

BRIGHT  
IDEASShave dollars off  
your energy bill  
while reducing your  
carbon footprint.

SECTION

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ENERGY  
QUIZTest your knowledge with  
these energy-burning brain  
ticklers.1.) Which Lehigh Valley  
company lets its  
employees drive a car of the  
future with no spark plugs,  
pistons, transmission or  
exhaust?

- A) The Morning Call  
B) Crayola  
C) Air Products  
D) Mack Trucks  
E) All of the above

2.) Name the nuclear power  
plants within a 100-mile  
radius of Allentown.

- A) Limerick  
B) Peach Bottom  
C) Three Mile Island  
D) Hope Creek & Salem, N.J.  
E) All of the above

3. Have electric bills in the  
Lehigh Valley increased  
since the state opened  
the electricity market to  
competition through  
deregulation in 1996?

- A) Yes  
B) No

4. Which is NOT a viable  
renewable alternative  
energy source?

- A) Solar power  
B) Ocean wave power  
C) Magnetic generation  
D) Converting garbage to fuel  
E) Geothermal power

5. True or False: Nine of the  
10 worst power outages in  
PPL's history occurred in  
past decade.

- A) True  
B) False

6. What was average price of  
a gallon of gas in 1998?

- A) \$2.50  
B) \$3.89  
C) \$1.39

7. This Lehigh Valley  
company invented the  
dimmer switch.

- A) Lutron Electronics  
B) Allen Electric  
C) Werkheiser Electric

8. What's the controversial  
process used to release  
natural gas trapped in  
Marcellus Shale rock  
formations?

- A) Gaggling  
B) Frying  
C) Fracking  
D) Hacking

9. Which costs more: A ton of  
coal or 180 gallons of heating  
oil?

- A) Coal  
B) Heating oil  
C) Same price

10. Which NFL team hopes  
to have massive solar panels  
and wind turbines on the top  
of its stadium this year?

- A) Steelers  
B) Eagles  
C) Packers  
D) Cowboys  
E) All of the above

SEE ANSWERS ON NEXT PAGE

"We would always recommend conservation  
first, before the big ticket items."

—Brian Baker, Renu co-owner



APRIL BARTHOLOMEW/THE MORNING CALL

After installing a high-powered fan to create air flow, Brian Baker of Renu Building &amp; Energy Solutions in Orefield uses an infrared camera to track down heat loss. Usually, additional insulation will go a long way toward fixing problems with heat loss.

Don't let your house  
leak money

Home energy-efficiency 'a whole bunch of little steps.'

BY SAM KENNEDY  
Of The Morning Call

Jim Lett knew his house was leaking money, especially during winter. Of course, he couldn't actually see heat slipping out of wiring conduits, exhaust fans, the attic. But he could feel the pain in his wallet as sure as the draftiness that compelled him to turn up his thermostat.

So Lett called Renu Building & Energy Solutions in Orefield for help, and Renu performed an energy audit. A high-powered fan was mounted in the front door of Lett's house, and an infrared camera was used to trace air flow. In the end, Lett was presented with a report dozens of pages long detailing various ways his circa 1950s house could be made 21<sup>st</sup> century energy efficient.

Among the major improvements Lett authorized: sealing cracks in his attic, insulating his garage and installing an indirect water heater to reduce reliance on an oil burner. He ended up spending about \$20,000 on the effort, of which he now recoups hundreds of dollars in savings annually.

"We save financially. It's good for the environment. And it's more comfortable for us, living in the home," he said.

If the topic is money-saving home improvement projects, odds are the conversation soon turns to solar panels. They're sexy in a high-tech sort of way, like a pair of mirror sunglasses on your roof. And during peak summer daylight, they can send the dial on your electric meter spinning backward. But let's start our discussion with the measures most experts agree give you the biggest bang for your buck.

"We would always recommend conservation first, before the big ticket items," Renu co-owner Brian Baker said.

For most homeowners, the attic is the best place to start. It offers the low-hanging fruit, so to speak, because heat rises and therefore most easily escapes an enclosed space if provided an exit above.

Usually, additional insulation will go a



APRIL BARTHOLOMEW/THE MORNING CALL

Baker demonstrates how an infrared camera can pinpoint areas that need to be better insulated. For most homeowners, the attic is the best place to start.

long way toward fixing the problem. That's because insulation technology has evolved since many homes in the Lehigh Valley were built, as have construction standards. Anthony Hyde of Saving Green Energy Audits in Easton said the typical attic should have at least 12 inches of insulation, but many older homes throughout the region have attics with as little as 2 inches.

No less important, however, is a separate attic fix many homeowners overlook: sealing cracks and gaps. "It's unbelievable how much air leaks out of people's houses," Hyde said.

Bringing an old attic up to code is not rocket science. But it is tough, dirty work. It usually means handling itchy insulation and applying messy caulk in dark, cramped spaces. If that's not something you are able or willing to do, auditors such as Baker and Hyde can refer you to a professional.

A list of certified energy auditors can be

found on the website of PPL Electric Utilities. Cost varies depending on house size and audit type. A simple walk-through costs as little as \$50 after PPL rebates. A more detailed inspection could run as high as \$1,000, though up to \$250 in rebates is available through PPL.

