Office of Energy Strategy
2025 End of Year Report

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Section I: Office of Energy Strategy

Office of Energy Strategy Background

In 2025, San Antonio Water System spent approximately $47.2M of its annual operating budget on energy, making it the fourth largest use of funds behind debt service, salaries and wages, and water options. In the last 10 years, SAWS' total cost of energy has increased 70 percent, primarily due to increased consumption (largely as a result of Vista Ridge) and increases in the cost of energy. Strategically managing energy consumption will be key in reducing the impact of future energy cost increases.

An ongoing commitment to energy management has emphasized the need for planning and developing committed goals for energy reduction. As a result, SAWS has adopted its first Energy Strategy Master Plan. This plan will solidify SAWS efforts by identifying energy savings measures and committing resources towards achieving energy savings goals.

The Office of Energy Strategy (OES) is responsible for paying utility bills, developing utility budget forecasts, serving as CPSE liaisons, and identifying and implementing energy savings reduction efforts. Currently, the OES consists of five staff members reporting to a Senior Vice President as highlighted below.

Name	Title	Department
Jaime Castillo	Senior Vice President	Ops Support/Chief of Staff
Chris Wilcut	Director	District Cooling/OES
Brandon Leister	Energy Manager	Office of Energy Strategy
Stephen Turner	Resource Analyst Coord.	Office of Energy Strategy
Alfred Rocha	Sr. Resource Analyst	Office of Energy Strategy
Chantay Griffin	Administrative Assistant	Office of Energy Strategy

2025 OES Highlights

- In total, 2025 energy saving efforts produced **$1,504,389** in verified utility bill savings for SAWS. The primary drivers of these savings included Strategic Energy Management, District Cooling System Upgrades and Optimization, and Utility Tariff Analysis (see section III). The reason that the utility budget continues to increase despite these savings, is that SAWS is relying on more energy intensive water sources than in years past due to drought and Edwards permit issues.
- CPS Energy's Demand Response program is a voluntary load curtailment program designed to reduce CPS Energy's peak load growth by incentivizing customers to shed electrical loads during peak winter and summer days. In 2025, SAWS participated in both the summer and winter demand programs and reduced demand on average by more than **11 MW** resulting in **$944,904.63** in incentives.
- One of CPS Energy's programs under the umbrella of STEP includes the Commercial Solutions Program. This program incentivizes commercial customers to implement projects aimed at reducing energy consumption. In 2025 SAWS was able to obtain **$226,401.99** in rebates and since 2018 SAWS has received **$1,101,194** combined.
- SAWS' Office of Energy Strategy is committed to reducing energy intensity by implementing energy conservation measures identified within SAWS' water, wastewater and district cooling systems. In 2025, these measures provided significant energy savings for the wastewater and district cooling systems, reducing energy intensity by **7.6** percent and **3.2** percent, respectively over baseline numbers. Despite these savings, water operations increased by **14.4** percent because of the persistent drought leading to strict usage restrictions on the Edwards Aquifer water source. This led SAWS to use more energy intensive water sources to meet demand.
- Between energy conservation projects and demand response, 2025 OES efforts resulted in **$2,675,694** back to SAWS.

Section II: Utility Data

2025 Energy Intensity Performance

As outlined in the 2023 Energy Strategy Master Plan, SAWS has committed to decreasing the energy intensity of its operations by 10 percent by 2028. The plan provides recommendations on potential projects and process modifications for SAWS to consider to achieve this goal.

The first step in reducing energy intensity is to pursue low-cost and no-cost energy conservation measures identified within SAWS' water and wastewater systems. District cooling on the other hand is in the process of implementing equipment retrofit projects. In 2025, these measures provided significant energy savings for the wastewater and district cooling systems, reducing energy intensity by 7.6 percent and 3.2 percent respectively.

Energy intensity of water operations increased by 14.4 percent in 2025 from the baseline energy intensity in 2021-2022. The year was challenging due to persistent drought conditions which triggered the Edwards Aquifer pumping restrictions. This caused SAWS to rely on energy intensive water sources to meet customer demand.

