



NEWS

The newsletter of the Colorado
Renewable Energy Society

FALL 2011

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Tours and Networking Mixer Highlight Solar and Green Buildings

In September, CRES features events focused on solar and green buildings, including networking opportunities at the Solar Mixer and the annual Denver Area Solar and Green Homes Tour. You can visit 10 to 12 new or remodeled homes around the Denver metropolitan area for this self-guided tour.

Homes on the Solar Tour are clustered in three main areas: Westminster, Golden, and the Highlands neighborhood of Denver. Start and stop where and when you choose. Chat with homeowners, designers, do-it-yourselfers and contractors about solar hot water, solar electric (photovoltaics), water conservation, energy efficiency, natural building materials, alternative construction techniques and much more!

Pick up some great ideas for your current home or dream big for a future home.



Friday, September 16 • 6p.m. – 9 p.m.

Solar Mixer/Reception (space is limited)

Get a sneak preview of one of the homes on the tour when CRES hosts an evening of networking and fun in the Westminster home of John Avenson.

Cost is \$25 per person/\$40 per couple for CRES members; non-members pay \$40 per person/ \$70 per couple

Saturday, September 24 • 9 a.m. – 4 p.m.

Denver Area Tour of Solar and Green Homes

Start your tour at either of two check-in sites. Visit displays from vendors, contractors and suppliers at the main check-in site for the Tour. When you check in, you'll receive a detailed guidebook to homes on the Tour, and you can plan your route and which homes to visit. We've even created an app for smartphones to make it easy to plan your route and receive information on each of the tour homes.

TOUR HOURS 9:00 a.m. – 4:00 p.m.

MAIN CHECK-IN at Jefferson Unitarian Church, 14350 W. 32nd Ave., Golden, CO 80401. You can also check in at CRES, 3245 Eliot St., Denver, CO 80211 303-806-5317

COST is \$5 for CRES Members, \$10 for non-members

To learn more or to register for the Solar Mixer or the Denver Area Tour of Solar and Green Homes, check out www.cres-energy.org/events/tour/index.html

The Changing Costs of Residential PV

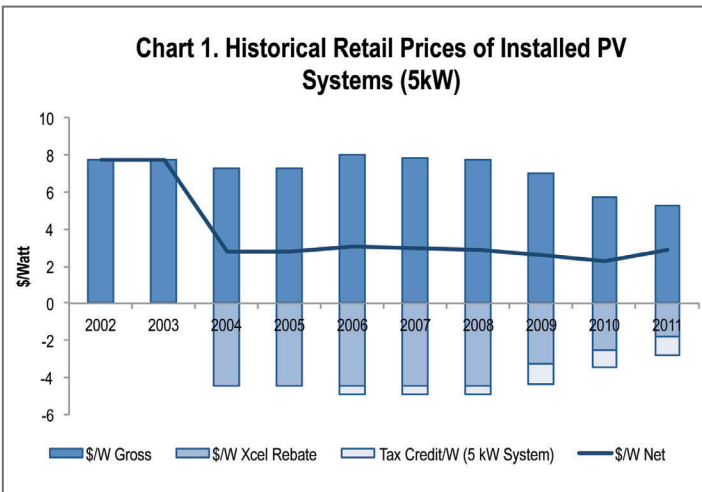
By Leslie Martel Baer, MA • Mountain Muse Strategies, LLC

The abrupt restructuring of Xcel Energy's Solar*Rewards this past spring shook up Colorado's solar photovoltaic (PV) installation industry and raised eyebrows among potential PV residential buyers. While a new agreement on installation rebates and a pay-for-performance structure was hammered out, the most commonly asked question remains: How much will PV for my home really cost me now?

According to SolSource President Jeff Scott, in the early 2000s, Colorado consumers saw module prices of around \$7.50 to \$8.00 per watt of capacity installed. As fossil fuel prices were falling at the time, there really was no return on investment (ROI) on a PV system. At the same time, consumers had only about 4 solar installers from which to choose within the state.

An RPS and Incentives Recharge the Industry

In 2004, Amendment 37 required investor-owned utilities (IOUs) to reach a minimum of 10% generation through renewables, including solar PV. IOUs set upfront incentive programs (UFIs) to reduce the capital expense of PV systems to consumers, thereby encouraging more installations. This brought consumer pricing down to \$3.00 to \$3.50 per installed watt. Colorado pricing continued to drop to \$2.00–\$2.50 with tax incentives in the Federal Energy Policy Act of 2005 (EPAC). The EPAC incentives were extended and increased in 2009 to 2016, providing the industry with some stability at the Federal level.



Colorado prices continued to drop due to a number of factors. Between 2007 and 2010, module manufacturers held excess inventories. Plus, the number of installers had grown. Mr. Scott indicated that by 2010, Colorado was home to roughly 400 installers. These factors drove net retail installation prices down to \$1.00 - \$1.50/W by 2010 — President Obama's target for solar PV nationally.

In February 2011, Xcel Energy suspended its incentives. The following month, the program was reinstated with smaller UFIs and new performance-based incentives (PBIs). The result? The out-of-pocket cost for PV for Xcel customers has crept back up into the range of \$2.00 to \$3.00 per watt (see Chart 1).