In addition to attics, auditors look for energy-saving opportunities in other areas, particularly home heating and lighting.

## Heating

Many people are abandoning home-heating oil, which has nearly doubled in price over the past several years, for less expensive natural gas, which has actually dropped in price over the same time frame. The price gap is so wide that people are investing thousands of dollars to switch

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THE MORNING CALL

## OUTLOOK 2012 Bright ideas

## EFFICIENCY

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heat sources, expecting to recoup the investment through fuel savings in just a few years.

The typical heating oil customer who lives in the Northeast is expected to spend \$2,535 on fuel this winter, up 67.5 percent from five years ago, according to the Energy Information Administration. The average natural gas customer in the Northeast, meanwhile, will spend \$1,062 on fuel, down 5.9 percent from five years ago.

Another alternative to heating oil is coal. A ton of coal, which can cost about \$180 in the coal region, provides the same amount of heat as 180 gallons of heating oil, which would cost \$630. Coal systems, however, typically require frequent attention — and manual labor.

Yet another possibility is an indirect water heater, such as the one Lett installed in his house. It is an insulated water tank that keeps hot water hot enough that a home's oil burner need not fire up so often.

## Lighting

By now, the benefits of compact fluorescent light (CFL) bulbs over traditional incandescent bulbs have been well-publicized in recent years. Switching to CFLs can, for the average household, cut electricity consumption by more than half, saving up to \$1,500 over the life of the bulbs.

The equally impressive virtues of dimmers, meanwhile, have gotten a lot less press. A dimmed light uses less electricity than one that's not dimmed.

A dimmer works by flickering the bulb at a rate undetectable to the human eye. According to Lutron Electronics, the Coopersburg manufacturer of dimmers, 10 percent dimming lights reduce energy consumption 10 percent and double the life of a bulb, and 50 percent dimming lights drop consumption 40 percent and increase the life of the bulb by a factor of 20.

Another benefit is reduced heat which, in addition to lengthening the life of bulb filament, helps to keep buildings cool during the heat of summer. Of course, for additional electricity savings, make sure you are actually buying electricity from the supplier with the best rates. One of the best rates available to homeowners in the PPL service territory is from PPL.

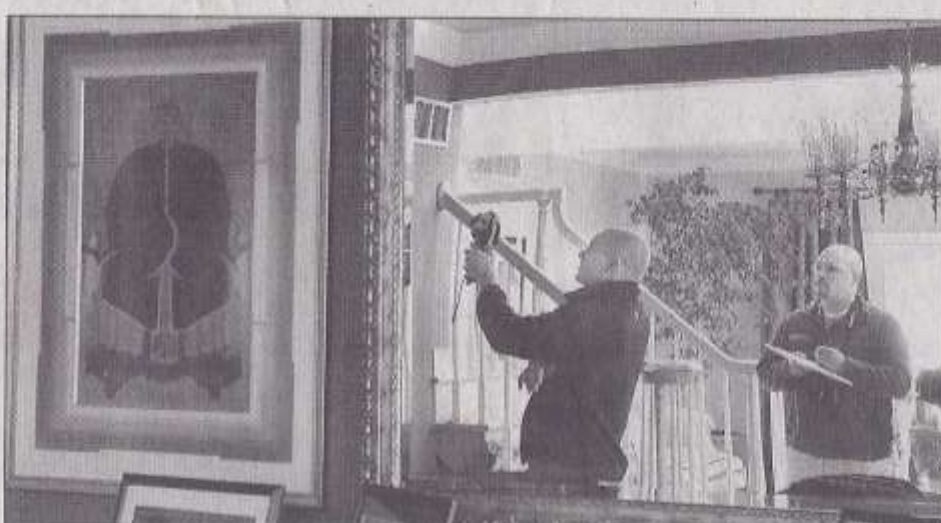
## Solar panels

Now, if you have already added to your attic, heating system and light fixtures but still have a hankering to do more, then you might be a good candidate for solar panels. (You are an excellent candidate if you also enjoy a little one-upmanship. Nothing gets neighbors oohing and aahing more than a



APRIL BARTHOLOMEW/THE MORNING CALL

Brian Baker of Renu Building &amp; Energy Solutions in Orefield checks the air seal around a window as part of an energy audit.



APRIL BARTHOLOMEW/THE MORNING CALL

Jason Andrews, right, takes notes while Brian Baker takes readings.

shiny rooftop of photovoltaic cells.)

In recent years, some of the government rebates subsidizing solar panels have expired. As a result, the payback period — how long it takes for solar panels to generate enough electricity to cover the cost of installation — may now be a lot longer than was the case a year or two ago.

However, those expired rebates did help jump-start the nascent solar power industry. And, now that the industry is up and running, solar panel prices are falling on their own thanks to incremental improve-

ments in the manufacturing processes and in the technology itself.

Still, solar panels represent a major expense for most people. Though costs vary widely, it's not unusual for a system to run into the tens of thousands of dollars, and to have a payback period of a decade or longer.

That's a lot of money, and it makes for a big decision. When it comes to energy efficiency, said Hyde of Saving Green Energy Audits, every homeowner has to figure out the right balance.

"It's a science and an art together," he

said. "There is no magic bullet ... Energy efficiency is a whole bunch of little steps."

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