

TREEDC NEWSLETTER

October 2013 - Volume 4

Upcoming TREEDC Events:

- 1) **TREEDC-Pew Charitable Trusts: Kingsport Forum: October 29, 2013**
- 2) **Covington-PHG Energy Grand Opening: October 30;**
- 3) **2014 Membership drive: January 2014**

PHG Waste to Energy Plant is Operational at Covington Wastewater Plant

"All systems go" according to Mike Webb Business Development Director at TREEDC Founding Member PHG Energy. In September 2013, the PHG gasification system began mixing wood waste and sludge to produce synthetic gas to power a generator for power generation at the Covington wastewater Plant. Construction began in April 2013 and the plant became fully operational the following September.

The system utilizes PHGE's proprietary 12 ton-per-day capacity downdraft gasifier to supply some 6 million Btu's of producer gas per hour as the

central technology. The gasifier design, which has been vetted by over 40,000 hours of commercial production use, allows



the city to dispose of approximately 10 tons of urban wood waste each day, along with two tons of sewer sludge. Both of these waste streams were previously landfilled, costing the city about \$30 per ton in both

tipping fees and transportation expense.

"Covington may be a small city, but we're constantly looking toward the future in our thinking and planning," said TREEDC West Tennessee Coordinator/Covington Mayor David Gordon. "We want to embrace technology that fits our situation, and this system lets us turn waste into an opportunity. Working with PHG is a win-win for Covington. It helps our environment and it helps our city financially. Simply put, we're doing the right thing, in the right way, for the right reason."

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Kingston Starts 50 kw Solar Project



On September 17, 2013, the City of Kingston flipped the switch on a new 50 kilowatt solar farm behind the water treatment plant. Energy Source Partners was the vendor and they used a third party financing instrument to assist the city in developing its first solar farm.

The city installed 200 solar panels cells that should generate around 10,000 kilowatt hours monthly. Energy Source Partners says that's enough electricity to power 10 homes for an entire year.

Kingston Mayor/East TREEDC Coordination Troy Beets announced that the City is also installing a 200 kilowatt solar farm at its wastewater facility.

TREEDC Announces Workforce Development Partnership at TTU Forum

The Tennessee Renewable Energy and Economic Development Council (TREEDC) returned to the Tennessee Tech University (TTU) campus in Cookeville on July 26, 2013 for a renewable energy forum. TTU President Dr. Phil Oldham welcomed the 60 attendees by expressing TTU's commitment to helping sustain the environment and economy in Tennessee. Representatives from the University of Tennessee, Tennessee Department of Environment & Conservation, PHG Energy, Tennessee Gas Association, Green Energy Sources, and Rhoades Car International gave educational presentations to the audience. Dennis Tennant, Associate Director at TTU and MTAS Management Consultant Warren Nevad developed the agenda. The keynote presentation was given by Dr. Ken Currie who is also the Director of the TTU Center for Manufacturing Research. The TREEDC-TTU forum was the fifth out of 5 forums organized under the Tennessee Energy Education Initiative. This Initiative was delivered statewide in connection with TREEDC Diamond Member Pathway Lending and other statewide energy resource providers to provide in depth training and educational tools.

Donna Curry, Administrator of the Tennessee Energy, Industry and Construction Consortium (TEICC) announced the partnership between

TEICC and TREEDC to help support workforce development in renewable energy. TREEDC will work with its 92 local governments to create more awareness during Careers in Energy Week in February 2014. Both organizations will partner in 2014 to conduct workforce development educational forums at various schools across the state. TEICC is one of the first of over 25 state consortia under the Center for Energy Workforce Development (CEWD), a non-profit consortium of

gy, waste, and productivity issues. The Industrial Assessment Center Program is a national program sponsored by the US Department of Energy and centers at universities around the nation provide services. Currie also led the audience in a survey of their energy perceptions and habits and provided strategies to minimize energy usage.



utilities to develop solutions to the coming workforce shortage in the utility industry. Curry concluded her remarks by stating that TREEDC and TEICC will collaborate to increase awareness and support of workforce development at the state and national level.

Dr. Ken Currie's keynote address began by discussing the merits of the Tennessee 3-Star Industrial Assessment Center which provides no-cost studies of manufacturing plants across Tennessee and portions of Kentucky, Virginia, West Virginia, North Carolina and Arkansas. Currie explained that Engineering & Technology students under the direction of faculty from Tennessee Technological University, East Tennessee State University, and University of Memphis perform studies analyzing a plant's ener-

Clean Line Energy Joins TREEDC as a Diamond Founding Member

Clean Line Energy out of Houston, Texas has recently joined TREEDC. Clean Line Energy is developing an overhead high voltage, direct current (HVDC) transmission line project, known as The Plains & Eastern Clean Line. The Plains & Eastern Clean Line will originate in the lower Midwest part of the United States, and connect thousands of megawatts of renewable wind generation from western Oklahoma, southwest Kansas, and the Texas Panhandle with utilities in the Mid-South and Southeast.

