



SUSTAINABILITY

BEAUFORT-JASPER WATER & SEWER AUTHORITY



Why Sustainability Reporting?

Like many publicly traded corporations and investor-owned utilities, BJWSA is monitoring and reporting sustainability data. Sustainability reporting is often called ESG for environmental, social, and governance. In this report, we are addressing the environment only. For BJWSA, knowing our environmental impact is the precursor to reducing it. Knowing is half the battle. This sustainability report uses metrics developed for Water Utilities and Services by the Sustainability Accounting Standards Board (SASB).

February 2023
Tricia Kilgore, P.E.
Director of Technology & Innovation

FY22 Sustainability Report



Tricia takes a break from recording a video in the Great Swamp. (www.youtube.com/user/bjwsa)

In our second annual sustainability report, BJWSA has more data, more understanding, and more opportunity to make our work more sustainable.

In fiscal year 2022 (July 1, 2021 – June 30, 2022), our service area grew:

- There is more pipe in the ground to serve new customers,
- Flows increased at our treatment plants and lift stations, and
- Energy usage increased correspondingly.

This report contains the reporting data according to the Sustainability Accounting Standards Board (SASB) metrics. The listing of data is at the end of the report and an exploration of some sustainability topics and a deeper dive into the data.

We gratefully acknowledge the Yamasee, Guale, and Kusso Native Peoples on whose homelands we gather, as well as the diverse and vibrant native communities who make their home here today.

With regards,

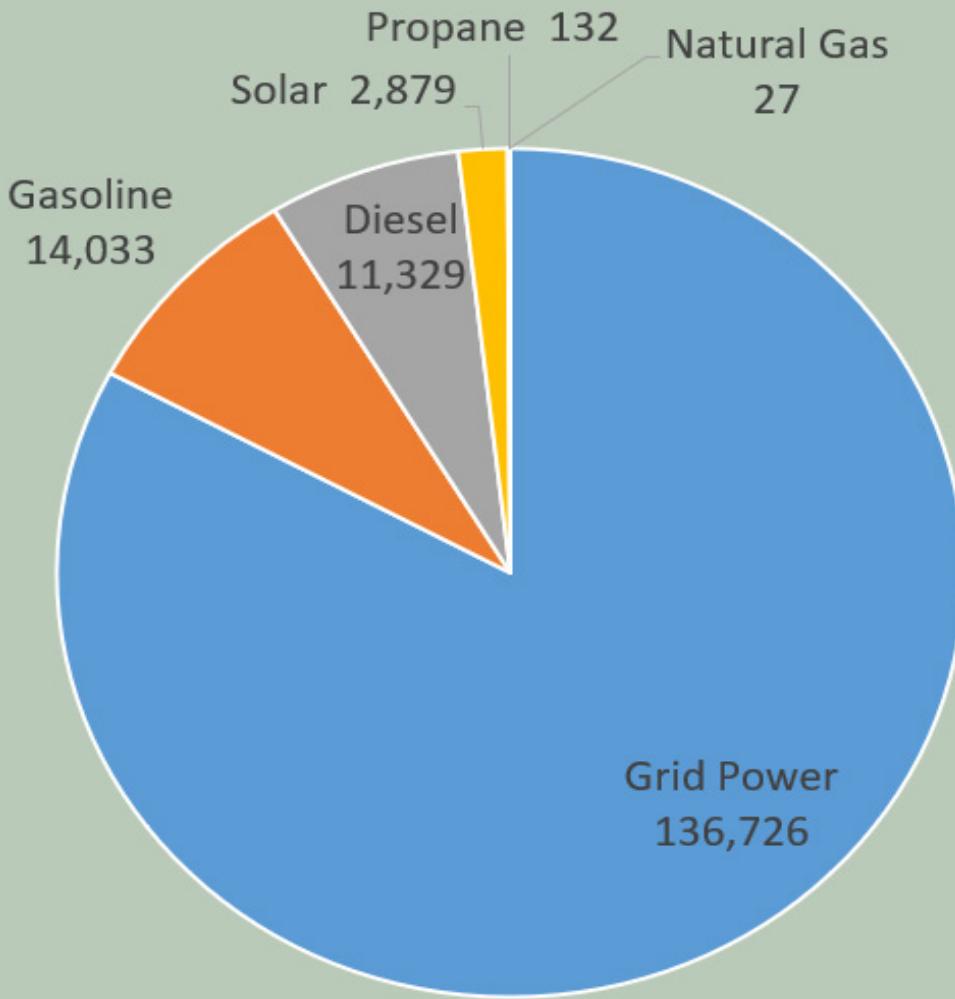
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Energy

