Docket		A.23-08-010
Exhibit Number	:	Cal Adv - #
Commissioner	:	G. Shiroma
Administrative Law Judge	:	A. Nojan
Public Advocates Office	:	S. Ibrahim
Witness(es)	:	

PUBLIC ADVOCATES OFFICE
CALIFORNIA PUBLIC UTILITIES COMMISSION

Report On Capital Project Cost Estimates and Cost Adders and Region III Capital Projects Forecast Early Retirements and Rate base, and RO Model

Los Angeles, California
February 27, 2024

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MEMORANDUM

The Public Advocates Office at the California Public Utilities Commission (Cal Advocates) examined requests and data presented by Golden State Water Company (GSWC) in Application (A.) 23-08-010 (Application) to provide the California Public Utilities Commission (Commission) with recommendations that represent the interests of ratepayers for safe and reliable service at the lowest cost. This Report is prepared by Sari Ibrahim. Mehboob Aslam is Cal Advocates' project lead for this proceeding. Victor Chan is the oversight supervisor and Crystal Yu and Brett Palmer are legal counsels.

Although every effort was made to comprehensively review, analyze, and provide the Commission with recommendations on each ratemaking and policy aspect of the requests presented in the Application, the absence from Cal Advocates' testimony of any particular issue does not constitute its endorsement or acceptance of the underlying request, or of the methodology or policy position supporting the request.

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CHAPTER 1 Capital Project Cost Estimates and Cost Adders

I. INTRODUCTION

This Chapter discusses GSWC's cost estimates and cost adders. GSWC uses a combination of historical cost data, third-party estimates, and a third-party consultant service to create and "validate" their cost estimates. In ratemaking "(a) utility must demonstrate the reasonableness of every dollar in its revenue requirement."[1] Ratepayers should only bear the costs that they cause a utility to incur as such transparency of capital project costs is paramount to developing appropriate rates. GSWC's inclusion of broad percentage-based cost adders is not appropriate in ratemaking.

II. SUMMARY OF RECOMMENDATIONS

A. The Commission should deny unsupported broad cost adders

The Commission should exclude the following cost adders from the capital budget:

- Location adder
- Sales Tax
- Mobilization
- Payment and Performance Bond
- Direct Costs (Design, Permits, and Fees)

[1] D.96-12-066, p. 5.

III. ANALYSIS

A. Background Information

For regulated utilities in California, the Commission is a substitute for competition. Regulated utilities are natural monopolies, and in California their rates include an authorized profit calculated as a direct percentage of their rate base (capital investments). As a result, utilities have an inherent incentive to overinvest and add to rate base because doing so will enable them to receive to more profit. Therefore, it is necessary for the Commission to take steps to act as a substitute for competition to ensure a utility makes disciplined, prudent investments and adds to rate base only the cost of capital projects that are used and useful and bring tangible benefit ratepayers.

B. Cost Adders

To develop the cost estimates for capital projects, GSWC uses individual Project Cost Estimates (PCE). The PCEs are developed using commercially published cost data and GSWC's own historical cost records from previous completed projects.[2] GSWC also retained the services of DCW Cost Management (DCW) to validate GSWC's developed line-item costs.[3] The line-item costs are the individual costs making up the individual parts of a project. Once the direct line-item costs of a project are established, GSWC applies the following additional budget adders:

- Location adder
- Sales Tax
- Mobilization
- Payment and Performance Bond
- Direct Costs (Design, Permits and Fees)

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[2] Gisler, Insco - Vol 1 Capital Testimony and Attachments A to E – APP (Capital Testimony), P. p. 21 lines 4-6.

[3] Capital Testimony, P. p. 23 lines 12-13.

1. Location Adders

For most plant capital projects, GSWC adds a location-based adder, regardless of the line-item cost's location. GSWC's location-based adders range from 3% to 28%.[4] The adder is applied regardless of how the line-item costs were derived. For example, as discussed below in the Sherrill land purchase, consider the budget for a property purchase. The line-item cost is a quote for a property that GSWC plans on purchasing. This cost is based on the exact location of the plot of land to be purchased, yet GSWC still applies a location adder in its proposed budget.

GSWC's broad approach for location adders is not justified. Most of GSWC's costs are based on historical costs of projects completed in California. For every region GSWC applies a location adder, none of the costs are considered the "base" cost where the location markup is zero. GSWC's location-based adder is not justified and inflates project budgets and utility profits. Therefore, it is necessary to remove location-based adders from GSWC's proposed budgets.

2. Sales Tax

GSWC adds a sales tax adder to projects after the line-item costs are estimated. The sales tax adder is 7.25% to 10.25% depending on the location of the project.[5] GSWC applies the adder universally regardless of how the line-item cost was developed and regardless of whether the line-item cost already includes the applicable taxes. For example, when GSWC develops its line-item costs using the actual recorded historical costs of

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[4] Drop Down Validation sheet of the GSWC's Project Cost Estimates Location Determined Combined Adder Column V Sample Cost Estimate Excel tool included as attachment 1-1 to this testimony.

[5] As shown in the individual project cost estimates provided by GSWC as part of the Rate Base workpapers.

completed projects to estimate a future project, sales taxes are already included in the final recorded costs of the completed project. Including sales tax again is double counting. GSWC also applies sales tax adders to the separate line-item labor cost estimates, when it is unlikely that all labor costs would be subject to sales tax.[6]

3. Mobilization

For capital project cost estimates, GSWC adds a 10% mobilization adder.[7] According to GSWC, the 10% adder was determined by DCW based on their expertise and feedback from GSWC Engineering Planning and Capital Program Management staff.[8] Mobilization costs are incurred by the third-party contractors GSWC is utilizing to perform the work and thus are likely already included in the contractors' cost estimates. More importantly, when GSWC is using the historical cost of completed projects to estimate future projects, any mobilization costs would already be captured in the total historical costs of the completed project. Adding a separate mobilization adder is double-counting. If GSWC is performing the work directly, then the cost should be appropriately estimated and added. Applying a wholesale 10% adder to all projects for "mobilization" unnecessarily inflates the project budget.

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[6] When you are the consumer of materials and fabricate materials prior to installation, no tax is due on your labor charges; only the actual material cost is subject to tax. https://www.cdtfa.ca.gov/formspubs/pub9.pdf

[7] As shown in the individual project cost estimates provided by GSWC as part of the Rate Base workpapers.

[8] SIH-003 Project Cost Estimates Response, P.3 Response 3. Attachment 1-2.

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4. Payment and Performance Bond

GSWC adds a 3% adder to capital projects under the label of Payment and Performance Bond.[9] GSWC states that "3% was developed by evaluating historical Payment and Performance Bonds received in 2022. The rates ranged from 0.3% to 10.82% with an average value of 2.16%. A factor of 3% was selected as a good proxy for cost-estimating purposes."[10] This demonstrates that the actual historical costs of completed projects includes the cost of performance bonds, and therefore already included in the line-item estimate when historical project costs are used to develop the cost estimate of future project. Again, GSWC appears to use an additional but unnecessary adder only to further inflate budgets. Furthermore, GSWC's acknowledges the average bond cost was 2.16% of the historical completed projects' cost, but selected 3% as the proxy adder, almost 40% more[11]

5. Direct Costs (Design, Permits, and Fees)

The Direct Costs (Design, Permits, and Fees) adder is another 15% adder to the direct construction cost of a project. GSWC states that "(t)he Direct Costs factor is based on GSWC experience as to the proportional cost of permits, engineering design, inspection, District/Regional costs, insurance, tools, taxes, and construction services associated with a typical plant project. This factor was validated by DCW, based on their expertise and discussions between DCW and GSWC Engineering Planning and

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[9] As shown in the individual project cost estimates provided by GSWC as part of the Rate Base workpapers.

[10] SIH-003 Project Cost Estimates Response, P. 4 Response 4. Attachment 1-2.

[11] SIH-003 Project Cost Estimates Response, P. 4 Response 4. Attachment 1-2.

Capital Program Management staff."[12] GSWC includes $19.3 million in their 2025 capital budget for design costs.[13]

The Commission has made it clear that "in a normal general rate case, the utility must demonstrate the reasonableness of every dollar in its revenue requirement."[14] GSWC's blanket 15% direct cost adder is not supported by actual cost estimates, but rather serves as a blanket contingency adder. While it may be true that the total cost of these projects, once completed, might exceed the established estimates, these additional unforeseen amounts can be reconciled and added to rate base in a subsequent rate case following a reasonableness and prudency review. Developing project budgets in the current rate case must be limited to known and anticipated costs because ratepayers immediately begin paying rates based on those estimates. This situation is different than a capital planning process that seeks to estimate what eventually might be needed under different contingencies.

GSWC's proposed budgets contain earmarks for a multitude of unknowns and contingencies that may arise and require recovery in a subsequent rate case, but by their very definition are too speculative to include in customer rates. Most, if not all the costs GSWC has used as the basis of the "direct costs" should be captured and included in the recorded historical costs of completed projects, which are used as the basis for the developing the cost estimates of future projects. Furthermore, if the cost basis of the project is a quote from a third-party, then the third-party's

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[12] SIH-003 Project Cost Estimates Response P. 4 Response 6. Attachment 1-2.

[13] RO Model workbook SEC-51_RB_FDR Capital Budget Project List - DO NOT SORT! Sheet column AI Design Total

[14] D.96-12-066, p.5.

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estimate accounts for all the known and anticipated costs associated with the project, minus GSWC's overhead. GSWC has a separate budget calculation for overhead, which is in addition to the adders explained above.

C. Example Cost Estimate

1. Sherill Plant Land Acquisition

The Sherill Plant Land Acquisition project is a proposed land purchase in the current GRC. GSWC estimates $170,000 for "design and permitting" in 2024 and $1,455,800 for construction in 2025,[15] or approximately $1.6 million that would be in rate base that would enable the utility to receive continuous profit in perpetuity since land is a non-depreciable asset.

To estimate the cost of the land purchase, GSWC compared values of available properties. One option was to purchase a vacant lot currently owned by the City of Stanton at an approximate value of $650,000.[16] The second option was to purchase an available property that was listed at $850,000.[17] GSWC elected to base their cost estimate on the higher of the two costs.[18] This establishes a direct cost of $850,000 to purchase a plot of land.

Using $850,000 as the direct cost, GSWC develops the cost estimate by first adding 4% as a location-based adder, despite knowing the exact

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[15] Capital Testimony P. 175 lines 20 and 22.

[16] SIH-008 Sherrill Land Acquisition Response attachment Q1.b Sherrill Well #1 Land Acquisition for Treatment System p. 1. Attachment 1-3.

[17] SIH-008 Sherrill Land Acquisition Response attachment Q1.b Sherrill Well #1 Land Acquisition for Treatment System p. 1. Attachment 1-3.

[18] PCE_RIII - West Orange (Sherrill Plant, Land Acquisition) workbook Estimate Creator sheet line 509.

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location of the property used. Next, GSWC adds a 10% mobilization adder, 3% payment and performance bond, and 9.25% sales tax, even though land is not subject to sales tax.[19] Finally, GSWC adds 15% for the direct costs including permits, fees, and design labor. The new estimated cost for the land purchase is $1,211,862 with the various adders, which is $362,000 or 42.5% more than the base cost of $850,000.[20]

Moreover, the new cost estimate of $1,211,862 does not include GSWC's escalation, contingency, nor overhead and direct supporting labor costs. GSWC forecasts an annual escalation of 3% and a contingency factor of 10% which adds another $237,114 to the project's estimate. Further, GSWC has forecasted $176,823 for overhead and for direct supporting labor.[21] After all is said and done the $850,000 vacant land has skyrocketed to $1,625,800, nearly than doubling the original direct cost.

In ratemaking, land is a non-depreciable asset, GSWC would be receiving profit on the $1,625,800 for as long as the property is recorded in rate base. Based on the current rate of return on rate base of 7.53% and a net to gross multiplier of 1.4451 GSWC would receive an annual profit of approximately $176,000 on an $850,000 piece of land.

Finally, ratepayers would not benefit from this property acquisition until the water facility is built on the site. Cal Advocates recommends removing the cost of this project when establishing customer rates in this GRC.

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[19] https://www.ftb.ca.gov/forms/2024/2024-593-instructions.html A withholding tax of 3 1/3 % might be applicable to be withheld from the seller.

[20] PCE_RIII - West Orange (Sherrill Plant, Land Acquisition). Attachment 1-4.

[21] SEC-51_RB_FDR Capital Budget workbook Project List - DO NOT SORT! Sheet row 207 (difference between the project total and the project total with overhead.)

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IV. CONCLUSION

The Commission should deny unnecessary and speculative cost adders or mark ups contained in GSWC's proposed capital budget. The adders serve only to inflate GSWC's capital budget at ratepayers' expense. Any reasonable and prudent project cost that exceed the known costs contained in the budgets established in this proceeding can be recovered in a subsequent general rate case after prudency review.

CHAPTER 2 Region III Capital Projects

I. INTRODUCTION

This Chapter discusses Cal Advocates' review of GSWC's Region III-specific capital projects.

II. SUMMARY OF RECOMMENDATIONS

The Commission should adopt the following changes to GSWC's proposed capital budget:

Remove from rate base the cost associated with the ion exchange treatment train at the Bradshaw Plant from rate base.

Deny GSWC's request to add in rate base $5,502,500 in 2024 to replace the nitrate treatment system at the Highway Plant Site in GSWC's San Dimas system into rate base.

Deny GSWC's request to add in rate base $2,930,900 in 2025 for the Indian Hill North Plant Install Nitrate Treatment project into rate base.

Deny GSWC's request to add in rate base $665,700 in 2024 and $5,711,900 in 2025 related to the Montana Lane Well #1 project.

Deny GSWC's request to add in rate base $1,316,500 in 2025 for the Orange County Office Relocation project.

Deny GSWC's request to add in rate base $992,600 in 2025 for a permanent generator at the Farna Plant, $2,010,400 in 2025 for generators at the Garvey, San Gabriel, and Saxon plant sites, $1,646,500 for generators in the Barstow system, and approximately $500,000 for a generator at the Timberline plant into rate base.

Deny GSWC's request to add in rate base $3,969,200 in 2026 to replace the East and West Wayhill Reservoirs and $1,816,500 in 2025 to reconstruct the driveway to access the Wayhill reservoirs in rate base.

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Deny GSWC's request to add in rate base $1,085,400 across Region III related to Drought Tolerant Landscaping

Deny GSWC's request to add in rate base $2,825,500 for two solar generation projects in Region III.

Adopt SCADA budgets of $784,621 for Region I and $1,207,162 for Region II and III.

Deny GSWC's request to add in rate base the following design costs that provide no benefit to ratepayers until the construction phase of the projects are completed:

- Upper Pressure Zones, Hydraulic Evaluation $86,800 in 2025
- Bella Vista Plant, New Well – Phase 1 $533,100 in 2025
- Barstow System, Systemwide Hydraulic Evaluation $128,400 in 2024
- Apple Valley North Sy
- stem, Supply Evaluation $133,400 in 2025
- Sutter and Baker Zones, Hydraulic Evaluation $51,300 in 2024
- Lucerne Valley System, New Well- Phase 1 $533,100 in 2025
- Sherill Land Purchase, $170,000 in 2024 and $1,455,800 in 2025.

The Commission should deny GSWC's request to add in rate base the following budgets related to ion exchange resin media changeouts for treatment plants that have yet to go online$349,800 in 2026 for the Fairhaven Plant

- $316,400 in 2025 for the Bradford Plant
- $316,400 in 2025 for the La Jolla Plant.

The Commission should deny GSWC's request to add in rate base the following budgets related to the mesh overflow upgrades:

- La Vereda Plant $57,300 in 2025
- Newport Plant $57,300 in 2025
- Timberline Plant $57,300 in 2025
- Larkridge Plant $53,400 in 2025

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- Linda Vista Plant $53,400 in 2025

III. ANALYSIS

A. Rate Base Investment Growth Rate

In a competitive market, a company is incentivized to minimize its costs to maximize its profits. As a company gains experience and capabilities, it grows more efficient by doing more with the same resources or producing the same results with less resources.[22] These efficiency improvements can help offset increasing costs, especially during inflationary periods. Although once a standard feature of ratemaking in California, no adjustment is currently made to reflect anticipated efficiency gains by utilities. However, annual inflationary adjustments to utility budgets in California are standard.

It is useful to compare GSWC's rate base growth relative to the Consumer Price Index (CPI) for all consumers and the CPI for water, sewer, and trash collection services as reference points. CPI is an aggregate of prices paid by urban consumers. It is based on prices for food, clothing, shelter, and fuels; transportation fares; service fees (e.g., water and sewer service); and sales taxes.[23] If a company is growing under natural needs, then the growth is expected to pace the CPI or inflation. However, GSWC is incentivized to invest in rate base as much as possible to maximize profit. GSWC's parent company, American States Water Company (AWR), "has paid common dividends every year since 1931, and has increased the dividends received by shareholders each calendar year for 69 consecutive years, which places it in an exclusive group of companies on the New

[22] https://hbr.org/2017/03/great-companies-obsess-over-productivity-not-efficiency

[23] https://fred.stlouisfed.org/series/CPIAUCSL#0

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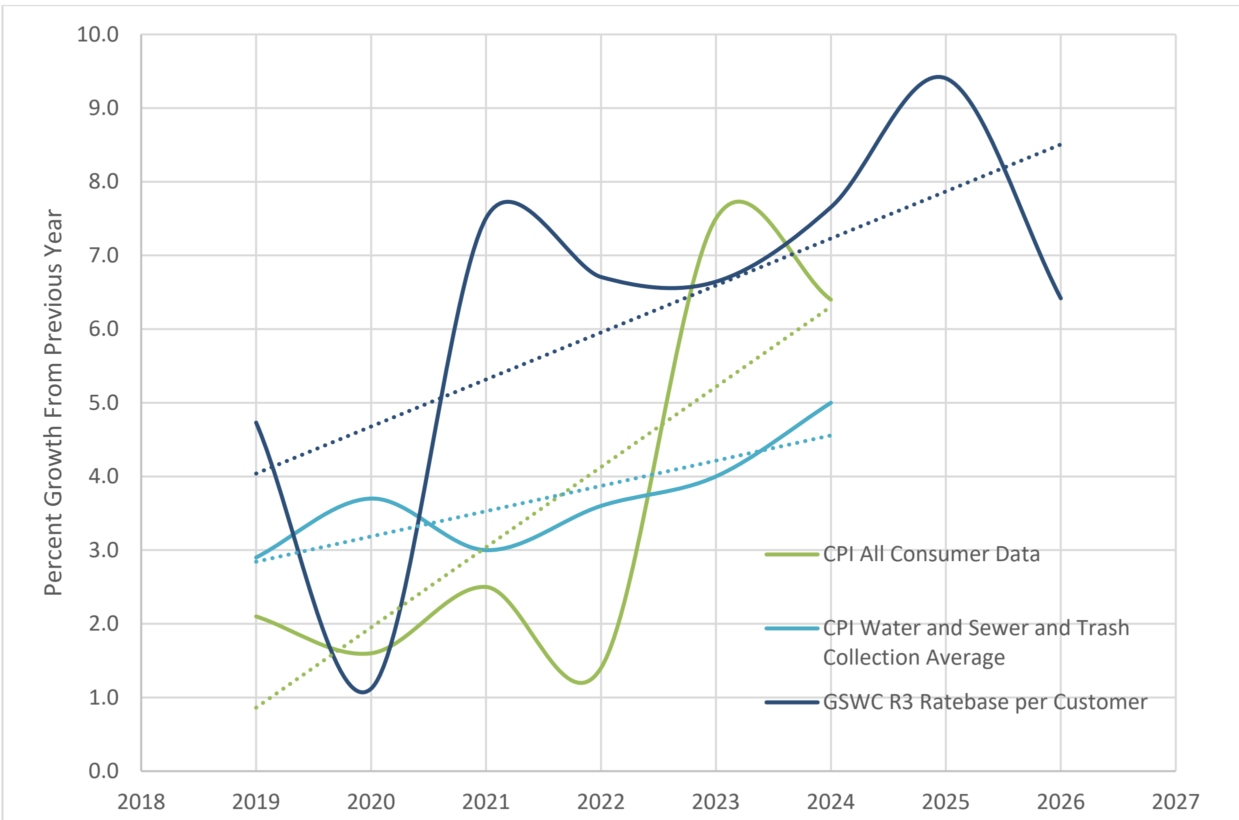
York Stock Exchange that have achieved that result."[24] GSWC's continuous investment in rate base is reflected in its ability to increase shareholder dividends year after year.

Table 2-1 below compares the growth of GSWC's rate base per customer to the annual CPI for all consumers and the CPI for water and sewer and trash collection services average annual growth.

Table 2-1 GSWC R3 Rate Base Per Customer Compared to the CPI % Annual Growth



GSWC's rate base growth per-customer significantly outpaces CPI even when only comparing it to the average increase in costs of water, waste, and trash services.

[24] American States Water Company Announces Third Quarter 2023 Results Dividends section. Attachment 2-1.

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B. Bradshaw Plant Nitrate Treatment

The Commission should remove the cost associated with the ion exchange (IX) treatment train at the Bradshaw Plant from plant in service. This IX system, which GSWC installed in XX, will become unnecessary when GSWC completes its proposed installation of a biological treatment system.

In the current GRC, GSWC requests $795,400 in 2025 and $6,724,200 in 2026 to install a Microvi biological treatment system to treat nitrate in the Bradshaw Well Field.[25]

The Bradshaw Well Field serves as the sole source of supply for the Barstow system.[26] The Bradshaw Well Field is impacted by high levels of nitrate.[27] The Bradshaw plant currently has an Ion Exchange (IX) treatment system to treat the nitrate contamination. The IX treatment system creates a brine by-product that is expensive to haul off for disposal.[28]

To mitigate the costs of brine disposal, GSWC invested in a Microvi biological treatment system pilot study and now plans to implement a full-scale treatment system.[29] GSWC proposes to use the IX system in conjunction with the Microvi system or to serve as a backup in emergency situations.[30]

Ratepayers have already funded the cost of the IX and bore the costs of the brine disposal when more cost-effective alternatives such as the Microvi system exist. Ratepayers should not continue to pay for both the IX system with its expensive brine disposal costs in addition to the new Microvi system.

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[25] Capital Testimony p. 249 lines 19-21.

[26] Capital Testimony p. 250 lines 8-10.

[27] Capital Testimony p. 250 lines 10-11.

[28] Capital Testimony p. 250 lines 15-16.

[29] Capital Testimony Attachment B07.

[30] Capital Testimony p. 251 lines 5-7.

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Therefore, the costs associated with the IX system should be removed from rate base.

C. Highway Plant Nitrate Treatment System

The Commission should deny GSWC's request to include in rate base $5,502,500 in 2024 to replace the nitrate treatment system at the Highway Plant Site in GSWC's San Dimas system.

GSWC placed the Highway Plant Nitrate Treatment System into service in 2004. It consists of a perchlorate and a nitrate treatment train.[31] The nitrate treatment train experienced an error in which one of the 200 valves failed in an open state allowing brine discharge to enter the effluent treated water.[32] Due to the conditions of the water quality, the valves are subject to wear and material fatigue.[33] Typically, an ion exchange plant would have an accompanying preventative replacement and maintenance program for all the high-wear components.[34] The Highway Plant Nitrate Treatment System did not have such a program. GSWC takes simple steps such as adding water softeners or antiscalant agents.[35] However, none of the equipment, valves, or manifold piping is labeled, leading to higher risk of operator error, and making troubleshooting and maintenance more difficult and time consuming.[36]

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[31] Capital Testimony Attachment SD04 Golden State Water Company Highway Treatment Plant Engineering Assessment P. 6 of 21.

[32] Capital Testimony Attachment SD04 Golden State Water Company Highway Treatment Plant Engineering Assessment P. 15 of 21.

[33] Capital Testimony Attachment SD04 Golden State Water Company Highway Treatment Plant Engineering Assessment P. 16 of 21.

[34] Capital Testimony Attachment SD04 Golden State Water Company Highway Treatment Plant Engineering Assessment P. 17 of 21.

[35] Capital Testimony Attachment SD04 Golden State Water Company Highway Treatment Plant Engineering Assessment P. 17 of 21.

[36] Capital Testimony Attachment SD04 Golden State Water Company Highway Treatment Plant

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The third-party condition assessment following the failed valve incident concluded that maintenance and replacing high-wear or no longer supported equipment would extend the lifetime of the treatment trains.[37] But a factor limiting the plant's operability and maintenance is the original design of the system itself.[38] The steel enclosure surrounding the nitrate treatment train provides very poor access to the components making replacement difficult.[39]

Ratepayers do not decide the equipment GSWC purchases. Nor do they oversee how GSWC chooses to operate and maintain its systems. GSWC operates and invests as it deems appropriate and are allowed the opportunity to receive a return on their prudent investments. Ratepayers cannot be held responsible for GSWC's failures when designing or operating a system. Ratepayers should not fund a poorly planned and poorly maintained asset only to have it fail and replaced with.

The Commission should deny GSWC's request to add in rate base $5,502,500 for the new Highway Plant Nitrate Treatment system in this proceeding. If GSWC deems it necessary to replace, it should seek recovery of the actual replacement costs once the project is complete and shown to be prudently and reasonably installed and operated.

D. Indian Hill North Plant Install Nitrate Treatment

The Commission should deny GSWC's request to add in rate base $2,930,900 in 2025 the Indian Hill North Plant Install Nitrate Treatment project.

Engineering Assessment P. 17 of 21.

[37] Capital Testimony Attachment SD04 Golden State Water Company Highway Treatment Plant Engineering Assessment P. 21 of 21.

[38] Capital Testimony Attachment SD04 Golden State Water Company Highway Treatment Plant Engineering Assessment P. 6 of 21

[39] Capital Testimony Attachment SD04 Golden State Water Company Highway Treatment Plant Engineering Assessment P. 17 of 21

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The Indian Hill Plant Site has two wells, Indian Hill Well No. 3, which produces 650 gallons-per-minute (GPM) and Indian Hill Well No. 4 (630 GPM) that feed into a 1.0MG reservoir.[40] Both wells are impacted by nitrate with an average concentration of 10mg/L.[41] The maximum contamination level (MCL) for nitrate is 10mg/L.[42] The State Water Resources Control Board's Division of Drinking Water approved the blending of well water at a ratio of 1:1 with purchased water to bring down the nitrate concentrations to half the MCL.[43] To reduce reliance on purchased water, GSWC proposes installing a nitrate treatment system.[44]

GSWC states that the nitrate treatment system is to reduce reliance on purchased water from Three Valley Metropolitan Water District (TVMWD) who in turn purchase their water from the State Water Project (SWP).[45] But GSWC's forecast for TVMWD purchased water in Claremont increases from 1,366,290 CCF in 2022 to 2,420,540 CCF in 2023 with a slight increase each year through 2027.[46] These forecasts belie GSWC assertions that less purchased water will be used after the proposed treatment plant is placed into service in 2025.

[40] Capital Testimony p. 215 line 24 through p. 216 line 1.

[41] Capital Testimony p. 216 line 1.

[42] Cal. Code Regs. Tit. 22, § 64431 - Maximum Contaminant Levels - Inorganic Chemicals

[43] Capital Testimony p. 216 lines 2-4.

[44] Capital Testimony p. 216 lines 9-10.

[45] Capital Testimony p. 216 lines 3-10.

[46] SEC-30_REV_Water Production workbook sheet RecProjWtrProd by Purveyr WS-05 cells Y64 through AC64.

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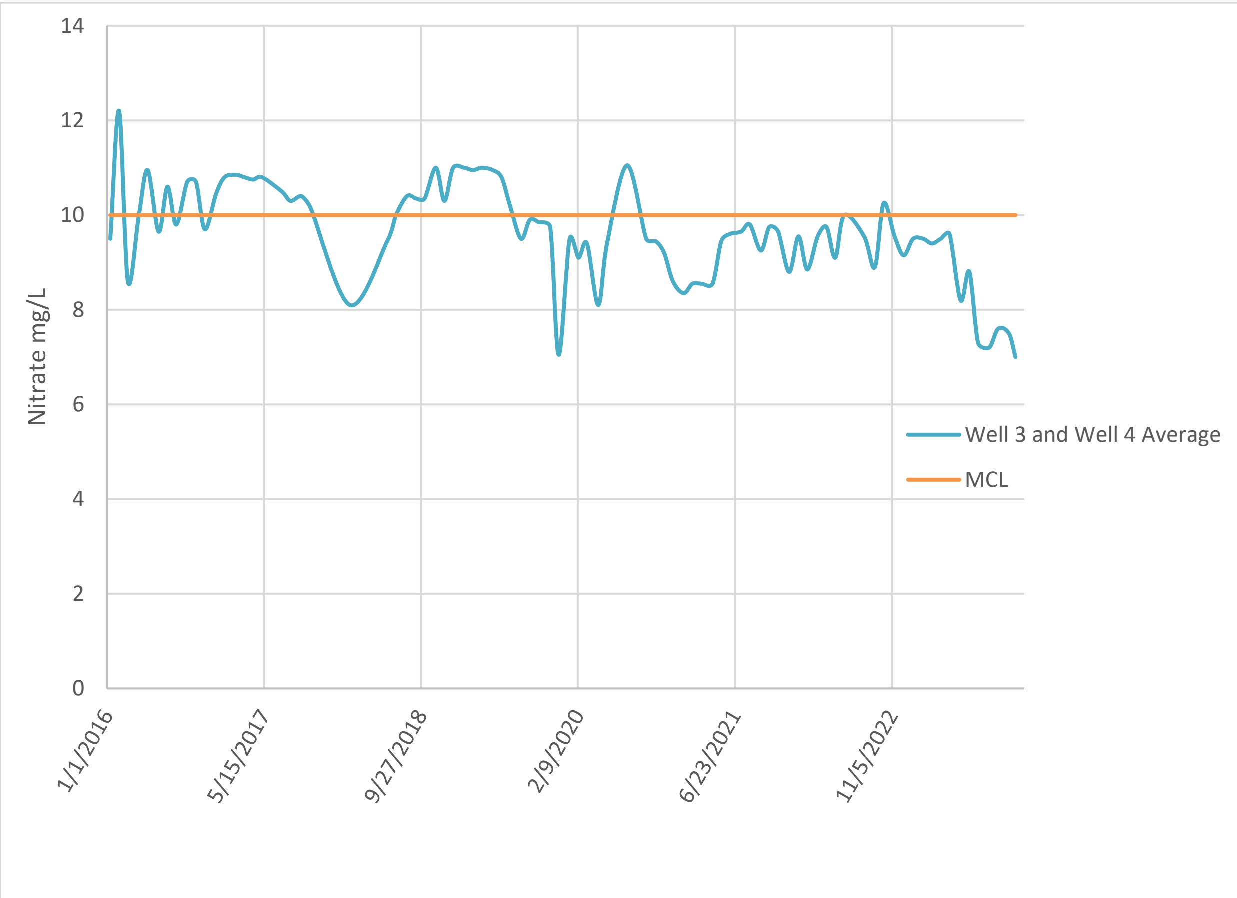
GSWC also states that the wells "together have an average nitrate concentration of 10 mg/L as N[47] which is the MCL for drinking water."[48] However, sampling results from the California Safe Drinking Water Information System (SDWIS) show that the average concentration of both wells was at the MCL of 10 mg/L or higher only twice in the last three years. Figure 2-1 below shows the combined average sample for both wells.

Figure 2-1 Average Nitrate Concentration in Wells 3 and 4[49]



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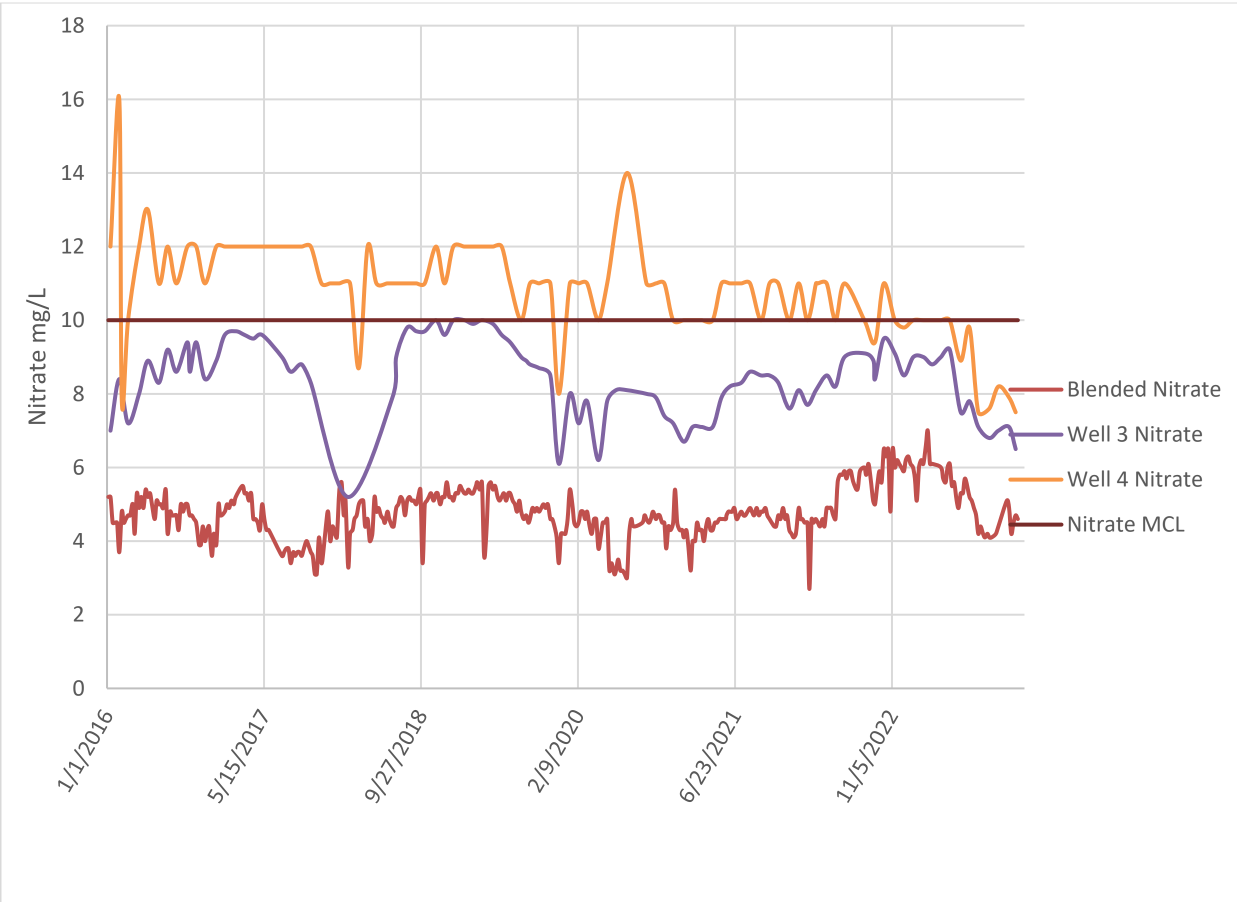
[47] Nitrate as Nitrogen referring to the current testing standard as opposed to Nitrate as NO3.

[48] Capital Testimony p. 216 lines 1-2.

[49] https://sdwis.waterboards.ca.gov/PDWW/JSP/WSamplingResultsByStoret.jsp?SystemNumber=1910024&tinwsys_is_number=2503&FacilityID=017&WSFNumber=13136&SamplingPointID=017&SystemName=GSWC+-

Figure 2-2 below shows the nitrate concentrations for each well and the 1:1 blended water.

Figure 2-2 Nitrate Results for Well 3, Well 4, and the Blended Water[50]



+CLAREMONT&SamplingPointName=INDIAN+HILL+WELL+03&Analyte=&ChemicalName=&begin_date=&end_date=&mDWW= and https://sdwis.waterboards.ca.gov/PDWW/JSP/WSamplingResultsByStoret.jsp?SystemNumber=1910024&tinwsys_is_number=2503&FacilityID=065&WSFNumber=24001&SamplingPointID=065&SystemName=GSWC+-+CLAREMONT&SamplingPointName=INDIAN+HILL+WELL+04&Analyte=&ChemicalName=&begin_date=&end_date=&mDWW=

[50] https://sdwis.waterboards.ca.gov/PDWW/JSP/WSamplingResultsByStoret.jsp?SystemNumber=1910024&tinwsys_is_number=2503&FacilityID=017&WSFNumber=13136&SamplingPointID=017&SystemName=GSWC+-+CLAREMONT&SamplingPointName=INDIAN+HILL+WELL+03&Analyte=&ChemicalName=&begin_date=&end_date=&mDWW= and https://sdwis.waterboards.ca.gov/PDWW/JSP/WSamplingResultsByStoret.jsp?SystemNumber=1910024

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As Figure 2-2 shows, both wells have been trending downwards in nitrate levels and blending has been a successful solution to treat the water as approved by the State Water Resources Control Board, which maintains primary jurisdiction over water quality. GSWC has not shown that installing a nitrate treatment system at the Indian Hill Plant is a prudent investment for ratepayers. According to GSWC's forecast, the plant will only serve as an additional capital expense for which ratepayers receive no tangible benefits.

The Commission should deny GSWC's request to add in rate base $2,930,900 for the nitrate treatment system at Indian Hill. The treatment system is not necessary and provides no tangible benefit for ratepayers.

E. Montana Lane Plant, Montana Lane Well #1

The Commission should deny GSWC's request to add in rate base $665,700 in 2024 and $5,711,900 in GSWC's proposed 2025 capital spending related to the Montana Lane Well #1 project.

