Green Power Switch®News

www.greenpowerswitch.com

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TVA and local public power companies, working in cooperation with the environmental community, developed Green Power Switch as a way to bring green power — electricity that's generated by clean, renewable resources like solar, wind and methane gas — to valley consumers. Green Power Switch is an EnergyRight Solution.

This newsletter is printed on 100% post-consumer recycled paper.

No one does summer like the South

The Tennessee Valley is bustling with activities like trail runs and birding tours with one of our biggest supporters, Tennessee State Parks. Here at the Tennessee Valley Authority (TVA), we're getting ready to catch some southern rays! And by that, we mean solar! We are so thrilled to be increasing production and access to solar energy for our local power companies with our Community Solar pilot!

(L to R) Lauren Pemberton, Jeremy Brashear, Rick Pearce, Sandy Koss, and John Thompson

Community Solar is a model for electricity distribution where a solar array is built in a central community location and available for community members to purchase shares of the energy that it produces. Subscribers then get a production credit on their power bill that reflects the amount of energy their share of the solar array produced. Community Solar makes solar accessible for many more because multiple people invest in the central array, yet don't have to pay for installation and maintenance. It is also great for folks who can't have solar on-site, like renters, or those with lots of tree coverage on roofs.

TVA's Green Power Switch (GPS) is proud to continue contributing to the local economy and US emissions reductions through the production of renewable energy projects in the Tennessee Valley. This fall we learned that US energy-related carbon pollution was at its lowest since 1994 despite economic growth![1] Wind energy in the US currently cuts power sector carbon emissions more than five percent each year, and last year, solar energy helped to offset more than 22 million metric tons of US carbon emissions.[2] That's the equivalent of removing 4.7 million cars from the road. All the good news is possible in part because of voluntary green power programs like Green Power Switch. Pat yourself on the back, GPS supporter!!

The Green Power Switch Team

[1] http://mobile.reuters.com/article/idUSL1N0IB1ZG20131021?irpc=932
[2] http://www.awea.org/MediaCenter/pressrelease.aspx?ItemNumber=7377

Energy 101 - How does the grid work?

The US electric grid is made up of three major complex grids that together provide energy to over 300 million residents. Together, the three operate as a giant one-way energy highway. Electricity moves from power plants to high voltage transmission lines, then moves to lower voltage power lines, which distribute the electricity to homes, schools, businesses and neighborhood streets.

Power plants, no matter what resource they use to make electricity, feed into the same grid, the energy mixes together, and flows out as needed. This co-mingling of energy is intentionally set to ensure a reliable flow of power, even if one source of power goes out or has to shut down for a while. For example, if the wind stops blowing, there is energy coming from another source to satisfy demand. Essentially, the more sources we have feeding into the grid, the more reliable it is.

Years ago, very large power plants, like coal-burning plants or hydroelectric dams, fed the grid. Today, it is becoming more common to add power through what is called "distributed generation". Distributed generation refers to power that is produced at smaller-scale "projects" located closer to the end user, rather than large plants. Small projects might include small-scale wind farms or rooftop solar on a local school or business. These projects can't produce enough electricity to power the neighborhood or area where they are located on their own. In fact, solar arrays do not operate all of the time due to rain, cloud cover or nighttime hours. Rather, *distributed generation* resources work with the large power plants to provide a diverse mix of power to meet customers' electricity needs around the clock.

Everyone in GPS makes a difference

Small Price, Big Benefit:
One year by the numbers

TVA Green Power Switch

Each year for $12 per month...

You get 5,400 kWh of renewable energy

That's the same as:

GAS

Not using 516 gallons of gasoline

-OR-

Not driving 10,927 miles

-OR-

Planting 3.8 acres of forest each year

Green Power Switch reflects TVA's commitment to renewable energy and customer choice

Green Power Switch (GPS) gives electric customers an opportunity to support a "block" of renewable energy for as low as $4 a month. These blocks represent 150 kilowatt-hours of electricity generated from renewable sources such as wind and solar.

Each $4 purchase is backed by Green-e Energy, an independent third party environmental certification program. GPS is a simple way for you to increase use of renewable energy today for a cleaner environment in the future.

Don't forget the fine print!

