

TREEDC 2017 ANNUAL REPORT

The University of Tennessee Martin Chancellor Dr. Keith Carver Named New TREEDC Chairman



New TREEDC Chairman/University of Tennessee Martin Chancellor Dr. Keith Carver and TREEDC President Dwain Land

The Board of Directors of the Tennessee Renewable Energy & Economic Development Council (TREEDC) recently selected UT Martin Chancellor Dr. Keith Carver as Honorary Chairman of TREEDC, a statewide network of 108 mayors and 30 colleges and universities whose mission is to promote and connect renewable energy with economic development for Tennessee communities. Dr. Carver succeeds UT President Emeritus Dr. Joe Johnson who along with the Municipal Technical Advisory Service formed TREEDC in 2008. Dr. Johnson opened so many doors for the mayors of TREEDC and we are grateful for his wisdom and guidance over the years.

Carver began his tenure as UT Martin Chancellor in January 2017. Previously, he had served as executive assistant to the UT president since January 2011. Prior to that, he held roles at UT campuses in Knoxville, Martin and Memphis, including serving as interim vice chancellor for development and alumni affairs at the UT Health Science Center in Memphis

and assistant vice chancellor for development at UT Martin. He held several positions at UT Knoxville, including assistant director and director of development and alumni affairs for the College of Law, program director for the Office of Student Activities and co-director of TeamVOLS. He also worked as director of special projects and coordinator of experiential education at Marietta College in Ohio for two years.

Carver will work with TREEDC President/Dunlap Mayor Dwain Land to promote TREEDC's 10 year anniversary related events in 2018 and to create more awareness in renewable energy at UT campuses and local governments across the state. Carver will also be joined by West Tennessee TREEDC board members Huntingdon Mayor Dale Kelley, Mike McWherter, Memphis Councilman Dr. Edmund Ford, Jr., and Gibson County Utility Executive Director Pat Riley in promoting and utilizing UT Martin's mobile energy trailer and other related educational outreach activities.

TREEDC Partners with MTAS and the University of Tennessee- Chattanooga to Discuss Statewide Conservation of Energy and Water



Chattanooga Mayor Andy Berke addresses TREEDC Forum

On February 22, 2017, the Tennessee Renewable Energy & Economic Development Council (TREEDC) conducted an educational forum regarding the optimal measures to conserve energy and water resources. Tennessee Department of Environment and Conservation (TDEC) Deputy Commissioner Brock Hill and Chattanooga Mayor Andy Berke were the

keynote speakers to an audience of 60 local, state and university officials at the campus of the University of Tennessee Chattanooga.

Mayor Berke highlighted Chattanooga's recent strides in becoming a premier sustainable city in the world. Mayor Berke saluted Chattanooga area businesses such as Volkswagen and Electric Power Board of Chattanooga as being great stewards and role models in sustainability. Mayor Berke also discussed the Chattanooga Solar Community Garden Program. Deputy Commissioner Brock Hill presented an outline of necessary steps needed to address the recent droughts that affected Tennessee communities last year. The State is planning on several major water enhancement projects to protect citizens from future impacts from droughts.

Attendees also heard presentations relating to energy efficiency, universal recycling, Tennessee-China opportunities, alternative transportation and UTC research abstracts pertaining to concrete energy efficiency and water-energy nexus. Republic Industries sponsored the free luncheon forum.

Chattanooga Breaks Ground on Solar Share Community Solar Project

On February 17, 2017, TREEDC Member TVAEnergy (TVAE) started construction on Solar Share, Chattanooga's first community solar installation through a partnership with TREEDC Members Tennessee Valley Authority (TVA) and the City of Chattanooga. The renewable power generating facility will be located along Holtzclaw Avenue at the Electric Power Board's (EPB) Distribution Center. Solar Share is expected to begin generating 1.35 megawatts of solar power, which is enough to meet the needs of about 200 households that consume an average amount of power.

Through Solar Share, customers will be able to participate in the community solar project in three ways:

- For a one-time payment, customers may buy a 20-year license that entitles them to a monthly bill credit equal to the generation value of one or more panels. The amount of power generated by the number of panels selected by a customer will be credited to the customer's electric account on a monthly basis. This option is designed to provide the generation benefits of installing solar panels on your roof, but without the construction project.
- Customers may also buy a license by making a monthly payment that entitles them to a monthly bill credit equal to the generation value of the number of solar panels selected by a customer. As with the first option, the amount of power generated will be credited to their electric bill on a monthly basis.
- In addition, customers may purchase "Renewable Energy Credits" which will allow them to offset the environmental impact of activities like cooling their home or commuting to work.

"Through partnerships that create forward-thinking initiatives like our city's first community solar installation, we can clearly see the power of our Innovation District," said Chattanooga-TREEDC Mayor Andy Berke. "As cornerstones of our Innovation District, EPB and TVA understand the importance of employing creativity, innovation, and next-generation technology to solve problems and improve the lives of our citizens. Solar Share is a perfect example of those values in action."