Clean Line signed a Memorandum of Understanding (MOU) with TREEDC Founding Member Tennessee Valley Authority (TVA). The purpose of the MOU is to identify the full range of benefits that high

voltage direct current (HVDC) transmission projects may provide to TVA's stakeholders. This new MOU takes Clean Line a step closer to connecting low-cost clean energy to consumers across the Mid-South and



Southeast regions. TVA is a national leader in the US utility sector and a key driver for continued economic growth in Tennessee and throughout the Southeast.

TREEDC Member Memphis, Light, Gas and Water (MLGW) Division Board of Commissioners passed a resolution unanimously that supports the development and implementation of clean energy transported by HVDC transmission to western Tennessee.

Working with MLGW—the Memphis area municipal utility and TVA's largest customer—Plains & Eastern Clean Line transmission project will build on Memphis' heritage as “America's distribution center,” and help position Memphis as a 21st century hub for clean energy distribution in the Southeast.

Clean Line Energy Business Development Director Max Shilstone will be the keynote speaker at the TREEDC-Kingsport Lunch Forum on October 29, 2013 at the Kingsport Higher Education

Center. Go to www.treedc.us for more information.

Gibson County Utility District Celebrates 60th Anniversary

On September 7, 2013, TREEDC Founding Member Gibson County Utility District (GCUD) celebrated its 60th years of service to Gibson County citizens. Formed in 1953, GCUD was the first natural gas utility in Tennessee. State Senator Curtis Halford read a proclamation from the Tennessee General Assembly honoring GCUD for 60 years of excellence. GCUD General Manager Pat Riley also advised the audience that GCUD is looking at building a natural gas station across their office to meet the needs of the compressed natural gas vehicles in rural west Tennessee.

Congratulations to GCUD!

TREEDC Founding Member PHG Energy Partners with General Electric

General Electric (GE) Power & Water and PHG Energy, a Nashville-based alternative energy equipment company, have successfully collaborated on an innovative project to produce electricity from waste material by employing gasification technology to power GE's Clean Cycle heat-to-power generator.

The Clean Cycle heat-to-power generator is used worldwide to convert waste heat into electricity. The new system PHG Energy (PHGE) developed starts with gasification of wood waste or other biomass to provide a clean-burning producer gas. That fuel is then combusted in a heating unit which supplies the Organic Rankine Cycle (ORC) with the thermal source it needs to operate efficiently, producing enough electricity to supply approximately 50 homes. The system integrates three proven technologies: GE's heat

-to-power generator, PHG Energy's gasifier and a standard heat exchanger. The combined GE and PHGE project is being conducted in Gleason, Tenn., at a facility owned by Boral Brick Corporation. Six industrial grade PHGE biomass fueled gasifiers, which were used to offset natural gas consumption in kiln firing, are currently being tasked for research and development by PHGE until the plant re-opens with recovery of the housing industry. Electricity produced with GE's heat-to-power generator unit is added to the grid through an agreement with the Tennessee Valley Authority. Configuring such a system commercially is currently underway in Covington, Tenn., where the city has engaged PHG Energy to build a waste-to-energy facility using both wood waste and sewage sludge as its fuel sources. The new plant will provide electric power

and simultaneously save the city hundreds of thousands of dollars annually in disposal costs and landfill fees. From a sustainability standpoint, the new system will not only divert material from a landfill, it also will eliminate the release of more than 450 tons of carbon into the air each year.

The City of Covington was the awarded "Excellence in Green Leadership" at the annual Tennessee Municipal League Conference on June 25, 2013 in Memphis.



TREEDC Returns to Clarksville



The Tennessee Renewable Energy and Economic Development Council (TREEDC) returned to Clarksville on July 9, 2013. TREEDC Mayors Kim McMillan and Carolyn Bowers organized the free community renewable energy forum at Freedom Point Park. A total of 70 attendees gathered together to hear presentations from leading Middle Tennessee businesses including PHG Energy, Rhoades Car International, Smithfield Manufacturing, Ameresco and Global Green Lighting. Montgomery County Sustainability Coordinator Michelle Newell and (MTAS) Management Consultant/TREEDC Director Warren Nevad crafted the agenda. The keynote presentation was given by Gresham, Oregon Mayor Shane Bemis who is also the Chairman of the U.S Conference of Mayors Energy Committee.

