

Holiday Gift Guide Inside | 6 Winter Boat Projects

cottage

The Best in Recreational Living

NOV/DEC 2006 \$4.95

THE DOME COTTAGE

What is It &
Is It Right
For You?

HOW TO
CHOOSE
THE BEST
ENERGY
SOURCE
FOR YOUR
CABIN

8 WAYS TO
KEEP YOUR
CABIN
PEST-FREE
THIS WINTER

7/5
xx961(A)

705958 TCM XXXX
KEVIN PEGG
ENERGY ALTERNATIVES
5-4217 GLANFORD AVE
VICTORIA BC V8T 4B9

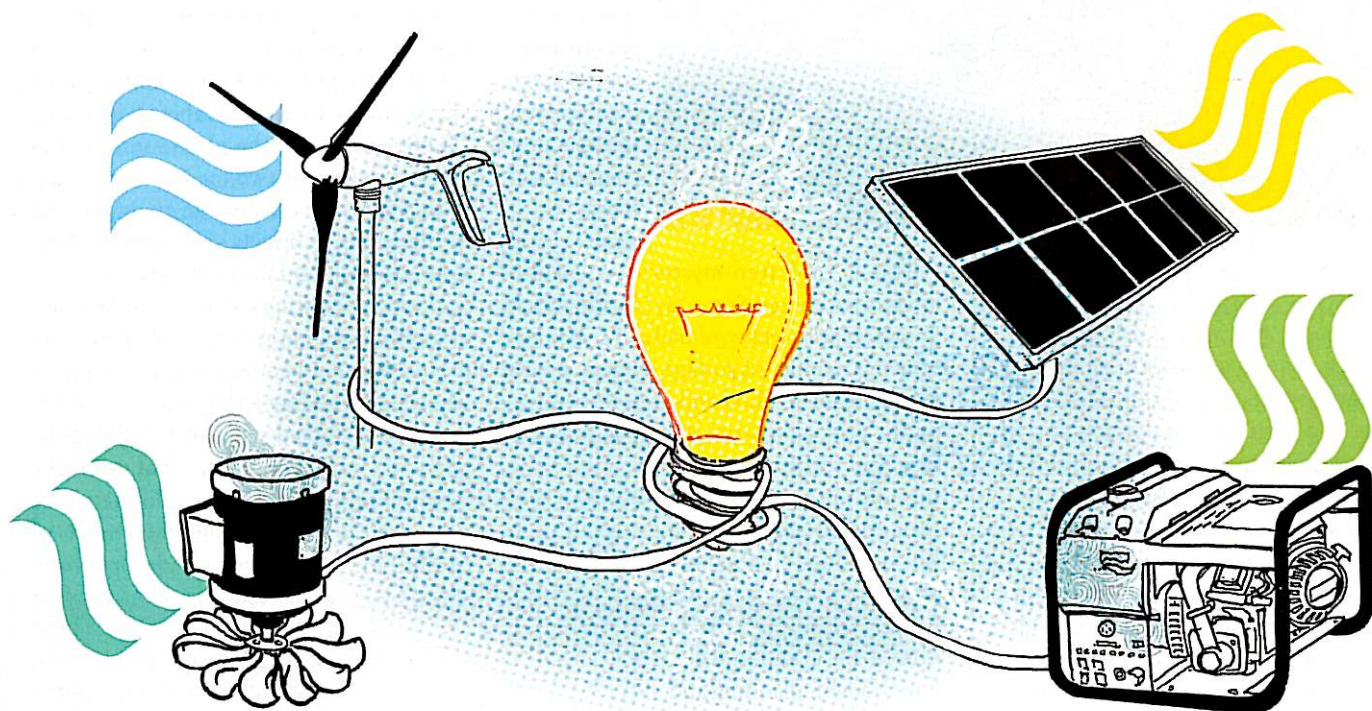
WELLS
EXPLORING
BC'S MOST
UNIQUE
COMMUNITY