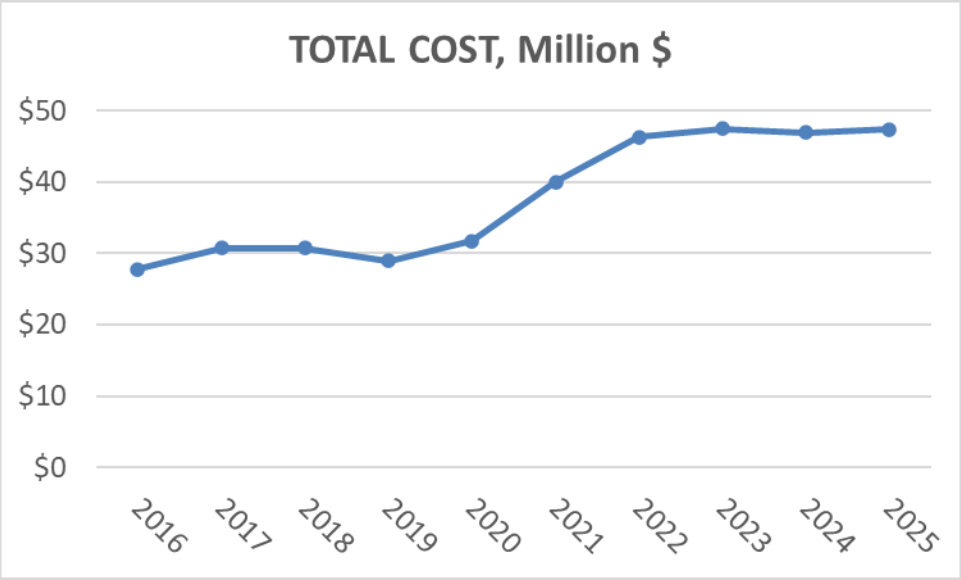
Additionally, the Edwards Aquifer level dropped from a high level of 640 feet to 623 feet msl in 2025 causing the water to be pumped a longer distance to reach the surface, using more energy. The historic average level is 663.7 msl.

Operation	EI METRIC	EI BASELINE	2025 EI	PERCENTAGE CHANGE
WATER	KWH / MG	3,502	4,010	14.4%
WASTEWATER	KWH / FLOW MG	1,762	1,627	-7.6%
DISTRICT COOLING	KWH / 1000 TON-HRS	1,022	990	-3.2%
BUILDINGS	KWH / SQUARE FT.	14	15	-7.1%
TOTAL		**2,893**	**3,242**	**12.1%**

Costs by Year 2016- 2025

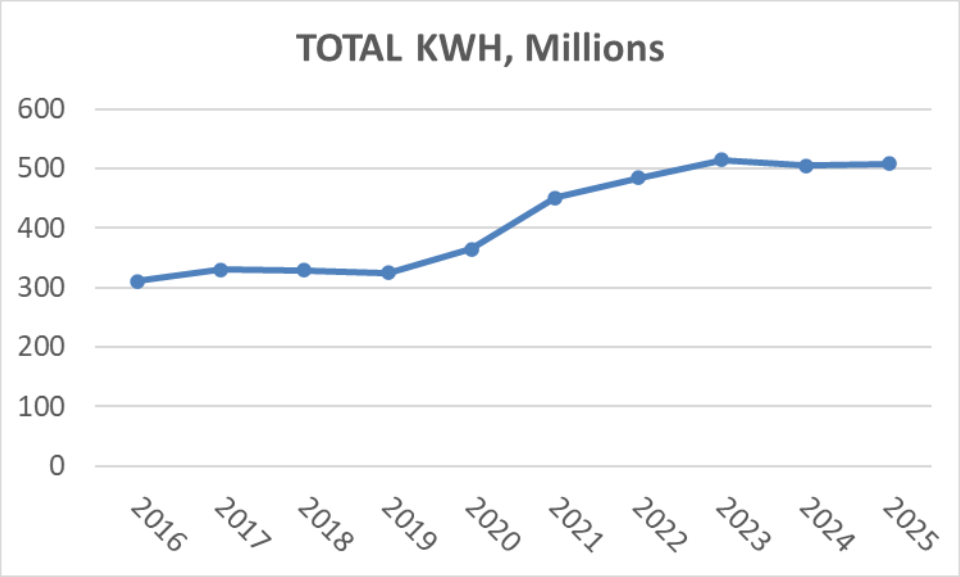
From 2016 to 2025, utility costs increased 70 percent overall or 5.4% percent compounded annually. Of this annual growth rate, 5.0 percentage point growth was related to consumption increases, while price increases contributed to the remaining 0.4 percent growth.

