



moulton niguel water district

BLUE

Building a Leading Utility Ecosystem

April 23, 2026



About Moulton Niguel



Drinking Water, Recycled Water, and Wastewater Treatment



Serve 170,000+ Customers in Six Cities in South Orange County



Seven - Member Board of Directors



200 Employees



AAA Credit Rating from Fitch and S&P Global



Top Workplace OC & USA



Recognized Statewide and Nationally for Innovation, Environmental Stewardship, and Customer Service



Building a Leading Utility Ecosystem (BLUE)

People

Clear roles, accountability,
& workforce readiness



Processes

Modern workflows &
decision pathways

Data

Trusted, governed,
accessible information

Technology

Integrated systems that
support operations

Aligned to support resilient, intelligent utility operations



Vision & Drivers

Resource Optimization for Affordability and Reliability

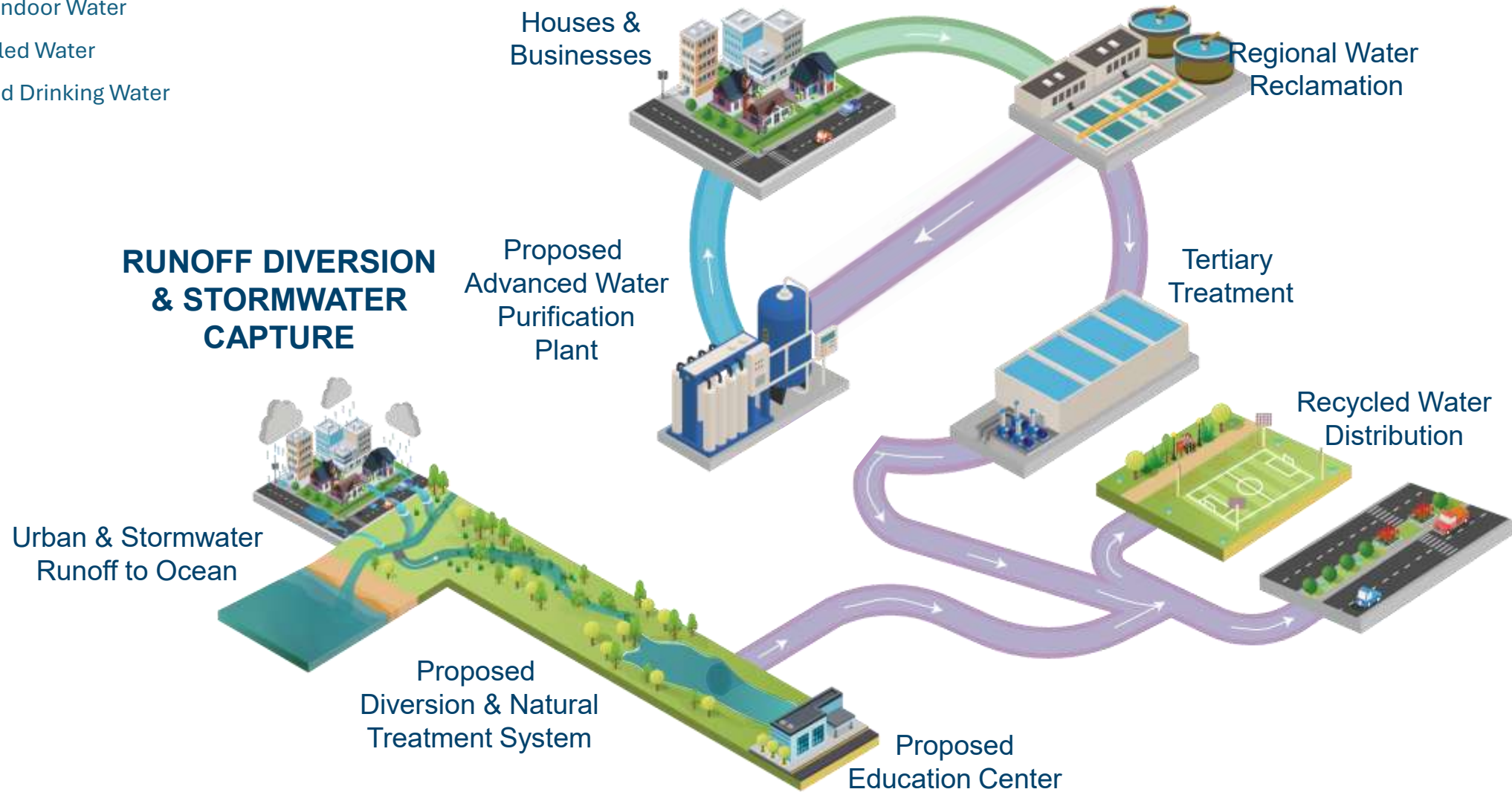


Dynamic & Integrated System

WATER TYPE LEGEND

- Used Indoor Water
- Recycled Water
- Purified Drinking Water

DIRECT POTABLE REUSE



Planning for Adaptive Operations

System Dependencies



Seasonal demand



Weather & runoff



Storage availability



Water quality

Optimization Potential

- Monitoring & forecasting
- Demand & weather-informed optimization
- Dynamic routing & storage decisions
- Regulatory & water quality compliance
- System-wide operational intelligence