Citizens who are interested in learning more about Solar Share are invited to go to www.epb.com/solarshare to sign up for updates including the initial invitation to be among the first to participate in Chattanooga's first community solar project.



Joe Salmone and TREEDC President/ Dunlap Mayor Dwain Land

Tennessee Advanced Energy Business Council Develops Social Medial Toolkit

TREEDC Member Tennessee Advanced Energy Business Council TAEBC's three-part video series was released earlier this year on how Tennessee is becoming a leader in the advanced energy sector. TAEBC unveiled these videos at TAEBC's annual, year-end "Opportunities in Energy" event in December 2016 which was a huge success.

These videos mention some of TREEDC's and TAEBC'S partners in both the academic & commercial/utilities sector including Maryville College and Genera Energy. Here are the three videos with descriptions:

1. [This is Advanced Energy](#) - What is advanced energy and what does it mean to Tennessee's economy?
2. [Inside Advanced Energy](#) - Meet the people and companies that employ nearly 325,000 people and contribute \$33.4 billion to Tennessee's GDP.
3. [Innovations in Advanced Energy](#) - Discover how innovation gives Tennessee an edge in the \$1.3 trillion global advanced energy marketplace.

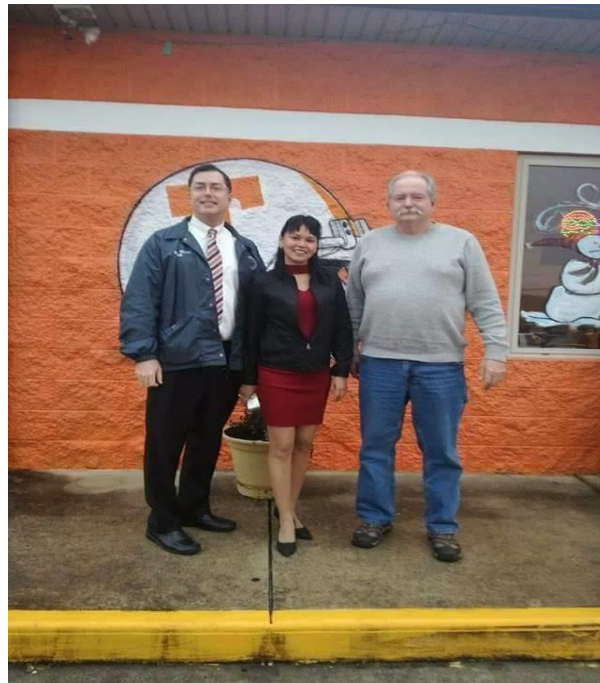
Tennessee's advanced energy sector has a major influence in the state's economy. It employs nearly 325,000 people, contributes \$33.4 billion to our state's GDP, and generates more than \$850 million in sales tax revenue. Congratulations to TAEBC for helping foster the growth of our state's advanced energy technologies, companies, and jobs.



TREEDC Ambassador to Legazpi, Philippines Visits Tennessee

From January 26, 2017 to February 14, 2017, TREEDC Ambassador to Legazpi, Philippines Dr. Honelet Bertis of Southern Luzon Technological College Foundation (SLTCFI) visited our TREEDC member cities and universities. Dr. Bertis assisted with the organization and planning of the TREEDC - University of Tennessee Chattanooga forum and shared best practices in renewable energy with member cities Cookeville, Ducktown, Graysville and McMinnville.

SLTCFI is a self-sustaining and socially responsible institution with excellence in the fields of Computer Technology, Arts & Sciences, technical courses and livelihood programs with state-of-the art facilities and modern approaches in global education to produce globally competitive future leaders.



MTAS Consultant Warren Nevad, TREEDC Ambassador Honelet Bertis and Graysville Mayor Ted Doss

TREEDC Member Energ3 Owner Dan LeVan Wins National Award



TREEDC Member Dan LeVan of Energy3

The owner of a Chattanooga company and TREEDC member has been named the U.S. Small Business Administration's 2017 Tennessee Small Business Person of the Year. Dan LeVan, chief executive of Energ3 (Energy, Efficiency and Sustainability Consulting), was cited by the SBA for "hard work, innovative ideas and dedication to your employees and community."

LeVan and other state winners around the nation were recognized on April 1 and May 30 at a special ceremony in Washington, D.C. Energ3 provides technology solutions to reduce energy loads, production of on-site energy and sustainable management for primarily commercial and industrial businesses.

LeVan, whose business is located in Chattanooga's small business incubator, was president or financial head of four global companies before he took over Energ3 in 2014. "Without the INCubator and support from the Tennessee Small Business Development Center as a start-up, we wouldn't have the level of success that we do today," he said recently. Congratulations, Dan!

TREEDC Member PHG Energy Launches New Marketing Efforts

TREEDC Member PHG Energy recently launched its new name: **Aries Clean Energy** to introduce an expanding future for an experienced gasification company that has already installed multiple commercial energy projects.