This is a good time to remind you that participants in the Green Power Providers program (GPP) legally transfer the environmental rights of the energy produced from their renewable facilities to TVA, which are used as supply for customers purchasing Renewable Energy Credits (RECs) through Green Power Switch. Since the right to those RECs is being passed from the GPP participant to TVA, and from TVA to GPS customers, GPS customers can actually make the claim that their home or business is using renewable energy. But GPP participants can talk about their commitment to the environment, too. Statements like "We increase the amount of renewable energy on the grid by selling the energy we generate through TVA's GPP program" are great. GPP participants can't technically claim that their home or business is solar powered, because that would constitute a double claim on that renewable energy when the GPS purchaser makes that same claim.

Green Power Switch®
TVA and your
local power company

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Where the Wind Blows: Buffalo Mountain Wind Turbine Site

In 2000, TVA installed the first wind farm in the Southeastern United States. Located just north of Oak Ridge, Tennessee, the Buffalo Mountain Wind Turbine site (BMWT) generates more green power for the GPS program than any other single facility! TVA hosts periodic tours of the facility and invites local power companies to see first-hand the only utility-scale wind turbine site in Tennessee.

BMWT currently has 18 turbines working to turn wind into electricity. From the ground below, these turbines seem colossal standing at 210 feet tall with blade lengths extending 75 feet. In its lifetime, the facility has generated more than 490,000 MWh of clean energy, the equivalent of powering over 30,000 Tennessee Valley homes.

Since installation, these wind turbines have displaced electricity that would have otherwise been generated by a non-renewable resource to meet the needs of our region. In fact, nearly half of the clean energy generated through GPS has come from BMWT! Thank you, GPS customers, for supporting clean, green wind power!

Buffalo Mountain Wind Farm

[1] http://www.epa.gov/cleanenergy/energy-resources/calculator.html

Below is the Product Content Label for Green Power Switch. The label is a requirement of our Green-e Energy certification, and displays the mix of renewable energy resources used to serve Green Power Switch customers during 2014, as well as projections for 2015 supply.

HISTORIC PRODUCT CONTENT LABEL

Green Power Switch is a voluntary renewable energy program from Tennessee Valley Authority and participating local power companies. The product is sold in blocks of 150 kilowatt-hours (kWh), and is made up of the following renewable resources.

Green-e Energy Certified New[2] Renewables in Green Power Switch			Generation Location	
	2014	2015 (projected)	2014	2015 (projected)
Biogas	22%	21%	AL, GA, KY, MS, TN	AL, GA, KY, MS, TN
Solar	9%	9%	AL, GA, KY, MS, TN, VA	AL, GA, KY, MS, NC, TN, VA
Wind	69%	70%	GA, KY, MS, NC, TN	GA, KY, MS, NC, TN
TOTAL	100%	100%		

1. These figures reflect the power that we have contracted to provide. Actual figures may vary according to resource availability. We will annually report to you the actual resource mix of the electricity you purchased during the preceding year.

2. New Renewables come from generation facilities that first began commercial operation on or after January 1, 2000 (2014 PCL), or January 1, 2001 (2015 PCL).

3. Eligible hydroelectric facilities are defined in the Green-e Energy National Standard (http://www.green-e.org/getcert_re_stan.shtml) and include facilities certified by the Low Impact Hydropower Institute (LIHI) (www.lowimpacthydro.org); facilities that are run-of-the-river hydropower facilities with a total rated nameplate capacity equal to or less than 5 MW; and facilities comprised of a turbine in a pipeline or a turbine in an irrigation canal.

For comparison, the current average mix of resources TVA has purchased or generated includes: Coal (39%), Nuclear (34%), Natural Gas (8%), Hydroelectric (10%), and Other (9%). [Source-TVA CY2014]

The average home in the Tennessee Valley uses 1,335 kWh per month. [Source: Energy Information Administration]

For specific information about this electricity product, please contact your local power company or TVA Green Power Switch at greenpowerswitch@tva.gov, the toll free Renewable Energy Information Call Center at 1-866-673-4340, or visit www.greenpowerswitch.com.