Digital Infrastructure

SCADA

Energy

AMI

CMMS

GIS

Weather & ET

Water Quality

Wastewater Treatment

Regulatory Reporting

Hydraulic Models

Stream Flows

Stormwater to Recycled

Advanced WWTP - DPR

Phase 1:
2025-2028

Phase 2:
2029-2031

Phase 3:
2032-2035

SCADA

Energy

AMI

CMMS

GIS

Phase 1: 2025-2028

- Foundational Data Governance Framework
- Change Management
- Advanced Analytics
- Predictive, Data-Driven Insights

Enterprise Analytics Solutions

- Smart water engine + modules
- Dashboards for numerous use cases

Clean, Structured Data Core

- Syncs time series & integrates asset data
- SCADA historian for operational data
- Accessible with data science tools

Data Governance Framework

- People, process, & collaboration
- Defines standards & terms
- Manages metadata & SOPs
- Data stewardship & accountability

Data Governance Framework



Advanced Analytics Platform

Smart Water Engine



SCADA Historian

Leak Detection

I&I Monitoring

Energy & Maintenance

Future Use Cases

On-going Innovation

Time Series Data

Weather

Water Quality

SCADA

Energy

AMI

Asset & System Data

CMMS

GIS

Hydraulic Models

Data Science Tools

- Dashboards
- Reports & KPIs
- Compliance Tracking

California Jobs First Grant

- Provides \$286 million in strategic funding invested in the Regional Investment Initiative
- OCBC awarded \$474,000 Catalyst Grant
- First-of-its-kind AI for Water Management Professionals Course
- Leverages regional assets:
 - UCI Extension University
 - AI Talent Lab
 - Water and data expertise

Partnerships Make Innovation Possible



AI for Water & Wastewater Professionals

- Free to OC water professionals
- 6-week course
- Virtual with weekly live, one-hour sync sessions
- Guest lecturers with AI and water experience
- 3 cohorts of 25 students per cohorts
 - Session 1: January 27 – March
 - Session 2: March 23 – May 3
 - Session 3: May 18 – June 27



Week 1: Foundational AI Fluency for Water Utilities

Week 2: Real-World Case Studies + Data Governance

Week 3: Ethical, Legal, & Regulatory Readiness

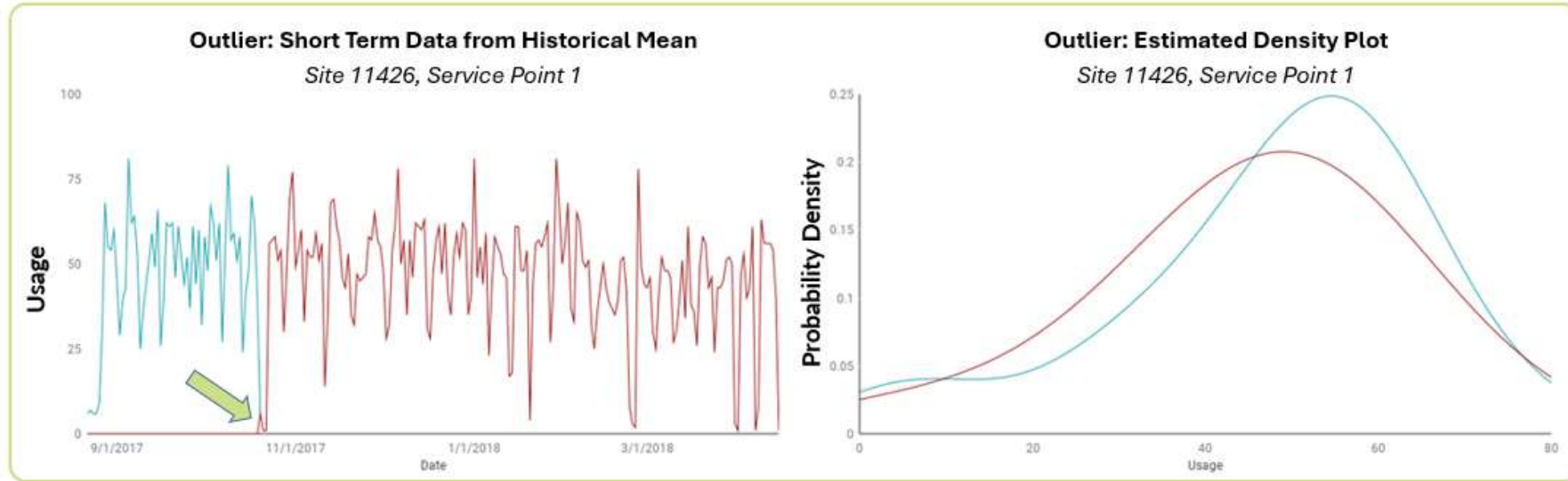
Week 4: Organizational Value Proposition for AI