“The old name, PHG Energy, worked well for us when we basically offered industrial fuel gas conversion equipment,” said CEO Greg Bafalis. “By design, we have evolved into a clean energy and sustainable waste disposal company.”

“Aries Clean Energy is a brand that much better represents what we do today, as well as our product line and focus going forward,” he added. “And we are quickly taking on a greater innovation role in the clean-tech energy segment.”

The company holds 8 patents in the biomass and biosolids gasification field, and has deployed those for both industry and city governments. Aries Clean Energy’s most recent installation was commissioned in late 2016 and cleanly converts a mixture of commercial wood waste, municipal biosolids and scrap tires to electricity. The company deployed the world’s largest downdraft gasification unit in that project.

“Our downdraft and fluidized bed gasification projects have proven themselves viable with over 50,000 hours of commercial production,” Bafalis said. “Putting these clean and sustainable energy innovations to work in more locations, and bringing some of our latest research and development efforts to the marketplace this year, are going to be exciting for our company. We believe the name Aries Clean Energy and the new pulsar icon logo clearly say energy, innovation and commitment to sustainability.”

In addition, the company operates a solar design and installation division focusing on commercial and community scale projects. Formerly ARIES Energy, that group also is renamed now as a part of the Aries Clean Energy brand.

Dunlap Industries Finishes Solar Project

On April 21, 2017, [Dunlap Industries](#) held a ribbon-cutting Friday for their new array of solar panels that now cover the top of two buildings on Industrial Park Road in Dunlap. TREEDC members from Dunlap Industries, City of Dunlap, Sequatchie County, Tennessee Solar Solutions, and [ENERG3](#) were all present for the ribbon-cutting, along with employees that work at the zipper factory.

Dunlap Industries incorporated a new, rubberized roof with the solar installation. Its white color reflects heat away from the roof, which also helps with energy savings. The total cost of the project was \$661,000, but the U.S. Department of Agriculture (USDA) paid for 25 percent of the cost. Dunlap Industries President Robert Kwasnik said switching 90 percent of their energy consumption to the more than 500 solar panels will save his company about \$40,000 each year.

The University of Tennessee Municipal Technical Advisory Service (MTAS) Management Consultant Warren Nevad lauded the leadership of TREEDC President and Dunlap Mayor Dwain Land for being the community's role model in bringing solar energy to Dunlap. Mayor Land's goal is to solarize all of city owned properties and privately owned industries by the year 2025 which will make the city 40 percent less dependent on traditional electricity sources. Mayor Land wants Dunlap to become the greenest city in Tennessee and become the catalyst of municipal solar energy leadership across the state.



Cutting the ribbon on the new solar array at Dunlap Industries. Front row, l-r are: Dee Nash, ENER3; Olivia Kararatakis, project manager and director of renewable energy; Michael Barker, Dunlap Industries; Betty Farley, Dunlap Industries; Chamber of Commerce Dir. Marlene Basham; Chamber Exec. Asst. Lorene Williams; Dunlap Industries Pres. Robert Kwasnik; TREEDC Dir. Warren Nevad; JDH Co. V.P. Ricky Miller; Dunlap City Comm. Jeff Johnson; Eric Serre, Dunlap Industries, and Dunlap Mayor Dwain Land

TREEDC Member City of Dunlap Recognized by Tennessee Department of Environment and Conservation (TDEC) for Progress in Sustainability

Dunlap, a town of around 5,000 people, is located in scenic Sequatchie County was recently recognized in a statewide publication by TDEC for being a role model in sustainability. Recently, the city entered into a contract with TREEDC member NORESKO, one of the largest U.S. energy services companies, to do some much-needed energy efficiency upgrades. These upgrades include new LED street lighting for 130 street lights, high-efficiency LED interior and exterior lights at all city buildings, water meter upgrades, and solar arrays on the roofs of city buildings in nine locations.

According to TREEDC President/Dunlap Mayor Dwain Land, solar panels are being installed at city hall, the fire department, the police department, the city park, a 30,000 square-foot maintenance facility, a water treatment plant, a water lift station, a wastewater treatment plant, and a sewage lift station. “This is a deal that makes sense both for business and for the environment. It is a win-win situation, as it is good for Dunlap now and in the future. It is also good for the next mayor, and hopefully it starts a culture change here – where we think about the environment more.” Along with these energy efficiency upgrades, Mayor Land also aims to implement a curbside recycling program for about 3,000 homes, which will be free of charge to the residents. This program will be funded by the savings seen from the energy efficiency upgrades.

Mayor Land and his staff have been very active about going after grants. Since 2010, Dunlap has received over \$5.2 million in grant funding. These funds were used for various large projects, including streetscape and greenway projects, a housing rehabilitation in 2013, and a storm water project in 2016. Dunlap also focuses on small-scale changes. The city’s National Guard facility was even awarded a Clean Tennessee Energy Grant from the Tennessee Department of Environment and Conservation’s (TDEC) Office of Sustainable Practices for energy efficiency upgrades to the potable water heater.