GSWC claims that the new well is needed to reduce its reliance on purchased water. GSWC provides the per acre-foot cost of $234 from the new well compared to $1,209 for purchasing water.[51] However, GSWC fails to include pump tax, energy, and operating expenses as part of the per acre-foot cost from the well in their benefit-cost analysis.[52] GSWC's cost benefit analysis to determine the net present value of the project over 40 years of life shows a total project value for the new well at $9,199,000 and the net present value of purchasing water at

&tinwsys_is_number=2503&FacilityID=065&WSFNumber=24001&SamplingPointID=065&SystemName=GSWC+-+CLAREMONT&SamplingPointName=INDIAN+HILL+WELL+04&Analyte=&ChemicalName=&begin_date=&end_date=&mDWW=

[51] Capital Testimony p. 209 lines 11-13.

[52] Capital Testimony p. 209 lines 12-13.

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$8,356,000 with the “smallest value identif(ying) lowest cost to customers.”[53] GSWC’s own cost benefit analysis, which did not include the revenue requirement impact from pump tax and O&M expenses, demonstrates that purchasing water is the more cost effective approach for the ratepayers.

The proposed well would replace the offline Miramar Well No. 5.[54] To assess the condition of Miramar Well No. 5, GSWC retained the services of Wood Rogers.[55] Wood Rogers’ assessment concluded that the “cheaper alternative” would be well modification.[56] Wood Rogers provides a final option to replace the well at the same location as the “site offers plenty of space to drill and construct a new well”.[57] A new well at the same location as the Miramar Well No. 5 would utilize many of the same facilities and accompanying plant required to tie the well into the system as compared to installing a new well at a new location.

GSWC does not include an increase in pumped water production to account for a new well in the Claremont system. In fact, GSWC’s pumped water forecast in the Claremont system shows a reduction to 1,199,352 hundred cubic-feet (ccf) in forecasted years 2023-2027 as compared to a recorded production of 1,457,825 ccf in 2022.[58] GSWC also forecasts an increase in purchased water from 2,086,569 CCF in the recorded year 2022 to approximately 2.7 million ccf in the forecast years 2023-2027.[59] Therefore, GSWC is proposing a capital budget to install a new well that is forecasted not to produce water.

[53] Capital Testimony Attachment CM02

[54] Capital Testimony p. 209 lines 4-6.

[55] Capital Testimony p. 209 line 5.

[56] Capital Testimony Attachment CM01 p. 1.

[57] Capital Testimony Attachment CM01 p. 2.

[58] RO Model SEC-41_EXP_FDR Purchased Water workbook sheet in_Production cells N63-S63.

[59] RO Model SEC-41_EXP_FDR Purchased Water workbook sheet in_Production cells N64:S68.

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GSWC's own analysis shows purchasing water is the cost-effective option for ratepayers. GSWC also ignores less expensive options to produce groundwater, such as modifying and rehabilitating the well or building a new well at the same location. Although the project is unnecessary and would not produce any tangible ratepayer benefit, GSWC would receive increased profit of nearly $1 million per year for its proposed project.

The Commission should deny GSWC's request to add in rate base $665,700 in 2024 and $5,711,900 in 2025 related to the Montana Lane Well #1 project.

F. Orange County Office Relocation

The Commission should deny GSWC's request to add in rate base $1,316,500 in 2025 associated with the Orange County Office Relocation project.

GSWC currently leases a property at 2283 Via Burton in the City of Anaheim. GSWC states that the building is too large and at the same time lacks in parking.[60] Another concern for GSWC is the safety of the area.[61] GSWC entered into the lease agreement in 2019 and the lease is set to expire in 2024.[62]

While at the Via Burton location, GSWC paid $264,000 for real property office improvements.[63] Of the $264,000, $67,089 was recorded in 2022 and booked into rate base.[64] The remainder was spent in 2023 and was not reflected in the RO Model.[65] GSWC spent $264,000 in office upgrades for a property whose

[60] Capital Testimony P. 201 lines 19-20.

[61] Capital Testimony P. 201 lines 16-19.

[62] SIH-013 Orange County Office Relocation Partial Response Final attachment SIH-013 Orange County Office Relocation Partial Response Final

[63] Attachment 2-2 Email Indicating GSWC Capitalized Office Improvements

[64] SIH-013 Orange County Office Relocation Partial Response 1. e. Attachment 2-3.

[65] SIH-013 Orange County Office Relocation Partial Response 1. e. Attachment 2-3.

"lease is expiring and office location is not in a safe area which poses risk to GSWC employees."[66] Approximately $200,000 of this total was spent in 2023 after the master plan was finalized in December 2022.

Of the additions accounted for in the current GRC, GSWC booked the office upgrades under "General Plant" additions.[67] A plant account that is depreciable. This means GSWC will be reimbursed by ratepayers for the office upgrades while also receiving profit. These office upgrades were performed while GSWC claims that the location was unsafe, and that they planned on leaving only a year after the upgrades were finished.

GSWC requests $1,316,500 in 2025 for the relocation.[68] To develop the cost, GSWC used the same cost estimating tool as the other capital projects. The cost stems from four line items: Office Contractor $600,000, QTI $50,000, SOLA $40,000, and Office Furniture Moving $30,000.[69] The remaining budget results from GSWC's adders and adders. GSWC has not performed any other cost estimates related to the project.[70] As of November 22, 2023, GSWC has not yet identified where it would relocate.[71]

A utility must demonstrate the reasonableness of every dollar in its revenue requirement.[72] GSWC has not justified why it needs $1,316,500 to relocate offices and cannot find a less expensive space that would suit its needs. GSWC has also

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[66] Gisler, Insco - Attachment F-27 Placentia-Yorba Linda Master Plan Final p. 8-2

[67] SIH-013 Orange County Office Relocation Partial Response 1. e. Attachment 2-3.

[68] Capital Testimony P. 201 line 7.

[69] PCE_RIII - Placentia - Yorba Linda (Orange County District Office Relocation & Upgrade) Estimate Creator Sheet.

[70] SIH-013 Orange County Office Relocation Partial Response 1. g. Attachment 2-3.

[71] SIH-013 Orange County Office Relocation Partial Response 1. f. Attachment 2-3.

[72] D.96-12-066, p.5.

not justified why it would spend $264,000 in office improvements on a space it intended to leave.

The Commission should not include the budget related to the relocation in rate base.

G. Permanent Generators

The Commission should deny GSWC's request to add in rate base GSWC's proposed budgets related to purchasing permanent generators.

GSWC forecasts multiple budgets related to installing permanent generators at several locations. In 2025, $992,600 is requested for a permanent generator at the Farna Plant,[73] $2,010,400 for the Garvey, San Gabriel, and Saxon plant sites,[74] $1,646,500 for generators in the Barstow system,[75] and approximately $500,000 for a generator at the Timberline plant.[76] GSWC prefers permanent generators over portable generators for the following reasons: the response time is longer for portable emergency generators, and, in case of an emergency, the plant site may need to 'catch-up'[77] to supply the system.[78]

In a GRC, GSWC must demonstrate the reasonableness of every dollar in its revenue requirement.[79] A preference for permanent over portable generators is not a valid justification for spending several millions of dollars in capital

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[73] Capital Testimony p. 229 line 22.

[74] Capital Testimony p. 235 line 9.

[75] Capital Testimony p. 239 line 22.

[76] PCE_RIII - Cowan Heights (Timberline Plant, Install Production Meter, Permanent Generator, Hydropneumatic Tank)

[77] Catch-up refers to the time it would take to refill the system after water inside the conveyance system is used up.

[78] Capital testimony p. 230 lines 17-21.

[79] [79] D.96-12-066, p.5.

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expenditures. Portable generators solve the same issues that a permanent generator would solve with a fraction of the associated costs. GSWC's claim that portable generators have longer response times is not valid as water systems have storage supplied in reservoirs, tanks, and even the conveyance piping itself.

Besides avoiding the significant initial capital investment, renting portable generators in time of need avoids other costs such as permitting and maintenance costs. Electric utilities such as Southern California Edison maintain programs that provide portable generators at no cost in case of emergency to critical facilities, such as those in water companies.[80] Southern California Edison is a regulated utility and its ratepayers are funding such programs. Most GSWC customers also pay SCE for their energy bills. If the Commission allows GSWC to invest in these generators without taking advantage of the SCE's free program, GSWC customers are being asked to pay twice for the same capital investment without additional benefit.

Permanent generators come with significant costs including the initial investment cost and ongoing O&M costs. As discussed above, GSWC has cheaper or even free alternatives.

The Commission should deny GSWC's request to add in rate base its proposed budgets related to permanent generators.

H. Wayhill Plant, Replace East & West Wayhill Reservoirs and Construct Alternate Driveway

The Commission should deny GSWC's request to add in rate base the costs associated with its proposed project for the Wayhill reservoir replacement and alternate driveway construction.

[80] https://www.sce.com/wildfire/critical-facilities-infrastructure

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In the current GRC, GSWC forecasts $3,969,200 in 2026 to replace the East and West Wayhill Reservoirs.[81] GSWC also forecasts $1,816,500 in 2025 to reconstruct the driveway to access the Wayhill reservoirs.[82]

To assess the condition of the reservoirs GSWC retained the services of Harper and Associates (Harper). Harper concluded that the reservoirs have three possible points of action that are necessary to continue operation. The first option is the retrofitting of the reservoir walls to meet new seismic standards.[83] The second option is to perform further testing to verify conditions surrounding the reservoirs.[84] The third option is replacement of the reservoirs with new structures.[85]

GSWC concludes that replacing the reservoirs with new reservoirs is the best option since the replacements cost as much as the "necessary" modifications.[86] But in the cost comparison provided, GSWC does not include the cost of modifying the driveway which would only be necessary if the reservoirs are to be reconstructed.[87] The additional $1,816,500 GSWC projects for the driveway alteration would need to be added to the cost of the new reservoirs. The true cost of new reservoirs would surpass the cost of modifying the existing structures.

[81] Capital Testimony p. 218 line 17.

[82] Capital Testimony p. 219 line 13.

[83] Capital Testimony Attachment SD01 p. 25 and 26 of 135 GSWC Wayhill East Structural and Seismic Analysis and p. 92 and 93 of 135 GSWC Wayhill West Structural Siesmic Analysis.

[84] Capital Testimony Attachment SD01 p. 26 of 135 GSWC Wayhill East Structural and Seismic Analysis and p. 93 of 135 GSWC Wayhill West Structural Siesmic Analysis.

[85] Capital Testimony Attachment SD01 p. 26 of 135 GSWC Wayhill East Structural and Seismic Analysis and p. 93 of 135 GSWC Wayhill West Structural Siesmic Analysis.

[86] Capital Testimony p. 219 lines 5-7.

[87] Capital Testimony p. 220 lines 1-8.

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As one of the alternatives presented by its own consultant, testing the current condition of the reservoirs is the most prudent action. According to GSWC's cost estimates, modifying the existing structures to meet current codes is also a cheaper alternative.[88] However, even this significant cost is not warranted if important information regarding the reservoirs is still missing, which testing may reveal. GSWC should perform the recommended testing on the reservoirs before moving forward with any projects related to the Wayhill Reservoirs.

The Commission should deny GSWC's request to add in rate base $3,969,200 in 2026 to replace the East and West Wayhill Reservoirs and $1,816,500 in 2025 to reconstruct the driveway to access the Wayhill reservoirs.

I. Drought Tolerant Landscaping

The Commission should deny GSWC's request to add in rate base its proposed budgets related to Drought Tolerant Landscaping.

In the current GRC, GSWC seeks $1,085,400 across Region III to replace turf at its own properties with "drought tolerant" landscaping.[89] GSWC states that it must replace the turf landscaping with drought tolerant landscaping to lower its water usage and assist in achieving California's water saving goals.[90] There are several rebate programs for businesses and residents in California to replace their turf with drought tolerant landscaping.[91] One example is the Municipal Water District of Orange County, which offers $3 per square foot for replaced turf.[92]

[88] When accounting for the cost of the driveway alteration.

[89] $132,500 in the Placentia system Capital Testimony p. 205 line 5, $265,300 in the Claremont System Capital Testimony p. 211 line 19, $316,500 in the South Arcadia System Capital Testimony p. 232 line 18, and $371,100 in the West Orange system Capital Testimony p. 178 line 18.

[90] Capital Testimony p. 179 lines 2-17.

[91] https://www.gov.ca.gov/2022/09/28/california-is-making-it-cheaper-to-replace-your-lawn-to-save-water-and-save-money/

[92] https://www.mwdoc.com/save-water/rebates/residential-rebates/turf-removal/

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GSWC is encouraged to participate in any of these programs and obtain the most benefit for its customers. However, like homeowners who take advantage of the rebate program for turf replacement, GSWC's shareholders should pay for any amount that exceeds the rebate amount. Ratepayers should not pay for the full cost of turf replacement that doesn't directly benefit them.

The Commission should not allow the budget for the drought tolerant landscaping.

J. Solar Generation Projects

The Commission should deny GSWC's request to add in rate base its proposed budgets for Solar Generation projects GSWC requests $2,825,500 for two solar generation projects in Region III: $203,400 in 2025 and $1,454,700 in 2026 at the Holabird Plant in the Calipatria system, and $1,167,400 in 2025 at the Kiowa Plant in Apple Valley South system.

GSWC currently has one solar generation facility at the Mohawk plant site in the Apple Valley South system.[93] GSWC placed the Mohawk solar generation into operation in March 2005.[94] The solar generation was operated for one year to determine the realized savings.[95] The solar generation is no longer used or operational.[96]

In 2005, the Mohawk plant solar system generated an annual savings of $44,857 from generated energy, demand-side management avoided costs, and demand savings.[97] Escalated to 2022 dollars, that would be approximately

[93] SIH-011 Region III Solar Generation Projects Response 1.a. Attachment 2-4.

[94] SIH-011 Region III Solar Generation Projects Response 1.b. Attachment 2-4.

[95] SIH-011 Region III Solar Generation Projects Response 1.b. Attachment 2-4.

[96] SIH-011 Region III Solar Generation Projects Response 1.b. Attachment 2-4.

[97] SIH-011 Region III Solar Generation Projects Response 1.b. Attachment 2-4.

$63,000.[98] GSWC states that both new solar generation facilities would generate a payback within less than 9.5 years.[99] This is based on a third-party consultant study performed by Consultant 1898.[100] To determine the payback period, consultant 1898 assumes the capital investment cost for the Holabird plant is $1,016,690,[101] and $638,413 for Kiowa,[102] which are significantly lower than GSWC's current estimates at $1,658,100 and $1,167,400 respectively. Consultant 1898's study does not account for the rate of return ratepayers would be paying for the plant assets or the net to gross multiplier to get the true cost of having the solar plants in rate base. Updating the payback period to reflect the true cost to ratepayers would produce a much longer return period than the quoted 9.5 years.[103]

GSWC has a solar generation facility that is no longer in operation. GSWC's cost-benefit analysis is flawed and does not reflect the true cost to ratepayers. GSWC fails to demonstrate that these solar projects are cost effective to its ratepayers.

The Commission should not allow the budgets related to solar generation projects into rate base.

K. SCADA Upgrade Projects

The Commission should adjust GSWC's requested Supervisory Control and Data Acquisition (SCADA) budgets to reflect historical spending.

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[98] https://www.bls.gov/data/inflation_calculator.htm

[99] Capital Testimony p. 260 line 13 and p. 269 line 1.

[100] Attachment CA06 of the Capital Testimony.

[101] CA06 P. 48 of 68 table 25.

[102] CA06 P. 53 of 68 table 28.

[103] The increased capital costs as well as the significant increase in annual costs from depreciation and the rate of return would delay the "payback" period significantly.

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In the current GRC, GSWC requests $3,896,800 in Region I, $14,103,300 in Region II, and $12,292,500 in Region III in capital budgets for SCADA Upgrade related projects.[104] GSWC requests a further $2,225,200 in capital budgets for SCADA replated general office projects.

SCADA is an industry standard term for digital networks used for data acquisition and system control.[105] SCADA is, as the name implies, used for remote monitoring and control of water systems. In theory this provides a water utility an opportunity to increase its labor efficiency and thus reduces its expenses.[106] GSWC recognizes these potential savings and lists them as a support for the requested upgrades and budgets.[107] But GSWC does not reflect any cost savings in its RO Model.[108] Again asking ratepayers to fund projects but not forecasting the benefits, which if cost-effective should result in a decrease in customer rates.

In the previous GRC GSWC requested $5,712,600 in Region I SCADA projects and $9,846,800 in Region III.[109] The SCADA projects were among those agreed to by both parties in the proposed settlement and later adopted by the Commission.[110] But GSWC only spent $685,164 in 2020, $631,078 in 2021, and $1,624,184 in 2023 on SCADA projects in Region I. In Region III, GSWC spent

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[104] Jeung and Kubiak Field Technology Testimony - Vol 1 of 2 – APP P. 71 lines 1-5.

[105] https://alliancewater.com/how-does-scada-help-water-and-wastewater-management/

[106] https://alliancewater.com/how-does-scada-help-water-and-wastewater-management/

[107] Jeung and Kubiak Field Technology Testimony - Vol 1 of 2 – APP P. 48 lines 20-21, P. 54 lines 23-24, P.68 lines 20-23

[108] Response to SN2-017 SCADA Response Question 4. Attachment 2-5.

[109] Application 20-07-012

[110] D2306024 Approving and Adopting A Settlement Agreement Appendix A

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$558,175 in 2020, $1,425,681 in 2021, and $837,828 in 2022.[111] GSWC spent just 52% of its Region I authorized and ratepayer-funded SCADA budget and a paltry 29% of its Region III authorized and ratepayer-funded SCADA budget.

The requested General Office SCADA projects aim to centralize GSWC's SCADA system.[112] GSWC even states that "A SCADA Control Room can serve as central location for multiple CSA's if they are located closely in geographically proximity."[113] And "Standardization and centralization will lead to efficiencies in the way SCADA systems are being maintained and monitored, and water sites operated, leading to potential cost savings for GSWC customers."[114] But GSWC does not project any savings or reductions in staff or labor hours.[115] Instead GSWC projects additional expenses related to new cellular infrastructure required to support the SCADA upgrades.[116]

Additional SCADA investments and upgrades are not warranted without supporting savings for ratepayers. The Commission should adopt spending in line with GSWC recorded spending as opposed to their projected budgets. For Region II GSWC did not spend any capital funds on SCADA between 2018-2022.[117] To avoid Region II lagging behind and creating the need for a large investment to bring the Region II SCADA system up to date, the Region III five-year average should serve as a proxy due to the geographical and size similarity of the Region II and Region III rate making areas.

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[111] SN2-017 (SCADA) Q.1 - SCADA Expenditures 2018-2022 Q1 and Q2 - By Region. Attachment 2-6.

[112] Jeung and Kubiak Field Technology Testimony - Vol 1 of 2 – APP P. 33 lines 22-25.

[113] Jeung and Kubiak Field Technology Testimony - Vol 1 of 2 – APP P. 56 lines 24-27.

[114] Jeung and Kubiak Field Technology Testimony - Vol 1 of 2 – APP P. 70 lines 18-20.

[115] Response to SN2-017 SCADA Response Question 4. Attachment 2-5.

[116] Gomez Testimony Expenses – APP.pdf, PDF P.13 lines 8-13, P.20 lines 16-22, and P 21 lines 18-22.

[117] SN2-017 (SCADA) Q.1 - SCADA Expenditures 2018-2022 Q1 and Q2 - By Region. Attachment 2-6.

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The escalated five-year average for region I was $784,621 and $1,207,162 for Region III.[118] The Commission should adopt SCADA budgets of $784,621 for Region I and $1,207,162 for Region II and III.

L. Multi-GRC Projects

The Commission should deny GSWC's request to add in rate base the costs associated with developing studies or designs for future capital projects. GSWC would receive a profit if these costs are added to rate base.

GSWC requests multiple capital budget for projects that aim to develop studies or design for potential future projects. Ratepayers will not benefit from such studies or design until the actual construction of the projects are completed. Splitting the "design" portion of a project onto multiple GRCs shifts the project risk from the utility onto ratepayers as the studies could recommend a project with different scope and budget, and in some cases, no project at all. GSWC is compensated for project risk through its authorized rate of return. Ratepayers should not have to bear the risk of the studies or designs with a high level of uncertainty. The cost of studies and design can be capitalized and recovered with the accompanying capital projects when demonstrated to be reasonably providing benefit to ratepayers.

The following projects are design-only projects in Region III that provide no benefit to ratepayers in the current GRC and should not be added in rate base:

- Upper Pressure Zones, Hydraulic Evaluation $86,800 in 2025
- Bella Vista Plant, New Well – Phase 1 $533,100 in 2025
- Barstow System, Systemwide Hydraulic Evaluation $128,400 in 2024
- Apple Valley North System, Supply Evaluation $133,400 in 2025
- Sutter and Baker Zones, Hydraulic Evaluation $51,300 in 2024

[118] SN2-017 (SCADA) Q.1 - SCADA Expenditures 2018-2022 Q1 and Q2 - By Region (spending escalated to $2022 using CPI.) Attachment 2-6.

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- Lucernce Valley System, New Well- Phase 1 $533,100 in 2025
- Sherill Land Purchase, $170,000 in 2024 and $1,455,800 in 2025.

M. IX Filter Media Changeouts

The Commission should deny GSWC's request to add to rate base its proposed budgets related to ion exchange resin media changeouts for treatment plants that have yet to go online into rate base.

GSWC estimates the need for IX resin media changeouts at three plants that are being constructed to treat Per- and Polyfluorinated Substances (PFAS). GSWC forecasts $349,800 in 2026 for the Fairhaven Plant,[119] $316,400 in 2025 for the Bradford Plant,[120] and $316,400 in 2025 for the La Jolla Plant.[121]

All three plants have yet to go online and are currently being constructed.[122] GSWC estimates that the IX resin will last 18-20 months but provides no basis for its estimate.[123] Without efficacy data and the plant running, it would be difficult to determine precisely when the resin will need replacement. However, even by GSWC's estimates a plant that is optimistically completed and placed in service by June of 2024 should not require replacement resin until after 2025.

GSWC does not provide any support for projecting IX resin replacement within 18-20 months. GSWC in fact states that it lacks experience in operating PFAS systems.[124] GSWC supply forecasts shows both Fairhaven and La Jolla

[119] Capital Testimony p. 183 line 2.

[120] Capital Testimony p. 193 line 10.

[121] Capital Testimony p. 196 line 7.

[122] Capital Testimony p. 183 line 13, p. 193 line 20, and p. 196 line 16.

[123] Capital Testimony p. 183 line 15.

[124] Zhu Testimony Supply Forecast and Supply Expenses (Supply Testimony) – APP p. 12 lines 36-38.

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wells remaining offline. The Fairhaven well is listed as destroyed and removed from the forecast.[125] The La Jolla well is listed as removed from the forecast due to high PFAS contamination.[126] And the Bradford Well is projected as operating only at 75% of its five-year average.[127] GSWC is forecasting costs related to the three wells but only projects 75% of the benefit of one well and no production from the other two.

The Commission should deny GSWC's request to add to the rate base its proposed budgets related to the IX media replacements.

N. Mesh Overflow

The Commission should deny GSWC's request to add in rate base its proposed budgets related to the mesh overflow upgrades.

In the current GRC, GSWC requests the following budgets to install mesh overflow upgrades at each reservoir:

- La Vereda Plant $57,300 in 2025
- Newport Plant $57,300 in 2025
- Timberline Plant $57,300 in 2025
- Larkridge Plant $53,400 in 2025
- Linda Vista Plant $53,400 in 2025

The overflow pipe at each reservoir location is missing a preventative device to stop anything going into the overflow piping. But a simple duckbill check valve, or any check valve, can solve the issue for less than a tenth of the cost GSWC estimates to install the mesh.[128]

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[125] Supply Testimony p. 12 lines 29-30.

[126] Supply Testimony p. 13 lines 1-2.

[127] Supply Testimony p. 12 line 39.

[128] *See e.g.*, 12" Duckbill Cla-Val RF-DBO Neoprene Rubber Flex Check Valves Slip-Over Style $2,774.13 https://lehighvalleyvalve.com/duckbill-cla-val-rf-dbo-neoprene-rubber-flex-check-valves-slip-

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GSWC's request for $278,700 to install mesh at five overflow pipes is not justified. The Commission should deny GSWC's request to add in rate base its proposed budget to install the meshes on the above reservoirs.

IV. CONCLUSION

Because additions to rate base result in a utility receiving more profit, GSWC has an inherent incentive to pursue capital projects. GSWC's rate base growth has outpaced inflation and are projected to grow at a significant rate. The Commission should adopt Cal Advocates' recommended changes to the capital projects that are funded by ratepayers in this rate case cycle.

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CHAPTER 3 Early Retirements

I. INTRODUCTION

This Chapter discusses Cal Advocates' findings regarding early retirements. Early retirement of an asset leads to an imbalance between the depreciation reserve and plant in service, which leads to ratepayers paying for assets that no longer exist. An adjustment needs to be made to the recorded depreciation reserve to account for extraordinary early retirements.

II. SUMMARY OF RECOMMENDATIONS

GSWC's depreciation reserve should be increased by the following amounts in each rate making area:

- Arden $190
- Baypoint $348,267
- ClearLake $64,932
- Cordova $4,580,903
- Cypress Ridge $189,357
- Los Ossos $74,721
- Nippon $1,932
- Orcutt $607,780
- Simi $1,072,162
- Region II $21,676,834
- Region III $15,799,345

III. ANALYSIS

A. Background Information

Depreciation expense included in a utility's annual authorized budget (i.e. revenue requirement) recovers the original cost of utility plant, less an estimated net salvage value, over the useful life of an asset.[129] The same depreciation expense is then recorded in the depreciation reserve which is subtracted from rate base so that shareholders do not continue to earn a profit on the portion of their initial investment that has been repaid by the ratepayers through the depreciation expense included in revenue requirements.

When an asset is retired from service, the original cost of the asset is removed from the plant in service account (a credit) and the same amount is removed from the depreciation reserve (a debit).[130] This is standard ratemaking practice for retirements and results in no net change in rate base assuming that an asset is being retired from service after its complete useful life. For example, a $100 asset that has an estimated useful life of 10 years is removed from service after 10 years. $100 will be deducted from both plant in service and the depreciation reserve. Thus, the asset is removed from service and there is no net impact on depreciation reserve or rate base.

When an asset is retired from service early, the standard ratemaking practice creates an imbalance. Only a portion of the asset's value has accumulated in the depreciation reserve, but the full original cost is removed from both the plant in service and depreciation reserve accounts. Because the depreciation reserve is a deduction from rate base, removing the full amount from the depreciation reserve when only a portion has been added results in a net negative or effectively an addition to rate base.

Returning to the example of a $100 asset, assume the asset is retired after only five years of service or half its expected useful life. In this case, the asset would have had five years of accumulated depreciation or $50 paid by ratepayers. However, when the asset is retired the full original cost is removed from both

[129] CPUC Standard Practice U-4-W p. 6.

[130] CPUC Standard Practice U-4-W p. 7.

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plant in service and the depreciation reserve. $100 would be removed from the depreciation reserve when only $50 was added. As a result, there is a $50 net increase in rate base that lasts in perpetuity.

The Commission's standard practice for determination of straight-line remaining life depreciation accruals (SP U-4-W) recognizes this issue in what is termed "Extraordinary Obsolescence".[131] SP U-4-W states "unexpected early retirement of a major unit of property may require some form of an adjustment." An adjustment for the assets that have been retired extraordinarily early is warranted.

While "a major unit of property" is not defined by the Commission, a utility's bookkeeping practices should not allow it to receive an unfair return from a mathematical flaw. If a utility chooses to record its assets as multiple smaller amounts instead of recording them as larger projects, this does not change the necessity of fixing the imbalance created by early retirements.

It is also possible that some assets might provide service to ratepayers beyond their projected lives. But in these scenarios the utility will still benefit from the assets being in service by continuing to earn an annual depreciation expense for assets that have been fully funded by ratepayers which outweighs any reduction in rate base due to the associated increase in the accumulated depreciation.[132] Thus the assets that remain in service past their estimated life still provide a benefit to the utility and do not balance out those that are retired early.

B. Analysis

Cal Advocates examined GSWC's retirements from the most recent three years since GSWC's last GRC, 2020 through 2022. Unfortunately, a significant

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[131] CPUC Standard Practice U-4-W p. 42.

[132] Depreciation expense is calculated based on the total undepreciated plant in service.

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number of GSWC's retired assets were missing information due to what GSWC characterized as a change in bookkeeping software in 2011.[133] Of the assets Cal Advocates was able to examine, Cal Advocates found a consequential number were retired with 50% or more of their expected service life remaining.

Across all three regions, most early retired assets were meters that were in service for five years or fewer. GSWC estimates the useful life of meters at approximately 17 years.[134] Even the Commission expects that meters should be in service between 10-20 years prior to them requiring refurbishment or replacement.[135]

Attachment 3-1 summarizes Cal Advocates' analysis of GSWC's early retirements and the amounts that should be added back into the depreciation reserve for each rate making area. Attachment 3-2 shows Cal Advocates calculations to determine the early retirements and the amounts that should be added back into rate base.

For monopoly utilities, the Commission is a substitute for competition. In a competitive environment, a business would not benefit from the early retirement of assets. When an asset fails to last as long as expected, a cost is incurred, and a loss must be reported.[136] Assets not serving their expected lifetime is a normal risk of business. Utilities are compensated for business risk through their Commission-approved rate of return. Allowing GSWC to transfer the entire cost of an extraordinary early retirement onto ratepayers is inconsistent with what would be allowed in a competitive environment. In addition to passing over the

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[133] As explained by GSWC in a September 6th meeting which led to the requested data being modified from 2011-2016 to 2012-2016.

[134] From GSWC's provided depreciation study workpapers showing a depreciation rate of 5.81%.

[135] GO 103-A P. 23 6. A Maximum Time Periods for Meters in Service.

[136] https://bizfluent.com/info-7757071-effect-depreciation-balance-sheets.html

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risk of a failed asset, GSWC will also receive a profit in perpetuity on that cost unless the depreciation reserve adjustments are adopted.

IV. CONCLUSION

Under standard ratemaking, early retirement of assets leads to an imbalance between accounts. However, the Commission recognizes that extraordinarily early retirements may require an adjustment to prevent ratepayers from being burdened with the cost of assets that fail to achieve their estimated life expectancy. In the case of extraordinary retirements (i.e. those where the asset has been replaced after providing service for less than half of the time ratepayers should have received benefits), the Commission should adjust the depreciation reserve consistent with the calculations presented in this chapter to prevent GSWC from not only transferring the full cost of early retirements on to ratepayers but from having ratepayers also pay shareholder profits on that cost, while also paying for the cost and profit on replacements.

CHAPTER 4 Rate base Sampling

I. INTRODUCTION

This chapter discusses Cal Advocates' review of GSWC's historical rate base. A majority of the impact of GSWC capital spending on rates is derived not from its proposed capital additions but from recorded historical plant additions. As such it is important to ensure that assets

II. SUMMARY OF RECOMMENDATIONS

III. ANALYSIS

GSWC had a 2022 end of year rate base of $2.1billion.[137] In contrast, projected net additions are $120 million in 2023, $201million in 2024, $183, million in TY 2025, and $160million in 2026.[138] A utility is only afforded the opportunity to receive profit on investments that are prudent and used and useful. It would be nearly impossible to examine all recorded assets in a utility's rate base within the time frame of a GRC. As such Cal Advocates attempted to examine GSWC's rate base plant accounts through targeted statistical sampling.

Cal Advocates began its review of GSWC's rate base by examining all additions to rate base from 2012 through 2016.[139] Of the total additions Cal Advocates selected the years with the highest additions to verify that those additions remain in service and are used and useful.[140] Cal Advocates selected specific assets that amount to approximately 10% of the additions for the selected utility accounts. Cal Advocates examined recorded

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[137] GSWC RO Model SEC-50_RB_Plant sheet Rec Tot Utility Plant EOY WS-14 column J.

[138] GSWC RO Model SEC-50_RB_Plant sheet Proj Tot Utility Plant EOY W-15 column I.

[139] Cal Advocates data request SIH-004 2011 to 2016 Plant Additions Response is included as attachment 4-1 to this testimony.

[140] SIH-014 Recorded Plant Additions Response included as attachment 4-2 to this testimony.

data associated with the assets from the last five years to ensure that they remain in service.

For pumps and motors Cal Advocates looked at recorded hour meter usage to ensure that the assets were still in service. For pressure relief valves Cal Advocates examined recorded pressure data showing that the pressure relief valve is in service. For tanks and reservoirs Cal Advocates examined recorded water levels.

Cal Advocates did not determine any of the sampled assets were no longer used or useful. Even though Cal Advocates' sampling did not determine any assets were not out of service this does not mean that Cal Advocates certifies that GSWC's recoded rate base is entirely used and useful, only that the sampled assets were.

IV. CONCLUSION

None of the assets Cal Advocates sampled were found to be out of service.

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Attachment: Qualifications of Witness

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QUALIFICATIONS AND PREPARED TESTIMONY

OF

Sari Ibrahim

Q.1 Please state your name and address.

A.1 My name is Sari Ibrahim and my business address is 320 West 4th Street, Suite 500, Los Angeles, California 90013.

Q.2 By whom are you employed and what is your job title?

A.2 I am a Utilities Engineer in the Water Branch of the Public Advocates Office.

Q.3 Please describe your educational and professional experience.

A.3 received a Bachelor of Science Degree in Civil Engineering from the Illinois Institute of Technology in 2013. I also earned a Master of Science Degree in Civil Engineering from California State University, Fullerton in 2019.

I have been with the Public Advocates Office – Water Branch since September 2019. I have served as an expert witness in multiple GRCs. Prior to joining the Public Advocates Office, I worked as an engineer primarily in the environmental remediation field for over six years.

Q.4 What is your area of responsibility in this proceeding?

A.4 My areas of responsibility are examining cost adders in GSWC's capital project estimates, Region III capital projects, early retirements, rate base sampling, and the Results of Operations Model.

Q.5 Does that complete your prepared testimony?

A.5 Yes.