The Tennessee Department of Environment and Conservation's (TDEC) Energy Education Initiative also sponsored presentations regarding qualified conservation bonds and energy awareness. The TREEDC-Clarksville forum was the fourth out of 5 forums organized under the Tennessee Energy Education Initiative. This Initiative will be delivered in connection with TREEDC Diamond Member Pathway Lending and other statewide energy resource providers and will provide in depth training and educational tools.

The Tennessee Energy Education Initiative was created through a public-private partnership led by the TDEC Office of Energy Programs. It provides in-depth training and educational tools to businesses, public officials and communities to support the implementation of energy efficiency, renewable energy and energy management projects.

PHG Waste to Energy Cont.

Covington was awarded a \$250,000 Clean Tennessee Energy Grant from Tennessee Gov. Bill Haslam and Department of Environment and Conservation Commissioner Bob Martineau for the waste-to-energy system. Total cost of the project is \$2.25 million.

System functions and commands are handled from a central computer control room, and the entire plant can be monitored from offsite locations as well. Direct use of the ORC generator to produce power from a gasification plant was pioneered in 2013 through a research and development project PHGE completed with General Electric. TREEDC is partnering with PHG Energy to create more awareness in downdraft gasification for municipalities in Tennessee, Florida, Mississippi and the Philippines. For more information, go to: http://issuu.com/bbiinternational/docs/october_13-bmm-issuu.



TREEDC Gains Momentum in the Philippines

Delegates of the Tennessee Renewable Energy & Economic Development Council (TREEDC) returned to the Philippines on September 21st through October 5th to conduct its initial international renewable energy forums as part of the TREEDC International Exchange Program. TREEDC has partnered with the Renewable Energy Association of the Philippines (REAP) to enroll Philippine colleges and universities, municipalities and chambers of commerce as honorary

members of TREEDC. The mission of the TREEDC pilot International Exchange program is to create more renewable energy awareness, marketing opportunities and jobs for both Philippine and Tennessee entities through educational forums, business networking and collaborative projects while increasing clean energy solutions in the Philippines.

TREEDC and REAP conducted three (3) educational forums at Polytechnic University of the Philip-

pines (PUP), Central Bicol State University (CBSUA) and Technological University of the Philippines (TUP). A total of 610 Philippine students, faculty, business leaders and mayors were introduced to Tennessee renewable energy related businesses and research along with Philippine projects throughout the country. Tennessee Technological University became a sister college of PUP. Mayors of Sorsogon, Naga, and Daet provided intents to join TREEDC as members. Initial

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TREEDC

Mail to :

601 W Summit Hill Drive

Suite B-200

Knoxville, TN 37902

Email: warren.nevad@tennessee.edu

Phone: (865) 974-9839



Green Power Switch®

TREEDC is a statewide network of 92 city and county mayors and businesses working together to create a path to fast-track renewables in Tennessee.

Our Mission

To promote and connect renewable energy with economic development and energy efficiency for all Tennessee communities.

Momentum in the Philippines Cont.

plans were developed to create a renewable energy task force comprised of Bicol area mayors, university presidents and chambers of commerce to identify energy audit related issues and to provide technical assistance to an approved 18 MW waste to energy plant which would use various municipal waste feedstocks from communities within the Bicol region. A live press conference was conducted by GNN News Network with representatives from TREEDC and REAP prior to the Central Bicol State University Forum.

The TREEDC delegation also visited Mabalacat, Philippines Mayor and Council to provided details of an upcoming delegation tour to Tennessee in December 2013. The Mabalacat Mayor and Council plans to send

2 separate delegations to learn more about the renewable energy projects ongoing in Tennessee. TREEDC which also has an office in Mabalacat is also providing technical assistance with the city's green initiatives by linking Tennessee renewable energy providers with solutions for the city. . TREEDC and REAP also met with the Assistant Secretary of the Department of Energy at the CBSUA forum to assess the potential of waste to energy projects in the Philippines.

TREEDC, REAP and the Philippine Electronics and Communication Institute of Technology (PECIT) will co-sponsor a 3 day renewable energy conference in Butuan City (Mindanao) in February 2014. A major theme of the conference will be renewable energy opportunities for women in

the Philippines. TREEDC and REAP are working with PECIT to avail pico hydro projects for needy families in the region.

TREEDC, Tennessee Tech Representative Dennis Tennant and TREEDC Founding Member Vis Solis met with the Commerce Section of the US Embassy to share results of the exchange program with the federal government. The Commercial Section provided information about a recent visit by U.S clean energy firms. TREEDC Founding Member Vis Solis is working on several large scale solar projects in the Philippines.