

# Energy Shift®

October

2007

## Solar Decathlon Showcases the Future

The third “Solar Decathlon” took place this month in Washington D.C., sponsored by the U.S. Department of Energy’s Office of Energy Efficiency and Renewable Energy. The event is a competition among students from North America and Europe who have designed, constructed and operate solar-powered homes. While the students initially built the solar homes at their respective colleges and universities, the homes were disassembled and set up on the National Mall for visitors and judges to see.



The twenty schools participating in the Solar Decathlon were judged in 10 areas:

Architecture	Engineering
Market Viability	Communications
Comfort Zone	Appliances
Hot Water	Lighting
Energy Balance	Getting Around

The twenty teams participating in the Decathlon had to design and build energy efficient homes that met all of their energy needs from solar power. The homes have to be visually appealing-- the architecture category carries the most points of any single category in the competition. The mechanical, electrical and plumbing systems must provide for comfortable temperature and humidity levels, and ample hot water for showers and dish washing. They must also produce enough power to support all household needs (such as washing and drying towels, cooking, television/video and computer). The market viability

category requires the teams to identify a variety of potential homeowners and to then design a house that is affordable within that market.



First Place Winner: Technische Universität Darmstadt

The energy balance is the amount of energy going into the system versus the amount used. The solar electric systems store “extra” power in batteries. Stored power allows for evening electrical use and an electric vehicle for transportation.

To learn more about the 20 participating teams, the individual designs and the cutting edge technology showcased in the “solar village” on the National Mall, go to [www.solardecathlon.org](http://www.solardecathlon.org). From this site, you can visit each of the 20 team’s Internet sites (they are available at [www.solardecathlon.org/teams.html](http://www.solardecathlon.org/teams.html)).

## Do You Know Your SEER and Your AFUE? We Didn’t Think So!

The Seasonal Energy Efficiency Ratio (SEER) of your air conditioner and the Annual Fuel Utilization Efficiency (AFUE) of your heater or boiler makes a big difference in how high your bills get when the weather is very hot or very cold. They also have a corresponding impact on how much fuel we collectively consume during the heating and air conditioning seasons. Raising these efficiency ratings in our homes will save us money every month when paying bills. Raising the ratings as a community, or across the nation will reduce our collective carbon footprint, air pollution, and our dependence on imported and dirty fuels.

Central air conditioning systems are built to last 18 to 20 years. Typical systems made before 1992 have a SEER of about 6. As these systems are replaced, the national average will go up—systems made in the U.S. or imported into the U.S. since January 23, 2006 must have a rating of 13 or better, and if one is willing to pay, systems with a SEER of 18 and higher are available.

What does this mean exactly? Upgrading a system from a SEER of 10 to 13 results in a 30% reduction in energy use (US Dept of Energy 2006). Window units also have SEERs assigned to them, but they are not subject to the 2006 requirement of a minimum SEER rating of 13.

Similarly, the furnace or boiler in your home has a useful life expectancy of about 20 years. The AFUE measures the amount of heat actually delivered to your house compared to the amount of gas that you must supply to the furnace. A furnace that has an 80% AFUE rating converts 80% of the fuel that you supply to heat -- the other 20% goes out the chimney. Just as with air conditioning systems, the efficiency of these systems has improved. When replacing an old furnace or boiler, look for systems that have an AFUE of more than 90%. Some systems claim to operate with an AFUE of 97%.

### Red, White, Blue, Green or Brown?

#### It doesn't matter—It's time to work together

It is time to feel powerful, be influential and act with purpose. We simply have no choice but to ratchet up the sense of purpose in our discussions, and focus on the effectiveness of our actions. Forget about the excuse that one person is not going to make a difference. Move beyond delighting in the compact fluorescent bulb you bought. View your ability to exist differently within your daily routine as a gift, as a privilege, and as something you have no choice but to act upon.