It takes hard work and determination to secure grants and other funding, but Dunlap is striving towards sustainability, beatification, and continual improvement. Through all of these efforts, the city is definitely setting some great examples that other towns and cities in Tennessee can look up to.



New solar array under construction by TREEDC member Hannah Solar at Dunlap Wastewater Plant



Warren Nevad, MTAS, TREEDC President/Dunlap Mayor Dwain Land and Brian Stone, NORESKO.

TREEDC Partners with MTAS and the University of Tennessee-Martin to Discuss Opportunities for Clean Energy in West Tennessee

On May 26, 2017, the Tennessee Renewable Energy & Economic Development Council (TREEDC) conducted an educational forum highlighting best practices in renewable energy available for West Tennessee cities and counties. TREEDC members Environmental Defense Fund and the Nature Conservancy sponsored the forum held at Paris Landing State Park. The University of Tennessee – Martin provided tours of their state of the art mobile energy trailer for the audience of 41 local, state and university officials. Paris City Manager Kim Foster welcomed the attendees and discussed Paris' current energy efficiency project.

Martin Penny with Cooley Public Strategies urged local officials to support the growth of clean energy stating that this grassroots approach would also reap area economic benefits.

Max Shilstone, Director of Business Development for TREEDC Gold member Clean Line Energy Partners provided a powerpoint presentation to describe the Plains & Eastern Clean Line Project which will connect Tennessee to superb wind resources of Great Plains with a High Voltage Direct Current (HVDC) transmission line. This HVDC line focuses on connecting renewable resources to load centers. The transmission line uses narrower right-of-ways than equivalent Alternating Current and has lower line losses. This line which begins in Guymon, Oklahoma and ends in Tipton County, Tennessee will bring hundreds of direct jobs during construction. The \$300 million investment in transmission facilities in western Tennessee will provide significant tax revenues to Tennessee. He concluded his remarks by expressing his appreciation to TREEDC for helping him engage with community officials

Albert Tieche of the University of Tennessee Center for Industrial Services urged officials to develop plans for business continuity planning for disasters. Tieche used the Nashville floods of 2010 as a lesson for communities to have adequate disaster preparedness. TREEDC Board Member Pat Riley gave a presentation about the benefits of compressed natural gas for commercial and government fleets. Riley stressed the importance of local communities becoming energy independent for their transportation needs. Attendees also heard presentations relating to energy efficiency and solar energy from TREEDC members Siemens, Energ3, Lightwave Solar, Hannah Solar and Vis Solis.



TREEDC Holds reception: Milan Mayor DW Beasley, Max Shilstone, Clean Line Energy, Bill Owen, Asset & Equity, James Talley, Hannah Solar, Ryan Ball, Siemens, Dana Deem, MTAS, Mike McWherter, TREEDC Board Member, UT-Martin Chancellor Dr. Keith Carver, TREEDC Chairman, Warren Nevad, MTAS, Carlos Mayer, Vis Solis, Kim Foster, Paris City Manager ,and Angela Garrone, Southern Alliance for Clean Energy.



Max Shilstone, Clean Line Energy Partners

TREEDC Member Aries Clean Energy Project Awarded State's Highest Environmental Stewardship Recognition



Aries Clean Energy's biomass gasification plant just outside Nashville has been recognized as the driving force behind the City of Lebanon's receipt of a 2017 Governor's Environmental Stewardship Award, the most prestigious conservation award in Tennessee. Now in its 31st year, the awards annually showcase exceptional voluntary actions that improve or protect the environment. Governor Bill Haslam and Tennessee Department of Environment and Conservation (TDEC) Commissioner Bill Martineau jointly announced the award in the energy and renewable resources category after a panel of 22 independent professionals representing conservation, environmental, agricultural and academic professionals judged nearly 90 entries from across the state.

Aries Clean Energy deployed its patented gasification technology in design and construction of the plant that was commissioned in late 2016. It is the world's largest downdraft gasification facility, and it utilizes a blend of wood waste from local industries, scrap tires from Wilson County and biosolids from the city's wastewater treatment plant to produce green electrical power. "We're reducing landfill use, creating clean energy and keeping thousands of tons of carbon out of the air each year, all with a positive cash flow," said Lebanon Mayor Bernie Ash. "This is a win all the way around."

Developing the project involved implementing a partnership between the city and county, as well as a private company, Rockwood Recycling, which specializes in logistics and preparation of commercial wood waste and scrap tires. The gasification plant can process up to 64 tons per day of material and produce 420 kW of electricity utilizing Organic Rankine Cycle (ORC) generators.

City of Chattanooga Wins Statewide Award in Excellence in Green Leadership

On June 13, 2017, TREEDC Member City of Chattanooga was awarded a 2017 Statewide Award for Green Leadership by the Tennessee Municipal League for bringing solar energy opportunities to citizens who could otherwise not afford to install solar systems.