The Electrifying Decision

How to choose your cottage's alternative energy supply

BY RYAN STUART



One measly light bulb. Just 60 watts of power. That's all it takes. As soon as a cottage owner decides he wants a little bit of light, that simple cabin incorporates a new set of complicated variables. What kind of power source to use? How much is needed? What time of year will it be used? What advantages does the site offer? Budget? Familiar words with vague definitions are tossed about: amps, volts, head, photovoltaic, inverters and those mystery codes: AC and DC. Inevitably someone mentions the group Sun, Wind and Water. All together, it could be code words for illicit teenage activity, "We inverted Jeny, drew a phantom load and passed the photovoltaic around. I was so amped afterwards I blacked out." But — it's not. »



Reducing The Load

There are ways of reducing the energy requirements of a cottage beyond the usual tips of passive solar building, using efficient light bulbs, reducing phantom loads and solid insulation.

For hot water, install a solar thermal water heater, which concentrates heat from the sun to pre-heat household water before it reaches the water heater. The BCSEA is advocating the adoption of these money savers for on and off grid homeowners. Watch www.solarbc.org for upcoming incentives to add a system.

Heating or cooling a cottage can be a major part of the energy drain, so ditch air conditioners, space heaters and oil or natural gas furnaces in favour of heat pumps and geo-exchange units. They harness the steady temperatures underground to heat homes in cold months and keep them cool in hot months. These systems can be used for heating water too.

This is the often-mysterious world of alternative energy. Some say it is the future. To others it is reality of daily life. And to a growing number of cottage owners, people getting ready to build and even those living on the grid, alternative energy is an attractive way to flip a switch, turn off the generator and (hopefully) save money. But deciding on the best alternative energy source for any given property is not to be taken lightly. Forethought, planning and some expert advice are all advisable.

Start Up Matters

A good place to start is by looking into the BC Sustainable Energy Association, a policy and education organization for the alternative energy industry in BC. Their mandate is to help get people started and give them all the introductory information they need.

"The first thing I tell people that tell me they want to install an alternative energy source is to look around the house first," says Peter Ronald, the provincial

Make sure your solar panels take full advantage of your cabin's exposure.

OPPOSITE PAGE: Wind energy systems have an often-high start-up cost, but offer low-maintenance and high-output. BOTTOM:

Micro-hydro electricity has huge potential, such as this system used by Purcell Lodge, which creates a whopping eight megawatts of energy.

coordinator for BCSEA. Appliances and electronics draw a phantom load, which means turning them off doesn't stop them from drawing power. Instead of merely shutting down your appliances, Ronald says, use a power bar and turn it off at night and when leaving the cottage to cut energy use. He also suggests the usual solutions of installing compact florescent light bulbs and cutting heat loss by installing more insulation, double-pane windows and plugging drafts.

"These are fundamental and extraordinarily worthwhile," he says. "Especially for people on a budget, this is the place to start."

After that, Ronald suggests contacting someone like Kevin Pegg, the president of Energy Alternatives, an alternative energy system provider based in Victoria with 24 years of experience.

Pegg says the best time to think about an energy source for a cabin is before building. "Subtle changes to the plan — turning the house a degree or two for instance — can change how cost effective an energy system is," he says. "Architects and planners don't always know to think about these things."

Of course existing cottages can make use of alternative energy but it will likely cost more. "It can add a 50 per cent premium when you're adding a system to a property that was designed without forethought,"

Pegg says. "That can make a huge, huge difference."

And budget is one of the biggest determining factors for what kind of system you choose, it is the initial investment will be significant. A self-installed solar system with enough power to light a couple reading lamps and a radio costs about \$1,500. Powering a basic weekend cottage: \$6,000 and up. The price can climb a long way from there; Pegg is designing a \$250,000 system.

Unlike in the US, there are few financial incentives for Canadians to get off the grid. "The Conservative government scrapped some [incentives] the Liberals had enacted," Pegg says. "We took several steps back."