Costs were relatively stable until 2020 when the Vista Ridge water supply project came online. This project utilizes non-Edwards Aquifer water sources requiring more energy to deliver water from the Carrizo/Simboro Aquifer in Burleson County.



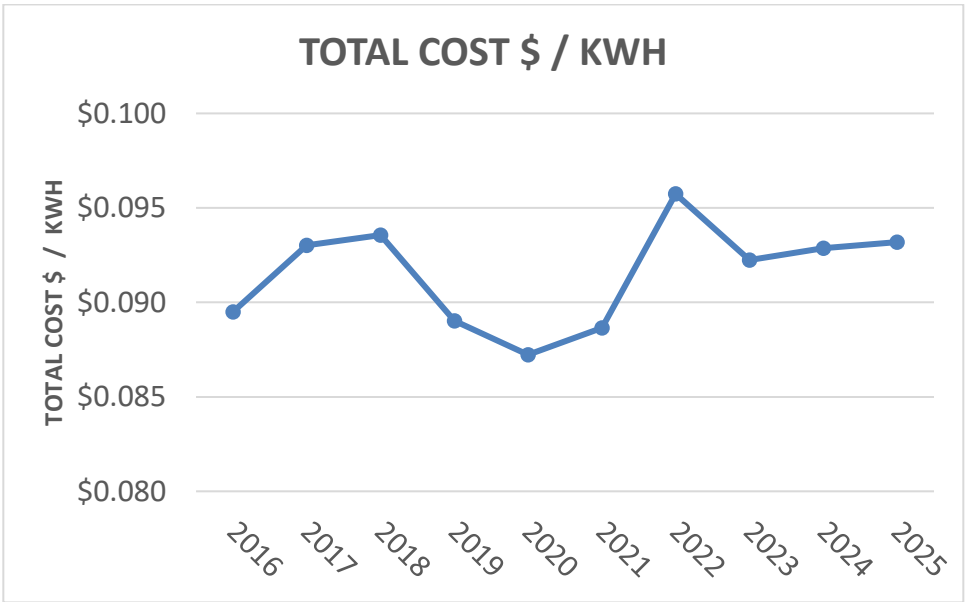
kWh by Year 2016-2025

Kilowatt hours (kWh) increased 64 percent from 2016 to 2025, or 5.0 percent compounded annually. Increases were relatively flat until 2020 when additional water supplies from the Vista Ridge project came online. In 2022 through 2025, kilowatt hours (kWh) increased due to extreme temperatures and lower than average annual rainfall. This weather caused more water to be pumped from more energy intensive water sources to meet customer demand, thus increasing electric consumption.