`

Attachment 1-1: GSWC Cost Estimating Tool

Workbook Lists (Update on this page)

Last Updated	9/29/2022
Updated By	Andrew Jonsson, DCW

Markups

Markup Title	Typical %	Enter Value Here
Mobilization	10.00%	10.00%
Design Contingency	20.00%	20.00%
Construction Contingency	3.00%	3.00%
Payment and Performance Bond	3.00%	3.00%
Escalation	12.00%	12.00%
Direct Cost (Permits & Fees)	15.00%	15.00%

Region List

Region I Systems	Region	Region Cost Center #	Region District	Region CSA	Region County	Site Access Factor	Site Location Factor	Subcontractor Availability	Location Determined Combined Markup	Sales Tax
Arden System	Region I	117	Northern	Arden-cordova	Sacramento	Low Impact	Suburban	Low Availability	11%	8.75%
Cordova System	Region I	118	Northern	Arden-cordova	Sacramento	Low Impact	Suburban	Low Availability	10.50%	8.75%
Robbins System	Region I	119	Northern	Robbins	Sutter	Low Impact	Suburban	Low Availability	11%	7.25%
Sutter Pointe	Region I	121	Northern	Sutter Pointe	Sutter	Low Impact	Suburban	Low Availability	11%	7.25%
Bay Point System	Region I	124	Northern	Bay Point	Contra Costa	Low Impact	Suburban	Low Availability	11%	8.75%
Clearlake System	Region I	131	Northern	Clearlake	Lake	Medium Impact	Rural	Extremely Low Availability	28%	8.75%
Los Osos System	Region I	146	Coastal	Los Osos	San Luis Obispo	Low Impact	Suburban	Low Availability	11%	7.25%
Edna Road System	Region I	147	Coastal	Los Osos	San Luis Obispo	Low Impact	Suburban	Low Availability	11%	7.25%
Lake Marie System	Region I	158	Coastal	Santa Maria	Santa Barbara	Low Impact	Suburban	Low Availability	11%	8.75%
Orcutt System	Region I	159	Coastal	Santa Maria	Santa Barbara	Low Impact	Suburban	Low Availability	11%	7.25%
Sisquoc System	Region I	160	Coastal	Santa Maria	Santa Barbara	Low Impact	Suburban	Low Availability	11%	7.25%
Tanglewood System	Region I	161	Coastal	Santa Maria	Santa Barbara	Low Impact	Suburban	Low Availability	11%	8.75%
Nipomo System	Region I	162	Coastal	Santa Maria	San Luis Obispo	Low Impact	Suburban	Low Availability	11%	7.75%
Cypress Ridge	Region I	164	Coastal	Santa Maria	San Luis Obispo	Low Impact	Suburban	Low Availability	11%	7.75%
Simi Valley System	Region I	167	Coastal	Simi Valley	Ventura	Low Impact	Suburban	Low Availability	11%	7.25%
Artesia System	Region II	219	Central	Central Basin East	Los Angeles	Low Impact	Urban	High Availability	3%	9.50%
Norwalk System	Region II	220	Central	Central Basin East	Los Angeles	Low Impact	Urban	High Availability	3%	10.25%
Bell-Bell Gardens System	Region II	227	Central	Central Basin West	Los Angeles	Low Impact	Urban	High Availability	3%	10.25%
Florence Graham System	Region II	228	Central	Central Basin West	Los Angeles	Low Impact	Urban	High Availability	3%	9.50%
Hollydale System	Region II	229	Central	Central Basin West	Los Angeles	Low Impact	Urban	High Availability	3%	9.50%
Willowbrook System	Region II	230	Central	Central Basin West	Los Angeles	Low Impact	Urban	High Availability	3%	9.50%
Culver City System	Region II	236	Central	Culver City	Los Angeles	Low Impact	Urban	High Availability	3%	10.25%
Southwest System	Region II	250	Southwest	Southwest	Los Angeles	Medium Impact	Urban	High Availability	11%	9.50%
West Orange System	Region III	269	Orange County	Los Alamitos	Orange	Low Impact	Urban	Typical Availability	4%	9.25%
Cowan Heights System	Region III	274	Orange County	Placentia	Orange	Medium Impact	Urban	Typical Availability	12%	7.75%
Placentia-Yorba Linda Syste	Region III	275	Orange County	Placentia	Orange	Low Impact	Urban	Typical Availability	4%	7.75%
Claremont System	Region III	317	Foothill	Claremont	Los Angeles	Low Impact	Urban	Typical Availability	4%	9.50%
San Dimas System	Region III	326	Foothill	San Dimas	Los Angeles	Low Impact	Urban	Typical Availability	4%	9.50%
South Arcadia System	Region III	332	Foothill	San Gabriel Valley	Los Angeles	Low Impact	Urban	Typical Availability	4%	10.25%
South San Gabriel System	Region III	333	Foothill	San Gabriel Valley	Los Angeles	Low Impact	Urban	Typical Availability	4%	10.25%
Barstow System	Region III	347	Mountain / Desert	Barstow	San Bernardino	Low Impact	Urban	Low Availability	9%	8.75%
Calipatria-Niland System	Region III	352	Mountain / Desert	Calipatria	Imperial	Medium Impact	Rural	Extremely Low Availability	28%	7.75%
Morongo Del Norte System	Region III	358	Mountain / Desert	Morongo Valley	San Bernardino	Low Impact	Urban	Low Availability	9%	7.75%
Morongo Del Sur System	Region III	359	Mountain / Desert	Morongo Valley	San Bernardino	Low Impact	Urban	Low Availability	9%	7.75%
Apple Valley South System	Region III	364	Mountain / Desert	Apple Valley	San Bernardino	Low Impact	Urban	Low Availability	9%	7.75%
Desert View System	Region III	365	Mountain / Desert	Apple Valley	San Bernardino	Low Impact	Urban	Low Availability	9%	7.75%
Apple Valley North System	Region III	366	Mountain / Desert	Apple Valley	San Bernardino	Low Impact	Urban	Low Availability	9%	7.75%
Lucern Valley System	Region III	367	Mountain / Desert	Apple Valley	San Bernardino	Low Impact	Urban	Low Availability	9%	7.75%
Wrightwood System	Region III	372	Mountain / Desert	Wrightwood	Los Angeles/San Bernardino	Low Impact	Urban	Typical Availability	4%	7.75%

Contact List

Name (First Last)	Title	Company	Phone	Email
Ernest Gisler	Director of Engineering	Golden State Water Company	(916) 853-3612	eagisler@gswater.com
Mark Insco	Engineering Manager	Golden State Water Company	(916) 534-0541	MarkInsco@gswater.com
Chin Pak	Senior Civil Engineer	Golden State Water Company	(714) 296-1502	CCPAK@gswater.com
Daniel Flores	Senior Civil Engineer	Golden State Water Company	(714) 873-8134	Daniel.Flores@gswater.com
Megan McWilliams	Senior Civil Engineer	Golden State Water Company	(916) 517-5424	Megan.McWilliams@gswater.com
Lincoln Kha	Associate Engineer	Golden State Water Company	(626) 513-1698	Lincoln.Kha@gswater.com
Maria Guira	Engineering Assistant	Golden State Water Company		Maria.Guira@gswater.com

Location-Determined Mark-ups

Elements	Sub-Element	%
Access Factor	Low Impact	0.0%
Access Factor	Medium Impact	7.5%
Access Factor	High Impact	15.0%
Location Factor	Urban	1.0%
Location Factor	Suburban	3.0%
Location Factor	Rural	10.0%
Location Factor	Remote	15.0%
Subcontractor Availability	Extremely Low Availability	10.0%
Subcontractor Availability	Low Availability	7.5%
Subcontractor Availability	Typical Availability	3.0%
Subcontractor Availability	High Availability	2.0%
Subcontractor Availability	Extremely High Availability	1.0%

Escalation

YEAR	%	UNIT	ADDER	SUM	% UP
0	0.0%	$ -	$ -	$ -	
1	5.0%	$ -	$ -	$ -	
2	7.0%	$ -	$ -	$ -	
3	3.5%	$ -	$ -	$ -	
4	3.5%	$ -	$ -	$ -	
5	3.5%	$ -	$ -	$ -	
6	3.5%	$ -	$ -	$ -	
7	3.5%	$ -	$ -	$ -	
8	3.5%	$ -	$ -	$ -	
9	3.5%	$ -	$ -	$ -	
10	5.5%	$ -	$ -	$ -	
11	3.5%	$ -	$ -	$ -	
12	3.5%	$ -	$ -	$ -	
13	3.5%	$ -	$ -	$ -	
14	3.5%	$ -	$ -	$ -	
15	3.5%	$ -	$ -	$ -	
16	3.5%	$ -	$ -	$ -	
17	3.5%	$ -	$ -	$ -	
18	3.5%	$ -	$ -	$ -	
19	3.5%	$ -	$ -	$ -	
20	5.5%	$ -	$ -	$ -	
21	4.0%	$ -	$ -	$ -	
22	3.5%	$ -	$ -	$ -	
23	3.5%	$ -	$ -	$ -	
24	3.5%	$ -	$ -	$ -	
25	3.5%	$ -	$ -	$ -	
26	3.5%	$ -	$ -	$ -	
27	3.5%	$ -	$ -	$ -	
28	3.5%	$ -	$ -	$ -	
29	3.5%	$ -	$ -	$ -	
30	5.5%	$ -	$ -	$ -	
31	4.0%	$ -	$ -	$ -	
32	3.0%	$ -	$ -	$ -	
33	3.0%	$ -	$ -	$ -	
34	3.0%	$ -	$ -	$ -	
35	3.0%	$ -	$ -	$ -	
36	3.0%	$ -	$ -	$ -	
37	3.0%	$ -	$ -	$ -	
38	3.0%	$ -	$ -	$ -	
39	3.0%	$ -	$ -	$ -	
40	3.5%	$ -	$ -	$ -	

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Attachment 1-2: Response to SIH-003 Project Cost Estimates

August 8, 2023

Sari Ibrahim, Public Advocates Office
CALIFORNIA PUBLIC UTILITIES COMMISSION
505 Van Ness Avenue
San Francisco, CA 94102

Subject: Data Request SIH-003 (A.23-XX-0XX) Project Cost Estimates
Due Date: August 3, 2023 Extended Due Date: August 10, 2023

Dear Sari Ibrahim,

In response to the above referenced data request number, we are pleased to submit the following responses:

Project Cost Estimates
Referring to the plant project cost estimates GSWC uses to develop capital budgets.

Question 1:
Provide a table listing the location specific markup for each of GSWC's water systems.

Response 1:
See 'Drop Down Validation' tab within each plant PCE. This tab is currently hidden in the PCE file.

Region List										
Region I Systems	**Region**	**Region Cost Center #**	**Region District**	**Region CSA**	**Region County**	**Site Access Factor**	**Site Location Factor**	**Subcontractor Availability**	**Location Determined Combined Markup**	**Sales Tax**
Arden System	Region I	117	Northern	Arden-cordova	Sacramento	Low Impact	Suburban	Low Availability	11%	8.75%
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Tanglewood System	Region I	161	Coastal	Santa Maria	Santa Barbara	Low Impact	Suburban	Low Availability	11%	8.75%
Nipomo System	Region I	162	Coastal	Santa Maria	San Luis Obispo	Low Impact	Suburban	Low Availability	11%	7.75%
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Hollydale System	Region II	229	Central	Central Basin West	Los Angeles	Low Impact	Urban	High Availability	3%	9.50%
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Claremont System	Region III	317	Foothill	Claremont	Los Angeles	Low Impact	Urban	Typical Availability	4%	9.50%
San Dimas System	Region III	326	Foothill	San Dimas	Los Angeles	Low Impact	Urban	Typical Availability	4%	9.50%
South Arcadia System	Region III	332	Foothill	San Gabriel Valley	Los Angeles	Low Impact	Urban	Typical Availability	4%	10.25%
South San Gabriel System	Region III	333	Foothill	San Gabriel Valley	Los Angeles	Low Impact	Urban	Typical Availability	4%	10.25%
Barstow System	Region III	347	Mountain / Desert	Barstow	San Bernardino	Low Impact	Urban	Low Availability	9%	8.75%
Calipatria-Niland System	Region III	352	Mountain / Desert	Calipatria	Imperial	Medium Impact	Rural	Extremely Low Availability	28%	7.75%
Morongo Del Norte System	Region III	358	Mountain / Desert	Morongo Valley	San Bernardino	Low Impact	Urban	Low Availability	9%	7.75%
Morongo Del Sur System	Region III	359	Mountain / Desert	Morongo Valley	San Bernardino	Low Impact	Urban	Low Availability	9%	7.75%
Apple Valley South System	Region III	364	Mountain / Desert	Apple Valley	San Bernardino	Low Impact	Urban	Low Availability	9%	7.75%
Desert View System	Region III	365	Mountain / Desert	Apple Valley	San Bernardino	Low Impact	Urban	Low Availability	9%	7.75%
Apple Valley North System	Region III	366	Mountain / Desert	Apple Valley	San Bernardino	Low Impact	Urban	Low Availability	9%	7.75%
Lucerne Valley System	Region III	367	Mountain / Desert	Apple Valley	San Bernardino	Low Impact	Urban	Low Availability	9%	7.75%
Wrightwood System	Region III	372	Mountain / Desert	Wrightwood	Los Angeles/San Bernardino	Low Impact	Urban	Typical Availability	4%	7.75%

Question 2:
Explain how the location specific markups were determined and provide all supporting documentation and workpapers.

Response 2:
Ratings for Site Access Factor, Site Location Factor and Subcontractor Availability were determined in discussions between the consultant (DCW) who developed the PCE template and GSWC Engineering Planning and Capital Program Management staff. The scoring percentage associated with each rating element (see table below) was developed by DCW.

Location-Determined Mark-ups		
Elements	**Sub-Element**	**%**
Access Factor	Low Impact	0.0%
Access Factor	Medium Impact	7.5%
Access Factor	High Impact	15.0%
Location Factor	Urban	1.0%
Location Factor	Suburban	3.0%
Location Factor	Rural	10.0%
Location Factor	Remote	15.0%
Subcontractor Availability	Extremely Low Availability	10.0%
Subcontractor Availability	Low Availability	7.5%
Subcontractor Availability	Typical Availability	3.0%
Subcontractor Availability	High Availability	2.0%
Subcontractor Availability	Extremely High Availability	1.0%

Question 3:
Explain how the Mobilization markup factor was determined and provide all supporting documentation and work papers.

Response 3:
The mobilization markup factor was determined by DCW, based on their expertise and discussions between DCW and GSWC Engineering Planning and Capital Program Management staff.

Question 4:
Explain how the Payment and Performance Bond factors were determined and provide all supporting documentation and work papers.

Response 4:
The Payment and Performance Bond factor of 3% was developed by evaluating historical Payment and Performance Bonds received in 2022. The rates ranged from 0.3% to 10.82% with an average value of 2.16%. A factor of 3% was selected as a good proxy for cost-estimating purposes. Please see the attachment named "SIH-003 4.a" for the list of 2022 Payment and Performance Bonds.

Question 5:
Explain what the Direct Costs (Permits & Fees) factor includes.

Response 5:
The Direct Costs factor includes permits, engineering design, inspection, District/Regional costs, insurance, tools, taxes, and construction services.

Question 6:
Explain how the Direct Costs (Permits & Fees) factor was determined and provide all supporting documentation and work papers.

Response 6:
The Direct Costs factor is based on GSWC experience as to the proportional cost of permits, engineering design, inspection, District/Regional costs, insurance, tools, taxes, and construction services associated with a typical plant project. This factor was validated by DCW, based on their expertise and discussions between DCW and GSWC Engineering Planning and Capital Program Management staff.

END OF RESPONSE

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Attachment 1-3: Response to SIH-008 Sherrill Land Acquisition

Golden State Water Company
A Subsidiary of American States Water Company

September 19, 2023

Sari Ibrahim, Public Advocates Office
CALIFORNIA PUBLIC UTILITIES COMMISSION
505 Van Ness Avenue
San Francisco, CA 94102

Subject: Data Request SIH-006 (A.23-08-010) Region 1 Retirements
Due Date: September 19, 2023

Dear Sari Ibrahim,

In response to the above referenced data request number, we are pleased to submit the following responses:

Question 1:
In PCE_RIII - West Orange (Sherrill Plant, Land Acquisition) workbook in the Estimate Creator sheet, GSWC provide a unit cost estimate of $849,000 for land acquisition. Please provide the following information:

a. Under the Notes/Source GSWC lists Ledina Hill, explain what this refers to and provide documents as they may relate to the Sherill Plant, Land Acquisition.
b. Provide any and all documents or written communications supporting the unit cost estimate.

Response 1:

a. Ledina Hill is GSWC's Real Estate Services Administrator and her role in the company is to facilitate real estate transactions, including land acquisition.
b. See the attached .pdf titled 'Sherrill Well #1 Land Acquisition for Treatment System'.

END OF RESPONSE

Kha, Lincoln

From:	Hill, Ledina
Sent:	Friday, September 9, 2022 6:49 PM
To:	Kha, Lincoln; Vecchiarelli, Ken; Villarreal, Ernie
Cc:	Insco, Mark; Gisler, Ernest A.; Hanford, Robert N.
Subject:	Sherrill Well #1 Land Acquisition for Treatment System
Attachments:	Properties near Sherrill Well#1.pdf

Hello Lincoln:

Attached are properties with current market prices near the Sherrill Well #1.

Approach #1: Send Letter of Interest (LOI) to neighbors and see if anyone is willing to sell.

Approach #2: Make an offer to purchase for this one property currently for sale
One property currently on the market for sale.

Approach #3: Send LOI for approx $650K to City of Stanton
Vacant Lot at 8881 Pacific Ave, Anaheim, CA 92804
See if the City of Stanton is willing to sell.

Next Steps:

1. LOI's will need a minimum of 30 days for property owners to respond.
2. Order Appraisal a minimum of 30 days to complete.
3. Escrow to purchase is a minimum of 30 days to complete.

Please let me know when you are ready to proceed.

Best Regards,

Ledina Hill
Golden State Water Company
Real Estate Services Administrator
M: 714-616-4295
E: ledina.hill@gswater.com

From: Kha, Lincoln <Lincoln.Kha@gswater.com>
Sent: Friday, September 9, 2022 9:18 AM
To: Hill, Ledina <Ledina.Hill@gswater.com>; Vecchiarelli, Ken <Ken.Vecchiarelli@gswater.com>; Villarreal, Ernie <Ernie.Villarreal@gswater.com>
Cc: Insco, Mark <MarkInsco@gswater.com>; Gisler, Ernest A. <eagisler@gswater.com>
Subject: Sherrill Well #1 Land Acquisition for Treatment System

Good morning all,

During our 2023 OC GRC meeting we have determined that this project is a high priority project. In the meeting it seems like the city has purchased a few of the parcels in this area to build new developments for low income housing. A thought we had during the meeting was to obtain the parcel right across (Red) from the Sherrill Plant Site. This plant site is ideal because it is the closest parcel and it is an irregular shape to build a house on.

Ledina can you look into who owns this parcel and if it is for sale? If not what would be the closest parcel to the Sherrill Plant (Blue)?

Thank you,

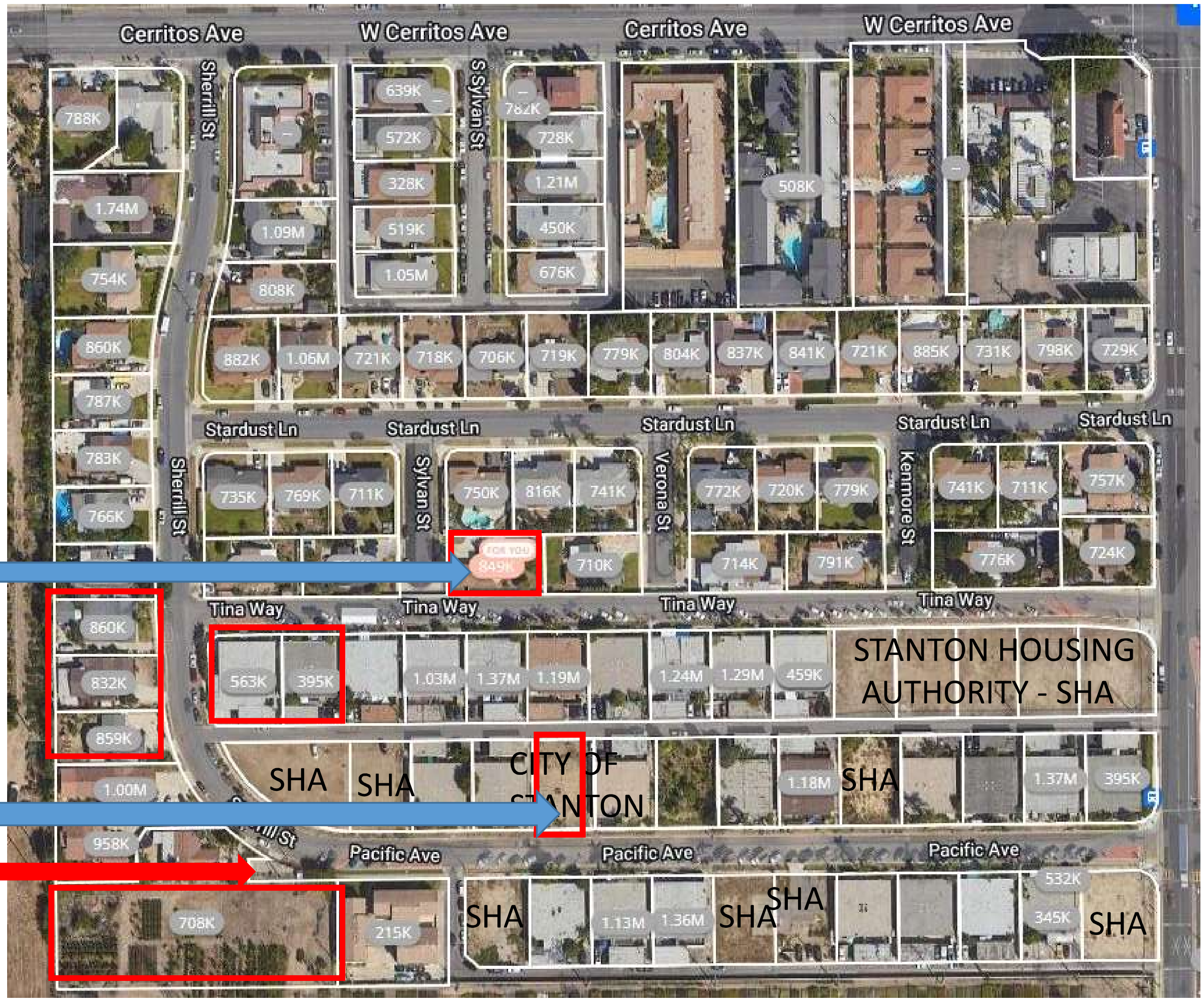
Lincoln Kha
Associate Civil Engineer
Engineering Planning Department
Cell: (626) 513-1698
Work: (714) 535-7711 Ext. 231

FOR SALE $849K

SEND LOI'S
TO NEIGHBORS

SEND LOI $650K

Sherrill Well#1



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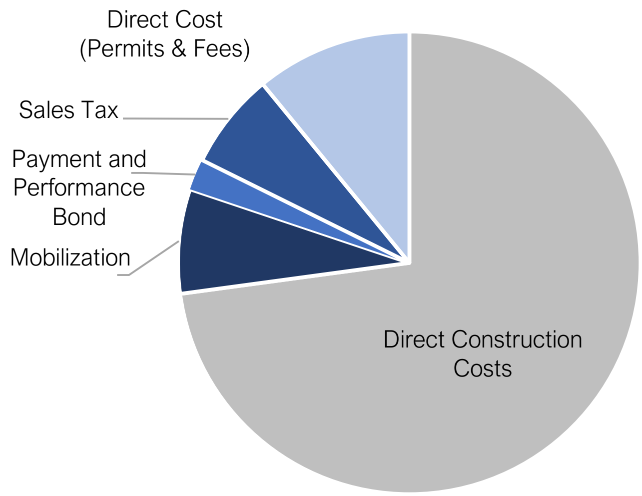
Attachment 1-4: PCE_RIII - West Orange (Sherrill Plant, Land Acquisition)

Sherrill Plant, Land Acquisition
Cost Estimate

Total Project Cost:

Direct	$	132,444
Construction	$	1,079,419
Total	$	1,211,863



Total Project Cost (with Overhead, Contingency & Escalation included):

Direct	$	170,000
Construction	$	1,455,800
Total	$	1,625,800

Estimate Date	April 11, 2023	Water Distribution System	West Orange System
Estimate By	Lincoln Kha	District	Orange County
Approved By	Mark Insco	Customer Service Area	Los Alamitos
Region	III	Region County	Orange

Project Description

Purchase land for Sherrill Well No. 1 water treatment system

Project Need

Sherrill Well No. 1 was drilled in 1963 and has a design capacity of 500 gpm. Sherrill Well No. 1 produces reliable groundwater supply for the West Orange System. Currently, Sherrill Well No. 1 is offline due to PFOA/PFOS constituents in the groundwater. The average PFOA and PFOS concentration in the Sherill Well is 10.5 ng/L and 21.5 ng/L respectively. The concentrations for both PFOA/PFOS are above EPA's proposed MCL of 4 ng/L announced on March 14th ,2023. Sherrill Well No. 1 has been impacted by PFAS constituents in the groundwater table and requires treatment to bring this well back online. However, due to the limited size/space limitations of the existing site, additional land will be needed in order to construct the necessary treatment facilities.

This project was identified as a high-priority project. The risks associated with this asset are driven by the System Condition Assessment (Section 8) of the 2022 Master Plan. (See Table 8-1)

The GSWC stated mission of providing a safe and economical water supply was used as the basis for the desired level of service for all GSWC systems. An asset hierarchy was developed to provide that level of service based on health, safety and security, the financial impacts on the utility, public confidence, compliance with regulations, permits and codes, and system reliability.

Sherrill Plant, Land Acquisition
Cost Estimate

April 11, 2023

	Direct Construction Costs	Mobilization	Payment and Performance Bond	Sales Tax	Direct Cost (Permits & Fees)
$	882,960.00	88,296.00	26,488.80	81,673.80	132,444.00

Direct Construction Costs		**882,960.00**
Mobilization	10.00%	88,296.00
Design Contingency		incl. in Capital Project List
Construction Contingency		incl. in Capital Project List
Payment and Performance Bond	3.00%	26,488.80
Sales Tax	9.25%	81,673.80
Escalation		incl. in Capital Project List
Direct Cost (Permits & Fees)	15%	132,444.00
Recommended Budget		**1,211,862.60**

Detail

Item Description	Quantity	Unit	Unit Rate	Total
Land Acquisition	1	LS	882,960.00	882,960.00

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Attachment 2-1 American States Water Company Announces Third Quarter 2023 Results

News Release Details

American States Water Company Announces Third Quarter 2023 Results

November 6, 2023 at 4:30 PM EST

PDF Version

- ***$0.16 per share increase, or 23.2%, in recorded third quarter 2023 consolidated diluted EPS ("2023 third quarter results") compared to third quarter of 2022***
  - ***or $0.12 per share increase, or 16.4%, as adjusted, to remove a favorable variance of $0.04 per share resulting from the receipt of a final decision in the cost of capital proceeding in June 2023.***
- ***American States Water Company filed a water utility general rate case in August 2023 for new rates in the years 2025 - 2027***
  - ***Filing outlines a core business infrastructure investment plan of $611.4 million over the rate cycle.***

SAN DIMAS, Calif.--(BUSINESS WIRE)--Nov. 6, 2023-- American States Water Company (NYSE:AWR) today reported basic and fully diluted earnings per share of $0.85 for the quarter ended September 30, 2023, as compared to basic and fully diluted earnings per share of $0.69 for the quarter ended September 30, 2022, an increase of $0.16 per share, or 23.2%, which includes a favorable variance of $0.04 per share resulting from the impact of accounting estimates recorded in the third quarter of 2022 for revenues subject to refund related to the pending cost of capital proceeding at that time, which were subsequently reversed during the second quarter of 2023 upon receipt of a final decision adopted by the California Public Utilities Commission ("CPUC") in June 2023, as discussed immediately below.

On June 29, 2023, a final decision was adopted by the CPUC in the cost of capital proceeding at AWR's regulated water utility segment, Golden State Water Company ("GSWC") that, among other things, adopted a lower cost of debt of 5.1% as compared to 6.6% previously authorized. During 2022, GSWC had recorded estimated revenues subject to refund to reflect the lower cost of debt. Based on the final decision, all adjustments to rates are to be prospective and not retroactive. GSWC filed an advice letter that implemented the new cost of capital effective July 31, 2023. As a result, management updated the accounting estimates recorded during 2022 that resulted in the reversal during the second quarter of 2023 of all the revenues subject to refund that had been recorded during 2022, of which $1.9 million, or $0.04 per share, was recorded during the three months ended September 30, 2022. Excluding the impact from the final cost of capital proceeding for the three months ended September 30, 2022, adjusted consolidated diluted earnings were $0.73 per share, compared to adjusted and recorded consolidated diluted earnings of $0.85 per share for the three months ended September 30, 2023, an adjusted increase of $0.12 per share for 2023, or 16.4%, largely due to new 2023 water rates approved by the CPUC.

Third Quarter 2023 Results

The table below sets forth a comparison of the third quarter 2023 diluted earnings per share contribution recorded by business segment and for the parent company with amounts recorded during the same period in 2022.

	Diluted Earnings per Share		
	Three Months Ended		
	9/30/2023	9/30/2022	CHANGE
Water	$ 0.72	$ 0.54	$ 0.18
Electric	0.04	0.04	—
Contracted services	0.12	0.12	—

AWR (parent)	(0.02)	(0.01)	(0.01)
Consolidated fully diluted earnings per share, as recorded (GAAP)	0.85	0.69	0.16
Adjustment to GAAP measure:			
Impact of revenues subject to refund recorded in 2022*	—	0.04	(0.04)
Consolidated diluted earnings per share, as adjusted (Non-GAAP)*	$ 0.85	$ 0.73	$ 0.12
Water diluted earnings per share, as adjusted (Non-GAAP)*	$ 0.72	$ 0.58	$ 0.14

Note: Certain amounts in the table above may not foot or crossfoot due to rounding.

* The adjustment to recorded diluted earnings per share relates to the water segment. The water segment's adjusted earnings for 2022 exclude the impact of accounting estimates made in 2022 for revenues subject to refund related to the pending cost of capital proceeding at that time, and as shown separately in the table above. The lower revenues recorded during the three months ended September 30, 2022 totaled $1.9 million, or $0.04 per share, based on the estimate of revenues subject to refund that were subsequently reversed in June 2023 upon receiving the final decision in the cost of capital proceeding making all adjustments to rates prospective and not retroactive.

Water Segment:

For the three months ended September 30, 2023, recorded diluted earnings from the water utility segment were $0.72 per share, as compared to $0.54 per share for the same period in 2022, an increase of $0.18 per share, which includes a favorable variance of $0.04 per share from the impact of accounting estimates made in the third quarter of 2022 for revenues subject to refund related to the pending cost of capital proceeding at that time, which were subsequently reversed during the second quarter of 2023, as previously discussed and as shown separately in the table above. Excluding this item, adjusted diluted earnings at the water segment for the third quarter of 2022 were $0.58 per share, as compared to adjusted and recorded earnings of $0.72 per share for the third quarter of 2023, an adjusted increase at the water segment of $0.14 per share, or a 24.1% increase due largely to the following items:

- An increase in water operating revenues of approximately $13.5 million was largely as a result of the second-year rate increases related to the three months ended September 30, 2023, partially offset by the prospective change in the new cost of capital effective July 31, 2023 that lowered GSWC's authorized return on rate base. The return on rate base was revised to reflect the new authorized cost of debt, which decreased from 6.6% to 5.1%, offset by a higher return on equity which increased from 8.9% to 9.36%. In June 2023, GSWC filed for the implementation of new 2023 rates upon receiving the final decisions on the general rate case and cost of capital proceedings both of which became effective July 31, 2023. The increase in water revenues during the third quarter of 2023 represents the difference from the 2021 adopted rates recorded during the three-month period ended September 30, 2022 and the 2023 second-year increases recorded during the same period ended in 2023.
- An increase in water supply costs of $3.6 million, which consist of purchased water, purchased power for pumping, groundwater production assessments and changes in the water supply cost balancing accounts. Adopted supply costs for the third quarter of 2023 were based on 2023 authorized amounts approved in the final CPUC decision in the water general rate case application. Actual water supply costs are tracked and passed through to customers on a dollar-for-dollar basis by way of the CPUC-approved water supply cost balancing accounts. The increase in water supply costs results in a corresponding increase in water operating revenues and has no net impact on the water segment's profitability.
- An overall increase in operating expenses of $1.1 million (excluding supply costs) due primarily to increases in (i) overall labor costs and other employee-related benefits, (ii) other operation-related expenses resulting primarily from higher water treatment and chemical costs, (iii) maintenance expense, (iv) administrative and general expenses resulting largely from higher outside-services costs, and (v) depreciation and amortization expenses resulting from additions to utility plant and the higher composite depreciation rates based on a revised depreciation study approved in the final decision on the water general rate case.
- An increase in interest expense (net of interest income) of $1.2 million resulting primarily from an overall increase in interest rates, as well as an overall increase in total borrowing levels to support, among other things, the capital expenditure programs at GSWC, partially offset by higher interest income earned on regulatory assets bearing interest at the current 90-day commercial-paper rate, which increased compared to 2022's rates, as well as an increase in the level of regulatory assets recorded that resulted, in large part, from the final decision on the water general rate case that had been delayed.
- An overall increase in other expenses (net of other income) of $1.2 million due primarily to an increase in the non-service cost components related to GSWC's benefit plans resulting from changes in actuarial assumptions including expected returns on plan assets. However, as a result of GSWC's two-way pension balancing accounts authorized by the CPUC, changes in total net periodic benefits costs related to the pension plan have no material impact to earnings.

- Changes in certain flowed-through income taxes and permanent items included in GSWC's income tax expense for the three months ended September 30, 2023 as compared to the same period in 2022 that favorably impacted the water segment's earnings. As a regulated utility, GSWC treats certain temporary differences as being flowed-through in computing its income tax expense consistent with the income tax method used in its CPUC-jurisdiction rate making. Changes in the magnitude of flowed-through items either increase or decrease tax expense, thereby affecting diluted earnings per share.

Electric Segment:

Diluted earnings from the electric utility segment for the three months ended September 30, 2023 were flat compared to the same period in 2022, largely resulting from not having new rates in 2023 while awaiting the processing of the pending electric general rate case that will set new rates for 2023 – 2026, while also experiencing continued increases in overall operating expenses and interest costs that were mostly offset by favorable changes in certain flowed-through income taxes. When a decision is issued in the electric general rate case, new rates are expected to be retroactive to January 1, 2023 and cumulative adjustments will be recorded at that time.

Contracted Services Segment:

Diluted earnings from the contracted services segment for the three months ended September 30, 2023 were consistent when compared to the same period in 2022. The contracted services segment is expected to contribute $0.45 to $0.49 per share for the full 2023 year.

AWR (Parent):

For the third quarter of 2023, the diluted loss from AWR (parent) increased by $0.01 per share compared to the same period in 2022 due primarily to an increase in interest expense resulting from higher short-term interest rates and higher borrowings under AWR's revolving credit facility, as well as changes in state unitary taxes.

Year-To-Date ("YTD") 2023 Results

- ***$1.21 per share increase in recorded YTD 2023 consolidated diluted EPS compared to YTD 2022, or $0.43 per share increase as adjusted***
    - ***YTD 2023 recorded results reflect the impact of retroactive rates of $0.38 per share related to the full year of 2022 because of receiving a final decision in the water utility general rate case.***
    - ***YTD 2023 recorded results also reflect a net favorable variance of $0.23 per share resulting from the reversal of revenues subject to refund that had been previously recorded in 2022 of $0.13 per share following the receipt of a final decision in the cost of capital proceeding in June 2023, of which $0.10 per share had been recorded during the same period in 2022.***
    - ***YTD 2023 recorded results also reflect a net favorable variance of $0.17 per share from gains on investments held to fund a retirement plan compared to losses during the same period in 2022.***

The table below sets forth a comparison of diluted earnings per share contribution by business segment and for the parent company as recorded during the nine months ended September 30, 2023 and 2022.

	Diluted Earnings per Share		
	Nine Months Ended		
	9/30/2023	9/30/2022	CHANGE
Water	$ 2.36	$ 1.17	$ 1.19
Electric	0.14	0.16	(0.02)
Contracted services	0.38	0.29	0.09
AWR (parent)	(0.06)	(0.01)	(0.05)
Consolidated fully diluted earnings per share, as recorded (GAAP)	2.82	1.61	1.21
Adjustments to GAAP measure:			
Impact of retroactive rates related to the full year of 2022 from the final decision in the water general rate case (approximately $0.30 per share relates to the first nine months of 2022)*	(0.38)	—	(0.38)
Impact related to the final cost of capital decision*	(0.13)	0.10	(0.23)
Consolidated diluted earnings per share, as adjusted (Non-GAAP)*	$ 2.31	$ 1.71	$ 0.60
Water diluted earnings per share, as adjusted (Non-GAAP)*	$ 1.85	$ 1.27	$ 0.58

* All adjustments to recorded diluted earnings per share relate to the water segment. The water segment's adjusted earnings for 2023 exclude the impact of retroactive rates related to the full year of 2022 resulting from the final CPUC decision in the general rate case, and for 2023 and 2022 they exclude the impact of estimates and changes in estimates resulting from revenues subject to refund related to the cost of capital proceeding, both shown separately in the table above.

As noted in the table above, fully diluted recorded earnings for the nine months ended September 30, 2023 were $2.82 per share as compared to $1.61 per share recorded for the same period in 2022, a $1.21 per share increase. Included in the results for the nine months ended September 30, 2023 were: (i) the impact of retroactive new water rates related to the full 2022 year of $0.38 per share (shown separately in the table above) as a result of receiving a final decision in the water general rate case as discussed below, (ii) a net favorable variance of $0.23 per share (shown separately in the table above) from the impact of the final cost of capital decision that resulted in the reversal during the nine months ended September 30, 2023 of revenues subject to refund due to a change in estimate from what had been recorded during 2022, and (iii) a net favorable variance of $0.17 per share from gains totaling $2.1 million, or $0.04 per share, recorded during the nine months ended September 30, 2023 on investments held to fund one of the company's retirement plans, as compared to losses of $6.4 million, or $0.13 per share, recorded for the same period in 2022, both due to financial market conditions. Excluding these three items, adjusted consolidated diluted earnings for the nine months ended September 30, 2023 were $2.27 per share as compared to adjusted diluted earnings of $1.84 per share for the same period in 2022, an adjusted increase of $0.43 per share, or a 23.4% increase, largely due to new 2023 water rates approved in GSWC's final decision in its general rate case proceeding.

On June 29, 2023, the CPUC adopted a final decision in GSWC's general rate case application that determines new water rates for the years 2022–2024 retroactive to January 1, 2022. Among other things, the final decision (i) adopted the full settlement agreement between GSWC and the Public Advocates Office at the CPUC that resolved all issues related to the 2022 annual revenue requirement, and (ii) allowed for additional increases in adopted revenues for 2023 and 2024 subject to an earnings test and inflationary index values at the time of filing for implementation of the new rates.

Because of receiving a final decision in GSWC's general rate case, second-year rate increases for 2023 have been reflected in the three and nine months ended September 30, 2023. Through the nine months ended September 30, 2023, this included increases in revenues of $36.8 million, or $0.72 per share, compared to the adopted 2021 rates, and increases in supply costs of $8.0 million, or $0.16 per share, which combined is an increase of $0.56 per share for the nine months ended September 30, 2023. GSWC filed for the implementation of new 2023 rate increases that became effective on July 31, 2023. In October 2023, GSWC also filed with the CPUC to recover all retroactive rate amounts accumulated in memorandum accounts for the full 2022 year and for 2023 through July 30, 2023. Surcharges were implemented to recover these cumulative retroactive rate differences over 36 months. As of September 30, 2023, there is an aggregate cumulative balance of $55.1 million in CPUC-approved general rate case memorandum accounts that have been recognized as regulatory assets with a corresponding increase in unbilled water revenues.

For more details on the YTD results, please refer to the company's Form 10-Q filed with the Securities and Exchange Commission.