Budget is one of the biggest determining factors for what kind of system to install. No matter what kind of system you choose, it is the initial investment will be significant.

Watching how often a flag is flying is an easy and cheap way to measure wind potential. "There are few wind-only spots, but lots of hybrid of solar and wind," Pegg says



Alternative energy systems are provincial sales tax exempt in BC but the legislation can be confusing, and only applies to whole systems not individual components such as solar panels or batteries. Pegg would like to see exemptions on everything and for the federal government to get on board too. He would also like to see a BC version of the Rural Electrification Program, a recent Yukon Territories' initiative to wean residents off gasoline generators. Still, things are getting better, says Ronald. "BC Hydro and the Ministry of Energy are showing a lot more interest in renewable and alternative energy sources these days."

BC Hydro's started the Net Metering Program in 2004, which allows anyone tied into the grid to sell excess alternative power generated at a home-site back to

BC Hydro — and still draw from the grid when necessary. So far 18 people have signed on.

Another program, the Energy Saving's Plan, gives up to \$2,100 towards making homes more energy efficient in select BC communities. The money makes a dent in the significant costs of an alternative energy system.

Financial Alternatives

Your costs will depend on how much power you require, how often you will require it and what type of power system you eventually choose. The nice thing about alternative energy costs, though, is they are one-time-only. Mother Nature sends no monthly bills for her water, wind or sunshine.

Deciding on a power source isn't so much up to the cottage owner as it is up to the site. Not many cottages can take advantage of micro hydro and wind power because not everyone recreates near a running water source or in a windy spot. Solar is a different story. "In general, everyone has access to the sun," points out Pegg.

But in Canada the sun is not the most reliable wintertime power provider. Photovoltaic solar panels perform well in cold weather — and with sun reflection off the snow they have been known to pump out 200 per cent of their expected yield. But during the winter, clear days are often scarce in areas such as British Columbia, and sun hours are short and weak across the board, especially in the north. Hydro and wind can be equally seasonally fickle. Most full-time power users use hybrid systems that combine two sources that complement each other. All systems incorporate battery systems to store the power for when it is needed.

It takes time and research to learn which system, or combination, is right for a site. Here's a brief run down of the basics.



Solar

Photovoltaic panels continue to improve in price and performance.

Still, they are entirely dependant on direct sunlight. "Even a single tree to the south will interfere to a significant degree with photovoltaic," Ronald says. Photovoltaics use a light absorbing material to convert solar light into energy. Since the amount of light varies with weather, season, time of



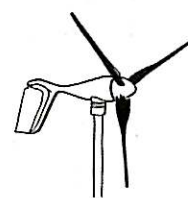
day and latitude, solar power isn't available all the time. But it is free.

The solar panels are not. Solar energy is one of the most expensive forms of alternative energy, but because they don't use moving parts and are durable maintenance is minimal. Regular cleanings is all they will need.

The panels can be mounted directly on a roof of a house or on a pole separate from a house. This is where tweaking building plans, so the roof slope and direction work best for solar energy gain, makes financial sense.

The newest thing in solar power is photovoltaic cells that double as roofing. "Why not have a roof that protects from the environment and provides power?" Pegg asks rhetorically. Several manufacturers, including Sharp and Uni-solar, are producing solar modules that look and work just like a shingle. Sharp's modules are equal to four shingles and fit seamlessly with some brands of asphalt shingles. Pegg says a new torch-on roof solar paper is almost ready for consumers, which will work similarly. He says both work best on new buildings

because of the wiring required, but they can be retrofitted on existing cottages.



Wind

The newest generation of wind-powered generators are quiet and efficient space age looking machines. The initial

cost is less than solar systems, and maintenance is a once-yearly exercise. The problem is that there aren't many sites that can make use of the wind.

BC Hydro has a wind map for the province, but wind is a site-specific beast that changes not valley to valley — but site to site. The only way to know for sure is to measure the wind or to physically observe it. Watching how often a flag is flying is an easy and cheap way to measure wind potential. "There are few wind-only spots, but lots of hybrid of solar and wind," Pegg says. "The two systems complement each other well,"

There's more than
just a financial
incentive to going
renewable energy

since winds often pick up during the winter when solar is unreliable.

