PHILLIPS ARCHITECTURE & PLANNING, INC.
BEND, OREGON & BOISE, IDAHO
PH: (541) 382-8415
FAX: (541) 382-8729
WWW.PHILLIPSARCHITECTURE.COM

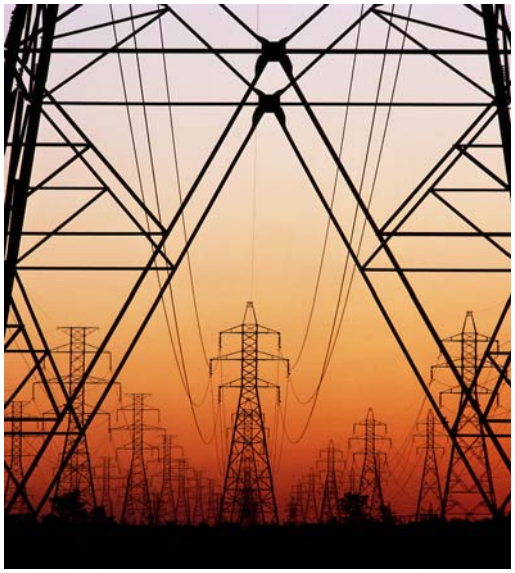
FALL 2006

PHILLIPS ARCHITECTURE & PLANNING, INC

ARCHITECT'S JOURNAL

MEETING OUR NEEDS WITH EFFICIENCY

Excerpts from the Rocky Mountain Institute



A transition is happening in this country much faster than was thought possible a decade ago. For example, since the Arab oil embargo in 1973, the United States has gotten more than four times as much new energy from savings as from all net expansions of domestic energy supplies put together. The millions of little things people did to weatherize houses, drive more efficient vehicles, plug up steam leaks, etc., plus some changes in economic structure, yielded four times as many additional BTUs as did the net increase in supply from all new American oil and gas wells, coal mines, and power plants built in the same period. (Renewable sources provided a third of all the new supplies.)

Savings of this sort does not mean freezing in the dark, doing less, doing worse, or doing without. Energy efficiency is not conservation by curtailment. It means doing more with less, enjoying more comfort, providing the same or better services, but doing it a little smarter.

Impressive though these savings are, they are only the beginning. Americans can still cost-effectively save half of the electricity they use—the Electric Power Research Institute (EPRI), the utilities' own think-tank, believes so—and at least that much of the oil and gas. The energy savings already achieved have cut Americans' energy bills by more than $200 billion a year, compared to what they'd collectively be spending if they used energy in the same wasteful ways they did in 1973. Yet, if they were as energy-efficient as some of their Asian and European competitors, they'd save an *additional* $200 billion a year (and even the Asian and Europeans have plenty of room for improvement).

Electricity-saving technologies aren't glamorous. Motor controls, more efficient refrigerators, and modernized light bulbs seem insignificant compared to a shiny new nuclear plant. However, the thousand or so best electricity-saving innovations now on the market, if fully used throughout the United States, would displace over half of all the electricity the country now uses. Our best estimate is that they'd save at least 75 percent of all electricity more cheaply than just *operating* existing thermal power stations, while providing the same or better services.

Inside this issue:

Energy Efficiency Solutions

The average American family spends nearly $1,500 per year on utility bills. This expense can be reduced by 10 - 90 percent (depending on how inefficient you are and how aggressive you want to be about getting efficient). Saving energy can be a good way to lessen the strain on family finances and free up money for better uses.

There are hundreds of things you can do to make your home more efficient, ranging from simple, free adjustments to major, long-term investments. Which ones you should do in your home will depend on a number of factors—where you live, the size and style of your house, how efficient it already is, which direction it faces, and so on.

Nevertheless, let one principle be your guide: go for the best buys first. Often it will be the cheapest, easiest projects that make the biggest dents in your utility bills. Then, with the money you are saving each month on energy and water, you can tackle further projects.

FREE—Things that Cost Nothing and Save $$$

- Turn down water heater thermostat to 120°F.
- Turn off lights when leaving a room
- Set thermostats to 68°F in winter when you're home, and down to 55°F when you go to bed or when you're away.
- Use energy-saving settings on washing machines. Clothes dryers, dishwashers, and refrigerators.
- Don't waste water, hot or cold, inside or outside your home.
- Clean your refrigerator's condenser coils once a year.
- Air dry your clothes.
- Close heating vents in unused rooms.
- Repair leaky faucets and toilets (5% of water "use" is leakage).
- Close drapes (and windows) during sunny summer days and after sunset in winter.