Chattanooga Mayor Andy Berke, a member of the Tennessee Renewable Energy & Economic Development Council (TREEDC) created Chattanooga's first community solar installation through a partnership with TREEDC Members Vis Solis, Tennessee Valley Alternative Energy, Tennessee Valley Authority (TVA) and the Electric Power Board of Chattanooga. The renewable power generating facility located along Holtzclaw Avenue at the Electric Power Board's (EPB) Distribution Center generates 1.35 megawatts of solar power, which is enough to meet the needs of about 200 households.

Through Solar Share, customers will be able to participate in the community solar project in three ways:

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- Customers may also buy a license by making a monthly payment that entitles them to a monthly bill credit equal to the generation value of the number of solar panels selected by a customer. As with the first option, the amount of power generated will be credited to their electric bill on a monthly basis.
- In addition, customers may purchase "Renewable Energy Credits" which will allow them to offset the environmental impact of activities like cooling their home or commuting to work.

Congratulations to Chattanooga!

TVA Awards Additional Solar Capacity to Local Power Companies

On May 8, TREEDC member Tennessee Valley Authority (TVA) in partnership with the Tennessee Valley Public Power Association (TVPPA), announced that it is awarding 10 MW of additional solar capacity to seven local power companies who applied through TVA's Distributed Solar Solutions (DSS) pilot program. Once completed, these projects will generate enough solar energy to power more than 900 average homes.

DSS is a pilot program that encourages local power companies and solar developers to work together to create renewable energy projects at the community level. TVA announced the available capacity through the DSS pilot program in January. Applications were submitted for solar projects that ranged from 50 kW to two MW. The selection committee reviewed 13 proposals before selecting these projects to receive capacity:

- North Georgia Electric Membership Corporation
- Volunteer Electric Company
- Memphis Light Gas & Water (TREEDC Member)
- Electric Power Board of Chattanooga (TREEDC Member)
- Tullahoma Utilities Authority
- Jackson Energy Authority (TREEDC Member)
- Nashville Electric Service (TREEDC Member)

To date, TVA has contracted or installed around 400 megawatts of solar capacity in its generation portfolio, and currently has more than 1,200 megawatts of wind and over 50 megawatts of biomass. TVA's private renewable program, offered through participating local power companies, has resulted in over 100 megawatts of renewable capacity, with more than 3,000 systems operating across the region.

QECB Suballocations Approved for TREEDC Member Cities of Paris and Memphis Energy Projects

On April 13, the Tennessee Local Development Authority (TLDA) approved a suballocation of \$2,532,500 in Qualified Energy Conservation Bonds (QECBs) to the City of Paris. The City is proposing to use the proceeds from the bond issuance for an energy savings performance contract to upgrade energy consuming systems through guaranteed energy savings. The proposed project will include an upgrade of street lights to LED lighting technology, conversion of lighting within select City-owned buildings to LED lighting technology, the addition of intelligent thermostats on HVAC systems, the addition of energy-saving vending machine controls, and an upgrade to the Civic Center's indoor pool dehumidifier. The project is expected to generate \$189,127 in annual energy and operational savings, reducing utility costs and consumption by 15-20% for the next 20 years.

On May 11, the TLDA approved a suballocation of \$2,142,850 in QECBs to the Economic Development Growth Engine (EDGE), which will serve as conduit issuer for the City of Memphis with regard to the Memphis Green Communities Program's Southbrook Towne Center project. The proposed project includes the replacement of community center's roof with an energy efficient roof system, an upgraded HVAC system, and an upgrade to the building's electrical power grid.



Paris, Tennessee City Manager Kim Foster

TREEDC and the University of Tennessee CIS Hosts Mayor's Energy Roundtable



From left to right: Milan Mayor BW Beasley, Heather Toney, Founder, The Resolutions Firm, Dunlap Mayor Dwain Land, MTAS Consultant Warren Nevad and Martin Penny, Cooley Public Strategies

On August 9, 2017, Mayors from the cities of Milan, Franklin and Dunlap representing the Tennessee Renewable Energy & Economic Development Council (TREEDC) participated in a clean energy roundtable discussion conducted by the Environmental Defense Fund (EDF) and the Natural Conservancy. Dodd Galbreath, Founder of the Institute for Sustainable Practice at Lipscomb University moderated the discussion which also included attendees from Senator Lamar Alexander's and Nashville Mayor Megan Berry's office.

Key Takeaways from the roundtable discussion included the following:

- For mayors, investment in clean energy is not always about the environment and many times an economic decision.
- In Nashville, more people are demanding a top down approach on climate change while rural cities face little or no demand from constituents to fight climate change.
- Mayors are the face of the community. It will take mayors to step out on these kinds of issues to get the community to change. Education of the public is essential.
- Timing is essential for mayors in determining when to step out on climate change.
- Being a mayor is a balancing act. There are many different grant opportunities that can be accessed through the EPA, Federal Emergency Management Association (FEMA), Department of Energy (DOE) and more.
- FEMA can be a good partner for mayors interested in clean energy. Not everyone buys in to climate change but they do understand emergencies.