Usually wind turbines are put on top of a tower at least 60 feet high and 40 feet higher than any wind obstruction within 400 feet. "It's not a big difference in cost to go higher, but it can make a big difference in productivity," Pegg says.



Micro-Hydro

The most cost effective way of generating alternative power is with falling water. A properly installed micro hydro system has

the least infrastructure costs and minimal maintenance — just once a year plus a turbine overhaul every eight years. "If the water intake is properly installed you would hardly know where it is," says Pegg. "If it wasn't, there will be a well worn trail to it." Intakes can fill with leaves, sticks and other debris if not placed properly.

And micro-hydro needs only small amounts of water to make it feasible. What is important is head — the vertical distance between the intake and the

BC THE LOG HOME TIMBER FRAME & COUNTRY LIVING SHOW

MARCH 9 - 10 - 11, 2007

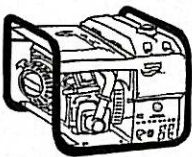
TRADEX | Abbotsford, BC

MARK YOUR CALENDAR NOW

For more information call 604-683-4766
toll free 1-877-888-7111

generator. The steeper the drop, the more power potential.

Even streams that don't run year round can be used in a hybrid system. On the coast, a solar/micro-hydro system takes advantage of the wet winter weather and long sunny days of summer.



Generators

Generators have been the standard way of making remote power for a long time, and don't really fall under the category of "alternative." But, the standard is getting old. The drone of a Jeny all weekend just doesn't cut it anymore. Not only does the price of gas make it hard on the wallet (forget the one-time cost idea) but with silent, clean and free energy sources available cottagers are shutting off the generator, except as a back-up for other sources. Although, Pegg says, a study found that 20 to 30 per cent of the time when a generator is needed in an emergency it doesn't start.

Honda is making some highly efficient generators but they still use an internal combustion engine that spews out pollution. The

Online Resources

Alternative Energy, a store in Victoria, BC, full of off the grid energy systems, advice, installation and maintenance. www.energyalternatives.ca

BC Sustainable Energy Association, an umbrella organization promoting and advocating education and adoption of alternative energy sources. www.bcsea.org

Solar BC, solar thermal water heater site. www.solarbc.org
Solar shingles: Sharp – www.solar.sharppusa.com Uni-solar – www.uni-solar.com

Energy Savings Plan, a BC pilot project doling out money to make homes and communities more energy efficient. www.saveenergynow.ca

BC Hydro's Net Metering Program and wind maps of BC can be found at www.bchydro.com under Environment and then Green Energy.

The best bet with a generator is to run it hard, fill up the batteries — then shut it off

best bet with a generator is to run it hard, fill up the batteries — then shut it off.

Whether it's wind, water or sun, when it comes to shopping for alternative energy Ronald says there are two types of people: those that want to be off the grid no matter what and those that are "flipping a coin" comparing the costs of on and off grid living.

To the latter he says, "There's more than just a financial incentive to going renewable. Building a home on efficient and clean energy principles is a legacy to ones children and their children. It's a statement of values and support to future generations. And there's also the financial advantage if you ever sell." ●



RSF

WOODBURNING FIREPLACES

Come into R.E. MacDonald Stoves and choose from the selection of RSF fireplaces to find the product that belongs in your home.

RSF means Renewable Solid Fuel. If it's a real fire...it's wood. And if it's a clean burning efficient wood fire...it's probably an RSF fireplace. Experience the calming beauty of RSF fireplaces and the real wood fire.

R.E. MacDonald

STOVES & STONES

Serving Satisfied Customers for 28 Years!

3711 - 248th STREET & FRASER HIGHWAY, ALDERGROVE

Call us at 604-856-1551 or 1-800-315-8155

www.remacdonaldstoves.bc.ca