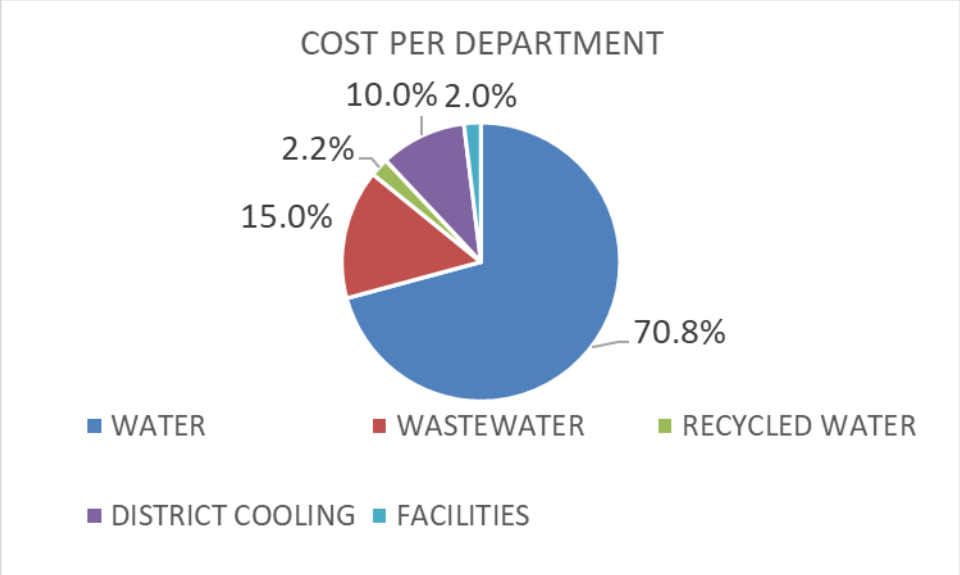
Cost per kWh 2016-2025

SAWS' total energy costs have risen over the years, and it is expected that SAWS' four electrical providers will have rate increases in the near future. The metric used to track energy costs is $/kWh. Essentially, this is the blended cost SAWS pays for a single unit of energy. One of the biggest influences on costs per kWh are fuel adjustment and regulatory charges which can impact the cost per kWh as shown in the chart below:



2025 Costs by SAWS Department

Water production makes up 71 percent of utility costs at SAWS. Wastewater and District Cooling comprise most of the remaining 29 percent as illustrated in the chart below:



2025 Costs by Utility Provider

SAWS receives electricity from four different electrical providers. CPS Energy is the largest provider at 77 percent of total costs. Guadalupe Valley Electrical Cooperative, Bluebonnet Electrical Cooperative Utility and New Braunfels Utilities make up the remaining 23 percent. The annual cost breakdown of the four utilities is shown below:

Utility Provider	Total Cost $$$	Percent of Total
CPS Energy	$36,481,741	77.10%
GVEC	$3,547,170	7.50%
Bluebonnet	$7,293,450	15.40%
NBU	$1,264	0.003%
Total	**$47,323,625**	**100.00%**

Energy Use by Water Source 2025

SAWS has a diverse water portfolio, including sources outside of San Antonio's extraterritorial jurisdiction. SAWS' oldest and main water source remains the Edwards Aquifer, which still accounts for 58 percent of SAWS' total water production. The chart below represents SAWS' annual energy consumption by water source:

Water Source	Total (kWh)	Percent of Total
Edwards	145,786,520	42.1%
Vista Ridge	136,514,305	39.4%
ASR Production	27,290,996	7.9%
Regional Carrizo	5,554,486	1.6%
Trinity	6,454,562	1.9%
Local Carrizo	3,617,000	1.0%
Desalination	21,479,431	6.2%
Total	**346,697,300**	**100.0%**

Section III: 2025 Energy Projects

Strategic Energy Management (SEM) Summary

Location	2025 Energy Savings (kWh)	2025 Cost Savings ($)
Clouse WRC	3,444,478	$270,877.88
Medio Creek WRC	1,618,720	$146,505.51
Leon Creek WRC	N/A	N/A
2025 TOTALS	**5,063,198**	**$417,383.39**
LIFETIME SAVINGS (June 2022-Dec 2025)	**13,724,442**	**$1,181,030**

Background

SAWS' operations consume significant amounts of electricity as water distribution and wastewater treatment are inherently energy intensive. Reducing energy consumption would result in significant cost savings and a reduction in SAWS' carbon footprint.

