



CLEAN FUTURE

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 2M kWh in 2022
- Reduced CO₂ emissions by 620 tons in 2022

CONVERTING PEAK SHAVING GENERATORS

- Converting from diesel to natural gas reduces CO₂ output by 28.6%
- Reduced CO₂ emissions by 248 tons in 2022
- 75% of the generators will be natural gas by July 1, 2024

LED STREET LIGHTS

- All street lights inside Greenville have been converted
- 54% 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 3.1 tons of CO₂
- 112 customers enrolled so far

SOLAR INTERCONNECTION

- 128 residential and commercial accounts
- Annual estimated reduction of 111 tons of CO₂
- In the planning stages for a 500kW community solar farm

PLANNING STAGE: ADVANCED METERING INFRASTRUCTURE (AMI)

- Potential to reduce 278,057 vehicle miles and 176.5 tons of CO₂ annually due to reduced truck rolls for meter reads & disconnects

NATURAL GAS



Natural Gas industry committed to a goal of **50% reduction of methane emissions** by 2025



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 leak monitors at gate stations
- Use infrared to detect leaks
- Workers at gate stations wear monitor sets
- Conduct system surveys every 3 years instead of the federally-required 5 years

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

COMPRESSED NATURAL GAS (CNG)

- CNG vehicles reduce CO emissions by 90-97%, CO₂ 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 541 tons of CO₂ in 2022
- Reduced 3,566 tons of CO₂ 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

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 CO₂ 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%

BIOLOGICAL GRANULATED ACTIVATED CARBON FILTER MEDIA

- Reduces the amount of chlorine required

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

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

TREATMENT PROCESS

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