

As We Learn How Fragile the Electric Grid Is, 'Off-Grid' Gains Increased Appeal

News from our hurricane-ravaged states and from the Caribbean islands can be unsettling, even to those whose life and property weren't affected by these events. How would life be for **you** if you lost electricity for several weeks, or even months?

Without electricity, there is no refrigeration, and you can't even run a gas furnace to keep warm. If you live on well water, you couldn't run the electric well pump, so without a manual pump (which are still available) you'd be without water. Forget the internet and charging your cell phone. Gas stations wouldn't be able to pump gas, so you'd soon lose the use of your car or at best, find long gas lines — unless you have an electric car powered by off-grid electricity.

Even before the devastating news from Puerto Rico, I'd been considering going off-grid in my Golden home, or at least buying a Tesla Powerwall battery pack as back-up to the electricity supplied by Xcel Energy. I have enough solar panels to power my home and my cars, but when the grid goes down, my solar panels are useless. With today's solar power systems, you're either on-grid or off-grid. I **used** to like to say that the grid is my battery. Now I'm not so confident of that. My home sends power to Xcel during the day then receives it from Xcel at night. As long as this give-and-take arrangement ("net metering") works as designed, it makes no sense to own your own battery. But what about when it **doesn't** work?

A friend and mentor of mine, Steve Stevens, has a home powered by Xcel, but also keeps a fully-charged battery pack in his garage so when there's a black-out he can throw a switch and run his home (and charge his cars) directly from the battery pack. His solar photovoltaic (PV) system will continue charging the battery pack during daylight hours, which is capable of providing enough electricity to live normally during the night.

I used to think such an investment was silly, but so, it could be argued, is flood insurance — that is, until you have a flood. I'm not considering flood insurance, but I am seriously considering buying "electricity insurance" in the form of a battery back-up system for my home and possibly for my real estate office.

Even a one-day power outage could spoil food in the refrigerator and freezer. Perhaps you've had that experience. Such a system would help to mitigate that risk.

Maybe you read, as I did, that Tesla has suspended the production of its new Tesla Semi so it can concentrate on making Powerwall units for Puerto Rico and other areas devastated by hurricanes. Presumably,

Tesla is also sending the solar panels necessary to charge those battery packs.

It's also possible to get off the natural gas grid and heat your home with electricity. If you're skeptical, it's probably because when you think of electric heat, electric baseboard or "resistance heating" comes to mind.

Resistance heating involves the use of electric coils which get hot when connected to electricity. You'll find this same level of technology in the toaster sitting on your kitchen counter — an appliance invented in 1893. Modern electric heating, on the other hand, is accomplished by way of a heat pump. These devices use an electric compressor to extract heat from inside your house when it's hot (air conditioning) and extract heat from outdoors, even when it's below freezing, to heat your home in the winter.

This kind of heat pump is called an "air source" heat pump because it extracts heat from the outdoor air. A more expensive but more efficient heat pump extracts heat from the earth, which is a constant 55 degrees once you reach six feet below the surface in our latitude. It takes less electricity to extract heat from that 55-degree source than it does from the air, because the air can get much colder. Unfortunately, the cost of installing the vertical or horizontal wells required for a ground-source heat pump makes these systems much more expensive to install, though cheaper to operate.

Recently I wrote about "mini-splits," which are air source heat pumps common throughout Europe and

Asia but that are just beginning to make their appearance in America. They will ultimately make our gas forced air furnaces and A/C units obsolete. They haven't been popular here because, without using ducts, you'd require one for each room. At right is a 12,000 BTU kit that I found online for only \$645. There are systems currently available that include up to four interior wall units (at the top in the image) that run off a single compressor (bottom left in the image) for under \$2,000. They both heat and cool, eliminating the need for a gas furnace plus separate A/C compressor and chiller unit.