Regulatory Matters

On June 29, 2023, a final decision was adopted by the CPUC in the cost of capital proceeding that, among other things, adopted a new return on equity of 8.85% for GSWC as compared to 8.9% previously authorized, and allowed for the continuation of the Water Cost of Capital Mechanism ("WCCM") through December 31, 2024. The WCCM adjusts the return on equity and rate of return on rate base between the three-year cost of capital proceedings only if there is a positive or negative change of more than 100 basis points in the average of the Moody's Aa utility bond rate as measured over the period from October 1 through September 30. If there is a positive or negative change of more than 100 basis points, the return on equity is adjusted by one half of the difference. For the period from October 1, 2021 through September 30, 2022, the Moody's Aa utility bond rate increased by 102.8 basis points from the benchmark, which triggered the WCCM adjustment, which increased GSWC's adopted return on equity to 9.36% effective July 31, 2023. Additionally, for the period from October 1, 2022 through September 30, 2023, the Moody's Aa utility bond rate increased by 139.7 basis points from the benchmark, which again triggered another WCCM adjustment. On October 12, 2023, GSWC filed an advice letter to establish the WCCM for 2024, which has been approved by the CPUC and will increase GSWC's 9.36% adopted return on equity to 10.06% effective January 1, 2024.

Dividends

On October 30, 2023, AWR's Board of Directors approved a fourth quarter dividend of $0.43 per share on AWR's Common Shares. Dividends on the Common Shares will be paid on December 1, 2023 to shareholders of record at the close of business on November 15, 2023. AWR has paid common dividends every year since 1931, and has increased the dividends received by shareholders each calendar year for 69 consecutive years, which places it in an exclusive group of companies on the New York Stock Exchange that have achieved that result. The company's quarterly dividend rate has grown at a compound annual growth rate ("CAGR") of 9.4% over the last five years. AWR's current policy is to achieve a CAGR in the dividend of more than 7% over the long-term.

Non-GAAP Financial Measures

This press release includes a discussion on AWR's operations in terms of diluted earnings per share by business segment, which is each business segment's earnings divided by the company's weighted average number of diluted common shares. The gains and losses generated on the investments held to fund one of the company's retirement plans during the nine months ended September 30, 2023 and 2022 have been excluded when communicating the results to help facilitate comparisons of AWR's performance from period to period. In addition, both the impact of retroactive rates related to the full year 2022 recorded during the nine months ended September 30, 2023 resulting from the final decision on the water general rate case, and the impact from the estimates of revenues subject to refund recorded in 2022 and changes to estimates recorded in 2023 following the receipt of a final cost of capital decision in June of 2023 have been excluded when communicating AWR's consolidated and water segment results for the three months ended September 30, 2022 and the nine months ended September 30, 2023 and 2022 to help facilitate comparisons of the company's performance from period to period. All of these measures are derived from consolidated financial information but are not presented in our financial statements that are prepared in accordance with Generally Accepted Accounting Principles ("GAAP") in the United States. These items constitute "non-GAAP financial measures" under Securities and Exchange Commission rules, which supplement our GAAP disclosures but should not be considered as an alternative to the respective GAAP measures. Furthermore, the non-GAAP financial measures may not be comparable to similarly titled non-GAAP financial measures of other registrants.

The company uses earnings per share by business segment as an important measure in evaluating its operating results and believes this measure is a useful internal benchmark in evaluating the performance of its operating segments. The company reviews this measurement regularly and compares it to historical periods and to the operating budget. The company has provided the computations and reconciliations of diluted earnings per share from the measure of operating income by business segment to AWR's consolidated fully diluted earnings per share in this press release.

Forward-Looking Statements

Certain matters discussed in this press release with regard to the company's expectations may be forward-looking statements that involve risks and uncertainties. The assumptions and risk factors that could cause actual results to differ materially include those described in the company's most recent Form 10-Q and Form 10-K filed with the Securities and Exchange Commission.

Conference Call

Robert Sprowls, president and chief executive officer, and Eva Tang, senior vice president and chief financial officer, will host a conference call to discuss these results at 2:00 p.m. Eastern Time (11:00 a.m. Pacific Time) on Tuesday, November 7. There will be a question and answer session as part of the call. Interested parties can listen to the live conference call and view accompanying slides on the internet at www.aswater.com. The call will be archived on the website and available for replay beginning November 7, 2023 at 5:00 p.m. Eastern Time (2:00 p.m. Pacific Time) through November 14, 2023.

About American States Water Company

American States Water Company is the parent of Golden State Water Company, Bear Valley Electric Service, Inc. and American States Utility Services, Inc., serving over one million people in nine states. Through its water utility subsidiary, Golden State Water Company, the company provides water service to approximately 264,000 customer connections located within more than 80 communities in Northern, Coastal and Southern California. Through its electric utility subsidiary, Bear Valley Electric Service, Inc., the company distributes electricity to approximately 24,700 customer connections in the City of Big Bear Lake and surrounding areas in San Bernardino County, California. Through its contracted services subsidiary, American States Utility Services, Inc., the company provides operations, maintenance and construction management services for water distribution, wastewater collection, and treatment facilities located on twelve military bases throughout the country under 50-year privatization contracts with the U.S. government.

The company has achieved an 8.1% compound annual growth rate in its calendar year dividend payments from 2013 – 2023.

American States Water Company
Consolidated

(in thousands)	Comparative Condensed Balance Sheets (Unaudited) September 30, 2023	December 31, 2022
Assets		
Net Property, Plant and Equipment	$ 1,850,471	$ 1,753,766
Goodwill	1,116	1,116
Other Property and Investments	37,767	36,907
Current Assets	191,685	151,294
Other Assets	124,190	91,291
Total Assets	$ 2,205,229	$ 2,034,374
Capitalization and Liabilities		
Capitalization	$ 1,346,796	$ 1,156,096
Current Liabilities	195,007	396,522
Other Credits	663,426	481,756
Total Capitalization and Liabilities	$ 2,205,229	$ 2,034,374

	Condensed Statements of Income (Unaudited)			
	Three Months Ended September 30,		Nine Months Ended September 30,	
(in thousands, except per share amounts)	2023	2022	2023	2022
Operating Revenues				
Water	$ 116,231	$ 100,799	$ 345,851	$ 265,561
Electric	8,956	8,919	30,688	29,028
Contracted services	26,509	25,266	93,980	71,572
Total operating revenues	**151,696**	**134,984**	**470,519**	**366,161**
Operating Expenses				
Water purchased	23,216	20,304	55,590	58,115
Power purchased for pumping	4,291	3,878	9,514	9,182
Groundwater production assessment	5,990	5,650	15,188	14,726
Power purchased for resale	2,383	2,673	9,838	9,186
Supply cost balancing accounts	723	640	15,126	(6,160)
Other operation	10,429	9,696	30,261	28,028
Administrative and general	20,982	21,594	66,032	65,030
Depreciation and amortization	10,184	10,117	31,645	30,402
Maintenance	4,097	3,408	11,026	10,120
Property and other taxes	6,034	5,942	17,884	17,247
ASUS construction	11,616	10,742	46,554	31,263
Total operating expenses	**99,945**	**94,644**	**308,658**	**267,139**
Operating income	**51,751**	**40,340**	**161,861**	**99,022**
Other Income and Expenses				
Interest expense	(11,691)	(7,331)	(31,900)	(19,246)
Interest income	2,125	667	5,792	1,387
Other, net	(1,073)	338	2,243	(2,370)
Total other income and (expenses), net	**(10,639)**	**(6,326)**	**(23,865)**	**(20,229)**
Income Before Income Tax Expense	41,112	34,014	137,996	78,793
Income tax expense	9,547	8,360	33,503	19,026
Net Income	**$ 31,565**	**$ 25,654**	**$ 104,493**	**$ 59,767**
Weighted average shares outstanding	36,977	36,958	36,974	36,953
Basic earnings per Common Share	$ 0.85	$ 0.69	$ 2.82	$ 1.61
Weighted average diluted shares	37,071	37,042	37,064	37,034
Fully diluted earnings per Common Share	$ 0.85	$ 0.69	$ 2.82	$ 1.61
Dividends paid per Common Share	$ 0.4300	$ 0.3975	$ 1.2250	$ 1.1275

Computation and Reconciliation of Non-GAAP Financial Measure (Unaudited)

Below are the computation and reconciliation of diluted earnings per share from the measure of operating income by business segment to AWR's consolidated fully diluted earnings per share for the three and nine months ended September 30, 2023 and 2022.

	Water		Electric		Contracted Services		AWR (Parent)		Consolidated (GAAP)	
In 000's except per share amounts	Q3 2023	Q3 2022	Q3 2023	Q3 2022	Q3 2023	Q3 2022	Q3 2023	Q3 2022	Q3 2023	Q3 2022
Operating income (loss)	$ 43,243	$ 32,451	$ 2,049	$ 2,337	$ 6,204	$ 5,553	$ 255	$ (1)	$ 51,751	$ 40,340
Other (income) and expenses, net	7,820	5,695	754	243	428	(65)	1,637	453	10,639	6,326
Income tax expense (benefit)	8,830	6,831	(154)	478	1,430	1,347	(559)	(296)	9,547	8,360
Net income (loss)	$ 26,593	$ 19,925	$ 1,449	$ 1,616	$ 4,346	$ 4,271	$ (823)	$ (158)	$ 31,565	$ 25,654
Weighted Average Number of Diluted Shares	37,071	37,042	37,071	37,042	37,071	37,042	37,071	37,042	37,071	37,042
Diluted earnings (loss) per share	$ 0.72	$ 0.54	$ 0.04	$ 0.04	$ 0.12	$ 0.12	$ (0.02)	$ (0.01)	$ 0.85	$ 0.69

Note: Certain amounts in the table above may not foot or crossfoot due to rounding.

	Water		Electric		Contracted Services		AWR (Parent)		Consolidated (GAAP)	
In 000's except per share amounts	YTD 2023	YTD 2022	YTD 2023	YTD 2022	YTD 2023	YTD 2022	YTD 2023	YTD 2022	YTD 2023	YTD 2022
Operating income (loss)	$134,006	$ 77,161	$ 7,783	$ 7,973	$ 19,854	$ 13,894	$ 218	$ (6)	$ 161,861	$ 99,022
Other (income) and expenses, net	16,743	19,158	1,959	431	1,042	(374)	4,121	1,014	23,865	20,229
Income tax expense (benefit)	29,674	14,623	794	1,645	4,621	3,399	(1,586)	(641)	33,503	19,026
Net income (loss)	$ 87,589	$ 43,380	$ 5,030	$ 5,897	$ 14,191	$ 10,869	$ (2,317)	$ (379)	$104,493	$ 59,767
Weighted Average Number of Diluted Shares	37,064	37,034	37,064	37,034	37,064	37,034	37,064	37,034	37,064	37,034
Diluted earnings (loss) per share	$ 2.36	$ 1.17	$ 0.14	$ 0.16	$ 0.38	$ 0.29	$ (0.06)	$ (0.01)	$ 2.82	$ 1.61

View source version on businesswire.com: https://www.businesswire.com/news/home/20231103658542/en/

Eva G. Tang
Senior Vice President-Finance, Chief Financial Officer,
Corporate Secretary and Treasurer
Telephone: (909) 394-3600, ext. 707

Source: American States Water Company

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Attachment 2-2 Email Indicating GSWC Capitalized Office Improvements

From: Powell, Brad <Brad.Powell@gswater.com>
Sent: Tuesday, November 14, 2023 3:01 PM
To: Chan, Victor <victor.chan@cpuc.ca.gov>
Cc: Darney-Lane, Jenny A. <jadarneylane@gswater.com>; Aslam, Mehboob <mehboob.aslam@cpuc.ca.gov>
Subject: RE: [EXTERNAL] RE: Field Tour Follow-Up

Hi Victor,

I do have updates to pass along to you. Here is the information I have gathered.

Rice Ranch Phase 4 – We did not make any specific adjustment for phase 4 but relied on the historical five-year average of customer growth to drive the forecasted growth in this CSA, the GRC includes an annual increase of 70 residential customers per year which reflects past growth observed at Rice Ranch's previous phases. I am working through our internal New Business team to provide contact information for the developer to you as well.

Fire Hardening Measures – The fire hardening measures done by GSWC are promoted to our broker and our current and potential insurers when marketing. They demonstrate GSWC's pro-active approach to loss prevention and are factored into the underwriting process. It's difficult to quantify the savings, if any, but these types of efforts are one factor that makes GSWC a risk that multiple insurance companies are willing to insure which keeps the market competitive.

Office Improvements at Via Burton – I have confirmed we did pay for some of the office improvements at this location. The leasehold, real property improvements recently made that were noted during the tour of the facility cost approximately $264,000. This amount was capitalized.

I will pass along the pending developer information as soon as it becomes available to me. Thanks.

Brad

`

Attachment 2-3 Response to SIH-013 Orange County Office Relocation

Golden State Water Company
A Subsidiary of American States Water Company

November 22, 2023

Sari Ibrahim, Public Advocates Office
CALIFORNIA PUBLIC UTILITIES COMMISSION
505 Van Ness Avenue
San Francisco, CA 94102

Subject: Data Request SIH-013 (A.23-08-010)
Orange County Office Relocation Partial Response 1
Due Date: November 22, 2023

Dear Sari Ibrahim,

In response to the above referenced data request number, we are pleased to submit the following responses:

<u>Orange County Office Relocation & Upgrade</u>
Question 1:
Referring to GSWC's Orange County Office Relocation & Upgrade Project:

a. Provide a copy of the current lease for the 2283 Via Burton property.
b. Identify where in GSWC's RO Model the lease expenses related to the 2283 Via Burton Property are recorded.
c. Provide any police reports filed related to incidents occurring at 2283 Via Burton since GSWC's original lease on this property.
d. Provide any internal GSWC generated incident reports related to incidents occurred at 2283 Via Burton.
e. As per Brad Powell's email on November 14th, subject line RE: Field Tour Follow-Up, GSWC spent approximately $264,000 on office improvements at 2283 Via Burton. Identify where in the RO Model these costs are reflected.
f. Identify GSWC's proposed new office location and what are the expected lease costs.
g. Provide any and all cost estimates GSWC has prepared for the new office location besides those provided in the PCE_RIII - Placentia - Yorba Linda (Orange County District Office Relocation & Upgrade) project cost estimate.

Response 1:

a. Refer to two lease documents in response folder ("2283 E. Via Burton Lease Agreement and Addendum - executed 07.10.2019" and "Lease Assignment Nov. 17 2022").
b. Lease expense for 2283 Via Burton can be found in the "SEC-40_EXP_OM AG Non-Standard" file, tab "WS-12 Rent", lines 42-44 in the RO Model.
c. On two occasions, GSWC reported unauthorized entry and theft incidents to the Anaheim Police Department, received case numbers, had officers assigned to the cases, but never received copies of the police reports in either case and had little to no follow up by the officers.
    i. Break in 11/19/ 2020 Case No. 20-173004
    ii. Unauthorized entry 12/21/2020 Case No. 20-190498
d. Response will be provided on November 27, 2023.
e. Of the $264,000 in office improvements, $67,089 was expended in 2022 and are part of the "General Plant" additions located in the RO Model workbook "SEC-50_RB_Plant" on tab "IN_Rec_Assets" in cell K249. The remainder of costs were expended in 2023 and are not included in the RO Model.
f. GSWC has not identified a proposed new office location at this time.
g. No other cost estimate has been prepared other than the PCE provided.

END OF RESPONSE

November 28, 2023

Sari Ibrahim, Public Advocates Office
CALIFORNIA PUBLIC UTILITIES COMMISSION
505 Van Ness Avenue
San Francisco, CA 94102

Subject: Data Request SIH-013 (A.23-08-010)
Orange County Office Relocation Partial Response Final
Due Date: November 27, 2023

Dear Sari Ibrahim,

In response to the above referenced data request number, we are pleased to submit the following responses:

<u>Orange County Office Relocation & Upgrade</u>
Question 1:
Referring to GSWC's Orange County Office Relocation & Upgrade Project:

a. Provide a copy of the current lease for the 2283 Via Burton property.
b. Identify where in GSWC's RO Model the lease expenses related to the 2283 Via Burton Property are recorded.
c. Provide any police reports filed related to incidents occurring at 2283 Via Burton since GSWC's original lease on this property.
d. Provide any internal GSWC generated incident reports related to incidents occurred at 2283 Via Burton.
e. As per Brad Powell's email on November 14th, subject line RE: Field Tour Follow-Up, GSWC spent approximately $264,000 on office improvements at 2283 Via Burton. Identify where in the RO Model these costs are reflected.
f. Identify GSWC's proposed new office location and what are the expected lease costs.
g. Provide any and all cost estimates GSWC has prepared for the new office location besides those provided in the PCE_RIII - Placentia - Yorba Linda (Orange County District Office Relocation & Upgrade) project cost estimate.

Response 1:

a. Provided Response on 7/22/2023.
b. Provided Response on 7/22/2023.
c. Provided Response on 7/22/2023.
d. Please see attachments “7.10.2023 Break in Rear Yard”, “10.30.2023 Back Yard Break in”, “11.19.2020 Breakin”, “11.19.2020 Break in Vid”, “Q1.d 12 20 Unauthorized Entry”, “Channel 14”, “Channel 17”, and “Video Clips to Anaheim PD”.
e. Provided Response on 7/22/2023.
f. Provided Response on 7/22/2023.
g. Provided Response on 7/22/2023.

END OF RESPONSE

`

Attachment 2-4 Response to SIH-011 Region 3 Solar Generation Projects Response

November 16, 2023

Sari Ibrahim, Public Advocates Office
CALIFORNIA PUBLIC UTILITIES COMMISSION
505 Van Ness Avenue
San Francisco, CA 94102

Subject: Data Request SIH-011 (A.23-08-010) Region 3 Solar Generation Projects
Due Date Extended: November 16, 2023

Dear Sari Ibrahim,

In response to the above referenced data request number, we are pleased to submit the following responses:

Solar Generation Projects
Question 1:
Referring to GSWC Solar Generation projects in Region 3.

a. Provide a table listing GSWC's currently active solar generation projects or facilities in Region 3.
b. Provide a cost comparison of power consumption costs for a 12-month period before solar generation was installed and a 12-month period after the installation.
c. Provide any documentation GSWC uses to determine the cost effectiveness of solar generation projects.

Response 1:

a. See table below summarizing the active solar generation projects or facilities.

District	System	Plant Site	Note
Mountain Desert	Apple Valley South	Mohawk	See response for Question 1b.
Mountain Desert	Apple Valley South	Kiowa	Proposed solar generation project as part of the 2023 General Rate Case (GRC). See response for Question 1c.
Mountain Desert	Calipatria	Holabird	Proposed solar generation project as part of the 2023 GRC. See response for Question 1c.

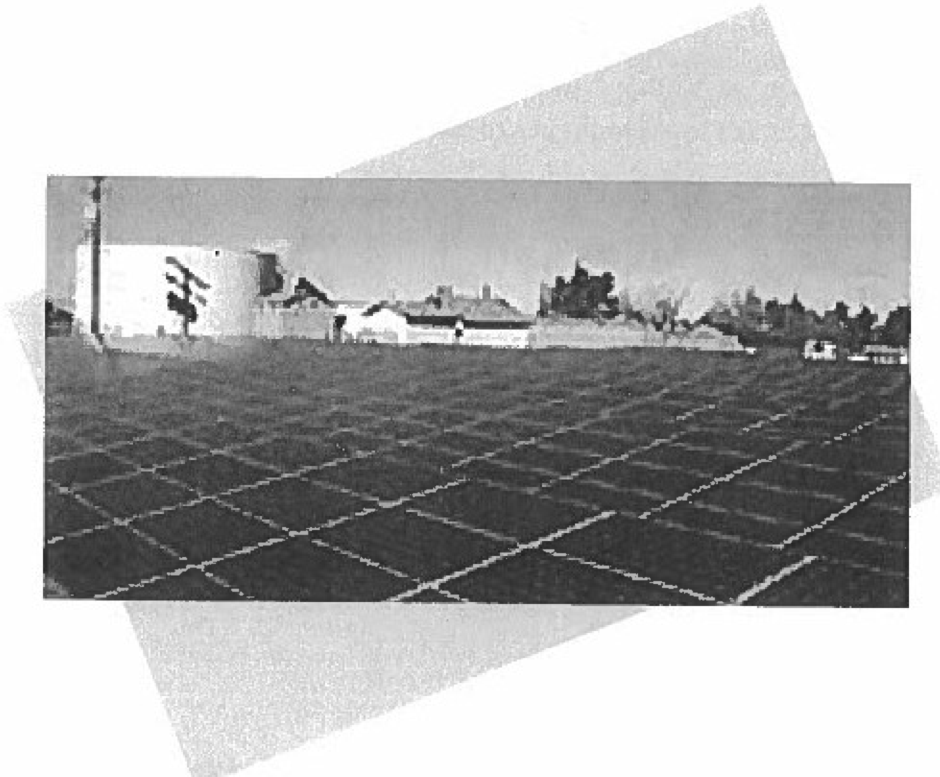
b. The Mohawk solar generation facility became operational in March 2005 but is currently offline. A report was finalized in September 2006 titled "Analysis of Mohawk Photovoltaic (PV) Energy System Performance" that evaluated the performance of the PV system (see Attachment 01). The report summarizes the cost comparison for a 12-month period before and after the PV system was installed in *Table 1* and the *Total First-Year Savings* section.
The analysis evaluated two time periods. The baseline period is defined as January 2004 to December 2004, prior to when the PV system was active. The comparison period is defined as March 2005 through March 2006, after the PV system was active. During the baseline period, GSWC purchased approximately 713,369 kWh from Southern California Edison (SCE) for $60,057. During the comparison period, GSWC purchased approximately 466,941 kWh from SCE for $33,291. The PV system produced approximately 352,386 kWh. The total realized savings of the comparison period to the baseline period was approximately $44,857. The total realized savings is the sum of the value of generated energy, demand-side management avoided costs, and demand savings.

c. GSWC will typically attain a consultant to evaluate the feasibility of solar generation. For example, GSWC attained 1898 & Co. to evaluate renewable energy in GSWC's Region 3. A report was finalized in March 2023 titled "Region 3 Renewable Energy Assessment" which focused on the feasibility of solar projects in the Mountain Desert District (see Attachment 02; this same report was also previously provided as attachment CA06 in A.23-08-010). The 1898 & Co. report summarizes the cost effectiveness of solar generation projects at select Mountain Desert plant sites along with project approach, assumptions, data used, and overall recommendations.

END OF RESPONSE

36400106

Analysis of Mohawk Photovoltaic (PV) Energy System Performance



September 2006

Golden State Water Company
A Subsidiary of American States Water Company

Analysis of Mohawk Photovoltaic (PV) Energy System Performance

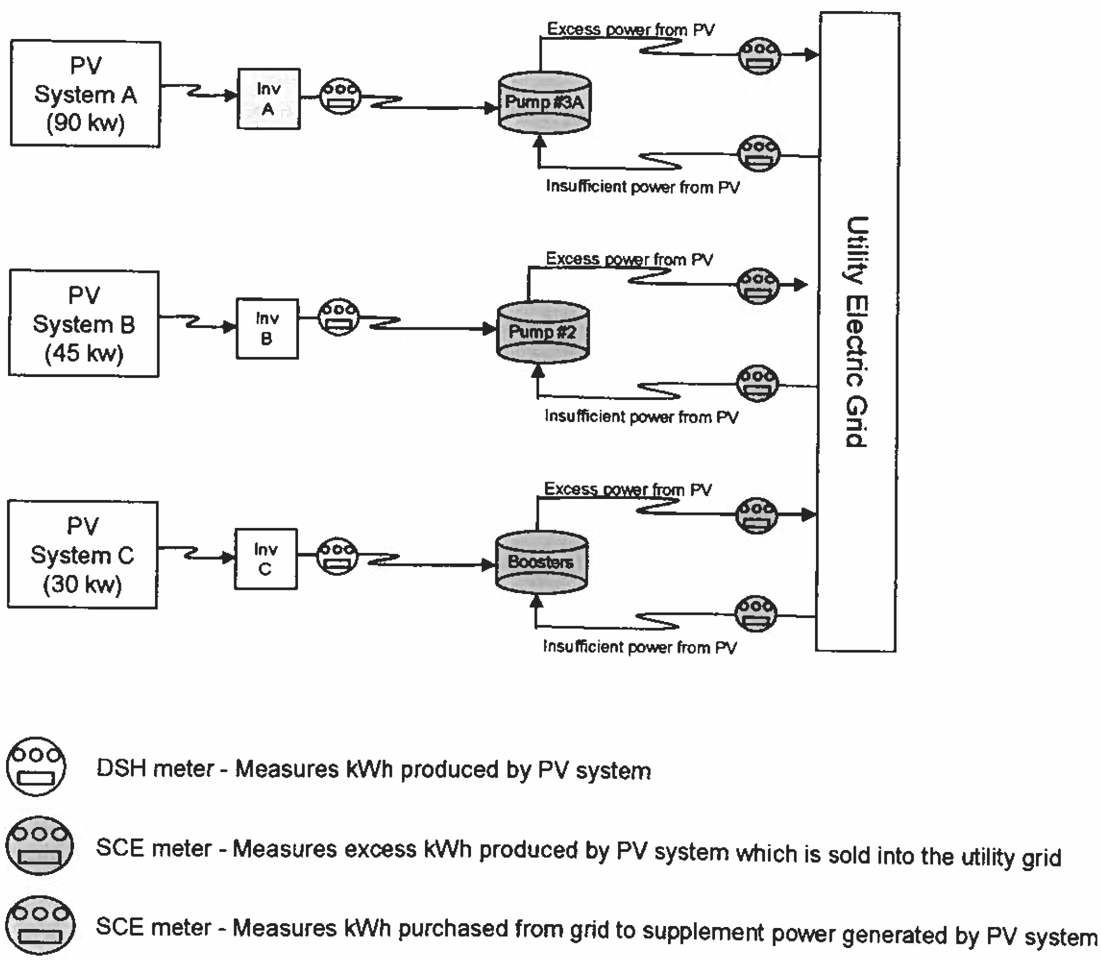
Introduction

The Mohawk wells photovoltaic (PV) energy system was constructed in the latter half of 2004 and became operational in March 2005. This analysis examines the performance of the PV system during the period March 2005 – March 2006 to determine the value it has delivered and whether it has met expected performance targets.

The system was competitively proposed by DSH Solar Electric, based in San Diego, CA, and was constructed by DSH as originally proposed. The 165 kW system is comprised of three subsystems, each of which is attached to a component of the Mohawk wells pumping equipment:

90 kW system:	Pump #3A
45 kW system:	Pump #2
30 kW system:	Booster pump

All three pumping components use electricity, but water production is associated only with pumps 2 and 3A, not the boosters. A schematic of the PV system is shown below.



The proposal from DSH Solar Electric included the installation of some demand-side management (DSM) equipment[1] on the pump motors. This equipment was intended to reduce the site's baseline electric load and consumption by allowing the motors to operate more efficiently. The solar system was then sized to meet the needs of the improved well operation, which was expected to consume 21% less energy. The goal was to reduce the SCE bill (energy portion) to nearly zero without creating a net credit for the full year period.[2]

The baseline period used for the evaluation was January through December 2004. Rather than look simply at the comparative amounts of energy used during the periods prior to and after the installation of the PV system, the analysis considers the well production (i.e., ccf of water pumped) as one of the key criteria to assess the effectiveness of the PV system. As it happens, the usage of the two Mohawk wells was substantially different from the baseline to the comparison periods; Mohawk 3A was used to pump <u>50% more</u> water during the post-PV period, while Mohawk 2 was used to pump <u>28% less</u> water. Overall, site production was only 4% higher after the PV system installation compared to the baseline period. However, we can use this information to normalize the extent to which increases or decreases in electricity at the site are related to variations in well operation.

It is important to remember that, while the wells operate around the clock, the PV system can only generate energy when the sun is shining. When the PV system generates energy, that energy is first used to operate the pumps. Any excess above the amount needed by the pumps is fed into the grid, and Southern California Edison (SCE) in effect "buys" that power from GSWC at published tariff (TOU-PA-B) rates. When the PV system is not generating energy, or the energy is insufficient to operate the pumps, GSWC buys power from SCE under the same TOU-PA-B rate. The kilowatt-hours produced by the PV system during daylight hours are more valuable because they are priced at on-peak rates, while power purchased from SCE during mid-peak or off-peak periods are less expensive. Therefore, a smaller number of kWh sold by GSWC during on-peak periods will offset a larger number of kWh purchased from SCE during mid- or off-peak periods.

The questions to be answered in this analysis are:

1. Do the pumps operate more efficiently as a result of the DSM improvements that were made?
2. How much energy has the PV system produced, and what is the dollar value of that energy?
3. How much impact has the PV system had on bills for electricity from SCE?

A spreadsheet containing the data referenced in this analysis is attached to this report as Appendix A.

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[1] DSM equipment included:
- Fairford QFE™ Motor Controls
- Powergy™ Transient Voltage and Surge Suppression and kVAR adjustment units
- Powersync™ to correct power factor

[2] According to tariff rules, the customer loses any remaining credit after a full year, effectively giving any excess kWh to SCE for free.

Key Data Supporting the Findings

The **baseline period** for the evaluation was January 2004 through December 2004; this entire period was prior to the date the Mohawk PV system was activated in March 2005.

The **comparison period** for the evaluation was from March 2005 through March 2006; this period was after the date the Mohawk PV system was activated, except for about two weeks in March 2005.

Table 1 below contains data excerpted from the spreadsheet in Appendix A. This data will be used to support the findings which follow.

There are multiple meters installed at the Mohawk wells site:

- Meters installed by DSH Solar to record the total amount of energy produced by the PV system
- Meters used by SCE to measure and bill the energy and load Mohawk uses from the grid, when the PV system is not generating enough energy to meet on-site needs
- Meters used by SCE to measure and credit the excess energy fed by the PV system into the grid.

As part of this analysis, a check was made to determine whether the billings from SCE are consistent with the onsite metering of total PV production. Refer to the spreadsheet in Appendix A (right-most columns, gray area) for the results of this verification check. Except for the first two months of recorded information, where the onsite data appears faulty, it was found that the data from the meters installed by DSH Solar Electric reconcile to the billings from SCE within 3.13%. This small discrepancy can be attributed to normal losses and confirms that the data is reliable.

	Baseline Period (prior to PV)	**Comparison Period (after PV)**
PV System Output (kWh)		352,386 kWh
Sales to SCE (kWh)		139,955 kWh
Sales to SCE ($) [3]		$ 12,133
Purchases from SCE (kWh)	713,369 kWh	466,941 kWh
Purchases from SCE ($) [3]	$ 60,057	$ 33,291
Total Site Usage (kWh)	713,369 kWh	679,372 kWh
Well Output (ccf)	352,739 ccf	366,906 ccf
Energy per Unit of Water (kWh/ccf)	2.02 kWh/ccf	1.85 kWh/ccf

Table 1: Summary of Baseline and Comparison Period Data

[3] SCE does not directly pay GSWC for the energy the PV system feeds to the grid; rather, the value of the sale is deducted against the cost of energy GSWC purchases from SCE for use at the Mohawk site. That is, the dollar amount of purchases as shown in the table is net of sales.

Efficiency of Well Operation

Finding #1: Overall, the site is operating more efficiently after the installation of the PV system than before the installation. The cost to pump water dropped from 2.02 kWh/ccf to 1.85 kWh/ccf. However, analysis of the two wells shows markedly different changes.

Well #3A shows a strong improvement in performance, with cost dropping from 2.47 kWh/ccf in the baseline period to 1.85 kWh/ccf after the installation of the PV system. This 25% improvement can be attributed primarily to the motor controls and other DSM equipment installed with the PV system. The DSM savings here is calculated based on avoided energy usage of 135,202 kWh.

However, for Well #2 (including the boosters), the efficiency of the pumps appears slightly worse after the PV system installation compared to the baseline period. The cost increased from 1.71 kWh/ccf to 1.85 kWh/ccf , a degradation of 8%. This can be explained by several possible factors:

1. installation of an air conditioning unit and exhaust fan in the inverter shed, which has added load on the electrical service for Well #2 compared to the baseline period
2. several occurrences of inverter failure on the PV system for Well #2.

Neither of the two factors noted above would lower the actual benefits achieved by the DSM equipment on Well #2 and the boosters; they just obscure the comparability of the baseline and comparison periods. Based on the fact that the DSM savings were realized as predicted for Well #3A using the same kinds of DSM equipment, it is reasonable to conclude that a similar level of savings was also achieved on Well #2 and the boosters.[4] The DSM savings forecast anticipated a 15% improvement level for Well #2 and 20% for the boosters. However, for purposes of this report, it seems prudent to assume a more modest achievement of one-half these levels until the impact of the air conditioning equipment can be assessed.

Therefore, the total value of the DSM savings for the three motors is calculated as:

Mohawk 3A (25%):	135,202 kWh
Mohawk 2 (7.5%):	14,423 kWh
Boosters (10%):	14,083 kWh
Total	163,708 kWh

At an average cost of $.0867 per kWh, this amounts to $14,193 in DSM savings. Even after halving the savings from Well #2 and the boosters, this amount surpasses the forecasted level of DSM savings in the original business case. This is due to the fact that the DSM savings are a factor of total usage, which has increased significantly from the historical level used in the analysis.

Recommendations from DSH Solar Electric to further improve the performance of Mohawk site operations are included in Appendix D.

---

[4] Predicted levels of improvement were 25% for well #3A, 15% for well #2, and 20% for the boosters.

Production of Energy by PV System

Finding #2: The PV system supplied 352,386 kWh of energy during its first year of operation, which is equivalent to 52% of the total energy used onsite during the period.

In its proposal, DSH Solar Electric estimated the PV system would produce 400,754 kWh of energy annually. Subsequent analysis was done by GSWC using an estimating model (PVWATTS) developed by the National Renewable Energy Laboratory (NREL), which yielded a production estimate of 358,182 kWh . This latter estimate was the forecast used in discussions with the CPUC in May 2004 regarding the Mohawk PV system. Therefore, actual production was only 88% of the output forecasted by the vendor, but 98.3% of the energy estimated by PVWATTS. This suggests that the PVWATTS model should be used to forecast PV system output for any future photovoltaic system proposals.

Costs for SCE-Supplied Energy

Finding #3: Net energy purchased from SCE (i.e., energy purchased minus energy sold into the grid) equaled 326,986 kWh, which was 45.8% of the amount purchased from SCE during the baseline period.

Finding #4: Energy sold into the grid and credited against purchases from SCE equaled 139,955 kWh, and was valued at $12,133. Refer to Appendix B for details of energy credits from SCE.

Finding #5: Total cost of SCE energy bills (including demand charges) was $33,291 after PV installation compared to $60,057 during the baseline period. Of the $33,291, demand charges accounted for $9,992, which is 6.6% lower than in the baseline period. Summer on-peak demand savings are detailed in Appendix C, totaling $1,134.

Total First-Year Savings

Finding #6: First year operation of the PV system realized the following savings:

Value of generated energy:	$ 29,530
DSM avoided costs:	14,193
Demand savings:	1,134
	$ 44,857

The value of the energy generated by the PV system during its first year of operation is calculated in Table 2.

	Summer On-Peak	Summer Mid-Peak	Summer Off-Peak	Winter Mid-Peak	Winter Off-Peak	Total
Percent of PV Generation in Period	20%	10%	10%	40%	20%	100%
Energy generated in Period (kWh)	70,477	35,239	35,239	140,954	70,477	352,386
Average rate per kWh in Period[5]	0.12334	0.07303	0.03194	0.10312	0.03693	
Dollar value of energy (kWh * rate)	$8,693	$2,573	$1,126	$14,535	$2,603	**$29,530**

Table 2: Value of Total Energy Produced by Mohawk PV System in Year 1 of Operations

That is, if GSWC had purchased the amount of energy produced by the Mohawk PV system at SCE rates, the total cost of that energy would have been $29,530.

As stated earlier, the avoided costs due to the DSM equipment installed with the PV system amount to $14,193 and demand savings add another $1,134. **Therefore, the combined savings for the first year of system operation is $44,857.**

The actual energy savings predicted for the Mohawk system in its first year of operation was $51,777. Several factors accounting for the lower savings actually realized are:

1. The rates charged by SCE for service under its TOU-PA-B rate during this period were lower than the rates in effect in 2004, which were used to calculate the estimated savings. This rate reduction caused the value of the energy generated by the PV system to be $4,525 lower than estimated. Refer to Table 3 below for detailed calculations under the two different rate scenarios.
2. The savings attributable to summer on-peak demand were lower than originally estimated. Actual demand savings achieved were $1,134 as compared to $2,866 forecasted, which represents a reduction in savings of $1,732.
3. The amount of energy being generated by the PV system is 98% of the amount estimated (352 MWh compared to 358 MWh). This discrepancy accounts for a reduction in savings of $560.

As of August 2006, SCE has implemented a significant rate increase. The value of the energy generated by the PV system can be expected to increase by approximately 20% in the second year of its operation due to this increase.

[5] The rates shown in this table are average rates actually charged by SCE on Mohawk bills during each peak period shown. Actual rates vary daily based on the amount of electricity SCE uses from the Dept. of Water Resources (DWR). This may cause slight variations in the rate per kWh from one billing period to the next, as well as differences from SCE's posted tariff schedule.

	Summer On-Peak	Summer Mid-Peak	Summer Off-Peak	Winter Mid-Peak	Winter Off-Peak	Total
Rates used for estimates	0.17598	0.09000	0.03427	0.10560	0.03389	
Estimated value of PV generation	$12,403	$3,171	$1,208	$14,885	$2,388	$34,055
Actual rates in effect	0.12334	0.07303	0.03194	0.10312	0.03693	
Actual value of PV generation	$8,693	$2,573	$1,126	$14,535	$2,603	$29,530

Table 3: Comparison of Rates Used for Estimate vs. Actual Rates in Effect

Interviews with Operations Personnel

Interviews were conducted with personnel responsible for operating and maintaining the Mohawk wells as a part of the PV system evaluation. A summary of the interview questions and responses is attached to this report as Appendix E. Key observations made during the interview include a number of "lessons learned" applicable to potential future PV projects.