There is a clear need for every one of us to move away from past practices and make an energy shift. Why? It's not only because of climate change, or to reduce pollution; it is because business as usual cannot, should not and will not continue. Most of the climate change skeptics of the past now accept that human activity, e.g., burning fossil fuels, has negatively impacted the earth and that great effort is required to turn this phenomenon around. The story related to the finite nature of oil is running a parallel course to that of climate change. Too few are noting that we continue to guzzle extraordinary amounts of oil, that other countries are following suit and that this continues to put vast amounts of money into the hands of people that despise us. Concurrently, many who used to claim there is enough oil "out there" to last 50 to 100 years are beginning to change their forecasts, but we don't hear much about this. Instead, the price per barrel of oil has gone from \$66 to more than \$80, and the price at the pump is steady, or declining slightly! What does this do? It perpetuates wasteful consumption and delays an earnest widespread movement to alternative modes of transportation and gasoline conservation.

Dubai continues its meteoric construction boom. Notable accomplishments repeatedly featured in U.S. media include the tallest building on earth; man-made islands in the shapes of palm trees and the seven continents each

with multi-million dollar homes lining their streets; and giant indoor ski slopes contained within shopping malls. China has not shown any signs of slowing down as the primary supplier of products to the world. In many ways, the U.S. created these conditions. We have served as an example to the world for more than a century of what hard work, ingenuity and making money can do for a nation. Dubai is building all of these things because, frankly, they can. They are very proud of the engineering feats that they have accomplished, and they are not at all apologetic about the over-the-top aspects of these projects. Similarly, China uses eager American businesses to facilitate their huge, and constantly expanding, overseas markets.

In many ways, these economies are imitating or emulating the America of the middle of the 20th century. Just as we have led the world down the path of capitalism and "who wants to be a millionaire" and a genuine desire to raise the standard of living for everyone, we now have a moral duty to lead the world toward a completely new way of being a member of the world community. We have a golden opportunity to be leaders for good and to bring the rest of the world along with us. Roll up your sleeves; it will take every last one of us to get the job done.

It is time to forget who got your vote in the last presidential election, or whether you spend Sundays in church or on a hiking trail. It doesn't matter if you have a history of participating in stream cleanups, NASCAR racing, or your favorite pastime is shopping. All of us have to raise our expectations – of ourselves and of the leaders in our communities. Our future and well-being are at stake, and all of us can start, right where we are, to do something more. There should be no finger pointing at someone who isn't doing enough, or someone else who is "crazy" because they choose to do something new or different. We are all moving along a continuum, getting better and smarter as time passes. If you love to drive a vehicle that is not fuel efficient, choose to walk or ride a bike sometimes. If you must surround yourself with lots of things, give away your old things so others can use them, and when making a purchase, look for items that were made with materials and in ways that had the least impact on the planet. Start a dialog with someone who thinks very differently from you regarding energy conservation, and learn from them why they feel the way they do. Think about why you choose to consume the way that you do, and then decide what you are ready to do differently and DO IT! Talk about it, think about it, call your Congressman or woman and let them know that you expect them to work on this problem, and that you want to hear what actions they are taking, too.



## Better Products and Practices

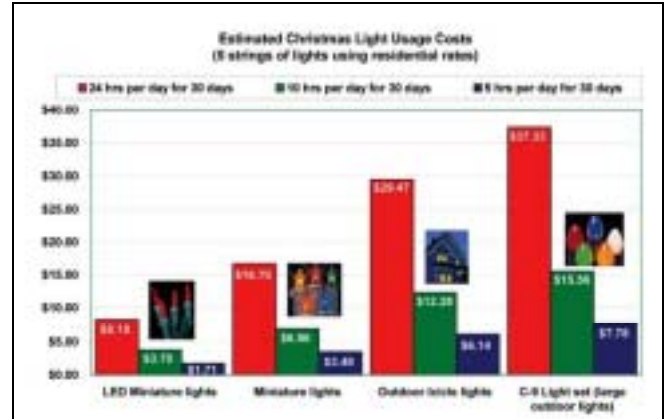
Energy Shift has found another product that it is promoting—LED holiday lights.