From left to right: Chad Kimes, Energy Systems Engineer, State of Tennessee Office of Energy Programs, TREEDC President/Dunlap Mayor Dwain Land, Franklin Mayor Ken Moore, and Mark Schwartz, Owner, greenMARK COLLABORATIVE

TREEDC Vice President/Gibson County Utilities Director Pat Riley Addresses McKenzie Rotary Club



TREEDC Vice President Pat Riley

TREEDC Vice president Pat Riley addressed the Rotarians of McKenzie, Tennessee on August 21, 2017. Riley explained the origins and mission of TREEDC which is to promote renewable energy in Tennessee. Riley also stressed how compressed natural gas allows a community to become energy independent and to stabilize their energy costs. Compressed natural gas did not fluctuate in price due to Hurricane Harvey due to its availability and resistance to natural disasters. Riley also reviewed the development and operation of the Gibson county Utility state of the art compressed natural gas station.

New Compressed Natural Gas Station Opens in TREEDC member Fayetteville



Jonathan Overly with Tennessee Clean Fuels New CNG Fueling opens in Fayetteville

On August 1, 2017, American Natural Gas (ANG) and Tennessee Clean Fuels, with the support of Frito-Lay, a division of PepsiCo, conducted a ribbon cutting event on August 1, 2017 to unveil the new ANG Compressed Natural Gas (CNG) Fueling Station in Fayetteville, Tennessee. ANG currently owns and operates approximately 40 fueling stations in 13 states across the United States, inclusive of stations in process and under development. The company is expanding to meet fleets' demands for CNG, the cleanest burning alternative fuel available that has the power to run heavy-duty vehicles. CNG is also quieter, safer, less expensive and abundant in America. Vehicles that run on natural gas generally emit 13 to 21 percent fewer greenhouse gas emissions than vehicles that run on gasoline.

How Tennessee's taken the politics out of renewable energy

The Tennessee Renewable Energy and Economic Development Council (TREEDC) has found a way to take the politics out of renewable energy by focusing on creating jobs and saving money. TREEDC's goal is simple: fast-track renewables in Tennessee. The organization holds free forums throughout the state to educate members on grants and other opportunities available to them.

TREEDC Memphis Mayor Joins Growing List of U.S. cities in Mayors National Climate Action Agenda

Memphis Mayor Strickland recently joined the Climate Mayors (aka, Mayors National Climate Action Agenda, or MNCAA), a network of 369 U.S. mayors representing 67.5 million Americans working together to strengthen local efforts for reducing greenhouse gas emissions and supporting efforts for binding federal and global-level policy making. The mayor's action underscores steps that the city is already taking to foster a sustainable, resilient community. As part of Memphis' commitment to the Global Covenant of Mayors for Climate and Energy, the city has completed a community-wide greenhouse gas inventory and will soon set near- and long-term targets to reduce emissions. The city will identify strategies and actions to achieve these targets through a climate action planning process which will kick off early next year. Additional sustainability efforts that city government is leading or supporting include:

- Energy efficiency improvements to city facilities
- A Weatherization Assistance Program
- Expansion of MLGW's energy efficiency programs for low-income
- Healthy Homes Partnership and Green and Healthy Homes

TREEDC Communities Awarded Clean Tennessee Energy Grants

Tennessee Governor Bill Haslam and Tennessee Department of Environment and Conservation Commissioner Bob Martineau announced on August 24, 2017 that \$1.9 million was awarded to 24 communities for clean energy projects, including 11 distressed counties. The Clean Tennessee Energy Grant (CTEG) program provides financial assistance to municipal governments, county governments, utility districts and other entities created by statute. Awarded projects have demonstrated a plan to reduce air emissions, improve energy efficiency and create cost savings. The following TREEDC member communities were awarded funding:

- 1) City of Memphis for retrofitting of lighting on the Nature Center campus.
- 2) Marion County for improving efficiency of county buildings including LED and new Energy Star rated windows.
- 3) Rhea County for installing energy efficient roofing, insulation and lighting to the Rhea County Courthouse/Annex.
- 4) Sequatchie County for installing upgrades in the Justice Center, County Courthouse and Sequatchie County Health Department through lighting upgrades to LEDs.

TREEDC Holds Successful 4th Annual Conference at Tennessee Tech University



Mayor Dwain Land, UT-MTAS Director
Margaret Norris, Knoxville Mayor
Madeline Rogero and Chattanooga

The Tennessee Renewable Energy & Economic Development Council (TREEDC) recently held its 4th annual Renewable Energy Conference at TREEDC Founding Member Tennessee Tech University on December 14 – 15, 2017. 96 stakeholders registered for the conference which was bannered under the theme of “Best Practices of Renewable Energy and Economic Development for Local Governments”. It brought together leadership from the Tennessee Valley Authority (TVA), USDA Rural Development, and the State Department of Environment and Conservation (TDEC) Offices of Energy Programs and Sustainability. Chattanooga Mayor Andy Berke, Knoxville Mayor Madeline Rogero and Nashville Director of Sustainability Erin Hafkenschiel participated in an urban renewable energy panel moderated by the University of Tennessee Municipal Technical Advisory Service (MTAS) Executive Director Margaret Norris.