BJWSA uses a variety of energy sources:

- Gasoline in vehicles,
- Diesel in trucks, pumps, and emergency generators, and
- Electricity from the grid and solar PV arrays at our facilities.

Total energy is measured in gigajoules (GJ). The calculation for total energy uses data from power bills, fleet reports, fuel tickets, and invoices. Graph 1 shows the energy sources.

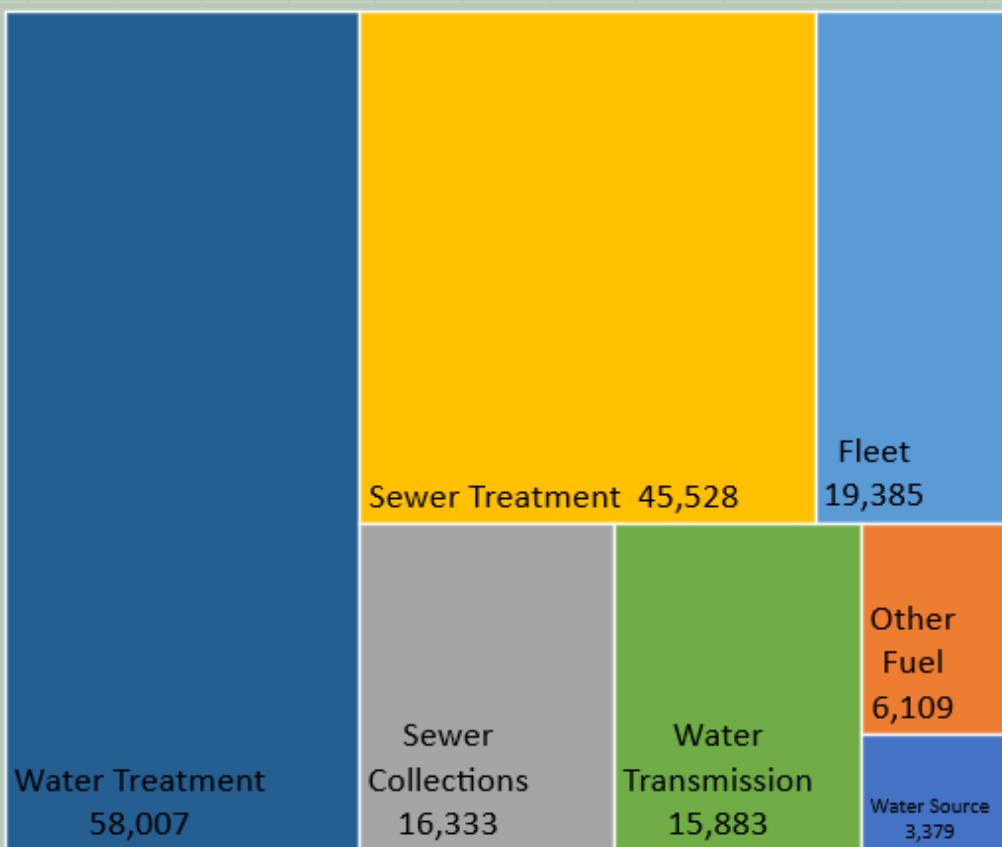


Graph 1 - Total Energy Consumption (GJ) by BJWSA in FY22.

Where Energy is Used

BJWSA's treatment plants, sewer collection system, water distribution system, and other infrastructure run 24/7. With over 1360 pumps, 10 plants, about 500 lift stations, and a fleet of over 120 vehicles, BJWSA uses a lot of energy to keep water flowing to and from our customers.