Simple and Inexpensive—Things That Will Pay for Themselves in Lower Energy Bills in Less Than a Year

- Install a water-saving 2.5-gallon-per-minute showerhead ($15)
- Install water-efficient faucet heads for your kitchen and bathroom sinks ($2 each)
- Install a programmable thermostat ($26)
- In the attic and basement, plug the air leaks a cat could crawl through, and replace and reputty damaged window panes (about $20)
- Clean or change the air filter on your warm-air heating system during winter and on air conditioning units in the summer ($2)
- Install an R-7 or R-11 water heater wrap ($12)
- Insulate the first three feet of hot and inlet cold water pipes ($6)
- Install a compact fluorescent light bulb in the fixture you use the most ($15)

Getting Serious—Measures That Collectively Will Cost More and Have Paybacks of One to Three Years

- Get a comprehensive energy audit, including a blower door test, to identify sources of air filtration.
- Caulk and weatherize all leaks identified by the test. Start with the attic and basement first (especially around plumbing and electrical penetrations, and around the framing that rests on the foundation), then weatherize windows and doors.
- Seal and insulate warm-air heating (or cooling) ducts.
- Have heating and cooling systems tuned up every year or two.
- Install additional faucet aerators, efficient showerheads, and programmable thermostats.
- Get insulating shades for your windows, or add insulating storm windows.
- Insulate hot water pipes in unheated basements or crawlspaces.

MEETING OUR NEEDS WITH EFFICIENCY (CONTINUED FROM PAGE 1)

For example, lighting uses roughly 20 percent of U.S. electricity. Just the lighting improvements now commercially available can, if fully used, cost-effectively save enough electricity in the United States to displace 120 Chernobyl-sized power plants. A compact fluorescent lamp uses 15—18 watts to deliver the same illumination as a 75-watt incandescent bulb. It also lasts about a dozen times as long (saving enough installation labor and replacement bulbs to more than pay for the lamp). A utility can give away a compact fluorescent lamp more cheaply than it can fuel its existing power plans—which is why Southern California Edison, for example, has given away more than a million such lamps.

Similarly, better electric motors could displace roughly 160 U.S. power plants; improved appliances and water heating, another 120; air-conditioning and ventilating improvements, around 100. The Electric Power Research Institute estimates that 24 - 44 percent of U.S. electricity use could be saved, not counting the 8.5 percent it expects to be saved anyway. Such savings could eliminate the country's need to invest tens or hundreds of billions of dollars in new generating capacity.

In many parts of the country, arguments are now raging over who should pay for power plants everyone wishes they'd never heard of. If the company pays, the investors lose value on their stock. If the customers pay, their electric rates soar. Least-cost energy policy, however, offers a way out.

The way out is for utilities to help their customers use energy more efficiently. Customers' bills will be lower, even though the unit price might be higher, the customers will use less metered energy. The utilities, though they may sell less electricity, will make more money: it's cheaper to provide the energy services people want through greater efficiency than by operating more power plants, so utility costs will go down more than their revenues; therefore profits can go up.

Some utilities are even moving quickly to make "negawatts" (saved electricity) into a commodity, like copper, wheat, and sowbellies. In at least eight states, a utility that wants more generating capacity runs an auction for all ways to make or save electricity, then accepts the low bids. (In practice, they are virtually always savings, not new supply).

Saved electricity can increasingly be traded between customers, utilities, even countries. Contracts have already been signed in which Utility A pays Utility B to save electricity in B's territory and sell it back to A. About a dozen utilities have profitably sold efficiency in the territories of *other* utilities. Electricity is usually a monopoly, but efficiency is not. One Northwest utility sold electricity in one state but efficiency in *nine* states.

Renewable sources now supply at least 7.6 percent of the nation's total energy, and are the fastest-growing part. There have been more net increases in U.S. energy supplies from sun, wind, water and wood than from oil, gas, coal and uranium. Americans ordered more new generating capacity from small hydro and windpower than from coal and nuclear plants, without counting the many cancellations of big power plants.

There is a revolution underway to implement new utility technologies. Efficiency is the key, with great benefits available to consumer and corporations alike. ■

" ...the United States has gotten more than four times as much new energy from savings as from all net expansions of domestic energy Supplies put together."