TREEDC President/Dunlap Mayor Dwain Land, TREEDC Board Member Mike McWherter and Cookeville Mayor Ricky Shelton welcomed the audience. Keynote addresses were presented by Tennessee Tech Vice President Dr. Bharat Soni, and Assistant Commissioner Amy New of the Tennessee Department of Economic and Community Development (TNECD) on day one of the conference. Attendees were also treated to informational presentations from Jonathan Overly of the East Tennessee Clean Fuels Coalition and Dr. Kendra Abkowitz of the Tennessee Department of Environment and Conservation (TDEC) Offices of Policy and Planning and Sustainable Practices. Discussions included opportunities pertaining to the Volkswagen Diesel Settlement Fund. Day one concluded with a discussion of best practices in Rural Renewable Energy Programs by Dunlap Mayor Land, Lake County Mayor Denny Johnson and Dan LeVan with Energ3.

Day two consisted of keynote presentations from TenneSeia President Matt Beasley and Michael Scalf with the Tennessee Valley Authority (TVA). The Conference concluded with a panel discussing emerging issues in renewable energy in Tennessee. Presentations

were given by Michael Walton, Chattanooga Green Spaces, Rory McIlmoil of Appalachian Voices, Michael Holtzhower of Southeast Diesel and Martin Penny with Cooley Public strategies. Conference PowerPoints are available at http://treedc.us/newsletters_reports/index.html

The 108 TREEDC Mayors would like to thank the following sponsors of our 2017 Annual Conference:

- 1) *Cumberland Securities***
- 2) *Christopher Intellectual Property***
- 3) *Energ3***
- 4) *Hannah Solar***
- 5) *Johnson Controls***
- 6) *NORESCO***
- 7) *Siemens***
- 8) *Tennessee Solar Solutions***
- 9) *Tennessee Valley Alternative Energy***

From left to right: Mayor Land, USDA
Tennessee Rural Development Director Jim
Tracy and Knoxville Mayor Madeline Rogero



Martin Penny, Cooley Public Strategies Named TREEDC Champion in 2017



From left to right TREEDC President/Dunlap Mayor Dwain Land, TREEDC Champion Martin Penny and Warren Nevad, MTAS/TREEDC

During the TREEDC Annual Conference in Cookeville, Tennessee, the University of Tennessee MTAS/TREEDC Director Warren Nevad and TREEDC President/Dunlap Mayor Dwain Land presented the TREEDC 2017 Champion Award to Martin Penny of Cooley Public Strategies, Penny was recognized for his role in organizing the Mayor's roundtable discussions in Nashville with the Environmental Defense Fund and the Nature Conservancy. Penny also organized the successful TREEDC Washington DC delegation trip and the Paris Landing Forum with TREEDC Board Member Mike McWherter. Congratulations, Martin!

TREEDC Launches 2018 Membership Campaign

TREEDC Chairman/University of Tennessee at Martin Chancellor Dr. Keith Carver and TREEDC President/Dunlap Mayor Dwain Land have officially launched our 2018 membership campaign. TREEDC will recognize its 10 year anniversary in 2018 with various special events. The TREEDC board has kept the 2018 membership dues levels unchanged from prior years. Memberships help pay for expenses related to TREEDC's outreach, educational and project facilitation for our member local governments. Being a TREEDC member, affords networking and developmental opportunities, sponsorships of various events and participation in our International exchange program. TREEDC is a 501 C 3 charitable organization. For more information regarding 2018 membership opportunities go to <http://treedc.us/membership/index.html>

TREEDC Member Tennessee Advanced Energy Business Council (TAEBC) Releases Video

Discover Tennessee's advanced energy entrepreneurs and how the Energy Mentor Network, formed in partnership with the Tennessee Advanced Energy Business Council and Launch Tennessee, is fostering their growth within the state.

[Entrepreneurs in Advanced Energy](#) video is the fourth in TAEBC's "This is Advanced Energy" series. The video showcases Tennessee's advanced energy entrepreneurial success and the organizations driving that success.

The University of Tennessee Wins Green Power Leadership EPA Award

The University of Tennessee (UT) received a Green Power Leadership Award this fall from the US Environmental Protection Agency (EPA), the only school in the Southeast to win the award. Past recipients include Northwestern University, Oklahoma State University, and Ohio State University.

The honor comes just six months after the EPA named UT as the top consumer of green power in academia. That number one ranking represents a nine-spot climb up the list in one year.

The Office of Sustainability achieved this success using the power of another type of green—money. By increasing the rate of renewable energy credit purchases, the staff raised the university's green energy profile and freed up funding for new research.

With the help of the research fund, an industrial engineering graduate student studied more efficient technology for campus HVAC units. In another funded project, a group of students in the Department of Mechanical, Aerospace, and Biomedical Engineering researched UT's energy demand management.

