Energy Scene Investigator

Every day, consumers fall prey to unnecessarily high energy bills and the drafty homes and inefficient appliances and systems that aid and abet these wrongdoers. Unfortunately, the victims and witnesses—homeowners—may not be reporting the crimes to their utilities or giving all the details.

Enter, the Energy Scene Investigator (ESI), an ordinary citizen, deputized to collect evidence needed to identify the perpetrators, wrap the house up tight and restore order to the family budget. Investigators can help seniors and low-income families make their homes more comfortable and affordable to heat and cool. And they offer utilities a great opportunity to connect with their customers and bring more of them into energy-efficiency and demand-side management programs.

The investigator:

Trained to interview victims, inspect the crime scene, perform simple tests and make recommendations based on the evidence.

The tools:

Deceptively simple and inexpensive.

- Notebook and pen
- Camera or cell phone
- Meat thermometer
- Food coloring
- Watts Up power meter
- Plug-in load record form
- Efficient lights

The crime:

High energy bills and assault on the homeowner by an uncomfortable house

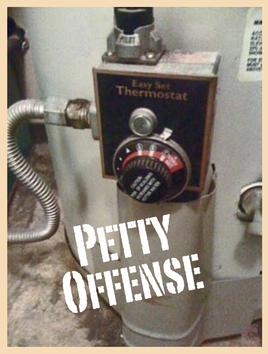
*The crime scene:

An ordinary townhome in Salt Lake City, Utah. Built in 1973 on an unconditioned crawl space, with gas forced-air furnace, gas water heater and central air conditioning.

Investigation:

The interview is where homeowners reveal clues about their energy use they may not realize are important. This is what the ESI learned:

- Temperature of the house fluctuates considerably with the weather.
- Homeowner doesn't turn down the thermostat at night or when she leaves.
- Furnace is 12 years old, and the filter was last changed 6 months ago.
- Appliances—stove, refrigerator, washer, dryer—are around 15 years old.
- Tap water takes long time to get hot.
- Homeowner does laundry twice per week and runs the dishwasher once weekly.



The inspection:

Homeowners may not understand how energy escapes from the home. ESI Brady checks for gaps around plumbing, ducts, windows and doors and along baseboards; he rattles windows to see if they are loose and checks for sealed and insulated duct work.

The perpetrators:

Some offenders are easy to catch—check the settings on refrigerator and water heater thermostats—while other perps take an expert and resources to stop their crimes.

Petty offenses – In many cases, the ESI can apprehend these small-time crooks, or the homeowners can make a citizen's arrest by simply making a few changes in their habits. ESI Brady identifies:

- Lights left on throughout the house
- Incandescent lights in high use areas
- Dirty refrigerator coils
- Dirty furnace filter
- Thermostats set too high

Misdemeanors – These criminals take a little more expertise to round up. Homeowners may take the law into their own hands or call a contractor.

- Gaps around windows, baseboards and cabinets
- Leaky duct work
- Loose doors

Felons – To put these thugs behind bars, homeowners should contact their utilities. "Witness protection programs"—rebates, incentives and home improvement programs—can help.

- Outdated appliances
- Inefficient HVAC system
- Poor insulation
- Single pane windows

Energy vampires

To catch these criminals in the act, you need more sophisticated technology: the Watts Up. ESI Brady connects each plug-in load (computer, DVR players, TV sets, even automatic coffeemakers) to the Watts Up to learn how much power the appliances draw, even when they are not in use. The findings are surprising: The VCR, for example, uses only 17 watts when on, but 7 watts when it is off. The DVD player uses 2 watts of power, on or off. A laptop computer uses 954 watts on and 1 watt off, compared to the desktop computer which uses 105 watts on and no watts when off. Plug-in loads at the crime scene totaled 12 watts of perpetual energy use, but nationwide, vampire loads consume 10 to 15 percent of commercial electricity use. Control these sneak thieves by plugging them into power strips with surge protectors and turning off the strip when appliances are not in use.

Epilogue

ESI Brady installs CFLs and seals around electric outlets and light switches, caulks around windows and shares information with homeowners about simple steps to save energy.

But the case is far from closed. Misdemeanors and felons are still on the loose.

- Could your utility use an ESI team in the community?
- Does your community have school or church groups that could be trained as ESIs?
- How could your utility use information the ESI collects?
- What sort of "witness protection programs" does your utility offer?

* The crime scene is a composite of three homes in the same townhouse complex.