including equipment scheduling, temperature set points, lighting and HVAC performance. EIS provides the ability to explore various 'what if' operating scenarios".

APS is encouraging customers to take advantage of this valuable tool by providing a one-time incentive of up to a maximum of \$900 or 75% of the cost of installing a meter and communications equipment necessary to participate in the program. Get started now by calling 877-888-1277 or e-mail: aps_solutionsforbusiness@automatedenergy.com.

The EIS program was approved by the Arizona Corporation Commission and is funded by APS customers.

The building envelope and energy use

Energy costs are an important concern for Arizona business owners, and a significant overhead expense for businesses that own and manage property. The building envelope—the external elements of a building that includes walls, floor, ceiling, roof, windows and doors—is a critical determinant of the building's energy efficiency and its associated energy costs.

Heating, cooling and ventilating costs for Arizona offices run between \$.50–.70 per square foot, each year. In hot, dry climates like those found in Arizona, the building envelope has a particularly large influence on air conditioning energy use. For a typical 10,000 square foot office building in Phoenix, for example, the heat gain through the building envelope accounts for roughly half of the energy the building's air conditioning system will draw.



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Some strategies for improving building envelope efficiency include:

- **Better insulation** – Insulation materials are rated according to their ability to resist heat flow. This thermal resistance rating is known as an “R-value”. The higher a material’s R-value, the higher its capacity for insulation. The reciprocal of the R-value is the U-value, which measures a given material’s rate of heat loss. Low insulation levels and/or gaps in the insulation materials can create paths through which heat and air can easily flow into or out of the building. Insulation needs to be properly installed to achieve the greatest benefit.
- **Exterior shading** – Exterior shading devices, such as horizontal overhangs and vertical fins, in addition to landscaping features like trees and bushes, can reduce a building’s solar gain. In particular, shading windows from direct solar radiation on a building’s east and west sides can greatly lower cooling loads. Effective passive heating performance in winter months can be accomplished by choosing the geometry of landscaping, overhangs and fins with care. (Consult an architect or contractor before proceeding.)
- **Glazing selection** – Lower solar heat gain coefficient (SHGC) glazing reduces the amount of solar radiation entering a building by reflecting much of the radiation that strikes it. Selecting glazing with low SHGC but high visible transmittance on the east and west facades will allow light to enter the building and simultaneously reflect heat away from the building’s interior. A variety of solar “films” can be cost-effectively retrofitted on existing windows to reduce glare and lower heat transmittance.

The payback period for these and other envelope improvement measures will depend upon the combination of measures installed. While building envelope retrofits can provide attractive payback periods, new construction projects can have total paybacks of less than five years.

The APS Solutions for Business program has incentives available for many of these energy efficient building envelope improvements. For more information, call 866-277-5605 or visit aps.com.

The APS Solutions for Business Program was approved by the Arizona Corporation Commission and is funded by APS customers.

Cool roofs

According to the EPA, over 90% of the roofs in the United States are dark-colored and reach extreme surface temperatures. In contrast, a light-colored cool roof system with high reflectance and emittance stays 50–60 degrees cooler than traditional materials during the hot summer months. Cool roofs are highly reflective and some of the benefits of a cool roof include:

- Reduced air conditioning energy use resulting in lower utility bills
- Roof maintenance and replacement expenses are reduced by extended roof life
- Increased indoor comfort in summer from reflecting heat from the roof surface
- Reduced heat island effect in cities
- Reduced air pollution and smog formation

Cool roofs reduce heat transfer to the building core, thereby lowering air conditioning costs. Such roofs can save commercial building owners 20–70% in annual cooling energy use. See the Cool Roof Rating Council, www.coolroofs.org, for more information and a list of products.

The savings from applying a light colored or reflective roof treatment vary depending on the roof’s slope, the ventilation of the space below it, and its level of insulation. Cool materials for low-slope roofs are mainly bright white in color, although non-white colors are starting to become available for sloped roof applications.

To remain effective, cool roofs must be kept clear of dirt, dust, and pollutants. Solar reflectance can deteriorate up to 11% if regular maintenance is not provided.