Project Description

Traditionally, there are two types of energy conservation measures: Retrofit type projects (replacing existing equipment with new equipment) and behavioral/operational modifications. Due to the magnitude and complexity of SAWS operations, behavioral type projects present a more attractive opportunity because they require far less capital and yield more immediate savings resulting in a better return on investment.

In 2021, SAWS partnered with Cascade Energy to begin a Strategic Energy Management project that focused on optimizing existing equipment through behavioral and operational modifications. This project began by establishing energy teams comprised of key water/wastewater staff and operators. The teams attended training sessions focused on energy education and ways to save energy within their specific operations.

Notes

Energy consumption and cost savings are verified by a software platform called Gazebo. Gazebo models take water/wastewater data and combine it with weather information and energy data. These models highlight assumed energy consumption based on specific variables vs. actual energy consumption, and the delta between the two is energy savings.

2025 District Cooling Upgrades and Optimization

Background

SAWS operates four chilled water plants across two separate district chilled water systems, downtown and Port San Antonio. The downtown chilled water system supplies about 22,000 tons of cooling capacity to critical facilities including the Convention Center, Alamodome, and Grand Hyatt Hotel to name a few. The Port San Antonio chilled water system supplies about 7,000 tons of cooling capacity to Boeing, Standard Aero, Chromalloy, Port San Antonio, and the U.S. Air Force.

Project Description

In 2025, district cooling continued its implementation of energy efficiency projects, including adding high-efficiency chillers, variable frequency drives (VFD), and Delta T correction. The high-efficiency chillers replaced 20+ year old single-speed chillers, and the variable frequency drives were added to chilled water and condenser pump motors. The Delta T correction was made by focusing on the efficient use of chilled water by SAWS customers.

These projects resulted in an operational efficiency of 0.99kWh/ton-hr in 2025 vs the pre-projects baseline of 1.09kWh/ton-hr (2021). At the 49million ton-hrs of chilled water a year produced by SAWS, this equates to annual savings of roughly $400,000.

Notes

Since utilities costs are a direct pass through to chilled water customers, SAWS passes these energy savings on to customers through their monthly bills.

2025 Utility Tariff Analysis and Adjustment Project

Rate Change Savings	Annual Cost Savings
Total 2025 Savings	$687,006
Program to Date (1999 to Present)	**$2,574,864**

Background

San Antonio Water System utilizes four different CPS Energy utility tariff structures: General Service (PL), Large Lighting and Power Service (LLP), Extra Large Power Service (ELP) and Super Large Power Service (SLP) rate. Each tariff has its own unique billing structure and minimum term of service. The SLP rate has a five-year minimum term, the ELP and LLP rates have a one-year minimum term, and the PL rate has no minimum term. SAWS has several utility accounts in each of the four tariff categories and can request a change in tariff if potential cost savings can be verified.

Project Description

Due to the nature of SAWS operations, utility accounts and energy consumption do not always remain consistent for long periods of time. Therefore, what may have been the most cost-effective utility tariff for an account one year, may not be the most cost-effective tariff the next. Being aware of these changes in energy consumption, and the ability to request a new tariff, presents SAWS with a significant opportunity for utility cost savings.

To identify cost savings opportunities, the Office of Energy Strategy performs a monthly analysis to calculate the "would be" utility costs of each of the four tariff structures for all of SAWS' 500 CPS Energy utility accounts. This analysis highlights specific accounts where SAWS would be saving money by being in a different tariff than the one currently utilized. Once accounts are identified, OES meets with applicable SAWS staff to understand the account's operational consumption, peak demand, seasonality, outliers, and maintenance/construction schedules. These meetings help provide the needed assurance that the existing operations will remain consistent and warrant a tariff change. This is a critical step because it helps avoid a scenario where SAWS requests a rate change based on the previous month's utility data and ends up losing revenues due to significant operational changes down the line. Ultimately this step verifies the proposed tariff change is appropriate and cost effective.

Notes

Cost savings opportunities are identified by taking several months of previous energy consumption data for each account and calculating what the bill would look like in each of the four tariff categories. If the calculated bill with the lowest total is from a different tariff than is currently utilized, then a cost savings opportunity is present.