Graph 2 shows a breakdown of where energy goes:



Graph 2 - Energy Usage (GJ) by work area for FY22.

Greenhouse Gas Emissions

Greenhouse gas emissions are divided into categories or scopes. Because BJWSA's wastewater treatment processes are all aerobic, no methane is produced at our plants, so our emissions are primarily carbon dioxide (CO₂). We calculated the amount of carbon dioxide generated based on the amount and type of fuel used.

- Scope 1 is direct emissions: GHG emitted directly from burning a fossil fuel. For BJWSA, our Scope 1 emissions come from our fleet, emergency generators, and backup pumps that run on diesel, propane, or natural gas.
- Scope 2 is indirection emissions: GHG emitted somewhere else to produce electricity that we use. All of our facilities run on electricity from the grid (Palmetto Electric and Dominion Energy).



Scope 1	1,785 tons CO ₂
Scope 2	23,904 tons CO ₂

A dump truck collects sludge from the belt press at Cherry Point Water Reclamation Facility. Vehicles with internal combustion engines have Scope 1 emissions.

High service pumps send water under the Broad River for distribution to Northern Beaufort County. Pumps like these run on electricity and have Scope 2 emissions.



Solar Power

BJWSA has solar power systems at the Port Royal and St Helena Water Reclamation Facilities. These two systems have produced 4.6 million kilowatt hours of clean energy since coming online in 2018. Since water is consumed in the production of power from fossil fuels, we have also conserved over 200,000 gallons of fresh water per year.

Since most of energy usage is from the grid and most of our emissions are scope 1, our focus in FY23 has been expanding our solar energy sources and utilizing clean energy with low or no GHG emissions. Together with our partners at Palmetto Electric Coop, Central Electric Coop, and EDP Renewables, BJWSA is developing solar PV arrays to provide renewable energy for our Cherry Point Water Reclamation Facility and the Hardeeville Water Reclamation Facility.

Cherry Point treats the most wastewater of BJWSA's plants and is the largest emitter of CO₂. We look forward to breaking ground at Cherry Point and Hardeeville WRF in FY23. Soon we will be making clean water with clean energy!

Preliminary design
for solar PV field at
Hardeeville Water
Reclamation Facility.



Fleet Electrification

The BJWSA fleet has over 120 vehicles: light duty pickup trucks, heavy-duty pickup trucks, dump trucks, excavators, and a few SUVs. About 72% of the energy usage is gasoline, and 28% is from diesel fuel. The majority of our Scope 1 emissions, 1,333 tons of CO₂, come from burning gasoline and diesel fuels in vehicles.

Because of the Scope 1 emissions from our fleet, we are exploring electric vehicles (EV) to make them more sustainable. We expect to purchase our first EV, a light duty pickup truck, in FY24, as part of a pilot project for fleet electrification. We will use data from the pilot project and feedback from our drivers to develop plans for electrifying more of our fleet.



**Employees Field Operator III
Hunter Murray and Field
Operations Pipeline
Supervisor Nathan Goodwin
prepare to inspect a pipeline
issue in downtown Beaufort.**

Efficiency

Energy isn't the only thing we are tracking at BJWSA: we are also working on water sustainability. As these sustainability metrics show, treating, distributing, collecting, and disposing water takes a lot of energy, about 3 watthours per gallon. Conventional power production (coal, nuclear, natural gas) consumes water, about 0.2 gallons per kilowatt hour. When it comes to water and energy, conserving one conserves the other, which is good for the earth and good for our wallets.

In FY22, BJWSA completed its second Water Loss Audit using the American Water Works Association (AWWA) standards and software. The Water Loss Audit is a best practice for water systems to efficiently manage water supplies. The audit examines water production, metering, costs, data handling, and water storage.

