

# WATER & WASTEWATER



## WATER

### SOLAR BEE MIXERS

- Increases water quality in elevated tanks
- Reduces the need for extra chemicals to keep water fresh
- Utilizing solar technology, it reduces power consumption equivalent to about 20 homes
- Reduces CO<sub>2</sub> emissions by about 150 tons annually

### LED LIGHTING AT WATER TREATMENT PLANT

- Replaced HID lights at Water Treatment Plant with LED
- Installed motion detectors to turn lights on/off
- Reduced energy use by 75%

## WASTEWATER

### CONSERVATION EASEMENT

- 101 acres on the farm
- Utilizes 26,000 trees and plants to remove nitrogen and phosphorus from running into the Tar River
  - » Nitrogen: 227,302 lbs.
  - » Phosphorus: 14,640 lbs.
- Helps prevent algae blooms

### WASTEWATER TREATMENT PLANT FARM WETLANDS

- Sea Grant institute funded project
- Discharge up to 5 MGD to irrigate crops
- Recharges groundwater
- Keeps nutrients from flowing into the Tar River
- Helps prevent algae blooms

### TREATMENT PROCESS

- 100% biological, the wastewater treatment process is chemical-free

### BIOLOGICAL GRANULATED ACTIVATED CARBON FILTER MEDIA

- Reduces the amount of chlorine required

### SUPERPULSATOR

- Uses only 20-25% of the energy required by other clarifiers
- Requires half the footprint, building space, and associated energy necessary to light, heat, and cool the building

### AIR PIPING REPLACEMENT

- Increased efficiency of piping
- Reduced energy required to pump air to aeration tanks
- Installed turbo blower which uses half the electricity of older pumps

### UV DISINFECTANT UPGRADE

- Automated system with new bulbs
- 70-80% more efficient
- Eliminates need for chlorine gas, keeping it out of the Tar River

### LED LIGHTING

- Reducing energy demand
- Focused lights reduce light pollution



## ENVIRONMENTALLY RESPONSIBLE

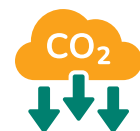
### HOW GUC IS FULFILLING ITS MISSION







## ELECTRIC



Energy supplier has **reduced Carbon emissions 46%** since 2005



### BEAT THE PEAK

- Residential load management program
- Reduced energy use by 1.54M kWh in 2023
- Reduced CO<sub>2</sub> emissions by 492 tons in 2023

### CONVERTING PEAK SHAVING GENERATORS

- Converting from diesel to natural gas reduces CO<sub>2</sub> output by 28.6%
- Reduced CO<sub>2</sub> emissions by 228 tons in 2023
- 85% of the generators will be natural gas by July 1, 2025

### LED STREET LIGHTS

- All street lights inside Greenville have been converted
- 60% of GUC's nearly 23,000 street light and area lights are LED
- Multi-year project to convert the rest

### SMART THERMOSTAT PILOT

- Peak shaving system using customers' smart thermostats instead of peak shaving devices
- Estimated annual reduction of 1.95 tons of CO<sub>2</sub>
- 196 customers enrolled so far

### SOLAR INTERCONNECTION

- 143 residential and commercial accounts
- Annual estimated reduction of 118 tons of CO<sub>2</sub>
- In the design stage for a 500kW community solar farm

### PLANNING STAGE: ADVANCED METERING INFRASTRUCTURE (AMI)

- Potential to reduce 278,057 vehicle miles and 176.5 tons of CO<sub>2</sub> annually due to reduced truck rolls for meter reads & disconnects



GUC's offering of natural gas has **helped large customers avoid 243,638 tons of CO<sub>2</sub> emissions** in the last 10 years alone.



### CAST IRON PIPES

- Program started in the 1990s to replace cast iron pipes
  - » 30 years before the Federal Government started funding the replacements
- Reduces methane released into the atmosphere

### LEAK DETECTION

- Installed pressure monitors at gate stations to detect ruptures
- Use infrared to detect leaks
- Utilize worker/monitor regulators at gate stations to reduce emissions
- Conduct system surveys every 3 years instead of the federally-required 5 years

### INDUSTRY REDUCTION

- Methane Emissions from natural gas distribution have dropped 73% since 1990 while customers have increased 40%

### SLAM-SHUT REGULATORS

- Piloting a project to minimize methane emissions

### CROSS-COMPRESSION

- Equipment used to remove natural gas from a main that is being abandoned
- Prevents its release into the atmosphere
- Piloted its use on the Memorial Drive Bridge pipeline replacement
- Applied for grant funding to purchase equipment

## NATURAL GAS



### COMPRESSED NATURAL GAS (CNG)

- CNG vehicles reduce CO emissions by 90-97%, CO<sub>2</sub> emissions by 25%, and NO emissions by up to 60% compared to gas or diesel
- CNG Filling Station opened in 2015
- Major customers: ECU transit and GFL (formerly Waste Industries)
- Approximately 1/3 of Gas Department vehicles use CNG
- Reduced 366 tons of CO<sub>2</sub> in 2023
- Reduced 2,962 tons of CO<sub>2</sub> since its opening

### COMMERCIAL CNG

- Piloting a project to refuel commercial CNG vehicles at the business
- Pumps are similar to EV charging stations, just for CNG

### COMBUSTIBLE GAS INDICATORS

- Used during purging operations to minimize methane emissions

### RENEWABLE NATURAL GAS (RNG)

- Pilot project underway to supply two GUC trucks on RNG
- RNG captures biogas like methane which would otherwise have been emitted into the atmosphere during natural decomposition