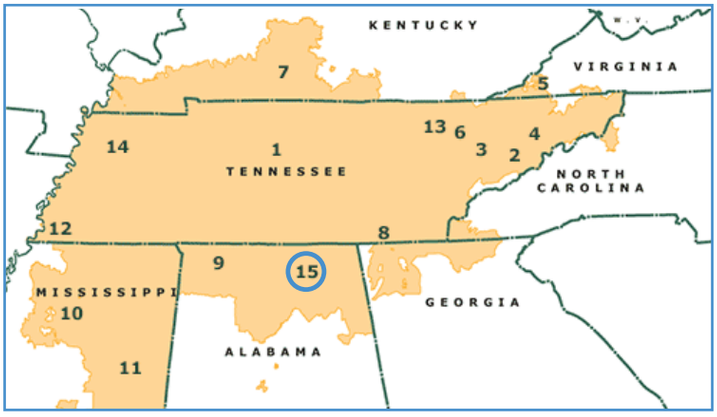
Green-e Energy CERTIFIED

Green-e Energy certifies that Green Power Switch meets the minimum environmental and consumer protection standards established by the non-profit Center for Resource Solutions. For more information on Green-e Energy certification requirements, call 1-888-63-GREEN or log on to www.green-e.org.

Huntsville Botanical Gardens—A Green Power Provider

The Huntsville Botanical Garden located in Huntsville, Alabama has been a Green Power Provider (GPP) for GPS for nearly five years! Boasting 112 acres of woodland, display gardens, a forested hiking trail, and the nation's largest seasonal butterfly house, this garden is enjoyed by over 350,000 visitors each year.

In 2011, the garden opted to "go green" by unveiling a 23-kilowatt capacity solar panel array that generates about 30,000 kilowatt-hours of electricity annually - equal to powering 2-3 households every year in the Tennessee Valley. It is through this spirit of community and conservation that the Huntsville Botanical Garden inspires visitors to enjoy the beauty of nature while encouraging preservation of the natural environment through clean energy generation.



Solar Trends in the US

Solar energy is growing in popularity each year. More and more homes and businesses are installing solar or participating in green power and community solar programs through their local power company. Our investments at GPS along with individual voluntary purchases are creating demand for solar power and helping to lower the price for everyone. As the solar industry continues to grow and solar becomes more accessible, here are some of the trends we see across the United States and even internationally:

- **More rooftop solar.** Rooftop solar is the easiest way for consumers to participate in their own energy production. Large companies such as Costco, Staples and Walmart, who typically consume large amounts of energy, have embraced rooftop solar as a way to reduce their energy costs as well. But it's not just for the big guys anymore. Residential and small business rooftop solar is becoming more affordable and therefore common. Take a look around and you may be surprised by how many roofs are already hosting solar.

- **Carport (or parking lot) solar.** Much like rooftops, parking lots are perfect, open spaces for solar. Often a vast sea of cars, adding solar canopies to a parking lot takes advantage of unused, exposed space for shading cars that might otherwise sit in direct line of elements such as sun, rain or snow. In fact, late last year a mall in the Philippines "turned on" the largest mall solar array in the world. The 5,760 solar modules installed on the parking deck roof could produce enough energy to power 400 homes.[1]

[1] http://www.icsc.org/press/2015-trends-to-track-fast-casual-dining-on-the-fast-track1
[2] http://www.aweablog.org/a-pleasant-surprise-usa-not-china-is-1-in-wind-energy/

GENERATION UPDATE
January – December 2014

Solar Power
101,253,487 kWh

Wind Power
51,155,514 kWh

Biogas
59,243,643 kWh

Green Power Providers
Solar – 100,910 MWh
Wind – 18 MWh
Biogas – 68,858 MWh

Program Sales to Date*
904,599 MWh
*Sales are reported through December 2014

To learn more about our generation sites and to find the one nearest you, please visit www.greenpowerswitch.com.

PARTICIPATION UPDATE
AS OF DECEMBER 2014

37,667 | Total number of green power blocks subscribed

12,409 | Number of residential customers subscribing

2 | Average number of green power blocks per residential customer

483 | Number of business customers subscribing

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DID YOU KNOW?

The USA is the number one wind power provider in the world![2] The US produces and delivers 20 percent more wind energy to its grid than China and over 60 percent more than Spain and Germany.