The results are key performance indicators for assessing water loss in the distribution system in terms of authorized and billed amounts and the cost of leaks. BJWSA's non-revenue water amount decreased from the previous year despite an increase in production. The improvement is largely from the installation of AMI meters. This technology allows for early detection of leaks and more accurate data. You can track your own water usage with *EyeOnWater* app! (www.bjwsa.org/water-use)



A native gator suns on the shore of our 18-mile canal. The canal carries water from the Savannah River to the Chelsea Water Treatment Plant in Okatie.

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SASB	Metric	Unit	FY21	FY22
Energy Management				
IF-WU-130a.1	Total energy consumed	GJ	157,968	165,124
	Percentage grid electricity	%	83.7%	82.9%
	Percentage renewable energy	%	2.1%	1.7%
<i>Total energy includes diesel, gasoline, propane, grid electricity, and solar electricity sources</i>				
Distribution Network Efficiency				
IF-WU-140a.2	Volume of non-revenue real-water losses	million gallons (mg)	552	524
<i>Calculated with AWWA FWAS 6.0</i>				
Effluent Quality Management				
IF-WU-140b.1	Number of incidents of non-compliance associated with permits, regulations	#	0	2
<i>Failure of aerator at Cherry Point WRF resulted in two violations.</i>				
Water Affordability & Access				
IF-WU-240a.1	retail water rate for residential	\$/ccf	\$3.76	\$3.88
	retail water rate for commercial			
	retail water rate for industrial			
IF-WU-240a.2	Typical monthly water bill for residential customers for 10 ccf of water delivered per month	\$	\$35.30	\$35.80
IF-WU-240a.3	Number of residential customer water disconnections for non-payment	#		2,787
IF-WU-240a.3	Percentage reconnected within 7 days	%	88%	
<i>See BJWSA ACFR for more financial reporting. (www.bjwsa.org/publications) SASB metric for disconnects is 30 days.</i>				
Drinking Water Quality				
IF-WU-250a.1	Number of acute health-based drinking water violations	#	0	0
	Number of non-acute health-based drinking water violations	#	0	0
	Number of non-health based drinking water violations	#	0	0
Water Supply Resilience				
IF-WU-440a.1	Total water sourced from regions with High or Extremely High Baseline Water Stress	mg	0	0
IF-WU-440a.2	Percentage purchased from a third party	%	0	0
IF-WU-440a.2	Volume of recycled water delivered to customers	mg	1,269	1,021
Network Resiliency & Impacts of Climate Change				
IF-WU-450a.1	Wastewater treatment capacity located in 100-year flood zones	mg per day	0.6	0.6
IF-WU-450a.2	Number of SSOs	#	7	5
IF-WU-450a.2	Volume of SSOs	gallons	216,400	841,000
IF-WU-450a.2	Percentage of volume recovered	%	7.1%	29%
IF-WU-450a.3	Number of unplanned service disruptions	#	9	35

SASB	Metric	Unit	FY21	FY22
Activity Metrics				
IF-WU-000.A	Number of residential customers served	#	55,190	57,159
	Number of commercial customers served	#	4,158	4,204
	Number of wholesale customers served	#	10	10
IF-WU-000.B	Total water treated	mg	8,321	8,326
	Percentage of water by source type	%		
		surface water	97%	97.6%
	Percentage of water by source type	%		
		groundwater	3%	2.4%
IF-WU-000.C	Total water delivered to residential customers	mg	4,533	4,460
	Total water delivered to commercial customers	mg	1,350	1,382
	Total water delivered to wholesale customers	mg		
	Total water delivered to all other customers	mg	1,582	1,608
IF-WU-000.D	Average volume of wastewater treated per day by sanitary sewer	mg per day	10	11
	Average volume of wastewater treated per day by storm sewer	mg per day	0	0
	Average volume of wastewater treated per day by combined sewer	mg per day	0	0
IF-WU-000.E	Length of sewer mains	km	1,720	1,746
	Length of water pipe	km	2,504	2,550

In October 2022, BJWSA held its first Sustainability Fair for area fifth graders. Part of Tricia's scope is community outreach on the upcoming Lead & Copper Rule revisions. She has developed a suite of tools for communicating the variety of pipes and their role in the upcoming initiative.