Making a rate change request only makes sense when a pattern has been established, so only accounts with cost savings over several months are considered. Cost savings are quantified by subtracting the new tariff costs (i.e. the new request) from the costs under the previous tariff.

Per CPS Energy's request, SAWS provides several months of cost savings to verify why a tariff change request is being presented. The timeframes provided to CPS range from 10 to 16 months of identified cost savings. The figures in the cost savings column of the summary table are real dollars saved by SAWS in 2025.

CPS Energy 2025 Demand Response Program Summary

Location	Option 2	Bonus	Winter	Total DR
Central Chilled Water Plant	$225,742.51	$22,500.00		$248,242.51
Anderson PS	$65,900.21	$6,000.00		$71,900.21
Micron PS 2	$108,148.12	$11,775.00	$2,701.66	$122,624.78
Seale PS	$22,641.13	$3,945.00	$8,516.74	$35,102.87
34th St PS	$32,438.15	$3,375.00	$12,716.46	$48,529.61
Basin PS	$26,686.55	$2,625.00	$6,965.89	$36,277.44
Marbach	$4,814.85	$3,750.00	$13,526.11	$22,090.96
Marbach 2	$20,206.93	$3,750.00		$23,956.93
Texas Research Park	$5,754.97	$375.00	$2,708.57	$8,838.54
Wurzbach PS	$122,056.82	$12,000.00		$134,056.82
Turtle Creek #3 PS	$12,180.49	$1,125.00		$13,305.49
Turtle Creek #3 PS2	$15,379.83	$1,125.00		$16,504.83
Golden PS (PZ 790)	$4,151.64	$375.00	$9,326.74	$13,853.38
Zarzamora PS (PZ 790)	$300.22	$375.00		$675.22
Medina PS (PZ 790)	$15,926.39	$1,200.00		$17,126.39
Linden PS (PZ 790)	$320.51	$375.00		$695.51
Pitluk PS (PZ 790)	$167.12	$375.00		$542.12
Carlisle (PZ 790)	$3,190.41	$375.00		$3,565.41
La Rosa PS (PZ 790)	$32.54	$375.00		$407.54
Leon Creek Recycle	$15,918.80	$2,625.00		$18,543.80
Pearsall Recycle Pumps	$9,687.72	$1,875.00		$11,562.72
Pinn Recycle Pumps	$15,530.73	$3,375.00		$18,905.73
Steven M. Clouse WRC	$51,014.05	$3,375.00	$12,788.40	$67,177.45
Leon Creek WRC	$4,134.68	$345.00	$1,020.34	$5,500.02
Medio Creek WRC (New Plant)	$2,723.33	$120.00		$2,843.33
Medio Creek WRC (Old Plant)	$1,894.97	$180.00		$2,074.97
TOTAL SAWS	**$786,943.67**	**$87,690.00**	**$70,270.91**	**$944,904.58**

Background

CPS Energy's Demand Response program is a voluntary load curtailment program for its commercial and industrial customers. The program is designed to reduce CPS Energy's peak load growth by incentivizing customers to shed electrical loads on peak summer and winter days.

Project Description

CPS Energy's Demand Response program now provides both a winter and summer option which runs from January through March and June through September respectively. During this time, CPS Energy can call a demand response event any weekday.

In 2025, SAWS enrolled in the winter demand option, the summer demand option and a bonus hours option. SAWS' average demand reduction for summer option 2 was 11 MW which is enough electricity to power roughly 2,200 Texas homes on a hot summer day.

Electrical demand at Production, Treatment and Recycle locations was reduced by strategically shutting off pumps and motors when possible. At the Central chilled water plant, demand was reduced by utilizing thermal energy storage.

Special thank you to all Production, Treatment, Recycle and DCS staff who made this possible.

