



2020

ENVIRONMENTAL REPORT

KUB

“This year has been about not only adapting to unexpected circumstances, but also leading the way to a more sustainable future.

It's been a year of exciting new sustainability initiatives at KUB. In FY 20, we entered into a first-of-its-kind Green Invest agreement to add 212 megawatts of solar energy to TVA's grid, our largest single environmental commitment. KUB also became the first TVA power distributor to offer an electric vehicle charger rebate to its customers, and we announced a \$1.5 million investment to build Knoxville's first community solar project. These and other efforts resulted in impressive recognition, including KUB being named a 2020 Solar Champion.

Our employees have continued to find new ways to improve operational sustainability, and we expanded community partnerships with new initiatives highlighted in this report. I am pleased to serve on the City of Knoxville Mayor's Climate Council to continue strengthening KUB's long-standing partnership with the City to help build a more sustainable future.”

Gabe Bolas, KUB President and CEO





RENEWABLE INVESTMENTS





GREEN INVEST

KUB recently entered into a first-of-its-kind **Green Invest Agreement** with TVA that will secure **212 megawatts (MW)** of new-to-the-grid solar power on behalf of KUB customers.

When it goes online in 2022 and 2023, this new solar investment of **\$825,000 per year** will generate an anticipated **465 million kilowatt-hours (kWh)** of solar output per year, an amount equal to 8 percent of KUB's annual electric load, or the equivalent of powering approximately **35,000 average homes**. The agreement with KUB marks the first between TVA and a local power company.



Community Solar

In FY 20, KUB began the planning stage of a community solar project, which will be the first in Knoxville.

To complete this project, KUB has committed to an investment of **\$1.5 million**. The program is a partnership with the City of Knoxville and TVA. The new solar project is proposed to be located on City of Knoxville property at an estimated size of **700 kilowatts (kW)**.



CARMEUSE MINERAL

CUSTOMER FEATURE

KUB is proud to serve Carmeuse Mineral, a valued customer who has demonstrated their commitment to being a good community neighbor and environmental steward by lowering their carbon emissions. Carmeuse received TVA's carbon reduction award, which recognizes businesses who had the lowest carbon emission rates in calendar year 2019 as well as companies with the largest year-over-year carbon emission improvement for 2018-2019.

"It takes a partnership between TVA, local power companies, and Valley industries collaborating together to achieve these remarkable [carbon reduction] results," said Dan Pratt, TVA Vice President of Customer Delivery.





COMMUNITY PARTNERSHIPS





Pictured: KUB President & CEO Gabe Bolas, left, and Dwain Covington, owner of Round It Up's 400th weatherized home.

COMMITMENT TO LOW-INCOME WEATHERIZATION CONTINUES

Through KUB's **Round It Up** program, customers may round their bills up to the next dollar, sending their change to help those in need of weatherization, providing a root cause solution for those with higher energy consumption.

More than 440 homes have been weatherized through the program, with support from TVA's Home Uplift and the City of Knoxville. **More than \$3.4M** has been donated by KUB customers.

In FY 20, KUB announced an **additional \$1M** annually to fund weatherization, as well as a new toilet replacement program to assist low-income customers.

These efforts not only provide an environmental benefit, but also provide financial relief for those in need, especially important throughout the COVID-19 pandemic.





ENERGY & WATER SAVING WORKSHOPS

KUB, in partnership with TVA EnergyRight, provides **Energy and Water Saving Workshops** free to community groups and organizations. In FY 20, KUB began partnering with area organizations to provide virtual workshops in the midst of the COVID-19 pandemic for participants to watch remotely.

Workshops include interactive displays to illustrate how small changes can lower energy and water use, as well as monthly cost. Participants also receive conservation kits to start making simple changes in their homes.

Throughout FY 20, KUB presented **22 workshops to more than 560 community members**, bringing the total number of workshop attendees to more than 720. The Socially Equal Energy Efficiency Development (SEED) organization partnered with KUB to train SEED's Career Readiness Program participants to present KUB workshops to their communities.