1. Failure of DSM equipment can bring the wells down completely, even when the PV system and utility grid are fully operational. This condition occurred at Mohawk, requiring manual intervention to bypass the DSM and connect the pumps directly to the utility grid. A bypass switch would allow this re-connection to be achieved with less operations down-time.
2. Consideration should be given to operational work processes when configuring the PV site layout. For example, water sources placed close to the PV arrays would facilitate ongoing cleaning of the arrays and reduce operations labor.
3. Early involvement of field personnel during project planning is advised, in order to surface issues which might be resolved prior to operations.
4. The opportunity cost of funding the PV system and deferring other capital projects should be evaluated before a PV project is approved. The economic benefits of a PV system will often be lower than those of deferred projects, but may be offset by non-economic benefits. For example, PV systems installed by GSWC will count toward the renewable energy requirements of its Bear Valley Electric Service division.

Effect of PV System Investment on GSWC Customers

Before the final decision to proceed with construction of the Mohawk PV system, GSWC met with the CPUC Water Division in May 2004 to ensure support for eventual addition of the PV system investment to rate base. GSWC took the position that the PV system would be a win-win situation for consumers and investors.

Although consumers shoulder the carrying costs, averaging $65,000 per year over the first five years,[6] there are offsetting annual energy savings of approximately $49,000 for the same period.[7] In addition, customers benefit from associated Federal and State tax credits in excess of $100,000 in the first year, for a net benefit of approximately $20,000 over five years.

As detailed in previous sections of this report, the first-year savings achieved by the Mohawk PV system is slightly lower than originally forecast. Nonetheless, customers are still better off by about $20,000 over the first five years, while GSWC is earning its authorized return on an investment of about $650,000. Consequently, Mohawk can still be characterized as a solid win-win project that benefits both consumers and shareholders, as presented to the CPUC.

Conclusions

The following conclusions can be drawn regarding the Mohawk PV system:

1. The system generated over 350 MWh during its first year of operation, which is more than half of the energy used onsite and 98.3% of the energy it was estimated to generate.
2. The DSM equipment has been successful in reducing the on-site energy requirement. However, some additional electrical load has been added, and water production at the site has increased since the baseline period. As a result, the amount of energy purchased from SCE continues to be larger than expected.
3. The value of the energy generated by the system was, during the comparison period, somewhat lower than originally estimated due to a reduction in SCE rates. However, energy rates have recently increased and are likely to increase further over the next few years. Therefore, the benefits from the system are likely to be greater than estimated in the coming years.

---

[6] Based on an overall cost of capital of 8.77%

[7] First year savings were $44,857. Following years are escalated at 4% per year as a result of SCE rate increases and other factors.

Appendix A: Mohawk Usage and PV Generation Data

Baseline (before PV installation)			Comparison (after PV installation)						Verification Check of SCE Data against Onsite Data					
Bill Period	Usage (kWh)	Well Output (ccf)	Meter Read End Date	PV System Output (kWh)	Sales to SCE (kWh)	Purchases from SCE (kWh)	Total Usage (kWh)	Well Output (ccf)	Usage Meter Reads from DSH Installed Meters		Net Onsite Usage (E - F + G)		% diff J vs. L	% diff K vs. M
				E	F	G	E - F + G		J	K	L	M		
Mohawk #3A 3-000-0089-59														
2/6/2004	27,270	5,828	2/7/2005			25,638		11,709						
3/8/2004	11,862	2,577	3/9/2005			28,969		12,065						
4/7/2004	31,590	10,324	4/7/2005	18,275	3,808	16,354		12,194			30,821			
5/6/2004	18,828	6,838	5/6/2005	18,275	3,855	17,785		18,268			32,205			
6/7/2004	31,391	13,335	6/7/2005	18,275	2,709	23,523		23,354	17,798		39,089		119.6%	
7/7/2004	36,108	17,944	7/7/2005	20,314	1,819	25,476		25,447	23,354		43,971		88.3%	
8/5/2004	38,088	19,861	8/5/2005	18,137	1,166	28,745		29,136	48,191	48,191	45,716	45,716	-5.1%	
9/3/2004	35,766	17,811	9/6/2005	19,216	1,783	30,124		27,333	46,612	46,612	47,557	47,557	2.0%	
10/5/2004	30,420	14,521	10/5/2005	16,855	3,950	22,027		24,139	33,754	33,754	34,932	34,932	3.5%	
11/5/2004	35,892	14,852	11/7/2005	13,799	7,231	15,843		11,668	21,938	21,938	22,411	22,411	2.2%	
12/7/2004	34,200	11,690	12/7/2005	10,496	5,113	13,589		10,046	19,057	19,057	18,972	18,972	-0.4%	
1/7/2005	28,062	9,791	1/9/2006	8,014	5,251	16,932		10,241	18,997	18,997	19,695	19,695	3.7%	
			2/7/2006	12,391	5,509	23,106		11,182	31,590	31,590	29,988	29,988	-5.1%	
			3/9/2006	13,093	7,317	14,043		10,583	19,484	19,484	19,819	19,819	1.7%	
			4/7/2006	16,474	6,108	7,713		4,408	12,631	12,631	18,079	18,079	43.1%	
	359,477	145,378		203,614	55,619	255,260	403,255	217,999	293,404	252,253	340,229	267,169	16.0%	1.96%
	kWh/ccf =	2.47					kWh/ccf =	1.85						
Mohawk #2 3-000-1570-43														
2/6/2004	16,659	15,743	2/7/2005			9,869		9,448						
3/9/2004	16,526	16,869	3/9/2005			6,381		6,096						
4/7/2004	15,053	15,307	4/7/2005	5,519	1,890	8,963		9,325			12,592			
5/6/2004	20,344	20,761	5/6/2005	5,519	1,502	7,750		7,596			11,767			
6/7/2004	19,758	20,248	6/7/2005	5,519	7,205	9,025		9,220	4,835		7,339		51.8%	
7/7/2004	19,319	19,819	7/7/2005	9,030	6,620	9,515		10,577	6,420		11,925		85.8%	
8/5/2004	20,788	21,222	8/5/2005	7,469	4,776	10,886		12,955	13,166	13,166	13,579	13,579	3.1%	
9/3/2004	21,007	21,316	9/6/2005	9,653	7,424	9,284		10,838	10,709	10,709	11,513	11,513	7.5%	
10/5/2004	20,149	20,356	10/5/2005	6,962	4,900	9,860		8,600	12,420	12,420	11,922	11,922	-4.0%	
11/5/2004	12,844	12,678	11/7/2005	6,936	4,568	13,100		16,699	14,456	14,456	15,468	15,468	7.0%	
12/7/2004	11,763	11,258	12/8/2005	5,220	3,213	12,803		14,350	13,912	13,912	14,810	14,810	6.5%	
1/7/2005	12,460	11,786	1/9/2006	4,380	2,082	11,617		12,497	13,584	13,584	14,115	14,115	3.9%	
			2/7/2006	6,125	3,315	7,385		11,323	9,977	9,977	10,195	10,195	2.2%	
			3/9/2006	6,514	3,951	11,072		9,888	12,788	12,788	13,635	13,635	6.6%	
			4/7/2006	8,232	4,456	10,816		15,039	14,446	14,446	14,592	14,592	1.0%	
	206,690	207,361		87,079	55,902	132,276	163,453	148,907	126,712	115,457	139,093	119,829	9.8%	3.79%
Mohawk Booster 3-000-0068-67														
2/6/2004	13,648		2/7/2005			9,487								
3/9/2004	11,832		3/9/2005			3,631								
4/7/2004	10,855		4/7/2005	5,664	2,255	5,572					8,981			
5/6/2004	14,067		5/6/2005	5,664	4,051	4,484					6,097			
6/7/2004	13,515		6/7/2005	5,664	3,891	5,442			3,560		7,215		103.2%	
7/7/2004	13,321		7/7/2005	6,094	3,058	5,384			4,432		8,420		90.0%	
8/5/2004	14,133		8/5/2005	5,270	1,979	5,855			8,891	8,891	9,146	9,146	2.9%	
9/3/2004	14,172		9/6/2005	5,726	3,267	5,726			7,620	7,620	8,185	8,185	7.4%	
10/5/2004	13,535		10/5/2005	5,069	2,752	6,294			8,875	8,875	8,611	8,611	-3.0%	
11/5/2004	9,208		11/7/2005	4,134	1,769	8,248			9,791	9,791	10,613	10,613	8.4%	
12/7/2004	8,886		12/8/2005	3,136	1,222	7,879			9,131	9,131	9,793	9,793	7.3%	
1/7/2005	9,830		1/9/2006	2,646	563	7,244			8,854	8,854	9,327	9,327	5.3%	
			2/7/2006	3,681	945	4,390			6,944	6,944	7,126	7,126	2.6%	
			3/9/2006	3,906	1,218	6,554			8,557	8,557	9,242	10,460	8.0%	
			4/7/2006	5,038	1464	6,333			9,808	9,808	9,907	9,907	1.0%	
	147,202			61,693	28,434	79,406	112,664		88,454	78,471	97,585	83,168	12.9%	5.99%
	kWh/ccf =	1.71					kWh/ccf =	1.85						
Site Totals	713,369	352,739		352,386	139,956	466,941	679,372	366,906		446,182		460,166		3.13%
				Net energy purchased (G - F)		326,986								
Legend:	Baseline period			Comparison period			Prorated PV output			Verification data			Data reliability problem	

Appendix B: Sales of kWh to SCE by Peak Period

			Mohawk 2			
Bill End Date	S-ON	S-MID	S-OFF	W-MID	W-OFF	Total
4/7/2005				1890		1890
5/6/2005				1077	425	1502
6/7/2005	188	111	220	4280	2406	7205
7/7/2005	2765	1729	2126			6620
8/5/2005	2362	1278	1136			4776
9/6/2005	3115	1927	2382			7424
10/5/2005	2430	1509	738	134	89	4900
11/7/2005				2970	1598	4568
12/7/2005				1837	1376	3213
1/9/2006				1194	888	2082
2/7/2006				2252	1063	3315
3/9/2006				2556	1395	3951
4/7/2006				3210	1246	4456
			Mohawk 3A			
Bill End Date	S-ON	S-MID	S-OFF	W-MID	W-OFF	
4/7/2005				2925	883	3808
5/6/2005				3102	753	3855
6/7/2005	59	27	79	1777	767	2709
7/7/2005	919	348	552			1819
8/5/2005	663	184	319			1166
9/6/2005	878	339	566			1783
10/5/2005	1353	516	611	1098	372	3950
11/7/2005				6217	1014	7231
12/7/2005				4268	845	5113
1/9/2006				4041	1210	5251
2/7/2006				4714	795	5509
3/9/2006				5892	1425	7317
4/7/2006				6108		6108
			Mohawk Boosters			
Bill End Date	S-ON	S-MID	S-OFF	W-MID	W-OFF	
4/7/2005				1663	592	2255
5/6/2005				3001	1050	4051
6/7/2005	104	49	69	2732	937	3891
7/7/2005	1570	777	711			3058
8/5/2005	1106	487	386			1979
9/6/2005	1579	846	842			3267
10/5/2005	1364	794	580		14	2752
11/7/2005				1101	668	1769
12/7/2005				675	547	1222
1/9/2006				301	262	563
2/7/2006				595	350	945
3/9/2006				718	500	1218
4/7/2006				1081	383	1464
Total Sales to SCE (kWh)	20,455	10,921	11,317	73,409	23,853	139,955
Rate/kwh	0.12334	0.07303	0.03194	0.10312	0.03693	
Value of kWh	$2,523	$798	$361	$7,570	$881	$12,133

Appendix C: Summary of Demand Savings

	Meter Read End Date	Summer On-Peak kW	Max kW	Max kW minus Summer On-Peak kW	Summer On-peak Demand Charge per kW	Partial Month Multiplier	Savings
Mohawk 3A	6/7/2005	44	67	23	$11.53	1/16	$16.57
	7/7/2005	56	67	11	$11.53	1	$126.83
	8/5/2005	63	67	4	$11.53	1	$46.12
	9/6/2005	59	68	9	$11.53	1	$103.77
	10/5/2005	65	68	3	$11.53	26/29	$31.01
Mohawk 2	6/7/2005	46	61	15	$11.53	1/16	$10.81
	7/7/2005	62	62	0	$11.53	1	$0.00
	8/5/2005	62	62	0	$11.53	1	$0.00
	9/6/2005	57	61	4	$11.53	1	$46.12
	10/5/2005	61	62	1	$11.53	26/29	$10.34
Mohawk Bstrs	6/7/2005	1	31	30	$11.53	1/16	$21.62
	7/7/2005	15	32	17	$11.53	1	$196.01
	8/5/2005	12	33	21	$11.53	1	$242.13
	9/6/2005	13	33	20	$11.53	1	$230.60
	10/5/2005	29	34	5	$11.53	26/29	$51.69
					Total kW savings		**$1,133.62**

Appendix D: Recommendations from DSH Solar Electric to Improve Performance of Mohawk Site Operations

DSH Solar Electric, the developer of the Mohawk wells PV system, has proposed the following actions be taken to improve the performance of the DSM and PV equipment installed at the site:

1. Install an additional exhaust fan in the inverter shed to eliminate more heat and act as a back up in case the current one fails again. Current fan is per mechanical specs of air movement in the inverter shed. The exhaust fans are high quality and have a life-time warranty on the motor.
2. Build a web page and view of the PV 100s inverter direct monitoring. This will enable DSH to keep a close eye on the large unit from their office in San Diego.
3. Formally address the over-voltage issue with SCE. DSH believes this is the major cause of the problems with the system. See graphs below illustrating a day when a fault was recorded. SCE has not addressed this issue; their claim that the 100hp pump is causing this problem is incorrect. The voltage is at 510v, which is well out of ANSI range even when the motor is off. The over-voltage issue should be fixed on the SCE side of the meter at no charge to GSWC, after which the faults should decrease substantially. DSH believes the AC faults and initial start-up delays account for the shortfall in first-year PV generation.[8]
4. Address the motor condition of the 100 hp pump on Mohawk 3A. The controller that performs optimization will not perform due to the motor condition, possibly aggravated by the high voltage leg issue. The QFE software will optimize a good motor and only give the motor the required amount of energy needed, thus saving energy. However, the QFE on Mohawk #3A will not go into this mode as the motor is drawing 25% more on one leg; it will only perform soft start and soft stop functions. The unbalanced motor should be checked out by a professional motor re-builder as soon as possible to determine why it draws unbalanced currents and remedy the issue.
5. Add additional cross bracing on the array racking. The last two years have now seen record breaking wind speeds knocking over 14 power poles and record snow fall in the immediate area. DSH proposes to add some bolt-on bracing to be prepared for what seems to be a trend in the weather becoming more extreme.
6. GSWC personnel have requested that the clover lugs in the main services be replaced with slimmer double lugs to give more clearance from the door, and isolation plastic installed between phases for safety. The services installed by DSH have UL listing and were built for the site by Pacific Electric. DSH would

[8] Need claim form for the spike sent to Mohawk. SCE planner is Grace Soto, 760-951-3145. SCE number to report out of ANSI range is1-800-655-6555. Laura Rudison to request SCE install NGO meter.

like to respond to this request by having Pacific Electric build new lugs and UL drawings to keep the UL listing.

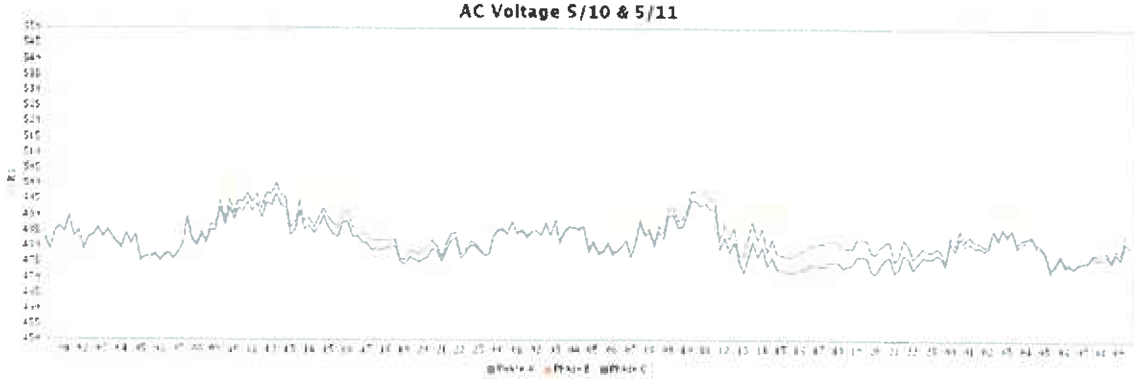
7. The existing 100hp starter breaker sits very close to the door of the enclosure. DSH proposes to modify the door to obtain a safer clearance for the GSWC personnel.
8. Bring the inverter and DSH warranty up to 15 years.
9. Check with SCE for new available PV solar rate schedules that provide a better return.

Of the items proposed above, DSH would cover the cost on items 1 and 2. Item 3 should be covered by SCE and should provide the PV system with the ability to perform up to expectations. Item 4 should allow the DSM to achieve expected savings. Item 5 provides extra stability as weather patterns change. Items 6 and 7 are inexpensive site safety measures for which DSH will provide a separate quote shortly. Item 8 will provide a longer term warranty with quick factory support; DSH will provide a quote on this item as well.

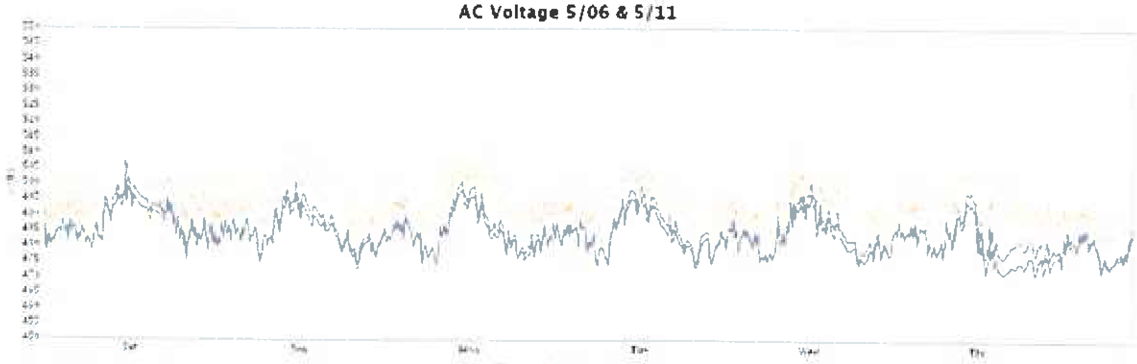
Above material in this Appendix D provided by:

Dirk S. Hosmer CEO
DSH Solar Electric Inc.
Off. #619-497-1195
Fax #619-497-0507
dirk@dshsolar.com

AC Voltage 5/10 & 5/11



AC Voltage 5/06 & 5/11



Appendix E: Interviews with Mohawk Site Personnel

Date of Interviews: August 4, 2006

Location: Apple Valley Office, 13608 Hitt Road

Attendees: Perry Dahlstrom
Bill McDonald
Marlyn Leslie
Tracey Drabant
Karen Young
Dennis Johnson (interviewed by phone on 8/11)

Interview Questions and Responses

1. **Were there any findings or conclusions in the draft evaluation report about the Mohawk PV system that you'd like to discuss, or questions you'd like us to answer?**
   a. Discussed the efficiency level of the pumps. The report currently aggregates the total water production and total kWh usage as the basis for the efficiency calculation. Suggestion was made to separate the calculations for Mohawk #3 from Mohawk #2 (plus boosters) to see if efficiency issues are isolated to one or both pumps.
   b. Discussed configuration of system with respect to utility grid. Will develop a schematic of system to incorporate in the report. Want to understand why a utility outage would bring the pumps down when the PV system is operating at full capacity in daylight hours.
   c. Discussed issues concerning deferral of local capital projects in order to fund PV system construction. Opportunity cost of funding the Mohawk PV system was not fully examined and understood.

2. **In what ways has installation of the PV system affected the operations and maintenance workload for the Mohawk wells site?**
   a. Cost for landscape maintenance and cleaning of solar panels has amounted to about $700/month, or $5000/year. The work is labor intensive.
   b. Site visits to resolve issues relating to the PV system have averaged about 8 hours per month.

3. **Other than workload, describe any issues that have arisen relative to the PV system.**
   a. A spike in power from SCE burned out some DSM equipment. This brought down the wells completely. Would like to have a bypass switch so that if the DSM equipment is disabled, the wells can easily be connected directly to the utility grid. This had to be done manually which caused delays in getting the pumps back into operation.

b. There have been some reliability issues with respect to the inverters. Inverter outage has been higher on well #2, which explains in part the lower efficiency level achieved on that well.
c. Field personnel were not involved early enough, prior to start of construction. Earlier involvement might have surfaced some issues that could have been resolved prior to putting the PV system into operation.

4. **Describe any benefits that the PV system has generated for you.**
    a. Have noticed substantial reduction in electric bills from SCE, consistent with information in the report.
    b. The "soft start" DSM equipment has smoothed out the pump motor operation and has lowered the heat level, which should extend the life of the pump.

5. **Has there been any reaction from the local community about the PV system? If so, has the tone of the reaction been mostly positive or negative, and why?**
    a. Very little reaction has been observed, other than a few questions when the system was first constructed.
    b. Other utility companies have inquired about the system at Mojave Water Agency meetings.

6. **Describe any opportunities you can see to improve the operational performance of the system.**
    a. Cleaning the panels would be facilitated by placing a water source at the end of each system, to reduce the effort of handling/moving hoses.
    b. A switch to allow bypass of the DSM equipment would limit the down-time when the DSM equipment fails and the wells have to be manually connected directly to the utility grid.

7. **Have you had any occasions to interact with the vendor who installed the system (DSH Solar Electric)? If so, describe the nature of those interactions, and the nature of the relationship overall.**
    a. DSH personnel have been very professional and responsive, and have demonstrated technical competence. No extra costs were incurred over the contracted amount.
    b. The vendor moved a 20'x20' building in conjunction with installing the PV system. The new concrete floor for this building is "a mess." DSH was not geared to do this kind of work. However, installation of the PV system was done without any problems.

8. **Would you recommend DSH Solar Electric as a vendor that GSWC should consider engaging for future projects? Why?**
    a. Would use the vendor for other PV projects, but would not try to use them in the capacity of a general contractor because of the issue described in #7b above.

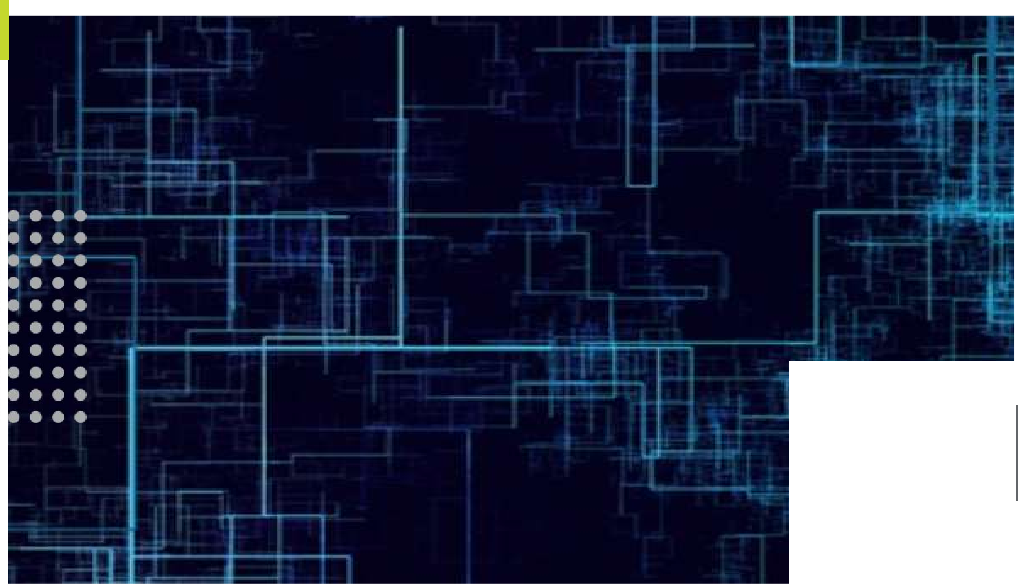
Region 3 Renewable Energy Assessment

Golden State Water Company

GSWC

Region 3 Renewable Energy Assessment
Project No. 153146

Revision 1.0
3/31/2023



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LIST OF ABBREVIATIONS

Abbreviation	**Term/Phrase/Name**
1898 & Co.	1898 & Co., part of Burns & McDonnell
AC	Alternating Current
Client	GSWC
dc	Direct Current
GHG	Green House Gas
GSWC	Golden State Water Company
GWh	Gigawatt-Hour
IID	Imperial Irrigation District
IRP	Integrated Resource Plan
ITC	Investment Tax Credit
kW	Kilowatt
kWh	Kilowatt-Hour
MACRS	Modified Accelerated Cost Recovery System
MW	Megawatt
MWh	Megawatt-Hour
NPV	Net Present Value
NREL	National Renewable Energy Laboratory
PV	Photovoltaic
RPS	Renewable Portfolio Standard
SAM	System Advisory Model
SCE	Southern California Edison
TMY	Typical Meteorological Year

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1.0 EXECUTIVE SUMMARY

1.1 Introduction

1898 & Co., a division of Burns & McDonnell Engineering Company, Inc. (hereinafter called "1898 & Co."), was retained by Golden State Water Company (GSWC) to identify the most economical ways to advance GSWC's sustainability initiatives by utilizing renewable energy to power its facilities, thereby reducing its carbon footprint. Below is a summary of 1898 & Co.'s methodologies, assumptions, and results of its study.

1.2 Methodologies & Assumptions

1898 & Co. and GSWC worked together to identify high potential sites in GSWC's Region 3. Sites were narrowed down based on land availability and total energy requirements. The following plants, booster stations, and pumps were selected for evaluation:

- Agarita
- Bradshaw Wells 1, 2, 6, 7, 10, 11, 13, & 14
- Buford Canyon Well 5
- Emerald
- Glen Road Wells 1 & 2
- Government Canyon Well 3
- Holabird
- Kiowa
- Niland
- Popago

Each site was evaluated for viability of various renewable energy resources. The site evaluations led to the study primarily analyzing sites for solar and/or solar plus energy storage projects. Other renewable sources such as wind, geothermal, hydropower, and biomass were quickly excluded due to a lack of available natural resources, lack of available space, permitting restraints, or lack of financial feasibility.

Solar project evaluations used Helioscope and NREL System Advisory Model software to determine optimally sized solar project, balancing GSWC's financial, resiliency, and environmental objectives. Technical and financial assumptions are provided in Sections 2.3 through 2.5 of this report.

1.3 Results & Recommendations

Below are the recommendations proposed by 1898 & Co. that best meet GSWC's objectives. Important financial decision-making factors such as net present value (NPV) benefit and capital cost are also presented. Further discussion of results, recommendations, and the statistics behind them are presented in Section 4.2 of this report.

Table 1: Executive Summary of Recommendations

Site Name	Solar Recommended	Battery Recommended	NPV Benefit	Capital Cost	Energy Offset
Agarita	138.7 kWdc	50 kWh / 25 kW	$14,033	$442,000	58%
Bradshaw	1,250 kWdc	1000 kWh / 500 kW	$71,501	$3,858,377	95.6%
Buford Canyon 5	30 kWdc	N/A	$2,462	$109,012	90.5%
Emerald	70 kWdc	N/A	$3,398	$228,696	132.2%
Glen Road 1	500 kWdc	N/A	$13,878	$1,177,640	137.9%
Glen Road 2	120 kWdc	N/A	$9,897	$362,927	120.1%
Government Canyon 3	15 kWdc	N/A	$1,677	$55,011	75.7%
Holabird	420 kWdc	N/A	$1,282	$1,016,690	100.0%
Kiowa	240 kWdc	300 kWh / 150 kW	$10,306	$839,637	114.8%
Niland	0 kWdc	N/A	$0	$0	0%
Popago	50 kWdc	N/A	$1,544	$171,157	81.3%

[1] NPV benefit is the net present value cash flow of each project to GSWC. A positive NPV benefit indicates that the project is favorable to GSWC and will reduce GSWC's annual revenue requirement to its rate payers.

2.0 INTRODUCTION

1898 & Co., a division of Burns & McDonnell Engineering Company, Inc. (hereinafter called "1898 & Co."), was retained by Golden State Water Company (GSWC) to identify the most economical ways to advance GSWC's sustainability initiatives by utilizing renewable energy to power its facilities, thereby reducing its carbon footprint. GSWC is seeking to reduce expenses associated with power and pass the savings onto its ratepayers. 1898 & Co. let these principles guide the Renewable Energy Feasibility Assessment (the "Study").

2.1 Approach

1898 & Co. worked with GSWC to understand the nature of its facilities' existing electric supply, utility rates, and energy usage. Facilities were assessed for varying renewable energy projects.

1898 & Co. completed the Study applying a process of elimination strategy to narrow down the sites to a portfolio of high potential candidates. This involved selecting sites with the largest loads and sufficient space to support renewable generation projects. Those sites were evaluated for viable generation sources. Each site was assessed to maximize the generation of each source and then scaled down to optimize various metrics. In collaboration with GSWC, the largest and most economical solution was determined.

It should be noted that the Study primarily evaluated sites for solar and solar plus energy storage projects. Other renewable sources such as wind, geothermal, biomass, etc. were quickly excluded due to a lack of available natural resources, lack of available space, or lack of financial feasibility. Wind generation projects were considered but ultimately excluded as a candidate from all sites due to either a lack of financial viability, poor wind resource, constructability limitations, potential permitting constraints, likely residential/public pushback, or overproduction restrictions in the electric utility tariffs.

2.2 Potential Sites

GSWC serves over 80 communities across the state of California and has many different sites to serve their customers. GSWC and 1898 & Co. worked together to identify high potential sites in GSWC's Region 3. GSWC and 1898 & Co. worked together to identify sites that had both high electric usage and large amounts of available space. This narrowed down the renewable energy assessment to the following sites:

- Agarita
- Bradshaw Wells 1, 2, 6, 7, 10, 11, 13, & 14
- Buford Canyon Well 5
- Emerald
- Glen Road Wells 1 & 2
- Government Canyon Well 3
- Holabird
- Kiowa
- Niland
- Popago

2.3 Financial Assumptions

Several financial assumptions were made by 1898 & Co. and GSWC. The following is a list of the financial assumptions used for this Study. All dollar values are expressed in 2023 nominal values:

Table 2: Financial Assumptions

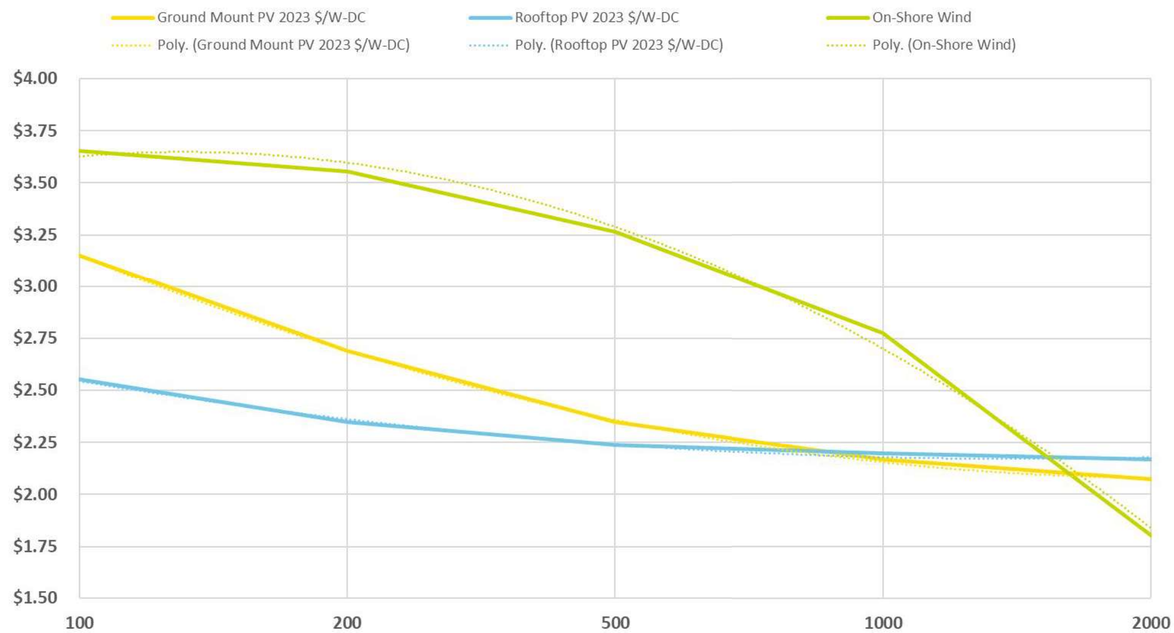
Description	Value
Analysis Span	25 Years
Investment Tax Credits (ITCs)	30%
Depreciation Schedule	5-Year MACRS
Salvage Value	$0
Federal Corporate Income Tax Rate	21%
State Corporate Income Tax Rate	9%
Sales Tax	5%
Debt Financing	$0
Energy Offset Goal	100%
Net Present Value (NPV) Requirement	Greater than $0
Nominal Discount Rate / Weighted Average Cost of Capital	8.65%
Property Tax Assessment Percentage	100% of Installed Cost
Photo-Voltaic (PV) Operation & Maintenance [1]	$18/kWdc-yr
Battery Energy Storage System (BESS) Operation & Maintenance	$10/kWdc-yr
Battery Replacement Cost	$225.06/kWhdc
Total Battery Cost – Including Materials & Labor [2]	$672/kWh
Renewable Source Economies of Scale	See Figure 1

[1] System Advisory Model 2022.11.21 default values
[2] "U.S. Solar Photovoltaic Systems and Energy Storage Cost Benchmarks, with Minimum Sustainable Price Analysis: Q1 2022", *NREL*

The cost of solar panel and wind turbine systems varies based on size and region. 1898 & Co. developed solar cost curves based on 2023 solar project costs. Wind cost curves were developed referencing the NREL 2019 Cost of Wind Energy Review[1] and adjusted using Berkely Lab[2] wind study analysis. The result of these capital cost curves are provided in Figure 1. The capital cost includes all equipment, installation, mobilization, and construction cost.

[1] https://www.nrel.gov/docs/fy21osti/78471.pdf
[2] https://eta.lbl.gov/news/wind-energy-benefits-outweigh-costs

Figure 1: Renewable Energy Capital Cost-Curve



2.4 Utility Rate and Load Assumptions

Several utility and rate assumptions were made either by 1898 & Co. or at the direction of GSWC. The following is a list of the utility rate assumptions used for this Study:

- Load profiles provided by GSWC using 2021 and 2022 hourly usage data
- Load profiles are consistently repeated, without change, on an annual basis during the Study period
- Historic tariff rates were maintained throughout the analysis period and inflated using an inflation rate of 2.5% per year
- Electric utility rates for Southern California Edison (SCE) and Imperial Irrigation District (IID) were obtained from actual electric bills for each site
- Electric utility rates used in the study include the following:
  - SCE TOU-PA-2-D
  - SCE TOU-PA-2-E
  - SCE TOU-GS-2-E
  - IID EL_LG_COM
  - IID EL_SM_COM
  - CCA Generation Charges

2.5 Software & Technical Assumptions

The following is a list of the software and technical assumptions used for this Study:

- Each site was modeled utilizing Helioscope to estimate hourly energy production for the proposed solar arrays.
- NREL Typical Meteorological Year (TMY) data was used for hourly solar radiation variables to help develop the energy production estimates.

  - Built-in solar patterns are detailed to the municipal level and are considered accurate and representative for the analyzed site.
- Utility rate modeling and financial modeling was performed in System Advisory Model (SAM). The appropriate SCE and IID utility rates were used for each site.
- Battery energy storage was modeled and optimized for maximum financial savings for each site.
- Electrical losses due to shading, soiling, wire resistance, inverter efficiency, etc. from Helioscope are reasonable and accurate.
- Hanwha Q Cell panels and corresponding performance specifications were assumed for the site feasibility analysis.
- Sunny Tripower inverters and corresponding performance specifications were assumed for the site feasibility analysis.

3.0 SITE FEASIBILITY

This section of the report provides the detailed analysis, results, and recommended renewable energy solution for each site considered in the assessment. The recommendations have narrowed all potential options' results down through several selection criteria. These criteria include financial feasibility, energy reduction, carbon offset, and resiliency from grid outages in some circumstances.

3.1 Agarita

3.1.1 Site Description

The Agarita booster plant site is adjacent to a residential neighborhood in the town of Barstow, CA directly south of Highway 15. This location contains a large water reservoir and booster station. The site has minimal vegetation with a ring of trees encircling the water reservoir. The land owned by GSWC inhibits the ability to install a wind turbine due to spacing limitations or wind flow obstruction from the storage tank.

Figure 2: Agarita Plant Satellite Image

3.1.2 Electric Load

The load profile for Agarita is mostly consistent throughout the year with summer electrical usage being slightly higher than the winter season. Throughout a given day, the plant electrical load fluctuates and tends to spike in use every four hours. Table 3 shows the monthly peak and energy usage of the twelve-months data provided by GSWC.