Energy Efficient Solutions

(continued from Page 2)

Going All the Way—Measures That Will Save a Lot of Energy and Money, But Will Take Three to Fifteen Years to Pay for Themselves

- Foundation: insulate inside rim joist and down the foundation wall to below frostline to at least R-19 in cold climates and to R-11 or better in moderate climates. Remember to caulk first.
- Basement: insulate the ceiling above crawlspaces or unheated basements to at least R-19 in cold climates. If your basement is heated, insulate the inside of basement walls instead to R-19 or more above grade and to R-11 or more below grade. Basement or foundation insulation is usually not needed in hot climates.
- Attic: increase attic insulation to R-50 in cold climates, R-38 in milder climates, and R-30 plus a radiant barrier in hot climates.
- Walls: adding wall insulation is more difficult and expensive, but may be cost-effective if your house is uncomfortable.
- Install more compact fluorescent bulbs. Put them in your most frequently used fixtures, including those outdoors.
- Replace exterior incandescent lights with compact fluorescents and put them on a timer or motion sensor if they're on more than a couple of hours a night.
- Install a radiant barrier in your attic if you live in the Sunbelt states.
- Convert to solar water heating, and perhaps also supplementary solar space heating.
- Upgrade your water heater, furnace, boiler, air conditioners, and refrigerator to more efficient models. Newer units are far more efficient. Upgrading is often cost-effective, and definitely so if you need to replace failing units anyway. Also, if you've weatherized and insulated, you'll be able to downsize the heating and cooling system.
- Upgrade to superinsulating or at least low-emissivity windows in cold climates, or low solar transmittance windows in hot climates, if replacement is needed.
- Replace high-flow toilets with modern water-efficient toilets that use 50 - 80 percent less water.
- Install awnings or build removable trellises over windows that overheat your home in the summer.
- Plant a tree to shade your largest west window in summer. You won't save any money for years, but you'll get an A+ for long-range vision.

The efficiency tips outlined in this article are excerpted from the RMI book *Homemade Money: How to Save Energy and Dollars in Your Home.* For additional information please visit the Energy Star website. Www.energystar.gov.

ON THE DRAWING BOARDS

- Baccetti Residence - Whidbey Is., WA
- Badger Community Development Project - Redmond, OR
- Barg Residence - Bend, OR
- Bowerman Building - Bend, OR
- Brown-MacIntosh Residence - Sisters, OR
- Chatterbeans Tenant Improvement - Bend, OR
- Fordham Addition/Remodel - Bend, OR
- Hanson Addition/Remodel - Sunriver, OR
- Hendgen Residence - McMinnville, OR
- Nicholson Addition/Remodel - Sisters, OR
- Port Orford Condo/Mixed Use Project - Port Orford, OR
- Rice Residence - Tumalo, OR
- Troike Residence - Sisters, OR

Port Orford Condo Project

Bott Residence

Hamond Residence—AAC Block

Sampson Residence

UNDER CONSTRUCTION

- Belser Residence - Steve Proborsky Construction
- Bott Residence - Brad Nicholson Construction
- Redmond Foursquare Office Bldg - Central Oregon Builders
- Deschutes County Title . T.I. - Andy Johnson Construction Co.
- Garrigan Residence - Windriver Builders
- Grossmann Residence - RC Construction
- Hamond Residence - Seibold Building Solutions
- James Residence - Owner/Gen
- Lantis Remodel/Addition - Windriver Builders
- McColgan Residence - Owner/Gen
- McFarlane Residence - Brad Nicholson Construction
- Plaza Condominiums - Dalke Construction
- Price Residence -
- Ruiter Duplex - Owner/Gen
- Sampson Residence -
- Shaker Residence - Danny Dark Quality Construction
- Snekvik Residence - Owner/Gen
- Staver Residence - John Howcroft Construction

Phillips Architecture &
Planning, Inc.
384 SW Upper Terrace Dr.
Suite 200
Bend, Oregon 97702
Ph: (541) 382-8415
phillipsarchitecture.com

Phillips Architecture & Planning
Recognized
By
Mountain Living Magazine

Top 100 Mountain Architects 2006

Congratulations
to the following clients
for the completion of Their projects

- Wayne & Gloria Orner
- Jack & Linda Seelhorst
- John & Joan Hartsfield
- Karnopp Petersen Law Firm

It has been a pleasure to have you as our clients. We thank you for allowing us the opportunity to bring your ideas and dreams to fruition. Best Wishes