Light Emitting Diode or LED lights use a small fraction of 1 watt per light. So, a string of lights uses only a few watts. Burning 600 LED holiday lights for six hours per day for 30 days would cost 45 cents if your electricity rates were 12 cents per kilowatt-hour. Burning the same number of old fashioned lights would cost \$31.30 or \$6 if using the mini lights. LED lights are brighter, cool to the touch, last for more than 50,000 hours of use and are water and weather resistant.



Try a string or two of the lights, and then if you are convinced that LED lights are worthwhile, consider trying them for other lighting needs in your home. They represent a significant improvement in technology over compact

fluorescent light bulbs (CFLs). An LED light bulb that can replace an incandescent bulb has been manufactured, but they are much more expensive than traditional light bulbs or CFLs. Energy Shift will keep you posted on LED lighting options and costs. As with all new products, the costs should come down as the market for them grows.



## raw, ivory & colored beeswax candles

Another product line that Energy Shift is adding for the holiday season is candles made of beeswax. Unlike paraffin-based candles, beeswax candles burn without emitting the unhealthy byproducts of the petroleum-based paraffin wax. Beeswax candles not only burn cleaner, but burn longer and brighter than paraffin candles.



Go to [www.energyshift.us](http://www.energyshift.us) to order these new items and to see what other alternative household products we offer to help you move away from fossil fuels.

**Interconnectedness** (in'ter ke nek'tid nis), n. the quality or condition of being interconnected; interrelatedness; the interconnectedness of all nations working toward world peace. [1920-25; INTERCONNECT + -ED + -NESS] From the Random House Dictionary of the English Language, Second Edition, Unabridged.

The upcoming elections in November do not include the big contest for President of the United States that many are already anticipating. Every election, however, is important and participation is a privilege and an important opportunity. Although single issue voting is considered a negative trend, and partly to blame for the polarization of politics that weakens our political system, remember to consider energy issues when casting your vote next month.

While you are changing your behaviors, examine the policies and the voting records of incumbents and the individuals running for office in your jurisdiction. Do they understand energy issues, are they focused on the need for local, regional and national planning for fundamental changes in the way we get and use energy?

Let your representatives know that if they are not talking about energy, they need to be. Tell them that you expect to hear from them about transportation alternatives and expanded tax incentives to promote the use of more efficient appliances in both residential and commercial settings; that they should be part of the educational process that their communities need to make better energy decisions; that they need to be part of a network of incentives and disincentives for responsible planning and decision making that reflects an understanding of the serious need to fundamentally, not incrementally, change the way we view and consume resources.

## Something to Think About



Why has the price of a barrel of oil risen from \$66 to \$86 without any increase in gasoline prices at the pump? Why do so many people think that paying the lowest possible prices for gasoline is a good thing? When something is precious, we use it wisely. When something has little value, we tend to allow it to go to waste

## A Good Book

*The World Without Us* by Alan Weisman gives us a look at what would happen to our familiar surroundings if we were not here. This isn't a doomsday story of human beings wiping themselves out of existence. It is "...one of the grandest thought experiments of our time..." and it "...explains how our massive infrastructure would collapse and finally vanish without human presence... Drawing on the expertise of engineers, atmospheric scientists, art conservators, zoologists, oil refiners, marine biologists, astrophysicists, religious leaders from rabbis to the Dalai Lama, and paleontologists... [He] describes what the planet might be like today, if not for us.... Weisman reveals Earth's tremendous capacity for self-healing."

*Energy Shift wants to help you put words into action. Begin your own personal energy shift! If you are already well on your way, share these ideas with others. Sometimes the best way to help someone get started is to give him or her something useful (like a cloth shopping bag or insulated outlet cover) instead of just talking about making a change.*

Place your orders by using the Energy Shift web site, [www.energyshift.us](http://www.energyshift.us) or place your order by U.S. mail to:

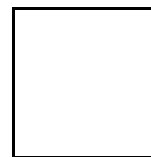
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