Water can also be heated electrically using a heat pump water heater. Home Depot sells a 65-gallon Rheem model for \$1,399 and claims "\$4,500 in energy cost savings." It's important to put this model in unconditioned space — or in a room with outdoor air available. The reason is that the heat pump is transferring the heat from the room into the water, so it functions like an air conditioner wherever it is installed. If it's in a small room, that room can get very cold as your water gets hot! If your current furnace room has "combustion air" ducts supplying outdoor air to your gas furnace and hot water heater, those same ducts can provide the needed outdoor air when you convert to heat pumps. Just be sure to keep the door to this room closed — and not have louvered doors.

If you can also do without gas for cooking — and there are some great electric cooktops available now — you can get rid of your gas meter (saving the monthly grid connection fee) and live only off the sun.



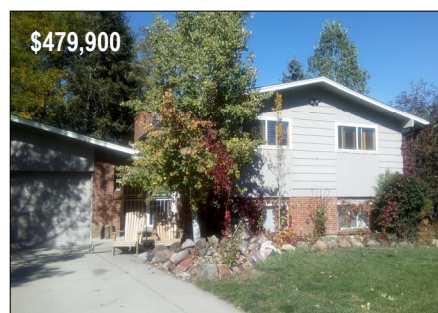
REAL ESTATE TODAY



By **JIM SMITH,**
Realtor®

This 6th Ave. West Home Has It All, Even a Man Cave

This lovely bi-level home at **14317 W. 4th Place** is located in walking distance of the light rail station serving 6th Avenue West and Red Rocks Community College. It has been beautifully updated with hardwood floors, maple cabinets, granite counters, vaulted ceiling and updated appliances. A heated and finished bonus room (or "man cave") is located behind the 2-car garage. The home sits on a large cul-de-sac lot adjoining Flora Way. The fenced yard includes a dog run with dog house and large wood deck. Top-rated Kyffin Elementary, which has a Gifted & Talented program, and the community swimming pool are a few blocks away, as is a vest-pocket park for the neighborhood hidden from street view. There are 4 bedrooms, 2 upstairs and 2 more downstairs, with 3 baths. You'll love the master bathroom! Watch a narrated video tour at www.6thAveWestHome.com. I will be holding it open this **Sunday, October 15th, 1-3 pm.**



Jim Smith

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Would You Like to See an Off-Grid Home?

The price was just reduced on one near Idaho Springs. See our other ad on Page 2 (Page 10 in the West Jeffco edition).

Here's an Off-Grid Foothills Home With Continental Divide Views

By JIM SMITH, Realtor®

This 7-acre, 3-bedroom, 2,072-sq.-ft. home at 1795 York Gulch Road is my favorite listing ever. I'd buy it myself if I didn't need to be closer to my office and clients. It is possibly the best engineered house I've ever listed — and it is completely self-sufficient regarding electricity and water! Solar panels feed a battery pack providing uninterrupted 220-Volt power, with two backup generators that are hardly ever needed. County maintained roads lead to it, and a firehouse is less than a mile away. It enjoys great cell service and internet too! At 9,250 feet elevation (with great views of the Continental Divide) it needs no A/C and has flexible heating options, including 2 wood stoves, a propane forced air furnace, and 2 wall heaters. The acreage is south facing, so snow melts readily, making this a rare year-round home, considering its elevation.

If you like the idea of being in the mountains but only 30 minutes from the metro area, watch the video tour at www.MountainTopHome.info, then call your agent or me at 303-525-1851 for a private showing! This home is three miles from Exit 238 of I-70 (Fall River Road). Pictured below is a pasture across York Gulch Road that is part of this parcel. An adjoining 5-acre buildable parcel is also available at a discount. The combined 12-acre property is bordered by National Forest.

Note: Seller will pay \$6,000 of buyer's closing costs or contribute that amount for other expenses.



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KEY FEATURES OF THIS HOME:

- ◆ Solar powered with battery storage
- ◆ Excellent cell service and Internet access
- ◆ Seller will pay \$6,000 in closing costs

Showings are granted only to buyers who have first watched the narrated video tour at www.MountainTopHome.info. Then call your agent or Leo Swoyer at 720-933-1968.