CUSTOMER INCENTIVE PROGRAMS



SMART THERMOSTAT PILOT

In FY 20, KUB and TVA began the residential Smart Thermostat Pilot Program. Through the program, qualified residential electric customers can receive free, installed ecobee smart thermostats in return for their participation in a demand response program to reduce electric system peaks.

These thermostats allow users to customize their climate remotely and track in-home energy use. This program is currently in its pilot stage with **more than 350 thermostats** installed for customers. More information about this program can be found at www.kub.org/thermostat.

**TAKE CONTROL
OF YOUR ENERGY USE
WITH A**



**FREE
SMART
THERMOSTAT**



UP TO \$400 REBATE
ON ELECTRIC VEHICLE CHARGERS

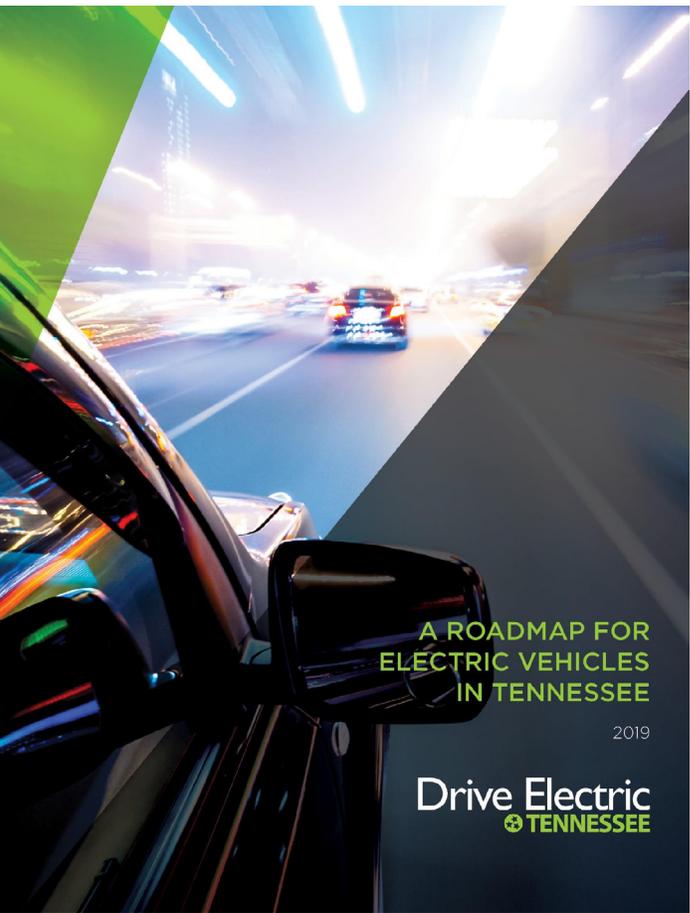


ELECTRIC VEHICLE CHARGER REBATE PROGRAM

In FY 20, KUB became the first power company in the Tennessee Valley to offer an electric vehicle (EV) charger rebate to its customers.

KUB offers residential customers who purchase Level 2 EV chargers rebates of up to \$400. Customers have saved **more than \$35,000** through KUB EV charger rebates since the program began. More information on this program can be found at www.kub.org/ev.

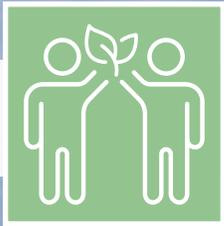




DRIVE ELECTRIC TENNESSEE

KUB was a key contributor in the development of the **Drive Electric Tennessee roadmap**. The roadmap identifies projects and initiatives to increase electric vehicle adoption in Tennessee. KUB continues its involvement with the new Drive Electric TN organization by participating in working groups for Infrastructure and policy which aim to advance the goals developed in the roadmap.





PUBLIC ENGAGEMENT



Materials Reuse Program

Through KUB's **Materials Reuse Program**, community members can request items that are no longer of value to KUB, such as wood utility poles, wood pallets, plastic buckets, empty wire reels, and wood timbers and crates that are part of the shipping materials received with KUB construction materials. The program allows for beneficial reuse of the materials and keeps them out of a landfill.

Due to the COVID-19 pandemic, KUB suspended distribution of materials through this program in March 2020. However, the prior 18 months showed the program's success through the distribution of **over 1,500 items**.