Pump Station Optimization Project

Background

In August of 2024, the Energy Strategy team worked with Production and Cascade Energy, our SEM contractor, to perform an audit of the eight highest energy consuming primary and secondary pump stations. In spring of 2023, SAWS piloted an energy efficiency mode at the Mission Primary Pump Station which resulted in a 10% energy reduction, saving approximately $75,000 in annual electricity bills.

Project Description

Most SAWS pump stations have an array of well and high-service pumps and there are several different pumping combinations. Rather than giving all pumps equal run times, the proposed "energy efficiency mode" prioritizes use of the most energy efficient pumps.

Signature Automation was contracted to provide updated SCADA screens, programming, testing, and commissioning for the SAWS Energy Optimization project. This task includes modifying the screens for the Southeast Booster, Pinn Recycle Booster, Maltsberger Pump Station, Naco Pump Station and incorporating efficiency controls at each location. Signature Automation will utilize the existing control system as the basis for modifying the control system. This task includes database development, HMI configuration, programming, and alarm configuration as necessary to implement efficiency modes at each location.

Notes

Project completion date was 2025 with energy saving measured and verified by the middle of 2025.

CPSE Incentive Rebates 2025

Department	Rebate Amount ($)
Central CHW Plant – VFD Upgrades	$ 137,401.00
Treatment – DO and Ammonia Probes	$ 75,967.00
Production – H2Oaks Chiller	$ 12,833.00
Total	***$ 226,401.00***

Background

In 2009, CPS Energy launched its first energy efficiency and conservation plan known as the "Save for Tomorrow Energy Plan," or STEP. The plan established a goal of saving 771 MW of energy by 2020. Through community participation and shared commitment, this goal was met ahead of time. In June 2022, the City of San Antonio authorized a new initiative titled the "Sustainable Tomorrow Energy Plan," which established a goal of reducing community demand by 410 MW by 2027.

Project Description

One of CPS Energy's programs under the umbrella of STEP includes the Commercial Solutions Program. This program incentivizes commercial customers who implement projects aimed at reducing energy consumption. CPS Energy helps customers identify energy conservation measures and then pays the customers up to $0.05/kWh and $325/kW, depending on the project type. Some common projects include lighting, variable frequency drives, chillers, refrigeration and more.

Many of SAWS' construction projects inherently save energy because outdated infrastructure is being replaced with newer and more efficient equipment. When a qualifying project is identified, the Office of Energy Strategy staff works closely with CPS Energy's program administration team, CLEAResult, to maximize the rebate potential. Moving forward, staff expect to capture rebates on a more regular basis.

Section IV: Fleet Electrification

Background

In 2023, SAWS made an operational shift toward a phased fleet electrification strategy to meet our sustainability goals to reduce carbon emissions while meeting the needs of our user groups. By transitioning to electric vehicles (EVs), SAWS will play a large role in helping the City of San Antonio meet its Climate Action Plan goals. EVs produce zero tailpipe emissions, which reduces the release of harmful pollutants into the atmosphere during both idling and general operation.

Project Description

Since 2023, SAWS has made significant progress toward the expansion of electric vehicles and planning of electric vehicle infrastructure by implementing the following:

- 28 light duty electric vehicles to the fleet
    - 2 Ford E-Transit Vans
    - 9 Chevrolet Bolt Sedans
    - 17 Ford F-150 Lightnings
- Expansion of our charging stations across our operations centers have increased the number of charging stations from 22 to a total of 39 Level 2 chargers. This expansion includes two projects executed in 2025. The first project involves the installation of six Level 2 80-amp charging stations as part of the Leon Creek facilities improvement project, which also incorporated electrical infrastructure upgrades through CPSE. The second project added additional Level 2 80-amp charging stations throughout our operations centers to enable faster charging, ultimately bringing our total to 39 stations. Currently SAWS has 20 level 2, 40-amp charging stations and 19 level 2, 80-amp charging stations.
- Headquarters (HQ) electric vehicle charging station Capital Improvement Project (CIP) is currently in the construction phase. This project includes electrical infrastructure upgrades through CPSE, which involve the installation of two transformers and switchboards. Once completed, the project will provide fifty (50) Level 2 80-amp charging stations, with the potential to expand to one hundred (100) in the future. The estimated completion date for this project is the second quarter of 2026, with plans to further expand our light duty fleet.