Calculating a Payback in Colorado Today

Several variables factor into the payback on a solar PV system: how much electricity you use, the size of the system, and the incentives (UFIs and PBIs) available.

Table 1 outlines the basic figures needed to determine the system size and the potential savings for my home, which houses three people and a consulting business. To more than meet our needs, we have defined a grid-tied 5kW system. Our costs and savings are given in Table 1.

Item	Data
Average Monthly Bill/Average Price per kWh	\$60/\$0.10
Average Monthly Usage	602 kWh/month
Monthly Output of 5 kW PV System	660 kWh/month
Percentage of Usage Covered	110%
Net System Cost (at \$2.85/W)	\$14,250
Monthly/Annual Savings	\$66/\$796

Further, while electricity prices are expected to increase each year, my system will continue to generate without price hikes. Xcel anticipates a 34% increase in residential electricity prices over the next 10 years. Table 2 illustrates the financial return on a system based upon a range of possible rate increases. And, as Dan Yechout of Namasté Solar points out, the ROI of our solar system compares favorably to putting the same \$14,250 into interest-bearing instruments.

Annual Rate of Price Increase	3.4%	5%	7%	10%
10-year utility cost savings	\$10,401	\$11,301	\$12,556	\$14,742
Years to Payback	13	12	11	10
ROI at 25 Years	127%	185%	283%	510%

So far, whether or not a PV system still looks like a solid bet for residential consumers depends largely on your view of where electricity prices are going and how patient you are in seeing your return. ▶

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What Should Consumers Do?

Whether or not a PV solar system makes sense for you depends on your situation. If you have the cash and are patient in achieving return, it makes sense to buy your own system, thereby owning your own generation with the potential for a strong ROI.

If you don't have the cash today, you have two options. A system lease greatly reduces upfront costs but should still reduce your utility expenses (see CRES News, Winter 2011). Alternatively, given that energy efficiency and renewable energy investments increase home value, banks are willing to fund these projects for customers with healthy credit ratings and debt-to-equity ratios. And, because of the

competition for projects among installers, Mr. Scott notes that today we are still experiencing a buyer's market.

Homeowners can also consider solar thermal; for many homes the annual outlay for natural gas is higher than electricity. Solar thermal also makes sense for homes at higher elevation, running on propane or that suffer from space-heating inefficiencies. For solar thermal, the payback period in Colorado averages around 9 years with an ROI of 8 - 10% in year 10, depending upon prices for heating fuels like natural gas.

Despite the shake up in programs affecting many residential energy consumers, solar PV still makes financial sense if you can take a long-term view. ●

Put Your Talent Into Print

Invitation for Contributing Writers

CRES News is soliciting qualified authors to join us as Contributing Writers. As a CRES News Contributing Writer, you will propose and submit articles and essays for publication in CRES News.

We are seeking authors who have expertise and up-to-date information related to energy efficiency and renewable energy (EERE). Areas of interest include technology, policy, environment, business and economics, education, social aspects and other areas related to EERE and sustainable development. Articles must be nonpartisan and consistent with CRES efforts to increase awareness of the economic and environmental benefits of EERE.

We intend to attract writers from a variety of disciplines and viewpoints. To apply as a CRES News Contributing Writer, contact the CRES News Editor, John Stenmark, at 303-526-3802 or by email at editor@cres-energy.org. ●

Regional Chapter News

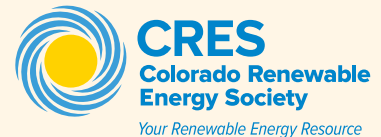


NCRES emerged from the fantastic CREC 2011 conference with new friends and a lot of energy. NCRES is conducting a two-day series of education programs at the Sustainable Living Fair's Energy and Transportation Tent September 17-18 in Ft Collins. NCRES regular meetings are on the second Tuesday of the month at 7pm at Odell Brewery.

NCRES is also gearing up for the first annual FoCo Eco Cruise, an adventurous tour of local homes and business to show firsthand what sustainable design and living is all about, and to make even more friends. Keep tabs on the NCRES website www.ncres.org and on Facebook.



SECRES completed the 2011 REpowering Southern Colorado Expo, August 6 at the CSU-Pueblo campus. The expo included exhibits, demonstrations, panel discussions and seminars that showcased energy efficiency and renewable energy for Southern Colorado residents. One popular expo session discussed jobs in the renewable energy sector. Next up is the SECRES Pikes Peak Tour of Sustainable Buildings on October 1. For more information, visit www.secres.org.



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MegaWatt Marathon: The Rundown on Denver's Sustainability Park

CRES, Denver Housing Authority and Norris Design have released a new concept plan for Denver's Sustainability Park. Based on community input and feedback from an array of EE/RE experts, the plan includes details on the layout and functional areas. It's an important step in moving DSP ahead. Development at the Park is underway, with the arrival of containers for office/storage/ demo areas. And the Denver-based Urban Farmers Collaborative has already launched a number of farming activities. For more details, visit the DSP website at www.cres-energy.org/sustainabilitypark/.

With the refined design and plans in hand, CRES Executive Director Tony Frank is literally running through Denver to spread information and gather support for Denver's Sustainability Park. It's called the Megawatt Marathon, and it's coming to all of Denver's 79 neighborhoods. Watch your email inbox for announcements and status updates on this fun and important approach to raising funds and support for DSP. ●