Week 5: AI Strategy & Implementation Playbook

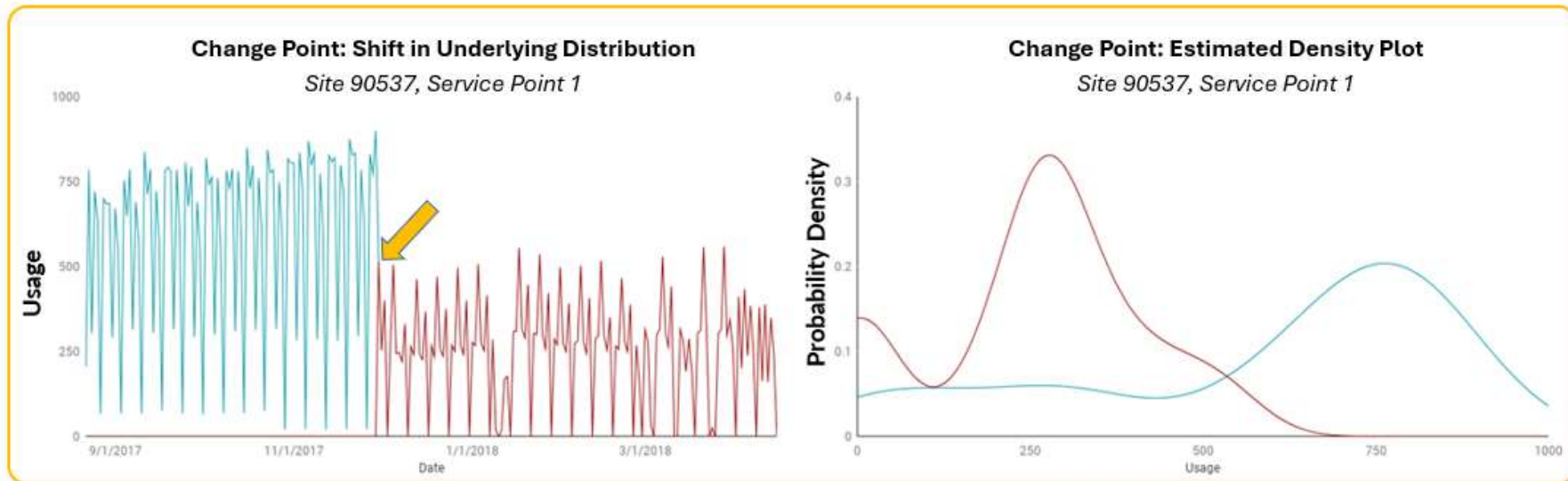
Week 6: The Pitch

AI USE CASES – Meter Failure Prediction

outlier

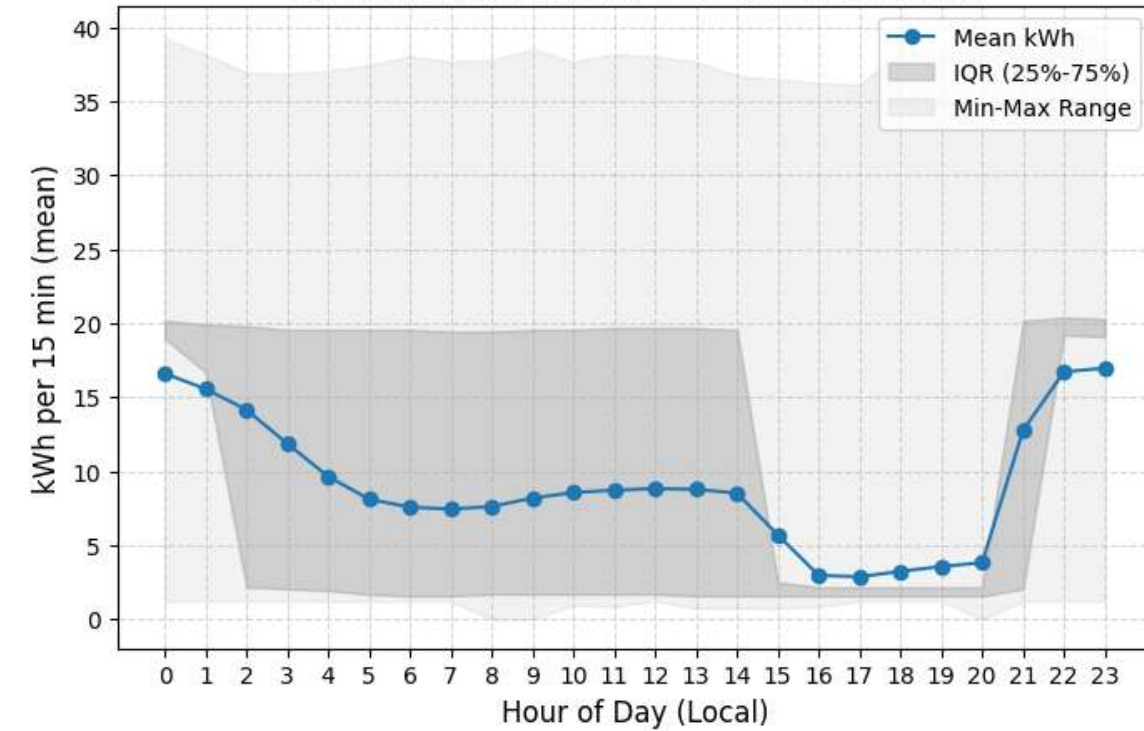


change point

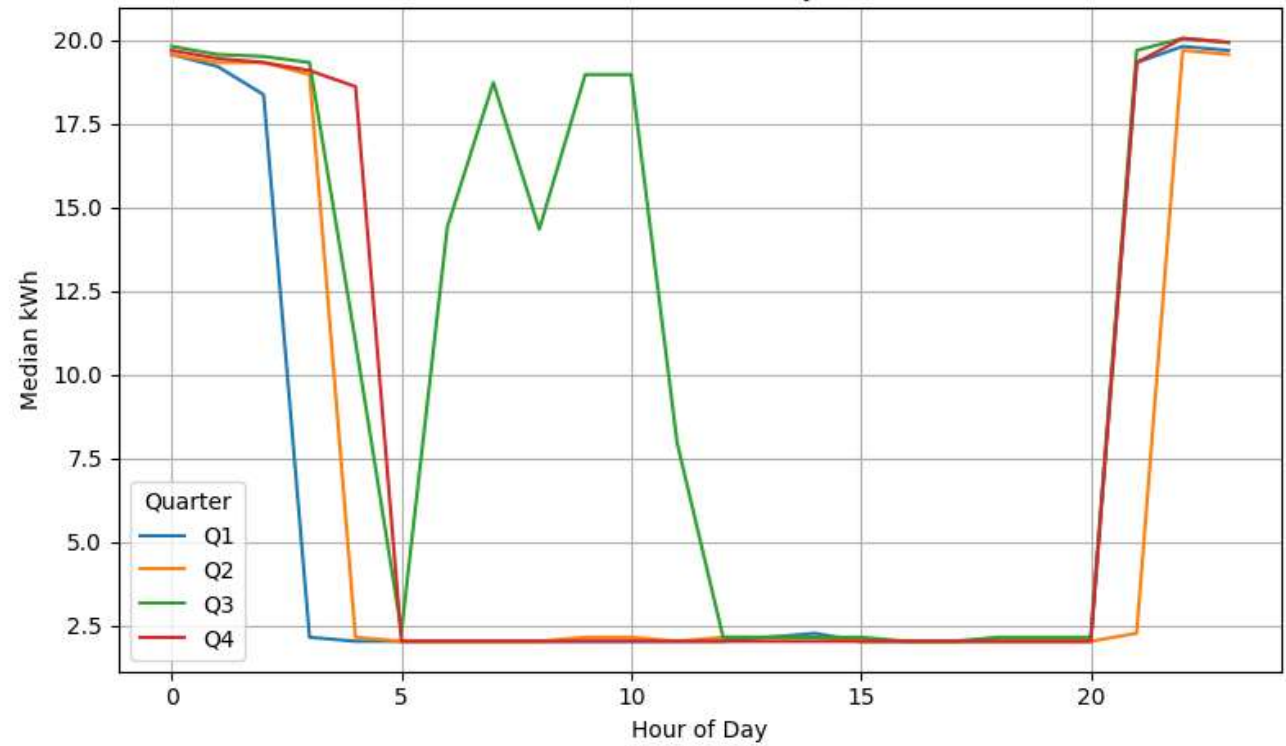


AI USE CASES – Diurnal Curves

Overall Diurnal Energy Use (Mean and IQR)



Median Diurnal Curves by Quarter



AI USE CASES – Energy Insights

Question: how much electricity did tertiary treatment plant use between 4 pm and 9 pm?