Notes

Implementing light duty electric vehicles has proven successful at reducing operational and maintenance costs while meeting the needs of our user groups. SAWS will continue to monitor electric vehicle market conditions in the future and will adjust planning efforts as necessary. It is anticipated that SAWS and CPSE will collaborate closely to plan for the required charging infrastructure. It is expected that SAWS and CPSE will continue to work closely to plan for needed charging infrastructure.

Section V: Energy Strategy Master Plan

In 2023, SAWS developed its first ever Energy Strategy Master Plan. In 2025, SAWS spent approximately $47.2 million on energy, making it the fourth largest use of funds behind debt service, salaries and wages, and water procurement. Every year, SAWS' cost of energy is rising due to rate increases and changes in fuel adjustment charges. Strategically managing energy consumption will be key in reducing the impact of future energy cost increases.

In addition to reducing utility expenditures, this plan will be key in supporting the City of San Antonio's sustainability goals. In October 2019, the city adopted the San Antonio Climate Action and Adaption Plan. The plan set a goal for San Antonio to achieve carbon neutrality by 2050. Energy use is responsible for 48 percent of San Antonio's greenhouse gas emissions and since SAWS is one of the largest energy consumers in the city, this plan can have a real impact on San Antonio's carbon neutrality goal.

SAWS is a national leader in water conservation. Drawing on SAWS' successful history with water conservation, developing this Energy Strategy Master Plan can guide future energy conservation to achieve SAWS' operating cost, energy and emissions reduction goals without compromising water quality or water conservation. This plan establishes an initial commitment for SAWS to reduce its energy intensity (kWh/unit) by 10 percent by 2028.

In 2025, overall energy intensity increased by 12.2 percent (as referenced on page 4) due to an increased reliance on energy intensive water sources. OES will continue to track and record opportunities to improve SEM's and projects as the master plan is a living document that will be updated every three years. Reaching this goal will require the support of SAWS' Board, Executive Team and staff.

Current progress towards the master plan's 10 percent reduction goal is highlighted below. Despite significant reductions in wastewater and district cooling, overall energy intensity has increased since water makes up the large majority of SAWS' energy consumption.

Operation	EI Metric	EI Baseline	2025 EI	Percent Change
WATER	KWH / MG	3,502	4,010	14.4%
WASTEWATER	KWH / FLOW MG	1,762	1,627	-7.6%
DISTRICT COOLING	KWH / 1000 TON-HRS	1,022	990	-3.2%
BUILDINGS	KWH / SQUARE FT.	14	15	-7.1%
TOTAL		**2,893**	**3,242**	**12.1%**

Section VI: Next Steps

The Office of Energy Strategy is committed to making energy efficiency a sustainable practice within SAWS. The areas below highlight key areas of focus moving forward:

Strategic Energy Management

OES staff and energy teams will continue to identify and implement low- and no-cost energy conservation measures associated with the strategic energy management project.

Renewable/Alternative Energy

SAWS will continue to explore renewable and alternative energy projects to reduce energy costs and promote San Antonio's efforts towards carbon neutrality. Potential projects could include solar and hydropower energy generation.

Thermal Energy Storage

Today, SAWS' district cooling system utilizes thermal energy storage to reduce peak energy demand during the day. SAWS will continue to work with CPS Energy to expand this technology to existing and future chilled water plants.

Engineering and Finance

In 2024 and beyond, OES will work closely with SAWS' Engineering and Finance departments. Engineering will be critical in implementing efficiency projects and Finance will play a key role in how projects are selected and ultimately funded.

Water/Energy Nexus

Moving forward, SAWS will continue to work closely with CPS Energy to maximize the ever-evolving water/energy nexus. Relevant projects already underway include demand response, thermal energy storage, renewable energy opportunities, generators for distributed energy resources, and EV fleet planning.