Public CNG Fueling Station

KUB supports the use of clean, environmentally friendly fuels and operates a **public compressed natural gas (CNG) fueling station** to serve the community. This station supports the growth of local CNG fleets and also serves CNG traffic passing through Knoxville.

KUB is active in its outreach to local fleets. For example, the local Waste Management fleet currently fuels **19 trucks** with CNG fuel from KUB's station, with more trucks expected to be added.

Waste Management fleet manager Matt Wright explained the benefits of their CNG trucks saying, "CNG vehicles emit nearly zero particulate emissions, cut greenhouse gas emissions by 15 percent, and are quieter than diesel trucks. **For each diesel truck that we replace with a CNG truck, we reduce our use of diesel fuel by an average of 8,000 gallons per year along with a reduction of 14 metric tons of greenhouse gas emissions per year.**"

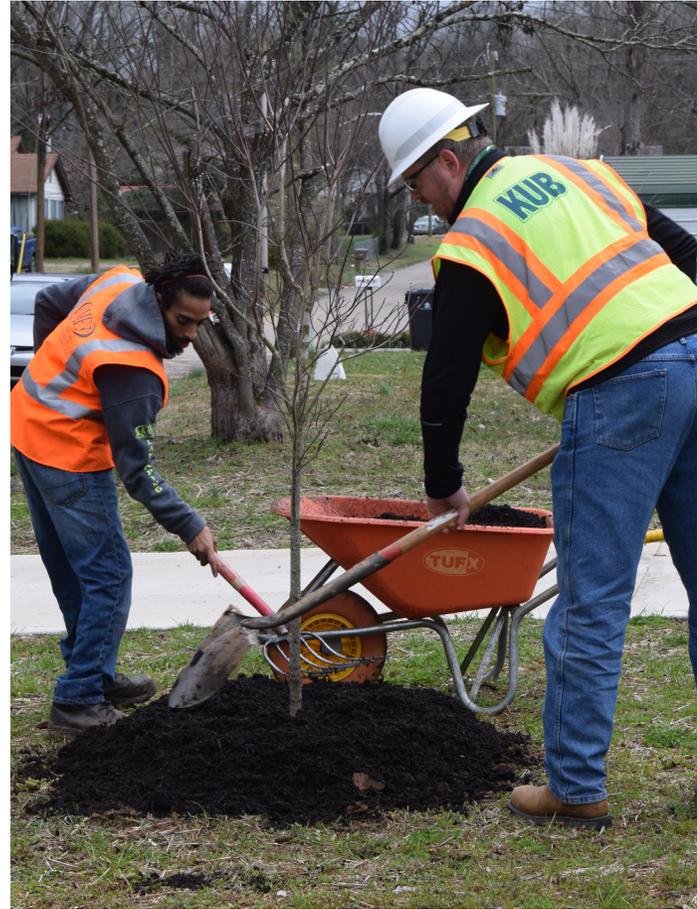




HABITAT FOR HUMANITY TREE PLANTING PARTNERSHIP

Since 2008, KUB and Habitat for Humanity have partnered to plant a tree at every new Habitat home in KUB's service territory. Trees are planted at the homes each year on Tennessee Arbor Day. KUB has planted **nearly 300** trees at Habitat homes.

KUB has been recognized by the **Arbor Day Foundation as a Tree Line USA** utility since 2001 and follows best practices in utility arboriculture through quality tree care, annual training, tree planting, and public education.



ADOPT-A-STREAM

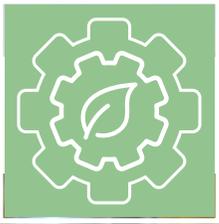


KUB is a participant in the **City of Knoxville's Adopt-A-Stream program**. Through the program, KUB employees adopted the portion of Third Creek that runs through the Hoskins Operations Center campus.

In FY 20, employees retrieved dozens of bags of trash, car tires, metal, and other industrial waste from the stream and stream buffer (pictured left).

Employees not only pick up trash on their adopted stream, but also monitor and report back to the city regularly with an overview of the stream's health, including vegetative buffer condition, bank erosion, and the presence of aquatic species habitats.