Looking ahead, the Office of Sustainability is involved in two upcoming green energy projects at Hodges Library.

One project researches a potential way to capture energy needs with battery storage that could hedge against peak energy costs. These costs can be up to three times the norm at certain times of the day and year. The other project allows the study of real-time energy use in a building and informs future building designs for increased energy efficiency.

TREEDC Member Knoxville Installs LED Streetlights



*Knoxville Mayor Rogero and TREEDC
President/Dunlap Mayor Land at the Annual
Conference*

The City of Knoxville is changing its streetlights. It became official recently when TREEDC Mayor Madeline Rogero hosted a ceremony where the first LED light was lit. Rogero and city councilman and former mayor Daniel Brown were on hand when Angel Pena of TREEDC Member Siemens turned on the first new light in East Knoxville on the corner of Martin Luther King Jr. Ave. and Olive Street.

That ceremony began the retrofitting project to replace the old inefficient lights. The ceremony on Martin Luther King Jr. Ave. was the first of nearly 100 demonstration LED's. Those will be installed at 17 locations throughout Knoxville. These pilot demonstrations will aid both Siemens and the City of Knoxville to determine the best fixtures and bulbs for different types of streets and locations.

By retrofitting the city's nearly 30,000 streetlights to the LED's, the city will save money, reduce energy use and take a major step toward exceeding its goal of reducing municipal greenhouse gas emissions by 20 percent over the next three years.

The new technology will save taxpayers nearly \$2 million per year.

TREEDC Member Cookeville Completes 1 MW Solar Array

On October 12, 2017, Cookeville Mayor Ricky Shelton and Economic Development Director Melinda Keifer opened the new 1 MW solar array at the City's industrial park. The project is located on a 6-acre parcel at Highlands Business Park, a commercial and industrial development site. Highlands Business Park was jointly developed by the city of Cookeville and Putnam County for the purpose of offering infrastructure-ready industrial development properties. The Highlands Solar project will create a major environmental attribute for this industrial complex immediately adjacent to Interstate 40.

The project will sell electric power to the Tennessee Valley Authority (TVA) through an interconnection with Cookeville Electric Department. The proposed 1 megawatt "Solar Advantage" array will be constructed using **2,506** solar modules at **325 to 330-watts** per module. System generation is estimated at approximately **1,396,000 kWh** per year. That is enough power to provide electricity to **156** average-size homes per year and offset greenhouse gases equal to that produced by **222** passenger vehicles per year.

TREEDC members Vis Solis and TVA Energy developed the projects. Similar projects have been developed elsewhere in the TVA region arrays in the TVA region in Roane and Knox Counties.



Cookeville Mayor Ricky Shelton addresses TREEDC

Conference

TREEDC Member Lebanon Gasification Plant Wins Award

The Lebanon Gasification Initiative has received the 2017 project of the year honors from the Tennessee Chapter of the American Public Works Association (TCAPWA). This award recognizes a project in a Tennessee city that epitomizes outstanding planning, construction, and management. This project becomes the Tennessee Chapter's nomination to the National AWWA Top Ten Projects of the Year. It was announced at the TCAPWA Annual Conference held in Knoxville. At the heart of the Lebanon initiative is the world's largest downdraft gasification plant designed and built by Aries Clean Energy.



TREEDC Lebanon Mayor Bernie Ash

This marks the fifth industry award for the innovative plant. Earlier this year, the plant has received honors from: the state of Tennessee Governor's Stewardship Award and project of the year accolades from Environmental Leader and Industrial Wastewater Digest. The Greater Nashville Regional Council presented the 2017 Local Government Award for Public Works & Utility Infrastructure to the city last month.

Like many TREEDC cities this size, Mayor Bernie Ash says tackling the solid waste issue is best done taking one step at a time. He sees this waste-to-energy plant as the first step toward a total MRF (material recovery facility) line for the city's waste. "I'm pleased to say that with the detailed planning initiated by Aries, construction and implementation have progressed very smoothly. As with any power plant, we've had some bugs to work out, but overall, it's been a great team-building experience," said Ash.

In Memoriam: Sir Fred Perdon, TREEDC Ambassador to Naga City, Philippines



Mayor Land, Sir Fred Perdon and Warren Nevad

This report is dedicated to the memory of Sir Fred Perdon, General Manager of Philippines GNN News Network and TREEDC Naga City Ambassador. Ambassador Perdon passed away in Manila on December 14, 2017. Sir Fred helped launch the TREEDC International Exchange Program in the Philippines in 2012 which resulted in many educational outreach forums, scholarships and the development of a TREEDC solar project in Puerto Princesa in 2015. Sir Fred had attended our Inaugural tour and spoke at our first annual conference back in 2014. TREEDC will set up a scholarship fund for a student in the Naga City region in his memory during the TREEDC mission trip in 2018. Rest in Peace Sir Fred.

Sir Fred Perdon 1952-2017