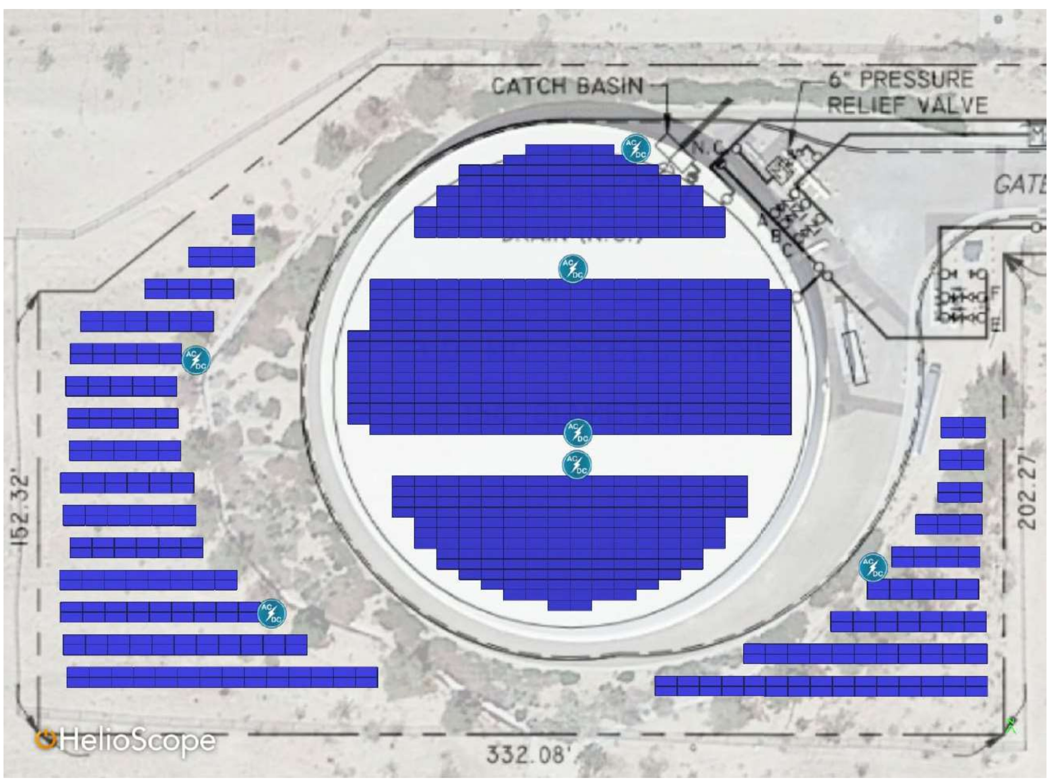
Table 3: Agarita Plant Monthly Load

	Energy (kWh)	Peak (kW)
Jan	29,076	130.8
Feb	24,083	98.8
Mar	29,280	95.2
Apr	35,916	105.2
May	51,521	196.4
Jun	50,543	142.4
Jul	53,071	140.0
Aug	54,728	108.0
Sep	46,410	106.8
Oct	38,147	102.4
Nov	31,325	124.4
Dec	29,517	99.2
Annual	473,620	196.4

3.1.3 Maximum Solar Array Layout

The solar array site layout to maximize solar production is shown in Figure 3. Under this layout, the nameplate capacity would reach 400 kWdc and produce 747 MWh per year. Note that this layout utilizes the top of the storage tank. This was ultimately removed due to maintenance and cleanliness concerns. The final layout for the recommended array is shown below in Subsection 3.1.9.

Figure 3: Agarita Maximum Solar Array Layout



3.1.4 Solar Array and Battery Energy Storage Assumptions

The technical assumptions outlined in Section 2.5 hold true for the analysis of both the solar only and solar plus battery scenarios. When modeled in both Helioscope and SAM, the following site-specific technical assumptions for the solar array were used:

- 1.14 Inverter AC Load Ratio
- 82.8% Performance Ratio
- (34.85, -117.05) NREL Typical Meteorological Year (TMY) Weather Dataset
- Ground-mount, 15° Fixed Tilt Array at 180° Azimuth, 4 ft interrow spacing & a flush mount, 0° tilt angle at 180° Azimuth and 0ft interrow spacing

3.1.5 Economic Results of Solar and Solar Plus Battery Energy Storage System

The addition of a solar array and battery system at the Agarita plant was shown to be economically beneficial for GSWC. Results indicate that maximizing the size of the solar array resulted in a positive net present value. The addition of a small battery energy storage system increased savings by reducing demand charges GSWC would incur from the plant's load fluctuations in the evening, when solar production drops. The options presented in Table 4 are the top performing system results that meet GSWC policy objectives.

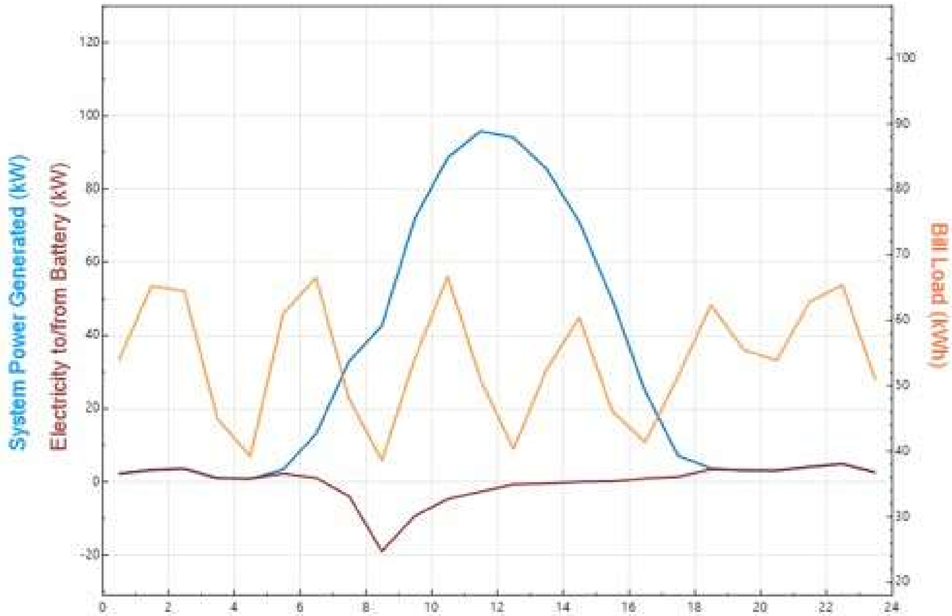
Table 4: Agarita Economic Results

	Solar Only	Solar + Battery
Solar Array Size	138.7 kWdc	138.7 kWdc
Battery Size	N/A	50 kWh / 25 kW
Energy Offset	58.6%	58.4%
Capital Investment	$409,000	$442,000
Payback Period	9.0 years	9.0 years
Net Present Value	$13,722	$14,033

3.1.6 System Energy Production

Figure 4 is an annualized graph of the site load (in orange), solar production (blue), and battery usage (maroon) of the recommended systems. The magnitude of each shape is expected to vary throughout a given year due to seasonal changes in energy needs and solar patterns. Under the proposed system, solar generation matches midday system loads in the summer but overproduces in the winter. The addition of a battery serves to shaves off peak demands that occur in the evening. The proposed system is estimated to generate about 275 MWh of energy each year. This covers about 58% of the 474 MWh used at the site.

Figure 4: Agarita Plant Annualized Load Shape



3.1.7 Renewable Energy Production & GHG Reduction Results

Under both the solar only and solar plus battery cases, the annual energy offset is expected to be around 277 MWh per year. Table 5 is an estimate of the emissions that will be offset in the first year from either of these systems. It should be noted that the annual emissions offset will decrease as the local utilities transition to "green" generation portfolios.

Table 5: Agarita Year 1 Emission Reductions

	Solar Only	Solar + Battery
Energy Offset (kWh)	277,750	276,830
SO_2 (lb)	16.9	16.8
NO_X (lb)	85.8	85.5
CO_2 (tons)	142.2	141.7
NH_3 (lb)	7.2	7.2

Source: Avoided Emissions and Generation Tool (https://www.epa.gov/avert/avert-web-edition)

3.1.8 Resiliency Benefits

Some resiliency benefits can be realized from the installation if a solar and battery system. The effect of installing the proposed system can vary due to Agarita's fluctuating load. To consider the resiliency benefits, the duration of time which the battery will last under the critical, historical peak, and average load are shown in Table 6 below. It should be noted that the recommended battery is rated for an output of 25 kW and will therefore be unable to solely support the critical, peak, or average load.

Table 6: Agarita Battery Resiliency Figures

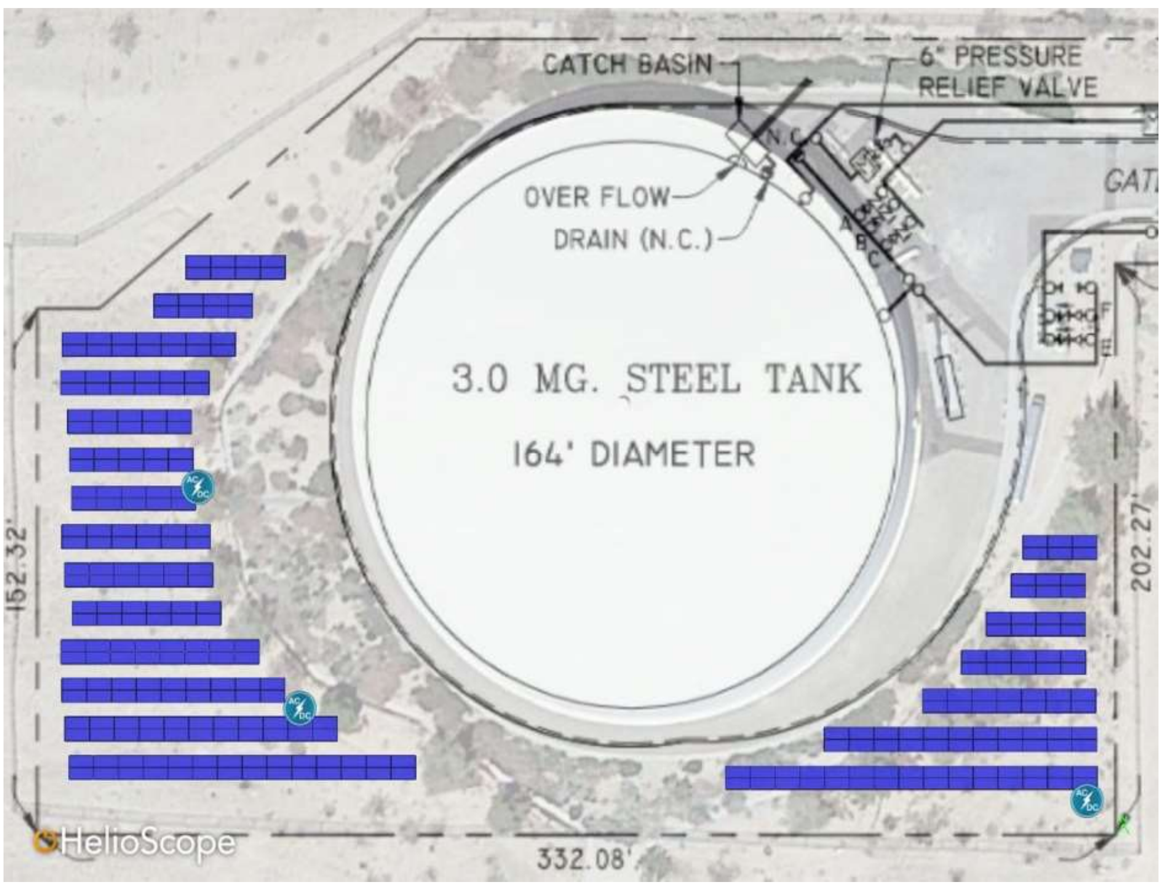
Scenario	Battery Capacity (kW)	Battery Energy (kWh)	Demand (kW)	Duration (hr)
Critical	25	50	283.4*	0.18
Historical Peak	25	50	196.4*	0.25
Average	25	50	54.1*	0.9
Realistic	25	50	25	2

* Battery system unable to support demand. Only provides peak shaving and cost savings.

3.1.9 Recommendation

The Agarita booster plant shows benefits from adding a solar array, both with and without a battery. 1898 & Co. recommends the installation of a 138.7 kWdc solar array. Figure 5 below displays the recommended placement of this array. A 50 kWh battery system is also recommended due to the added financial and incremental resiliency benefits.

Figure 5: Agarita Recommended Solar Array Site Layout



3.2 Bradshaw

3.2.1 Site Description

The Bradshaw Plant is located in the northwest corner of Barstow, CA. It is bordered by a BNSF railyard to the north and residential neighborhoods to the south. This location contains 11 well pumps scattered throughout the property. Little to no vegetation is found on the site aside from a tree line around the property fence line. The presence of adjacent residences significantly reduces the likelihood of achieving city permitting and approval due to expected pushback from nearby homeowners. 1898 & Co. excluded wind analysis from this site due to the low success rate of installing wind turbines near residences.

Figure 6: Bradshaw Plant Satellite Image

3.2.2 Electric Load

The electric profile of the wells on site were compiled and analyzed individually and as a whole. The results presented in this Report represent the site and load as a whole. The load profile for the Bradshaw location is somewhat consistent on a daily basis but varies throughout the year, peaking in the summer and reducing usage by about half in the winter.

Table 7 shows the total Bradshaw site monthly peak and energy usage of the twelve-months data provided by GSWC.

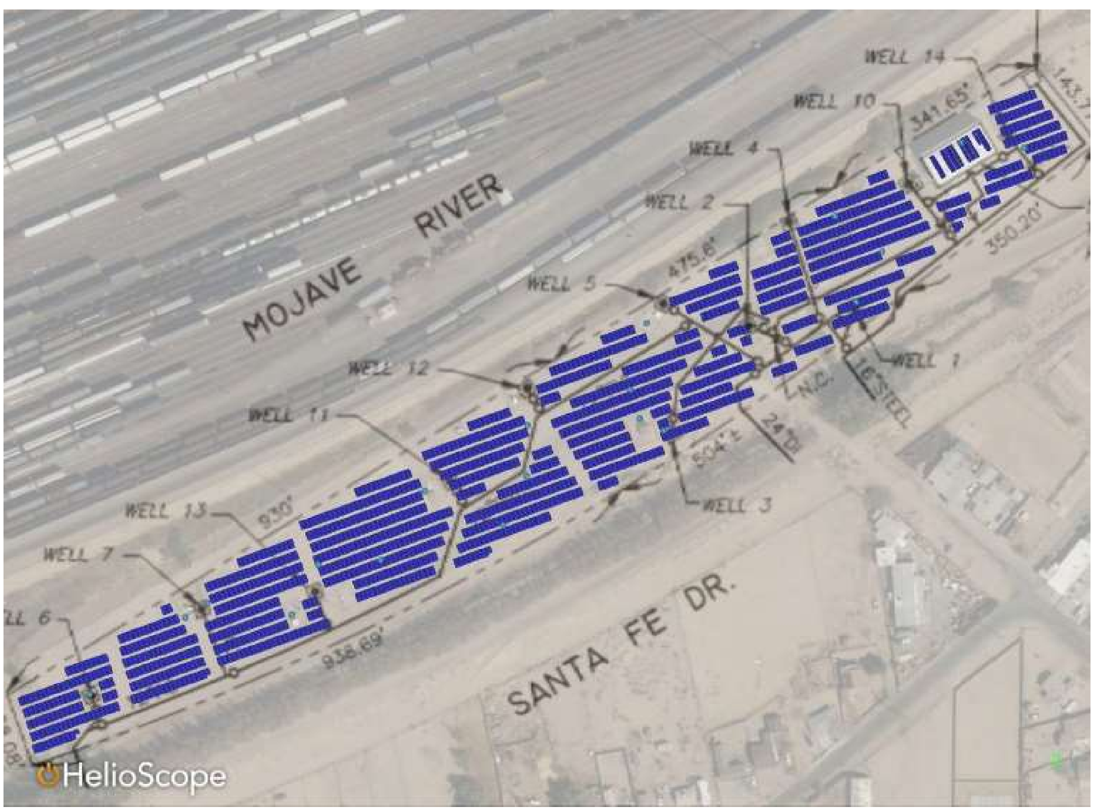
Table 7: Bradshaw Plant Monthly Load

	Energy (kWh)	Peak (kW)
Jan	133,163	390.2
Feb	142,105	536.7
Mar	149,251	422.2
Apr	192,156	511.6
May	260,323	536.1
Jun	278,068	551.2
Jul	301,448	581.1
Aug	277,756	543.5
Sep	245,109	525.4
Oct	159,220	353.0
Nov	172,771	435.9
Dec	158,483	468.2
Annual	2,469,851	581.1

3.2.3 Maximum Solar Array Layout

The solar array site layout to maximize solar production is shown in Figure 7. Under this layout, the nameplate capacity would reach 2.71 MW kWdc and produce an expected annual energy output of 5,153 MWh per year which is much more than the annual site load. The final layout for the recommended array is shown in Subsection 3.2.9.

Figure 7: Bradshaw Maximum Solar Array Layout



3.2.4 Solar Array and Battery Energy Storage Assumptions

The assumptions outlined in Section 2.5 hold true for the Bradshaw solar analysis. It was also assumed that a microgrid network would be established at this site to allow solar energy production to be spread across multiple well meters actively being used. When modeled in Helioscope and SAM, the following technical assumptions for the array were as follows:

- 1.19 Inverter AC Load Ratio
- 76.3% Performance Ratio
- (34.85, -117.05) NREL Weather Dataset
- Ground-mount, 25° Fixed Tilt Array at 160° Azimuth, 6ft interrow spacing & Rooftop Ballasted system, 10° tilt angle at 240° Azimuth and interspacing of 2 ft

3.2.5 Economic Results of Solar and Solar + Battery Energy Storage System

The addition of a solar plus battery microgrid array system at the Bradshaw plant was shown to be economically beneficial for GSWC. Results indicate that even with the additional cost of building a microgrid, a connected system produces a higher net present value compared to individually metered systems. Table 8 presents the results of the recommended system that meets GSWC policy objectives. The addition of a 1000 kWh battery improves the project's net present value benefit by approximately $30,000.

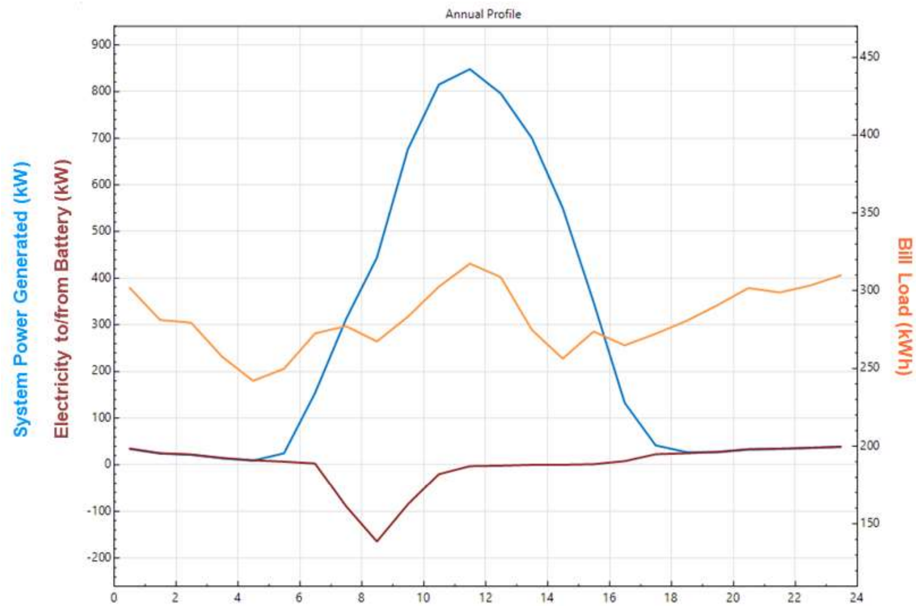
Table 8: Bradshaw Economic Results

	Solar Only	Solar + Battery
Solar Array Size	1250 kWdc	1250 kWdc
Battery Size	N/A	1000 kWh / 500 kW
Energy Offset	96.3%	95.6%
Capital Investment	$2,379,376	$3,858,377
Payback Period	9.4 years	9.3 years
Net Present Value	$42,425	$71,501

3.2.6 System Energy Production

Figure 8 is an annualized graph of the site load (in orange), solar production (blue), and battery usage (maroon) of the recommended system. The magnitude of each shape is expected to vary throughout a given year due to seasonal changes in energy needs and solar patterns. Under the proposed system, solar generation overproduces mid-day, compared to the system loads but this overproduction charges the battery and allows for energy offset in the mornings and evenings when solar production is not maximized. The addition of a battery also serves to shave off peak demands that occur in the evening and overnight. The proposed solar and battery system is estimated to generate about 2,360 MWh per year. This covers 96% of the site energy use.

Figure 8: Bradshaw Plant Annualized Load Shape



3.2.7 Renewable Energy Production & GHG Reduction Results

Under both the solar only and solar plus battery cases, the annual energy offset is expected to be around 2,360 MWh per year. Table 9 is an estimate of the emissions that will be offset in the first year from either of these systems. It should be noted that the annual emissions offset will decrease as the local utilities transition to "green" generation portfolios.

Table 9: Bradshaw Year 1 Emissions Offset

	Solar Only	Solar + Battery
Energy Offset (kWh)	2,379,376	2,359,955
SO_2 (lb)	145.1	144.0
NO_X (lb)	735.2	729.2
CO_2 (tons)	1218.2	1208.3
NH_3 (lb)	61.9	61.4

Source: Avoided Emissions and Generation Tool (https://www.epa.gov/avert/avert-web-edition)

3.2.8 Resiliency Benefits

Some resiliency benefits can be realized from the installation if a solar and battery system. The main benefit of installing the proposed battery system is to reduce demand charges in the evening but it can also serve as a temporary power supply during grid outages. To consider the resiliency benefits, the duration of time which the battery will last under the critical, historical peak, and average load are shown in Table 10. It should be noted that the recommended battery is rated for an output of 500 kW and will therefore be unable to support a peak or critical load for this site.

Table 10: Bradshaw Battery Resiliency Figures

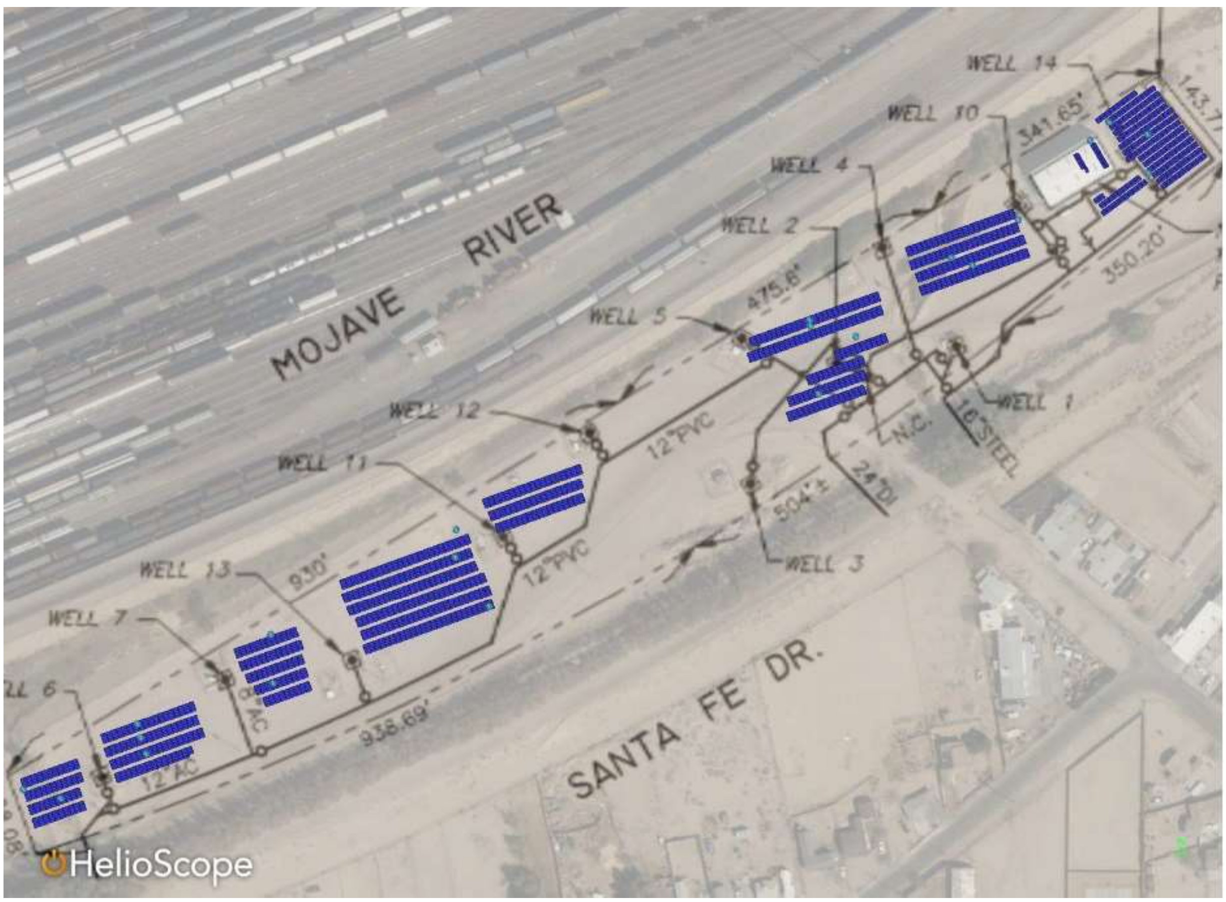
Scenario	Battery Capacity (kW)	Battery Energy (kWh)	Demand (kW)	Duration (hr)
Critical	500	1000	708.4*	1.4
Historical Peak	500	1000	581.1*	1.7
Average	500	1000	282	3.5
Realistic	500	1000	500	2

* Battery system unable to support critical and peak demand but can provide 500 kW during normal conditions.

3.2.9 Recommendation

The Bradshaw wells will benefit from the addition of a solar array, both with and without a battery. 1898 & Co. recommends the installation of a 1,250 kWdc solar array. Figure 9 below displays the recommended placement of this array. A 1,000 kWh battery system is also recommended due to the added financial benefits and incremental resiliency benefits.

Figure 9: Bradshaw Recommended Solar Array Layout



3.3 Buford Canyon Well 5

3.3.1 Site Description

The Buford Canyon Well 5 site sits in a canyon at the base of Blue Ridge Mountain in unincorporated territory next to Wrightwood, California. This location contains a well, pump, and small storage tank. Some trees and vegetation are present in the surrounding area but can be avoided with proper placement. This site was excluded from a wind evaluation due to low energy requirements of the site and logistical difficulty of installing a wind turbine along the edge of a mountain.

Figure 10: Buford Well 5 Canyon Satellite Image

3.3.2 Electric Load

The load profile for Buford Canyon Well 5 mostly follows the same load pattern throughout the year. This site typically peaks around 10:00 AM, bottoms out in the afternoon before moderately rising in the evening and returning to a near 0 kW load overnight. Table 11 shows the Buford Well 5 monthly peak and energy usage of the twelve-months data provided by GSWC.

Table 11: Buford Well 5 Monthly Load

	Energy (kWh)	Peak (kW)
Jan	175	2.1
Feb	0	0.0
Mar	5,174	18.5
Apr	5,019	18.5
May	5,166	18.5
Jun	5,018	18.5
Jul	5,185	18.5
Aug	5,166	18.5
Sep	5,022	18.5
Oct	5,642	25.7
Nov	9,994	51.7
Dec	10,019	29.5
Annual	61,582	51.7

3.3.3 Maximum Solar Array Layout

The solar array layout to maximize solar production on the site is shown in Figure 11. Under this layout, the nameplate capacity would reach 74.9 kWdc and produce an expected annual energy output of 139 MWh. The final layout for the recommended array is shown in Subsection 3.3.9.

Figure 11: Buford Well 5 Maximum Solar Array Layout

3.3.4 Solar Array Assumptions

The assumptions outlined in Section 2.5 hold true for the analysis of both solar only and solar plus battery scenarios. When modeled in both Helioscope and SAM, the following technical assumptions for the solar array were used:

- 1.12 Inverter AC Load Ratio
- 74.3% Performance Ratio
- (34.45, -117.65) NREL Weather Dataset
- Ground-mount, 25° Fixed Tilt Array at 180° Azimuth, 6ft interrow spacing

3.3.5 Economic Results of Solar Array System

The addition of a solar array system at the Buford Canyon site was shown to be economically beneficial for GSWC. Table 12 presents the results of the recommended system that meets GSWC policy objectives.

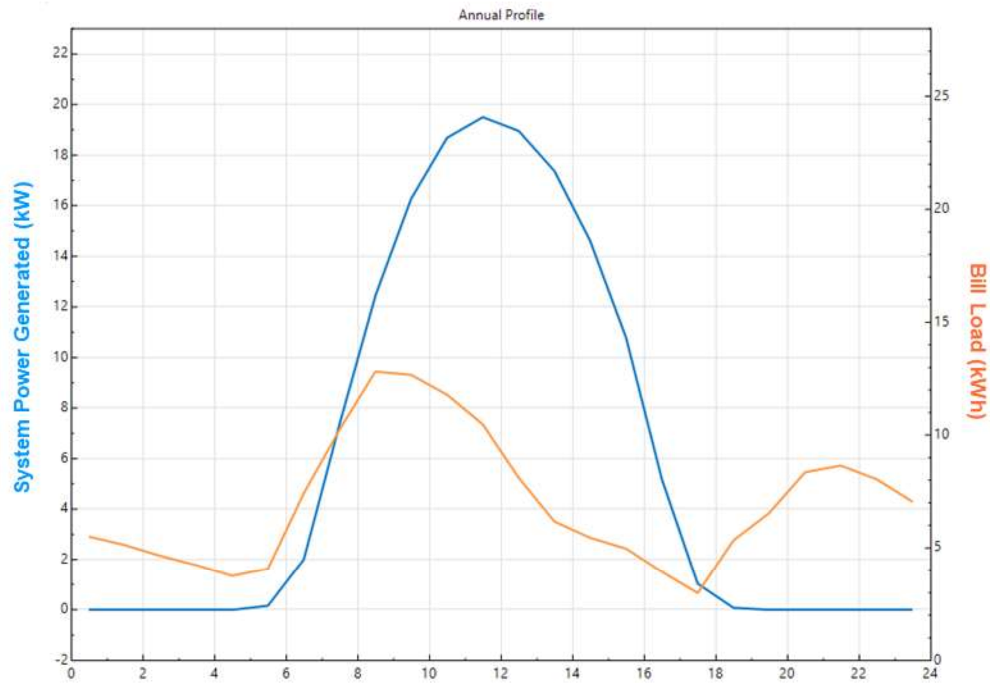
Table 12: Buford Canyon Economic Results

	Solar Only
Solar Array Size	30 kWdc
Energy Offset	90.5%
Capital Investment	$109,012
Payback Period	9.3 years
Net Present Value	$2,462

3.3.6 System Energy Production

Figure 12 is an annualized graph of the site load (in orange) and solar production (blue) of the recommended system discussed in Subsections **Error! Reference source not found.** and 3.3.9. The magnitude of each shape is expected to vary throughout a given year due to seasonal changes in energy needs and solar patterns. Under the proposed system, solar generation overproduces midday, compared to the system loads. The addition of a battery was tested but shown to not be financially beneficial for the site. The proposed solar array system is estimated to generate about 55.8 MWh per year. This covers about 90.5% of the site energy use.

Figure 12: Buford Plant Annualized Load Shape



3.3.7 Renewable Energy Production & GHG Reduction Results

With a solar array system, the annual energy offset is expected to be around 55.8 MWh per year. Table 13 is an estimate of the emissions that will be offset in the first year after installing the system. It should be noted that the annual emissions offset will decrease as the local utilities transition to "green" generation portfolios.

Table 13: Buford Year 1 Emissions Offset

	Solar Only
Energy Offset (kWh)	55,762
SO_2 (lb)	3.4
NO_X (lb)	17.2
CO_2 (tons)	28.6
NH_3 (lb)	1.4

Source: Avoided Emissions and Generation Tool (https://www.epa.gov/avert/avert-web-edition)

3.3.8 Resiliency Benefits

1898 & Co. does not recommend the addition of a battery system, as it does not provide sufficient economical benefit to offset capital costs. Insomuch, there is no resiliency benefit of a solar array system outside of midday solar production.

3.3.9 Recommendation

Buford Well 5 was found to benefit from the addition of a solar array. 1898 & Co. recommends the installation of a 30 kWdc solar array to meet GSWC policy objectives. Figure 13 presents the recommended placement of this 30 kW solar array.

Figure 13: Buford Well 5 Recommended Solar Array Layout

3.4 Emerald Plant

3.4.1 Site Description

The Emerald Plant is located between the towns of Lucerne Valley and White Mountain – South Peak. The site contains a well, water reservoir, and booster station. The property has minimal vegetation with a large rock pile on the north side of the property. The land owned by GSWC inhibits the ability to install a wind turbine due to spacing limitations, wind flow obstruction from the storage tank, and small system load.

Figure 14: Emerald Plant Satellite Image

3.4.2 Electric Load

The load profile for the Emerald Plant tends to follows a "duck" curve but with a nearly consistent peak value that fluctuates in time throughout the year. Table 14 shows the Emerald Plant site monthly peak and energy usage of the twelve-months data provided by GSWC.

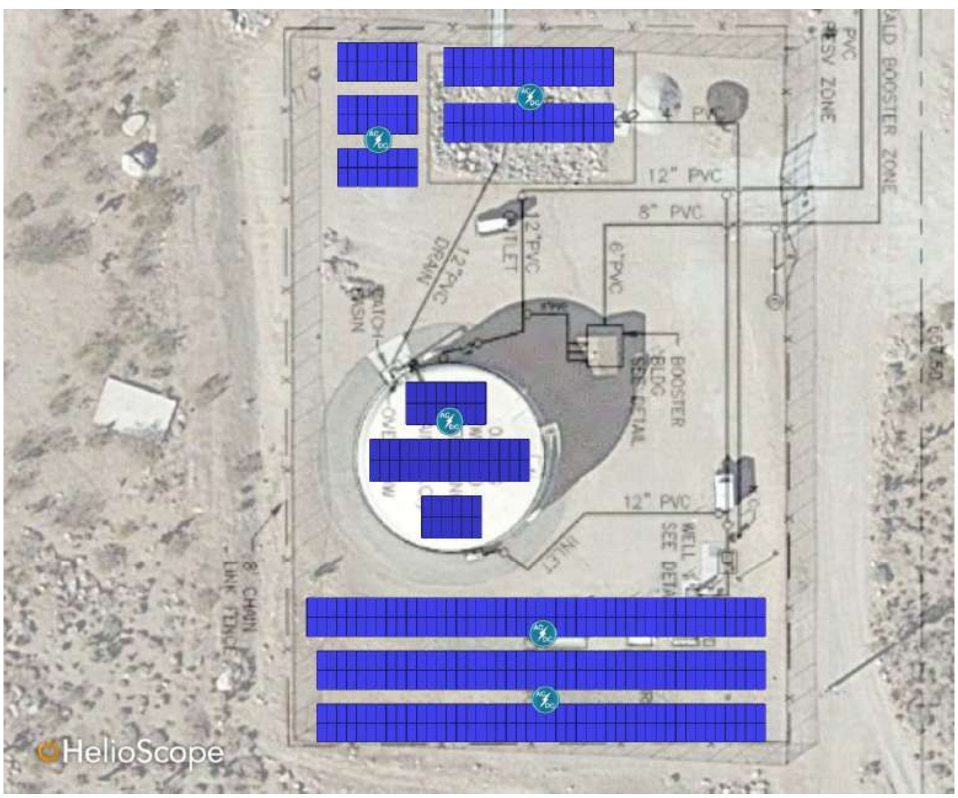
Table 14: Emerald Plant Monthly Load

	Energy (kWh)	Peak (kW)
Jan	6,686	46.6
Feb	6,343	46.4
Mar	7,259	46.4
Apr	8,585	46.0
May	9,605	46.3
Jun	11,329	46.3
Jul	11,129	45.2
Aug	10,602	45.2
Sep	8,754	45.6
Oct	7,081	46.2
Nov	6,136	45.6
Dec	6,390	46.3
Annual	99,898	46.6

3.4.3 Maximum Solar Array Layout

The solar array layout to maximize solar production is shown in Figure 15. Under this layout, the nameplate capacity would reach 215 kWdc and produce an expected annual energy output of 411.3 MWh. Note that this layout utilizes the top of the storage tank. This was ultimately removed due to maintenance and cleanliness concerns. The final layout for the recommended array is shown in Subsection 3.4.9.

Figure 15: Emerald Plant Maximum Solar Array Layout



3.4.4 Solar Array Assumptions

The assumptions outlined in Section 2.5 hold true for the solar analysis. When modeled in both Helioscope and SAM, the following technical assumptions for the solar array were used:

- 1.17 Inverter AC Load Ratio
- 79.1% Performance Ratio
- (34.45, -116.95) NREL Weather Dataset
- Ground-mount, 25° Fixed Tilt Array at 180° Azimuth, 4ft interrow spacing

3.4.5 Economic Results of Solar Array System

The addition of a solar array system at the Emerald Plant was shown to be economically beneficial for GSWC. Table 15 presents the results of the recommended system that meets GSWC policy objectives.