OPERATIONAL EFFICIENCY





BIOSOLIDS BENEFICIAL REUSE PROGRAM

For over 30 years, KUB has beneficially reused biosolids, the nutrient-rich product of the wastewater treatment process.

KUB biosolids are certified as a fertilizer by the Tennessee Department of Agriculture and applied to farms in Knox and surrounding counties at no cost to farmers.

Since 2011, KUB's **Biosolids Beneficial Reuse Program** has been Platinum certified through the National Biosolids Partnership (NBP). The NBP program provides KUB with the tools to implement a biosolids environmental management system (BEMS) that will lead to increased environmental performance and stewardship.





PRIORITIZING PLANT EFFICIENCY

KUB continually works to ensure its water and wastewater plants perform well compared to other plants their size. KUB's plants have earned industry recognition, including National Association of Clean Water Agencies (NACWA) Peak Performance Awards, Association of Metropolitan Water Agencies' Platinum Award for Utility Excellence, and Utility of the Future Today recognition by the Water Environment Federation and NACWA.

KUB is committed to improving operational efficiency and has a dedicated Plants Energy Management Team that monitors energy consumption and explores improvement opportunities.



PLANT EFFICIENCY MEASURES

In FY 20, KUB's Plant Energy Management Team facilitated various efficiency efforts including:

- Participation in TVA's Enel X Demand Response program to reduce peak loads on the electric grid and earn nearly \$55,000 in incentives
- Process changes for operation of the water treatment plant mixers, resulting in annual cost savings of approximately \$3,000
- Review of pump motor efficiency at the plants and remote sites, with identification of two final sites for installation of variable frequency drives to conserve energy and reduce wear and tear on the motors
- Improvements for the biosolids treatment process for more efficient operation and higher quality biosolids





KUB FACILITIES LED LIGHTING PROJECT

KUB is in the process of completing a multi-year project to replace lighting at KUB facilities with more energy-efficient LED bulbs over the next three years.

KUB's transportation building lighting has been fully replaced with LED lighting to provide **more than \$4,000** in annual savings. Substation lighting has also been upgraded to LED with more than 700 lights replaced.

As part of this work, lights were upgraded at the Kuwahee Wastewater Treatment Plant, pictured left, which will save **more than \$3,500** annually.





LED OUTDOOR PRIVATE LIGHTING CONVERSION

KUB is converting its outdoor private light system to LEDs. **Over 13,600 private lights** have been exchanged for LED bulbs. When the system of approximately 30,000 lights is fully converted, annual energy savings will be **more than 14.5M kilowatt-hours (kWh)**. This is enough energy to power **1,800 homes** for a year and equal to removing **nearly 2,200 cars** from the road.



ALTERNATIVE FUELS FLEET



Leadership in use of alternative fuels has been an element of the KUB fleet since the 1970s. KUB is a Gold Partner and serves on the Board of the **Tennessee Clean Fuels Coalition**, which recognizes KUB's fleet as a **Tennessee Green Fleet**. The fleet includes vehicles that run on compressed natural gas (CNG), E85, electric technology, and electric hybrid technology.

The **100 Best Fleets in the Americas** program again recognized KUB's fleet as one of the 100 Best Fleets in 2020, with KUB ranked number 70. KUB first received Best Fleets Recognition in 2009 and has been recognized as either an "Honorable Mention" or "Best Fleet" each year since then.

DOWNTOWN HISTORIC MILLER'S BUILDING

Keep Knoxville Beautiful presented KUB's Miller's Building with the Mary Lou Horner Beautification Orchid Award. This award is given to a previous Orchid Award winner that has maintained or enhanced its Orchid-worthy status. The Miller's Building first won an Orchid in 2000, and KUB has worked to maintain its Energy Star status since 2015.

ENGINEERING BUILDING

KUB's newly opened Engineering Building received an Orchid Award in the Environmental Stewardship category. The 45,000-square-foot Engineering Building was designed with sustainability in mind, featuring a rooftop solar array, electric vehicle parking spots, and more. These features and overall environmental considerations in the design and construction resulted in **LEED Certification** for the building, which denotes quality and achievement in green building.





Larry A. Fleming Operations Center Upgrades

KUB began partial renovation and expansion on this facility, which houses KUB's Underground Construction department and state-certified water quality lab, in FY 20.