Solar Shadow SITES MONITORING ANALYSIS AI LAB AQUATERRA WATER DISTRICT

how much electricity did tertiary treatment plant use between 4 pm and 9 pm **ASK**

Interpreted as: Total Electricity Usage for Site Name Tertiary Treatment Plant and HourOfDay is within 16 and 21.

The total Electricity Usage for the Tertiary Treatment Plant site during HourOfDay within 16 and 21 is 4,214,608. When examining the monthly breakdown, Jan 1, 2026 recorded the highest total Electricity Usage at 404,233, while Mar 1, 2026 had the lowest at 60,438. Notably, the year-to-date total Electricity Usage as of Mar 1, 2026 decreased by 15.48% (-150,477), dropping from 972,086 to 821,609.

REVIEW FOR ACCURACY

Did you mean...

Total Electricity Usage for Site Name Tertiary Treatment Plant and HourOfDay is more than or equal to 4 and HourOfDay is less than 9.

Total Electricity Usage
SITE NAME TERTIARY TREATMENT PLANT AND HOUROFDAY IS WITHIN 16 AND 21

4,214,608

Total Electricity Usage by Month day
SITE NAME TERTIARY TREATMENT PLANT AND HOUROFDAY IS WITHIN 16 AND 21

Month	Energy Consumption Exclusive Solar Battery Kwh	Month	Utility Tariff Name	HourOfDay	Utility	Electricity Usage
0	3,711	Dec 1, 2025	TOU-8-R-BIP	21	SCE	2,606
0	3,784	Dec 1, 2025	TOU-8-R-BIP	17	SCE	2,603
0	3,674	Feb 1, 2026	TOU-8-R-BIP	21	SCE	2,576

View: 500 items 1 of 6

AI USE CASES – Energy Insights

Query: what is the energy use intensity kwh per AFY for each site?

Solar Shadow

SITES
MONITORING
ANALYSIS
AI LAB

ASK

Interpreted as: Average of Cost per AFY by Site Name for Site Name not Advanced Treatment Plant. [✎](#)

When excluding the Advanced Treatment Plant, the top site by average Cost per AFY is the Tertiary Treatment Plant with an average of 0.54. Across all 4 site names, the overall average Cost per AFY is 0.80. The area line chart further illustrates the trend of average Cost per AFY over time by site name, showing that on March 5, 2026, both the Advanced Treatment Plant and the Ground Water Pumping & Distribution Plant had an average Cost per AFY of 0.

REVIEW FOR ACCURACY

Did you mean...

Total Energy Consumption Exclusive Solar Battery Kwh by Time year and Site Name.

Average of Electric Rate per kWh by Time year and Site Name.

Total Lgen Production Kwh by Time year and Site Name.

Average of Cost per AFY by Site Name
SITE NAME NOT ADVANCED TREATMENT PLANT

Site Name	Average Cost per AFY
Tertiary Treatment Plant	0.54
Ground Water Pumping & Distribution Plant	0.08
Secondary Treatment Plant	0.04

Average of Cost per AFY

0.8

Unique number of Site Name

4

Average of Cost per AFY by Site Name and Time day
SHOWING TOP 200 IN TIME AND BOTTOM 4 IN SITE_NAME

Time, Solar Production, Month, Max Demand Usage kW, Utility, Utility Tariff Name, Cost per AFY and Site Name

Solar Producti...	Month	Utility Tariff Na...	Utility	Cost per A...	Time	Site Name	Max Demand Usage ...
0	Jul 1, 2025	TOU-8-R	SCE	10.68	Jul 13, 2025	Advanced Treatment Plant	1,54
0	Jun 1, 2025	TOU-8-R	SCE	10.43	Jun 16, 2025	Advanced Treatment Plant	1,30
0	Jun 1, 2025	TOU-8-R	SCE	10.18	Jun 16, 2025	Advanced Treatment Plant	1,27

View: 500 items
1 of 74