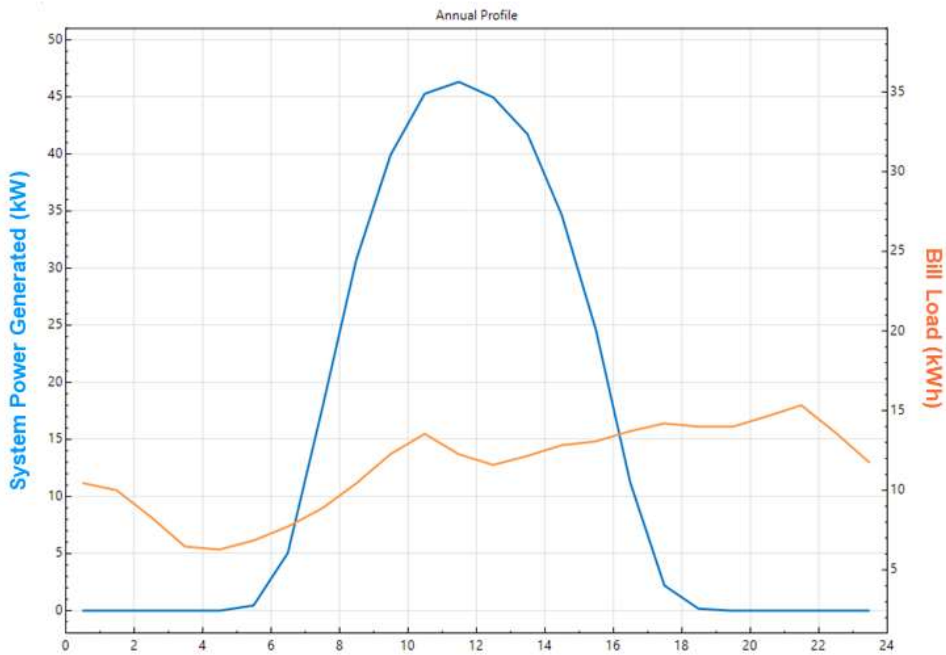
Table 15: Emerald Plant Economic Results

	Solar Only
Solar Array Size	70 kWdc
Energy Offset	132.2%
Capital Investment	$228,696
Payback Period	14.2 years
Net Present Value	$3,398

3.4.6 System Energy Production

Figure 16 is an annualized graph of the site load (in orange) and solar production (blue) of the recommended system discussed in Subsections 3.4.5 and 3.4.9. The magnitude of the solar curve is expected to vary throughout a given year due to solar pattern changes. Under the proposed system, solar generation matches the monthly peak. Even so, the alignment—or coincidence—of these peaks are not consistent. The addition of a battery was tested but was shown to not be financially beneficial for the site. The proposed system is estimated to generate about 132 MWh per year. This covers about 132.2% of the site energy use.

Figure 16: Emerald Plant Annualized Load Shape



3.4.7 Renewable Energy Production & GHG Reduction Results

With a solar array system, the annual energy offset is expected to be around 132 MWh per year. Table 16 is an estimate of the emissions that will be offset in the first year after installing the system. It should be noted that the annual emissions offset will decrease as the local utilities transition to "green" generation portfolios.

Table 16: Emerald Year 1 Emissions Offset

	Solar Only
Energy Offset (kWh)	132,055
SO_2 (lb)	8.1
NO_X (lb)	40.8
CO_2 (tons)	67.6
NH_3 (lb)	3.4

Source: Avoided Emissions and Generation Tool (https://www.epa.gov/avert/avert-web-edition)

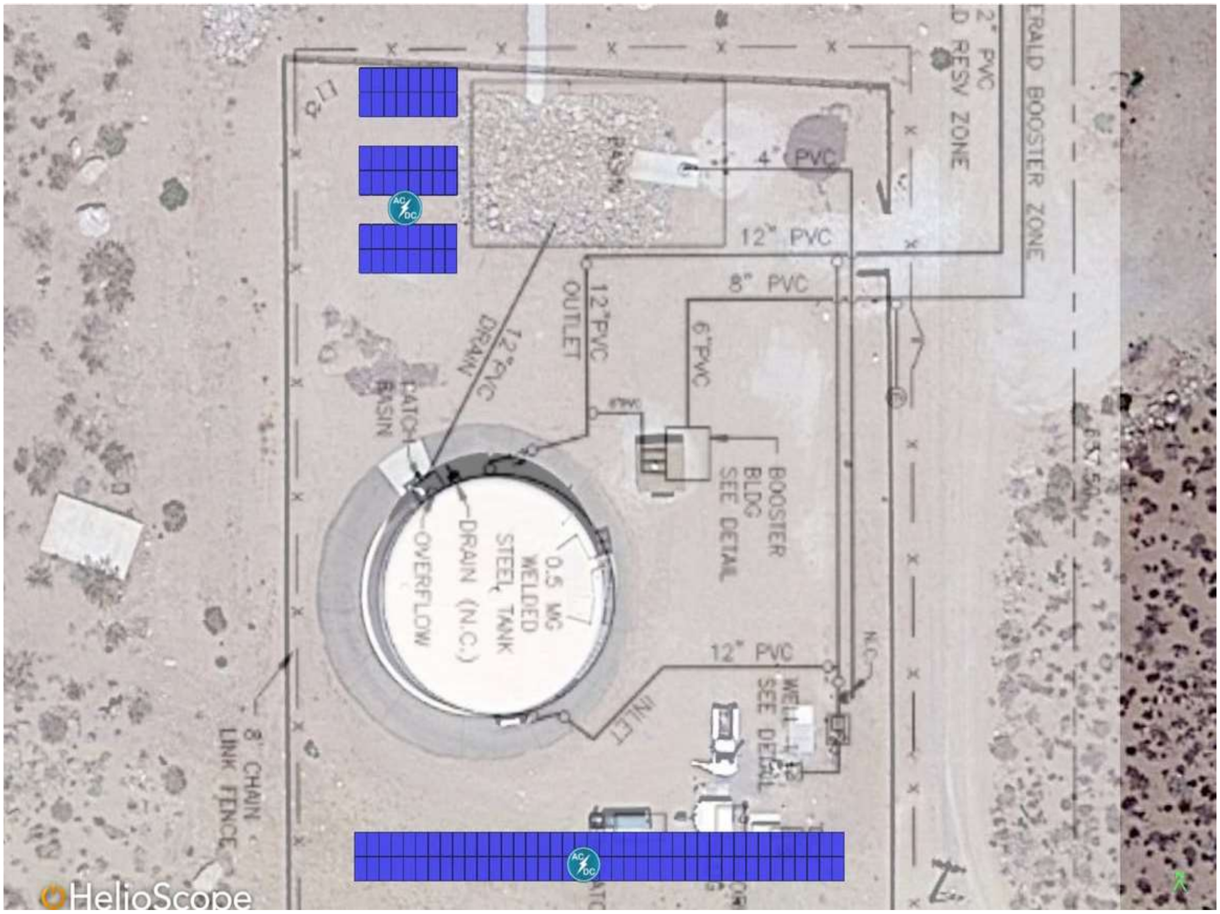
3.4.8 Resiliency Benefits

1898 & Co. does not recommend the addition of a battery system, as it does not provide sufficient economical benefit to offset capital costs.

3.4.9 Recommendation

The Emerald Plant site was found to benefit from the addition of a solar array. 1898 & Co. recommends the installation of a 70 kWdc solar array to meet GSWC policy objectives. Figure 17 displays the recommended placement of this array.

Figure 17: Emerald Recommended Solar Array Layout



3.5 Glen Road

3.5.1 Site Description

The Glen Road site is northwest of Grandview, California. The site contains two wells, with one serving as the main pump and the other as an auxiliary. Small vegetation with a couple of larger trees that can be avoided or cut down to maximize solar generation are present on the site. The Glen Road site is a viable candidate for wind production but may potentially receive pushback from nearby residents or farmers. An in-depth analysis was ultimately not completed due to a small wind turbine installation's inability to economically compete with a ground mount solar array at this size.

Figure 18: Glen Road Satellite Image

3.5.2 Electric Load

The load profiles greatly differ between Glen Road 1 and Glen Road 2. The Glen Road 1 load shape remains mostly consistent throughout the year. This pump sees higher energy usage during the day and lower energy usage at night. The peaks and troughs of the energy used does vary in magnitude on any given day. The Glen Road 2 load profile is less consistent in terms of shape and magnitude due to the pump's auxiliary role. Table 17 and Table 18 show the monthly peak and energy usage of both pumps.

Table 17: Glen Road 1 Monthly Load

	Energy (kWh)	Peak (kW)
Jan	48,075	235.6
Feb	46,414	271.8
Mar	54,998	279.6
Apr	54,567	177.5
May	61,643	175.3
Jun	65,698	178.8
Jul	69,480	174.7
Aug	90,820	270.4
Sep	74,531	273.7
Oct	58,229	271.8
Nov	54,766	267.7
Dec	51,175	281.5
Annual	730,395	281.5

Table 18: Glen Road 2 Monthly Load

	Energy (kWh)	Peak (kW)
Jan	6,705	932.6
Feb	18,585	1384.5
Mar	16,730	1461.5
Apr	3,606	250.0
May	8,769	1403.8
Jun	4,846	740.3
Jul	15,912	118.4
Aug	49,066	118.4
Sep	20,922	120.8
Oct	17,504	121.6
Nov	25,698	124.0
Dec	11,658	120.0
Annual	200,000	1461.5

It should be noted that for Glen Road 2, 1898 & Co. constructed a modified annual load profile. The historical hourly data available to GSWC was deemed to be a misrepresentation of an annual load profile for this pump due to significant downtime throughout large parts of a given year. To correct these misrepresentations, 1898 & Co. constructed a load profile that spliced historical profiles of times when atypical down time did not occur. The magnitude of the spliced load shape was then scaled to match the typical annual energy usage of the pump.

3.5.3 Maximum Solar Array Layout

The solar array layout to maximize solar production on this site is shown in Figure 19. Under this layout, the nameplate capacity would reach 3.28 MWdc and produce an expected annual energy output of 6.648 GWh per year. The final layout for the recommended array is shown in Subsection 3.5.9.

Figure 19: Glen Road Maximum Solar Array Layout

3.5.4 Solar Array Assumptions

The assumptions outlined in Section 2.5 hold true for the solar analysis. In addition, each pump was optimized separately—herein identified as Glen Road 1 for the larger pump and Glen Road 2 for the smaller pump. When modeled in both Helioscope and SAM, the following technical assumptions for the solar array systems were used:

- 1.05 Inverter AC Load Ratio
- 80.9% Performance Ratio
- (34.85, -117.05) NREL Weather Dataset
- Ground-mount, 25° Fixed Tilt Array at 180° Azimuth, 8ft interrow spacing

3.5.5 Economic Results of Solar and Solar + Battery Energy Storage System

The addition of a solar array system for both Glen Road 1 and Glen Road 2 was shown to be economically beneficial for GSWC. Table 19 presents the results of the recommended system that meets GSWC policy objectives.

Table 19: Glen Road Economic Results

	Glen Road 1 Solar Only	Glen Road 2 Solar Only
Solar Array Size	500 kWdc	120 kWdc
Energy Offset	137.9%	120.1%
Capital Investment	$1,177,640	$362,927
Payback Period	9.4 years	9.2 years
Net Present Value	$13,878	$9,897

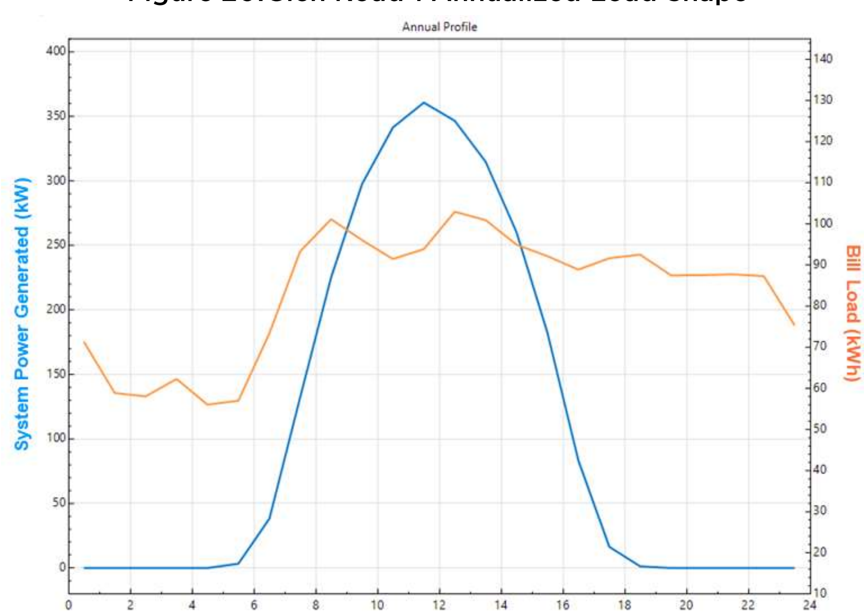
3.5.6 System Energy Production

Figure 20 and Figure 21 are annualized graphs of site loads (in orange) and solar production (blue) of the recommended systems discussed in subsections **Error! Reference source not found.** and 3.5.9. The magnitude of the solar curve is expected to vary throughout a given year due to solar pattern changes.

For Glen Road 1, the proposed array is oversized to accommodate the daily peaks and partially reduce demand charges that GSWC would have incurred.

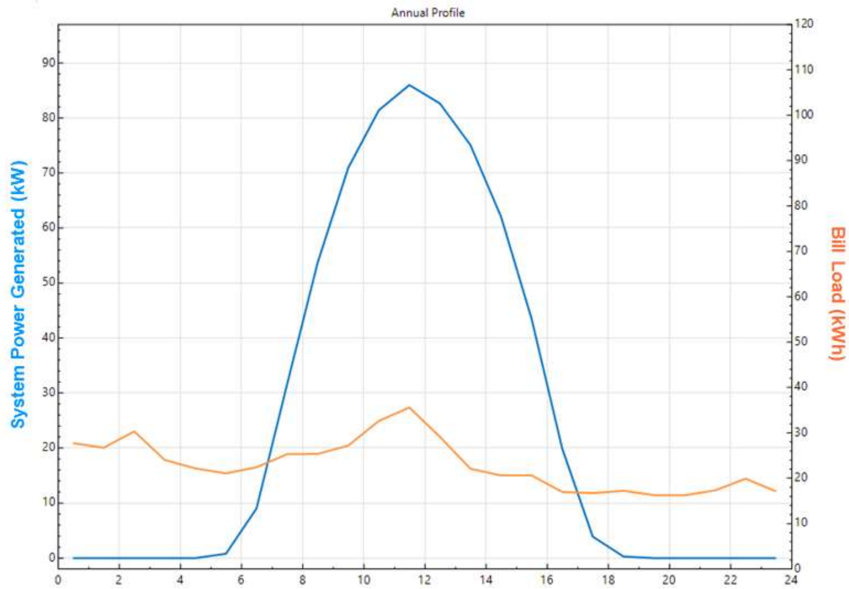
For Glen Road 2, the appearance of Figure 21 shows the array dramatically oversized but this is not the case during monthly peak loads. The solar generation cannot meet the demands during peak conditions. The sizing of the proposed array attempts to find a balance between these extremes.

Figure 20:Glen Road 1 Annualized Load Shape



The proposed system is estimated to generate about 1,008 MWh per year. This covers about 138% of site energy use for Glen Road 1.

Figure 21: Glen Road 2 Annualized Load Shape



The proposed system is estimated to generate about 240.2 MWh per year. This covers about 120% site energy use for Glen Road 2.

3.5.7 Renewable Energy Production & GHG Reduction Results

With a solar array system, the annual energy offset is expected to be 1,007 MWh per year and 240 MWh per year for Glen Road 1 and Glen Road 2, respectively. Table 20 is an estimate of the emissions that will be offset in the first year after installing each system. It should be noted that the annual emissions offset will decrease as the local utilities transition to "green" generation portfolios.

Table 20: Glen Road Year 1 Emissions Offset

	Glen Road 1 Solar Only	Glen Road 2 Solar Only
Energy Offset (kWh)	1,007,540	240,266
SO_2 (lb)	61.4	14.7
NO_X (lb)	311.3	74.2
CO_2 (tons)	515.7	123.0
NH_3 (lb)	26.2	6.2

Source: Avoided Emissions and Generation Tool (https://www.epa.gov/avert/avert-web-edition)

3.5.8 Resiliency Benefits

1898 & Co. does not recommend the addition of a battery to either Glen Road 1 or Glen Road 2, as it does not provide sufficient economic benefit to offset the capital costs.

3.5.9 Recommendation

The Glen Road site was found to benefit from the addition of a solar array. 1898 & Co. recommends the installation of a 500 kWdc solar array for the Glen Road 1 and a separate 120 kWdc array for Glen Road 2. This will help GSWC meet its policy objectives. Figure 22 and Figure 23 display the recommended placement of each array.

Figure 22: Glen Road 1 Recommended Solar Array Layout

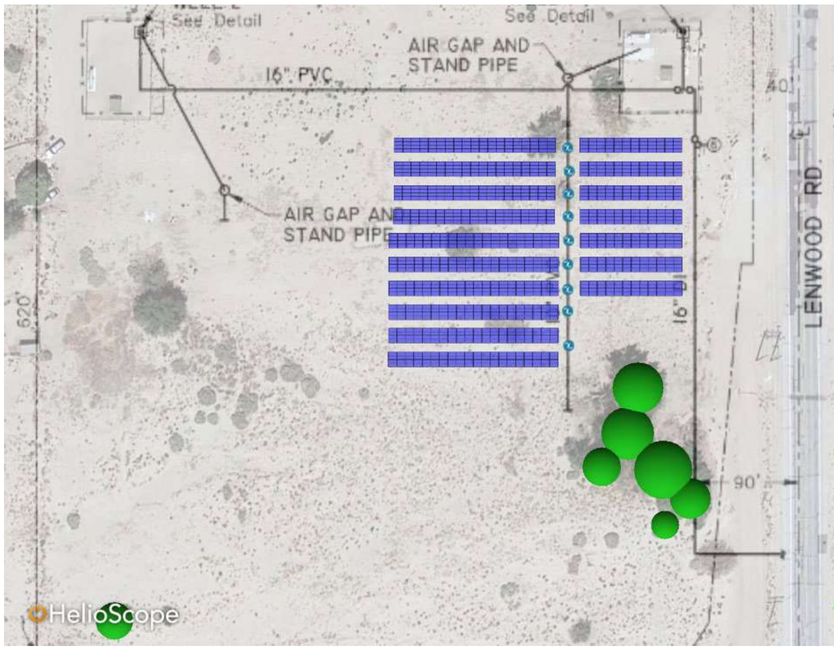
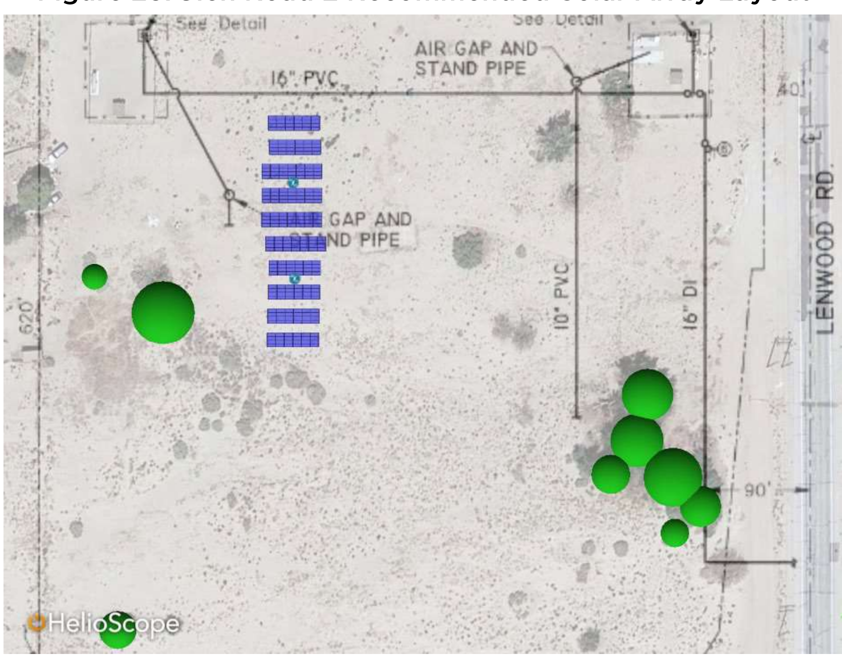


Figure 23: Glen Road 2 Recommended Solar Array Layout



3.6 Government Canyon

3.6.1 Site Description

The Government Canyon Well 3 site sits in a canyon at the base of Blue Ridge Mountain in unincorporated territory to the west of Wrightwood, California. This location contains a well, pump, and storage tanks. Trees and vegetation are present in the surrounding area but can be avoided with proper placement. This site was excluded from a wind evaluation due to low energy requirements of the site, logistical difficulty of installing a wind turbine within a canyon, and potential resistance from nearby residents and skiing businesses.

Figure 24:Government Canyon Well 3 Satellite Image

3.6.2 Electric Load

The load profile for Government Canyon Well 3 is somewhat consistent but very minimal in terms of energy and demand requirements. Table 21 shows the Government Canyon site monthly peak and energy usage of the twelve-months data provided by GSWC.

Table 21: Government Canyon Well 3 Monthly Load

	Energy (kWh)	Peak (kW)
Jan	3,074	28.7
Feb	3,117	29.6
Mar	2,393	28.4
Apr	1,208	26.2
May	958	26.1
Jun	1,090	26.2
Jul	2,083	26.7
Aug	4,726	26.9
Sep	4,619	27.1
Oct	4,959	30.2
Nov	4,743	30.6
Dec	3,879	29.6
Annual	36,846	30.6

3.6.3 Maximum Solar Array Layout

The solar array site layout to maximize solar production on this site is shown in Figure 25. Under this layout, the nameplate capacity would reach 324.5 kWdc and produce an expected annual energy output of 592 MWh per year. The final layout for the recommended array is shown in Subsection 3.6.9.

Figure 25: Government Canyon Maximum Solar Array Layout

3.6.4 Solar Array Assumptions

The assumptions outlined in Section 2.5 hold true for the solar analysis. When modeled in both Helioscope and SAM, the following technical assumptions for the solar array were used:

- 1.12 Inverter AC Load Ratio
- 74.3% Performance Ratio
- (34.45, -117.65) NREL Weather Dataset
- Ground-mount, 25° Fixed Tilt Array at 180° Azimuth, 6ft interrow spacing

3.6.5 Economic Results of Solar Array System

The addition of a solar array system for Government Canyon was shown to be economically beneficial for GSWC. Table 22 presents the results of the recommended system that meets GSWC policy objectives.

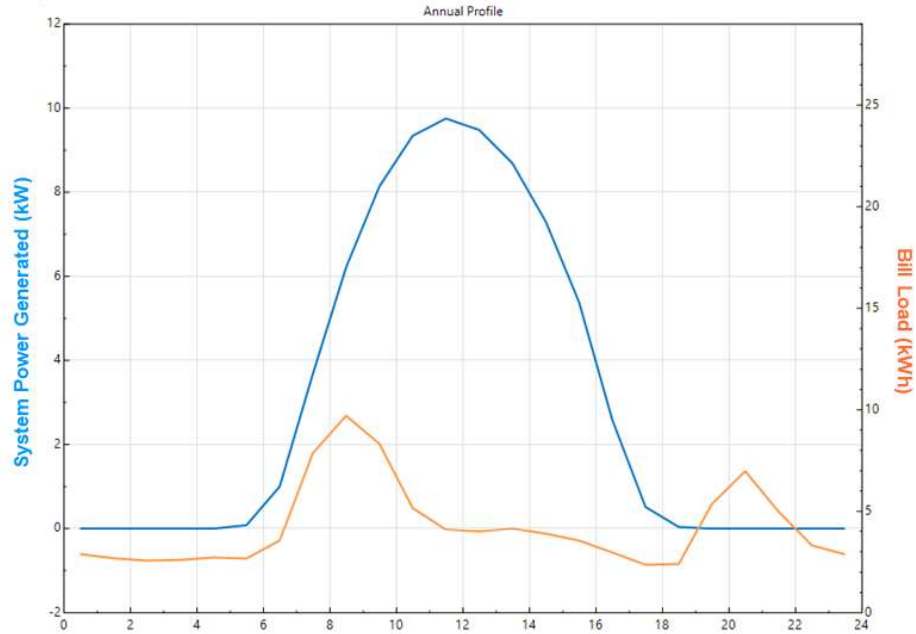
Table 22: Government Canyon Well 3 Economic Results

	Solar Only
Solar Array Size	15 kWdc
Energy Offset	75.7%
Capital Investment	$55,911
Payback Period	9.0 years
Net Present Value	$1,667

3.6.6 System Energy Production

Figure 26 is an annualized graph of the site load (in orange) and solar production (blue) of the recommended system discussed in Subsections 3.6.5 and 3.6.9. The magnitude of the solar curve is expected to vary throughout a given year due to solar pattern changes. Under the proposed system, solar generation overproduces for most of the year aside from the Fall when demand matches or slightly surpasses solar capacity. The addition of a battery was tested but shown to not be financially beneficial for the system. The proposed system is estimated to generate about 27.9 MWh per year. This covers about 75.7% of the site energy use.

Figure 26: Government Canyon Well 3 Annualized Load Shape



3.6.7 Renewable Energy Production & GHG Reduction Results

With a solar array system, the annual energy offset is expected to be around 27.8 MWh per year. Table 23 is an estimate of the emissions that will be offset in the first year after installing the system. It should be noted that the annual emissions offset will decrease as the local utilities transition to "green" generation portfolios.

Table 23: Government Canyon Year 1 Emissions Offset

	Solar Only
Energy Offset (kWh)	27,881
SO_2 (lb)	1.7
NO_X (lb)	8.6
CO_2 (tons)	14.3
NH_3 (lb)	0.7

Source: Avoided Emissions and Generation Tool (https://www.epa.gov/avert/avert-web-edition)

3.6.8 Resiliency Benefits

1898 & Co. does not recommend the addition of a battery system, as it does not provide sufficient economical benefit to offset capital costs. Insomuch, there is no resiliency benefit of a solar array system outside of midday solar production.

3.6.9 Recommendation

Government Canyon Well 3 was found to benefit from the addition of a solar array. 1898 & Co. recommends the installation of a 15 kWdc solar array to meet GSWC policy objectives. Figure 27 displays the recommended placement of the array.

Figure 27: Government Canyon Well 3 Recommended Solar Array Layout

3.7 Holabird Plant

3.7.1 Site Description

The Holabird Plant is located in the northeast corner of Calipatria, California, off of Sorensen Avenue. The location contains an office, warehouse, water treatment facilities, two reservoirs, and raw water storage. Sparse vegetation is located throughout the property with trees surrounding the two reservoirs and raw water storage areas. Wind analysis was excluded from this site due to the proximity of residential homes and a strict capacity limit enforced by the utility. Under this limit, solar array systems have the lowest cost of energy.

Figure 28: Holabird Plant Satellite Image

3.7.2 Electric Load

The hourly load profile for Holabird was developed by 1898 & Co. since historical hourly data was not available to GSWC. Historical *monthly* energy usage was shaped to resemble the Bradshaw plant total site profile based on input from GSWC. Bradshaw was chosen as the reference curve due to its consistent and continuously running load. Among all the sites analyzed, this most closely matches Holabird's expected load shape since it too is expected to continuously run with minor fluctuations. Given such, Holabird's load is similar to Bradshaw's: somewhat consistent on a daily basis but varies throughout the year, peaking in the summer and reducing usage by about half in the winter. Table 24 shows Holabird's monthly peak and energy usage over the course of a year.

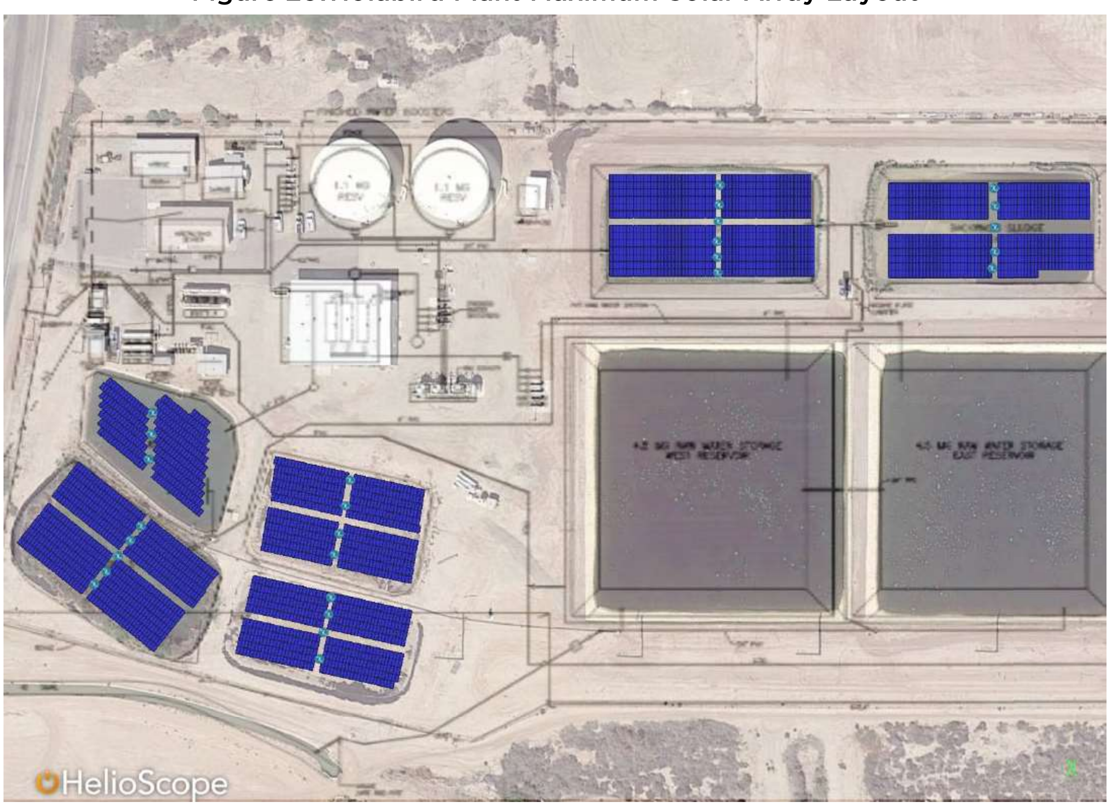
Table 24: Holabird Plant Monthly Load

	Energy (kWh)	Peak (kW)
Jan	52,800	154.7
Feb	48,400	182.8
Mar	55,200	156.2
Apr	55,200	147.0
May	60,000	123.6
Jun	67,600	134.0
Jul	68,000	131.1
Aug	66,400	129.9
Sep	58,000	124.3
Oct	58,400	129.5
Nov	50,800	128.2
Dec	50,000	147.7
Annual	690,800	182.8

3.7.3 Maximum Solar Array Layout

The solar array layout to maximize solar production on this site is shown in Figure 29. Under this layout, the nameplate capacity would reach 1.58 MWdc and produce an expected annual energy output of 2.777 GWh per year. The final layout for the recommended array is shown in Subsection 3.7.9.

Figure 29: Holabird Plant Maximum Solar Array Layout



3.7.4 Solar Array Assumptions

The assumptions outlined in Section 2.5 hold true for the solar analysis. When modeled in both Helioscope and SAM, the following technical assumptions for the array were used:

- 1.17 Inverter AC Load Ratio
- 82.1% Performance Ratio
- (35.15, -115.45) NREL Weather Dataset
- Carport flush mount system, at 193° Azimuth, 0ft interrow spacing

3.7.5 Economic Results of Solar Array System

The addition of a solar array system for Holabird Plant was shown to be economically beneficial for GSWC. Table 25 presents the results of the recommended system that meets GSWC policy objectives.

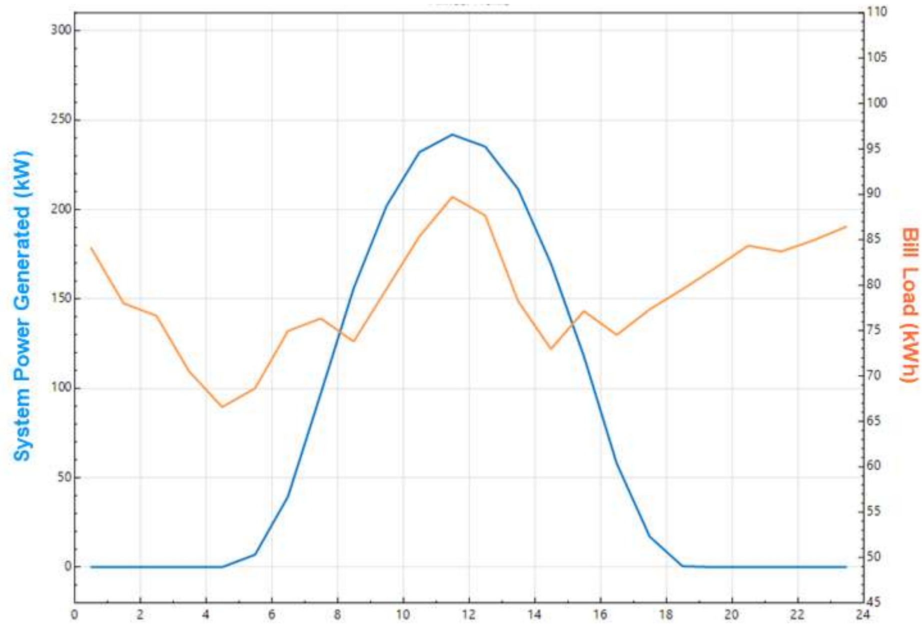
Table 25: Holabird Plant Economic Results

	Holabird Solar Only
Solar Array Size	420 kWdc
Energy Offset	100.0%
Capital Investment	$1,016,690
Payback Period	9.5 years
Net Present Value	$1,282

3.7.6 System Energy Production

Figure 30 is an annualized graph of the site load (in orange) and solar production (blue) of the recommended system discussed in Subsections 3.7.5 and 3.7.9. The magnitude of the solar curve is expected to vary throughout a given year due to solar pattern changes. Under the proposed system, solar generation overproduces mid-day, compared to the system loads but this overproduction allows mid-day energy and most of the demand charges to be eliminated. This slight oversizing allows the site to achieve a 100% energy offset which is one of GSWC's environmental objectives. The proposed system is estimated to generate about 691 MWh per year and matches the plant's energy use.

Figure 30:Holabird Plant Annualized Load Shape



3.7.7 Renewable Energy Production & GHG Reduction Results

With a solar array system, the annual energy offset is expected to be 691 MWh per year. Table 26 is an estimate of the emissions that will be offset in the first year after installing the system. It should be noted that the annual emissions offset will decrease as the local utilities transition to "green" generation portfolios.

Table 26: Holabird Plant Year 1 Emissions Offset

	Solar Only
Energy Offset (kWh)	690,985
SO_2 (lb)	42.2
NO_X (lb)	213.5
CO_2 (tons)	353.8
NH_3 (lb)	18.0

Source: Avoided Emissions and Generation Tool (https://www.epa.gov/avert/avert-web-edition)

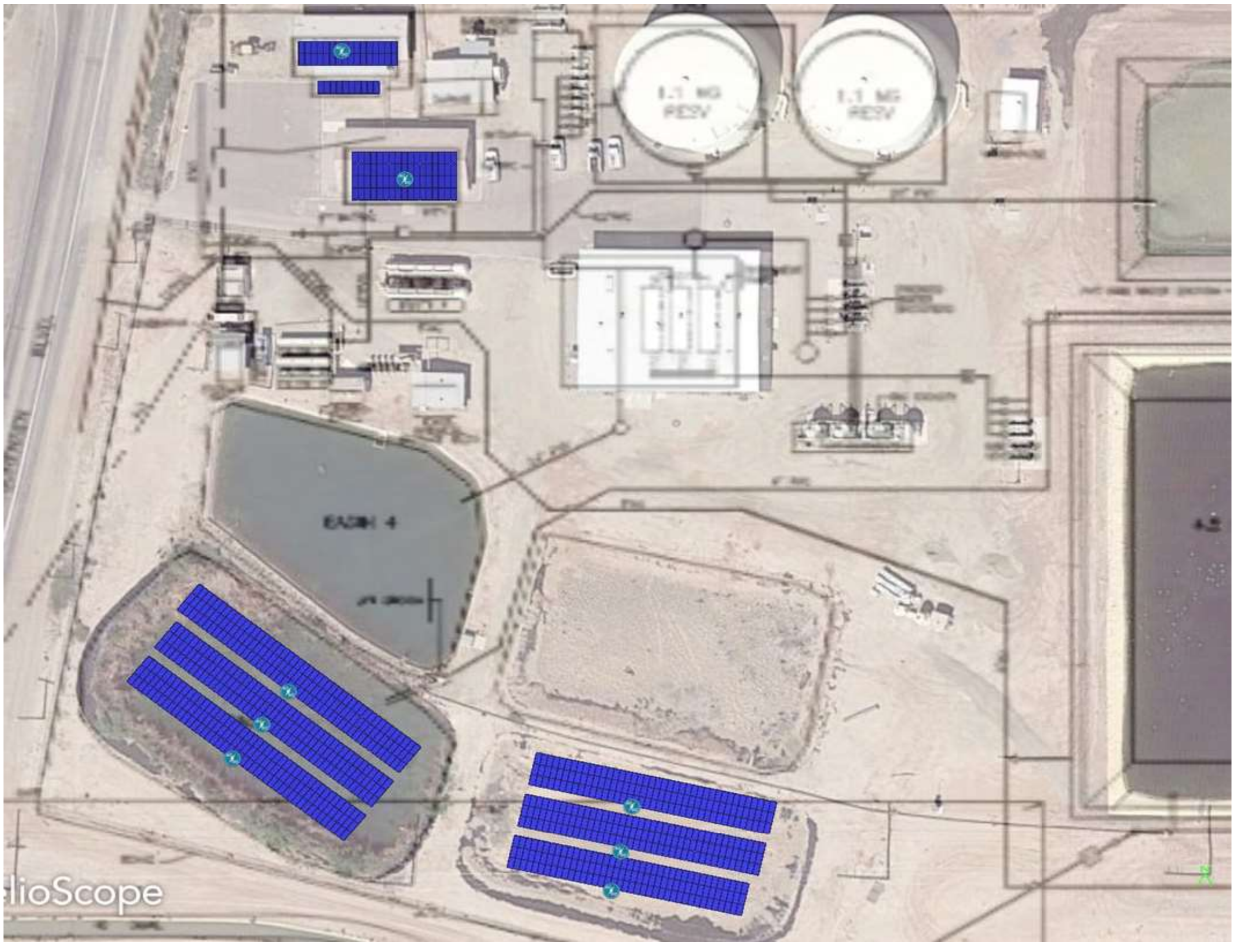
3.7.8 Resiliency Benefits

1898 & Co. does not recommend the addition of a battery system, as it does not provide sufficient economical benefit to offset capital costs. Insomuch, there is no resiliency benefit of a solar array system outside of mid-day solar production.