The project, which is planned to continue through FY 21, includes mechanical, HVAC, and electrical system upgrades, which will ensure the facility operates at peak efficiency.

A new special pollution abatement system was also installed to collect and funnel all stormwater from the facility into two large filtration tanks for cleaning prior to draining into nearby First Creek.





VEGETATION MANAGEMENT FOR RELIABILITY & TREE HEALTH

As an electric provider to more than 210,000 customers, maintaining trees and other vegetation around power lines is an essential part of reliability, as **more than 50 percent** of power outages are vegetation related.

KUB's **Vegetation Management program** works not only to improve reliability by pruning vegetation, but also to ensure trees are able to thrive.

As a certified **Arbor Day Foundation Tree Line Utility**, KUB's trained foresters develop a plan and prune according to the foundation's high-quality standards.

KUB maintains more than **5,000 miles of electric line** and prunes along approximately **1,000 miles** of that line every year.





PERFORMANCE RECOGNITION



Pictured: A still frame from KUB's award-winning video "The Importance of Clean Water"



**SMART
ENERGY
PROVIDER**

American Public Power Association

Knoxville Utilities Board
Knoxville, TN

**DESIGNEE
2020 – 2022**



#PublicPower



SMART ENERGY PROVIDER AMERICAN PUBLIC POWER ASSOCIATION

In 2020, KUB earned a **Smart Energy Provider (SEP)** designation for demonstrating commitment to and proficiency in energy efficiency, distributed generation, and environmental initiatives that support a goal of providing low-cost, quality, safe, and reliable electric service.

“This designation highlights utilities that are constantly striving to deliver their customers top-notch programs and energy services,” APPA Energy Services Committee Chair Josh Mitchell said. “These utilities are going beyond ‘keeping the lights on,’ and their communities should be proud.”



2020 SOLAR CHAMPIONS TENNESSEE SOLAR ENERGY INDUSTRIES ASSOCIATION



The Tennessee Solar Energy Industries Association (TenneSEIA) presented one of two **2020 Solar Champion Awards** to KUB. Each year, this award recognizes individuals and/or organizations that demonstrate leadership in support of solar energy deployment in the Tennessee Valley.

KUB was recognized for substantial contributions to expanding solar in the region, most recently through the Green Invest program.

“KUB’s meaningful commitment to the Green Invest program marked the first such agreement between TVA and a local power company (LPC),” said TenneSEIA Board Member Forrest Forster. “As other LPCs follow KUB’s leadership, TenneSEIA expects to see a substantial increase in solar demand across the Valley.”

NATIONAL ENVIRONMENTAL ACHIEVEMENT AWARDS NATIONAL ASSOCIATION OF CLEAN WATER AGENCIES

KUB received two **National Association of Clean Water Agencies' (NACWA) National Environmental Achievement Awards** in 2020. These awards recognize individuals and NACWA member agencies that have made “outstanding contributions to environmental protection and the clean water community.”

KUB's first award was in the Public Information & Education - Video category and recognized KUB's video titled **“The Importance of Clean Water.”** The second award was in the Workforce Development category and recognized KUB's Operator Qualification Program.



“The Importance of Clean Water”

KUB’s “The Importance of Clean Water” video, along with supporting materials found at www.kub.org/water, was created to share information about KUB’s high-quality water and its connection to the Tennessee River.

The video highlights KUB’s water treatment process at its treatment plant and state-certified laboratory. It also includes a call to action for the public to do their part to protect the Tennessee River.





UTILITY OF THE FUTURE TODAY WATER ENVIRONMENT FEDERATION & NACWA



In FY 20, KUB was honored by the **Utility of the Future Today (UotFT) Recognition Program** as a forward-thinking, innovative water utility that provides resilient value-added service to communities, particularly in community engagement, watershed stewardship, and recovery of resources. The Recognition Program enables participants across a broad continuum of capacities and capabilities to learn from each other and continually grow and sustain their efforts to be, and continually advance the concept of, the Utility of the Future.

This was the second UotFT designation for KUB's Biosolids Beneficial Reuse Program, recognizing its management, implementation, and overall success.