3.7.9 Recommendation

The Holabird Plant was found to benefit from the addition of a solar array. 1898 & Co. recommends the installation of a 420 kWdc solar array to meet GSWC policy objectives. Figure 31 displays the recommended placement of this array.

Figure 31: Holabird Plant Recommended Solar Array Layout



3.8 Kiowa

3.8.1 Site Description

The Kiowa site is in the southernmost part of Apple Valley, California with residential properties located to the north and east side of the property. The site contains a well, reservoir, and booster station. Sparse vegetation can be found throughout the property with no major trees. This site was not considered for wind generation due to its proximity to residential areas and wind energy's inability to economically compete with solar array systems of the recommended size.

Figure 32: Kiowa Satellite Image

3.8.2 Electric Load

The hourly load profile for Kiowa was developed by 1898 & Co since most of the historical hourly data was either incorrect or not available to GSWC. The data that was correct and typical of hourly usage was repeated to complete an 8760 hourly profile. The resulting annual energy usage was compared against historical values to check for reasonableness. Table 27 shows the Kiowa plant monthly peak demand and energy use by month.

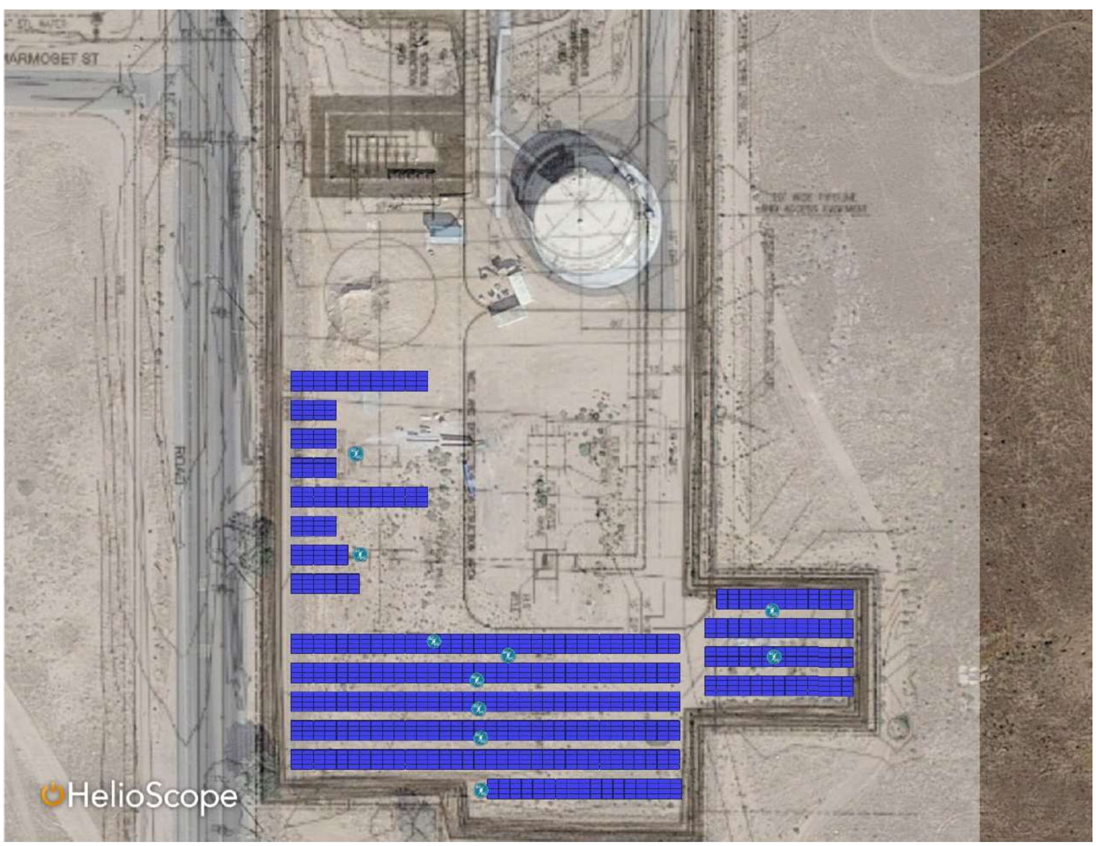
Table 27: Kiowa Monthly Load

	Energy (kWh)	Peak (kW)
Jan	29,573	108.0
Feb	33,491	108.0
Mar	37,254	108.0
Apr	27,842	108.0
May	36,798	108.0
Jun	35,996	108.0
Jul	40,104	108.0
Aug	40,165	108.0
Sep	33,768	108.0
Oct	33,978	108.0
Nov	27,294	106.8
Dec	28,244	106.8
Annual	404,507	108.0

3.8.3 Maximum Solar Array Layout

The solar array site layout to maximize solar production is shown in Figure 33. Under this layout, the nameplate capacity would reach 554.9 kWdc and produce an expected annual energy output of 1.090 GWh per year. The final layout for the recommended array is shown in Subsection 3.8.9.

Figure 33: Kiowa Maximum Solar Array Layout



3.8.4 Solar Array and Battery Energy Storage Assumptions

The assumptions outlined in Section 2.5 hold true for the solar analysis. When modeled in both Helioscope and SAM, the following technical assumptions for the array were used:

- 1.11 Inverter AC Load Ratio
- 78.2% Performance Ratio
- (35.45, -117.25) NREL Weather Dataset
- Ground-mount, 25° Fixed Tilt Array at 180° Azimuth, 6ft interrow spacing

3.8.5 Economic Results of Solar and Solar + Battery Energy Storage System

The addition of a solar array system both with and without a battery for Kiowa was shown to be economically beneficial for GSWC. Table 28 presents the results of the recommended system that meets GSWC policy objectives.

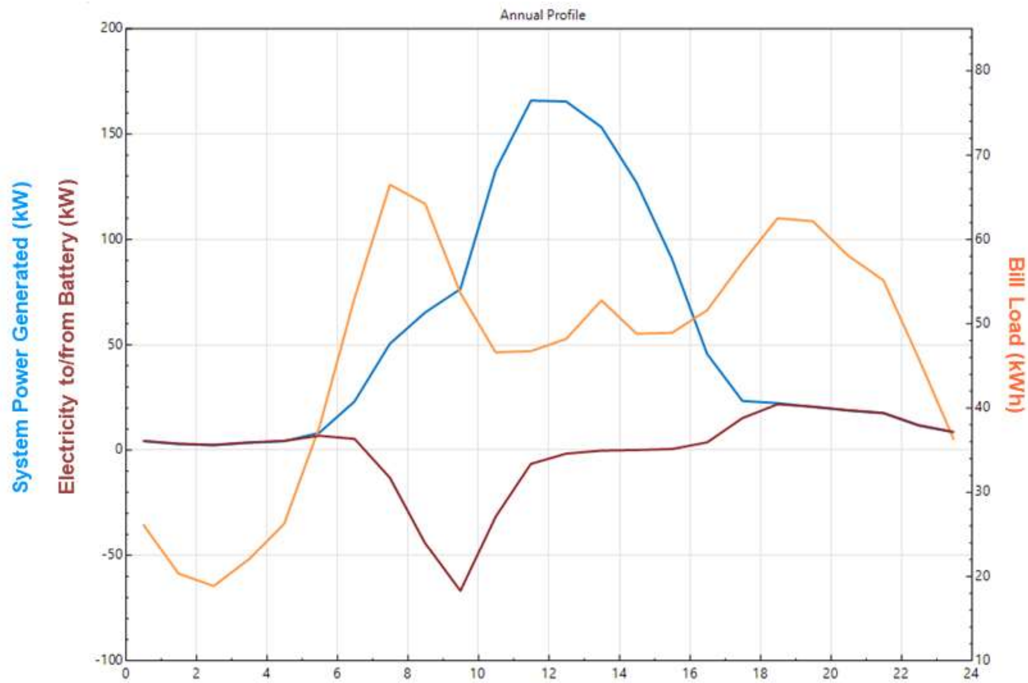
Table 28: Kiowa Economic Results

	Kiowa Solar Only	Kiowa Solar + Battery
Solar Array Size	240 kWdc	240 kWdc
Battery Size	N/A	300 kWh / 150 kW
Energy Offset	117.0%	114.8%
Capital Investment	$638,413	$839,637
Payback Period	9.5 years	9.3 years
Net Present Value	$3,190	$10,306

3.8.6 System Energy Production

Figure 34 is an annualized graph of the site load (in orange), solar production (blue), and battery usage (maroon) of the recommended system discussed in Subsections **Error! Reference source not found.** and 3.8.9. The magnitude of the solar curve is expected to vary throughout a given year due to solar pattern changes. Under the proposed system, solar generation overproduces midday compared to the system loads but this overproduction covers the occasional peak demand that occurs in the middle of the day while also allowing the battery to charge. The battery offsets demand increases and corresponding utility demand charges that occur in the early evening when solar production has decreased. The proposed system is estimated to generate about 464 MWh per year. This covers about 114% of the site energy use.

Figure 34: Kiowa Annualized Load Shape



3.8.7 Renewable Energy Production & GHG Reduction Results

With a solar array system, the annual energy offset is expected to be around 470 MWh per year. Table 29 is an estimate of the emissions that will be offset in the first year after installing the system. It should be noted that the annual emissions offset will decrease as the local utilities transition to "green" generation portfolios.

Table 29: Kiowa Year 1 Emissions Offset

	Solar Only	Solar + Battery
Energy Offset (kWh)	473,419	464,539
SO_2 (lb)	28.9	28.3
NO_X (lb)	146.3	143.5
CO_2 (tons)	242.4	237.8
NH_3 (lb)	12.3	12.1

Source: Avoided Emissions and Generation Tool (https://www.epa.gov/avert/avert-web-edition)

3.8.8 Resiliency Benefits

Some resiliency benefits can be realized from the installation of a solar and battery system. The main effect of installing the proposed system is to reduce demand charges in the evening but it can also serve as a temporary power supply during a grid outage. To consider the resiliency benefits, the duration of time which the battery will last under the critical, historical peak, and average load are shown in Table 30. It should be noted that the recommended battery is rated for an output of 150 kW and will therefore be unable to support the critical load, or highest potential load, for this site.

Table 30: Kiowa Battery Resiliency Figures

Scenario	Battery Capacity (kW)	Battery Energy (kWh)	Demand (kW)	Duration (hr)
Critical	150	300	190.2*	1.6
Historical Peak	150	300	108	2.8
Average	150	300	46.18	6.5
Realistic	150	300	150	2

* Battery system unable to support critical demand but can provide 150 kW during peak or normal conditions.

3.8.9 Recommendation

Kiowa will benefit from the addition of a solar array, both with and without a battery. 1898 & Co. recommends the installation of a 240 kWdc solar array. Figure 35 displays the recommended placement of this array. A 300 kWh battery system is also recommended due to the added financial benefits and incremental resiliency benefits.

Figure 35: Kiowa Recommended Solar Array Layout

3.9 Niland

3.9.1 Site Description

The Niland site is located between Niland and Slab City, California alongside the East Highline Canal. The site contains two reservoirs and a booster station. Rougher terrain and heaver vegetation is located on the north side of the property with a large basin in the southeast corner. This site was excluded from a wind analysis due to its small load and the local utility's restriction on overbuilding capacity.

Figure 36: Niland Satellite Image

3.9.2 Electric Load

The hourly load profile for Niland was developed by 1898 & Co. since historical hourly data was not available to GSWC. Historical *monthly* energy usage was shaped to resemble the Emerald plant profile. Emerald was chosen as the reference curve since both sites contain similar equipment. Table 31 shows Niland's monthly peak and energy usage over the course of a year.

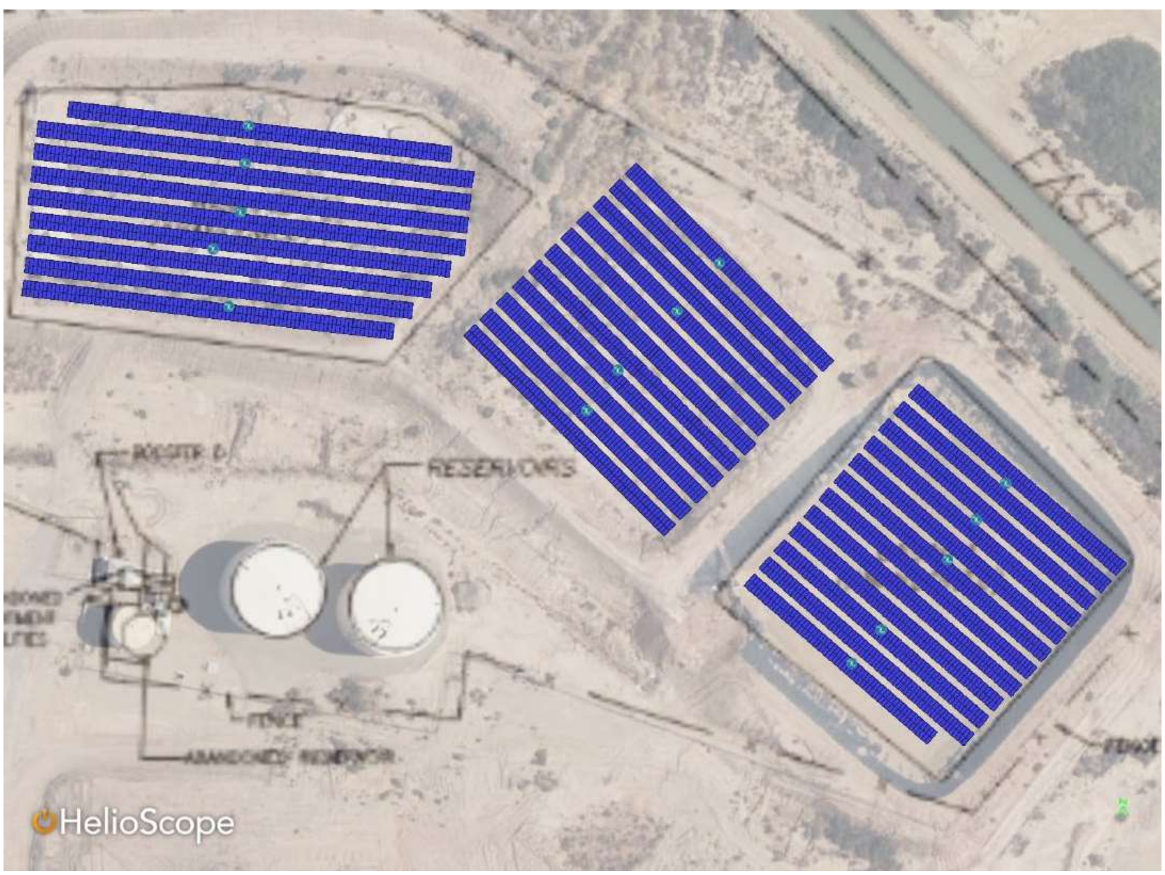
Table 31: Niland Plant Monthly Load

	Energy (kWh)	Peak (kW)
Jan	6,100	42.5
Feb	4,900	35.8
Mar	5,900	37.8
Apr	6,300	33.8
May	6,600	31.8
Jun	6,500	26.6
Jul	7,200	29.2
Aug	5,800	24.7
Sep	6,400	33.4
Oct	6,000	39.1
Nov	4,400	32.7
Dec	4,300	31.1
Annual	70,400	42.5

3.9.3 Maximum Solar Array Layout

The solar array site layout to maximize solar production is shown in Figure 37. Under this layout, the nameplate capacity would reach 2.36 MWdc and produce an expected annual energy output of 4.264 GWh per year.

Figure 37: Niland Maximum Solar Array Layout



3.9.4 Solar Array Assumptions

The assumptions outlined in Section 2.5 hold true for the solar analysis. When modeled in both Helioscope and SAM, the following technical assumptions for the array were as follows:

- 76.2% Performance Ratio
- (33.25, -115.45) NREL Weather Dataset
- Ground-mount, 25° Fixed Tilt Array at 187°-225° Azimuth, 6ft interrow spacing

3.9.5 Economic Results of Solar Array System

The addition of a solar array system for Niland was shown to not be economically beneficial for GSWC. Table 32 presents the results of the highest NPV system.

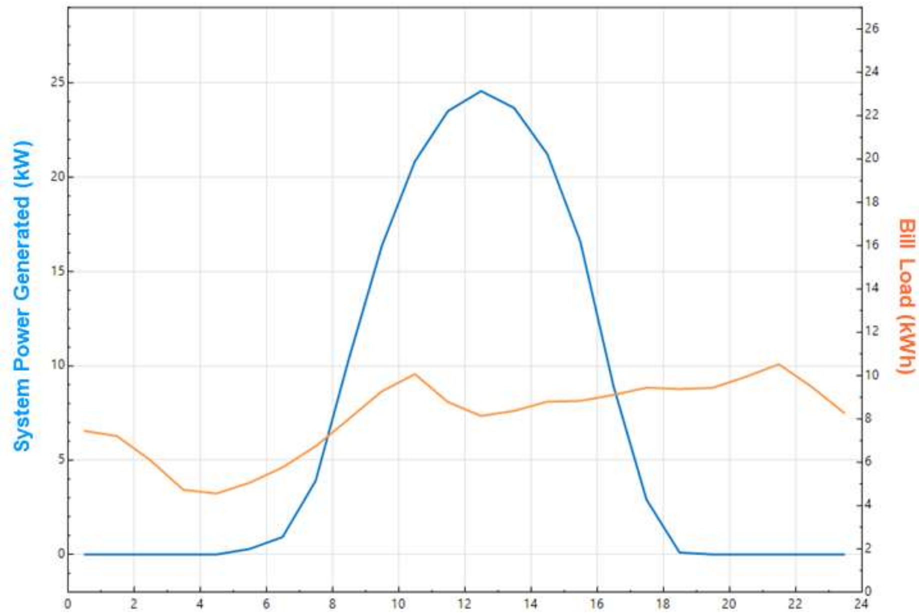
Table 32: Niland Economic Results

	Kiowa Solar Only
Solar Array Size	40 kWdc
Battery Size	N/A
Energy Offset	96.7%
Capital Investment	$159,373
Payback Period	9.8 years
Net Present Value	-$1,897

3.9.6 System Energy Production

Figure 38 is an annualized graph of the site load (in orange) and solar production (blue) of the best fit system discussed in subsections 3.9.5 and 3.9.9. The magnitude of the solar curve is expected to vary throughout a given year due to solar pattern changes. Under the highest NPV system, which is the 40 kWdc array, the solar generation is slightly below monthly peak loads but can usually match midday demand. The proposed system is estimated to generate about 67.3 MWh per year. This covers about 96.7% of the site energy use.

Figure 38: Niland Annualized Load Shape



3.9.7 Renewable Energy Production & GHG Reduction Results

With the highest NPV solar array system selected, the annual energy offset is expected to be 67.3 MWh per year. Table 33 is an estimate of the emissions that would be offset in the first year after installing the system. It should be noted that the annual emissions offset will decrease as the local utilities transition to "green" generation portfolios.

Table 33: Niland Year 1 Emissions Offset

	Solar Only
Energy Offset (kWh)	67,372
SO_2 (lb)	4.1
NO_X (lb)	20.8
CO_2 (tons)	34.5
NH_3 (lb)	1.8

Source: Avoided Emissions and Generation Tool (https://www.epa.gov/avert/avert-web-edition)

3.9.8 Resiliency Benefits

1898 & Co. does not recommend the addition of a solar array or battery energy storage system, as it does not provide sufficient economical benefit to offset capital costs.

3.9.9 Recommendation

Niland was not able to financially benefit from the addition of a solar array. 1898 & Co. does not recommend the installation of a solar array at this stie. Should GSWC decide to build an array, a 40 kWdc system would most closely meet GSWC policy objectives.

3.10 Popago

3.10.1 Site Description

The Popago site is located northeast of Apple Valley, California. The property consists of a single well, a parking lot, and the Virginia Park. A couple of larger trees are located at the front of the lot with sparce vegetation found throughout Virginia Park. Popago was excluded from wind analysis due to its small load.

Figure 39: Popago Satellite Image

3.10.2 Electric Load

The load profile for Popago follows a semi-consistent pattern throughout the year but widely varies in terms of magnitude and duration. Load tends to quickly rise in the morning and remain at or near peak until various times in the afternoon or late evening. Table 34 shows the Popago site monthly peak and energy usage of the twelve-months data provided by GSWC.

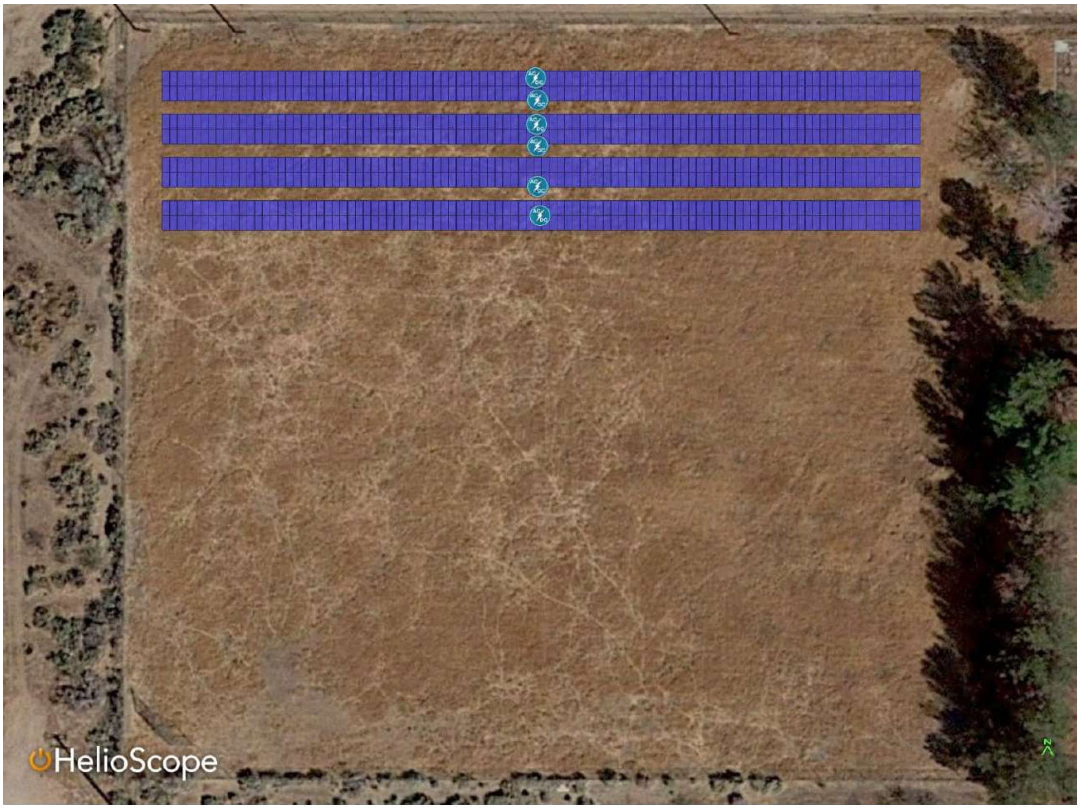
Table 34: Popago Plant Monthly Load

	Energy (kWh)	Peak (kW)
Jan	2,353	18.3
Feb	4,196	30.8
Mar	10,781	31.1
Apr	10,758	29.9
May	12,716	29.3
Jun	10,036	29.2
Jul	3,932	28.5
Aug	14,987	28.6
Sep	3,152	29.2
Oct	18,235	30.0
Nov	15,069	30.0
Dec	14,032	30.9
Annual	120,247	31.1

3.10.3 Maximum Solar Array Layout

The solar array site layout to maximize solar production is shown in Figure 40. Under this layout, the nameplate capacity would reach 376.3 kWdc and produce an expected annual energy output of 727.9 MWh per year. The final layout for the recommended array is shown in Subsection 3.10.9.

Figure 40: Popago Maximum Solar Array Layout



3.10.4 Solar Array Assumptions

The assumptions outlined in Section 2.5 hold true for the solar analysis. When modeled in both Helioscope and SAM, the following technical assumptions for the array were as follows:

- 1.25 Inverter AC Load Ratio
- 77.7% Performance Ratio
- (34.55, -117.15) NREL Weather Dataset
- Ground-mount, 25° Fixed Tilt Array at 180° Azimuth, 6ft interrow spacing

3.10.5 Economic Results of Solar Array System

The addition of a solar array system for Popago was shown to be economically beneficial for GSWC. Table 35, presents the results of the recommended system that meets GSWC policy objectives.

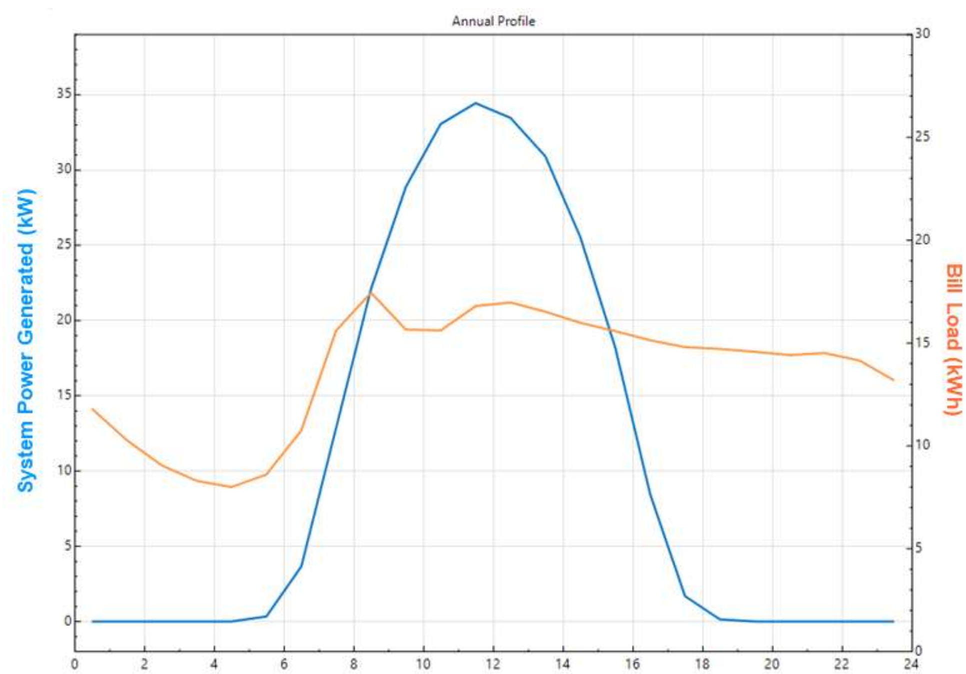
Table 35: Popago Economic Results

	Popago Solar Only
Solar Array Size	50 kWdc
Energy Offset	81.3%
Capital Investment	$171,157
Payback Period	9.4 years
Net Present Value	$1,544

3.10.6 System Energy Production

Figure 41 is an annualized graph of the site load (in orange) and solar production (blue) of the recommended system discussed in Subsections 3.10.5 and 3.10.9. The magnitude of the solar curve is expected to vary throughout a given year due to solar pattern changes. Under the proposed system, solar generation matches monthly peak loads. The proposed system is estimated to generate about 97.7 MWh per year. This covers about 81.3% of the site energy use.

Figure 41: Popago Annualized Load Shape



3.10.7 Renewable Energy Production & GHG Reduction Results

With a solar array system, the annual energy offset is expected to be 691 MWh per year. Table 36 is an estimate of the emissions that will be offset in the first year after installing the system. It should be noted that the annual emissions offset will decrease as the local utilities transition to "green" generation portfolios.

Table 36: Popago Year 1 Emissions Offset

	Solar Only
Energy Offset (kWh)	97,702
SO_2 (lb)	6.0
NO_X (lb)	30.2
CO_2 (tons)	50.0
NH_3 (lb)	2.5

Source: Avoided Emissions and Generation Tool (https://www.epa.gov/avert/avert-web-edition)

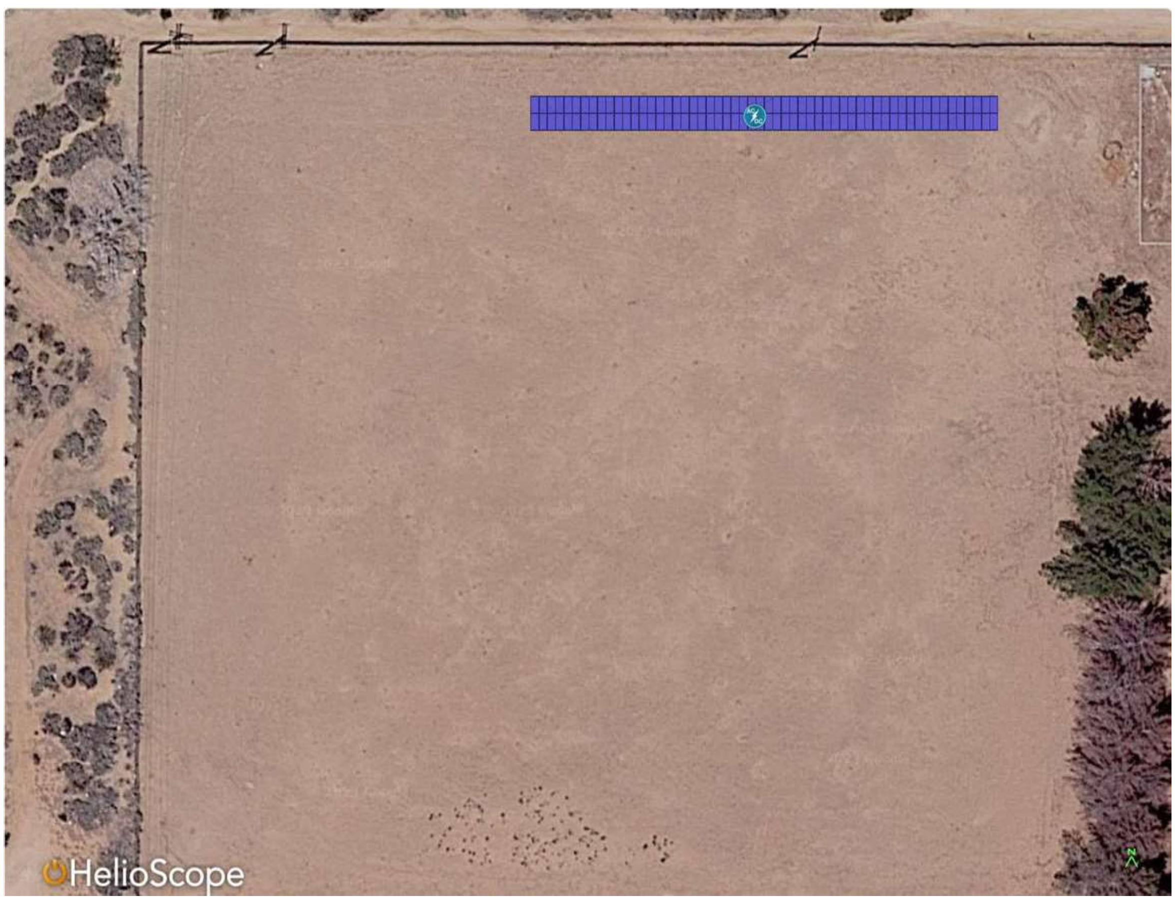
3.10.8 Resiliency Benefits

1898 & Co. does not recommend the addition of a battery system, as it does not provide sufficient economical benefit to offset capital costs. Insomuch, there is no resiliency benefit of a solar system outside of midday solar production.

3.10.9 Recommendation

Popago was found to benefit from the addition of a solar array. 1898 & Co. recommends the installation of a 50 kWdc solar array to meet GSWC policy objectives. **Error! Reference source not found.** displays the recommended placement of this solar array.

Figure 42:Popago Recommended Solar Array Layout



4.0 ALTERNATE POWER SUPPLY ANALYSIS

GSWC has the option of continuing to purchase 100% of its electricity from the local electric utilities or install onsite renewable generation, using that generation to offset nearly 100 percent of its energy requirement. This section of the report compares the total cost of continuing to purchase 100% of the facilities' electricity from the utilities and the total cost of installing of pursuing the proposed solar projects. The emissions and sources of these scenarios are also compared.

4.1 Grid Power

The alternative case of maintaining the status quo and receiving all energy from the electric utility grid should be considered against the solar projects proposed. It will be necessary for GSWC to continue to be connected to the SCE and IID distribution systems for the foreseeable future. The proposed solar and battery solutions, while financially viable and environmentally sustainable, do not allow GSWC to disconnect from the grid. The local electric utilities will continue to provide service to GSWC facilities under their standard rate offerings and will change their source of power supply as described in the following sections.

4.1.1 California RPS

The California Energy Commission has set renewable generation standards and expectations for the utilities in California. Those requirements are outlined in the Renewable Portfolio Standard (RPS). In the most recent 2018 update, 60% of the energy generated is expected to come from renewable sources by 2030. 100% renewable generation is planned by 2045.[3]

4.1.2 Southern California Edison (SCE)

Southern California Edison's (SCE's) 2020 Integrated Resource Plan (IRP) was reviewed since the majority of the sites evaluated currently receive power from SCE. This utility intends to match the standards set in the RPS, with its own intermediary goals along the way. These goals and standards were compiled together and compared to 1898 & Co.'s proposed solar and battery system generation for GSWC. This comparison is provided in Figure 44.

As shown, SCE's transition towards a 100% renewable portfolio is nearly linear, from now until 2045. Under 1898 & Co's proposed system, GSWC would obtain 104% of its energy supply from renewable resources in 2024 assuming facilities were constructed in 2023. Realistically we would not expect the facilities to be completed until late 2024.

4.1.3 Imperial Irrigation District (IID)

An IRP for the Imperial Irrigation District (IID) was not found or made available to 1898 & Co. As a utility under the oversight of the California Energy Commission, it was assumed that IID's generation portfolio would likely match or nearly match SCE's path towards 100% renewable energy.

[3] https://www.cpuc.ca.gov/rps/

4.2 On-Site Solar versus Grid Power

4.2.1 Site Summary of Results and Recommendations

Table 37 provides a summary of 1898 & Co.'s recommendations for solar and battery storage systems to be added on each site of the sites considered in this study. Key technical and financial metrics such as annual load, generation capacity, energy production, capital investment, net present value cash flow to GSWC, grid energy offset, and so on are also provided.

Table 37: Recommendation Summary & Key Values

	Agarita	Holabird	Niland	Kiowa	Popago	Emerald
Annual Electric Use (kWh)	473,620	690,800	70,400	290,310	120,247	99,898
Solar Array Recommended (kW)	139	420	-	240	50	70
Battery Storage Recommended (kWh)	50	-	-	300	-	-
Battery Storage Duration[1] (hr)	2.0	-	-	2.0	-	-
Renewable Generation (kWh)	275,384	690,985	-	464,539	97,702	132,055
Percent Offset (%)	58%	100%	0%	160%	81%	132%
NPV ($)	$ 14,033	$ 1,282	$ -	$ 10,306	$ 1,544	$ 3,398
Payback years	9.0	9.5	-	9.3	9.4	14.2
Capital Investment ($)	$ 442,000	$ 1,016,690	$ -	$ 839,637	$ 171,157	$ 228,696

	Buford Canyon	Government Canyon 3	Glen Road 1	Glen Road 2	Bradshaw
Annual Electric Use (kWh)	61,582	36,846	701,379	730,395	2,469,851
Solar Array Recommended (kW)	30	15	500	120	1,250
Battery Storage Recommended (kWh)	-	-	-	-	1,000
Battery Storage Duration[1] (hr)	-	-	-	-	2.0
Renewable Generation (kWh)	55,762	27,881	1,007,540	240,266	2,359,955
Percent Offset (%)	91%	76%	144%	33%	96%
NPV ($)	$ 2,462	$ 1,667	$ 13,878	$ 9,897	$ 71,501
Payback years	9.3	9.0	9.4	9.2	9.3
Capital Investment ($)	$ 109,012	$ 55,911	$ 1,177,640	$ 362,927	$ 3,858,377

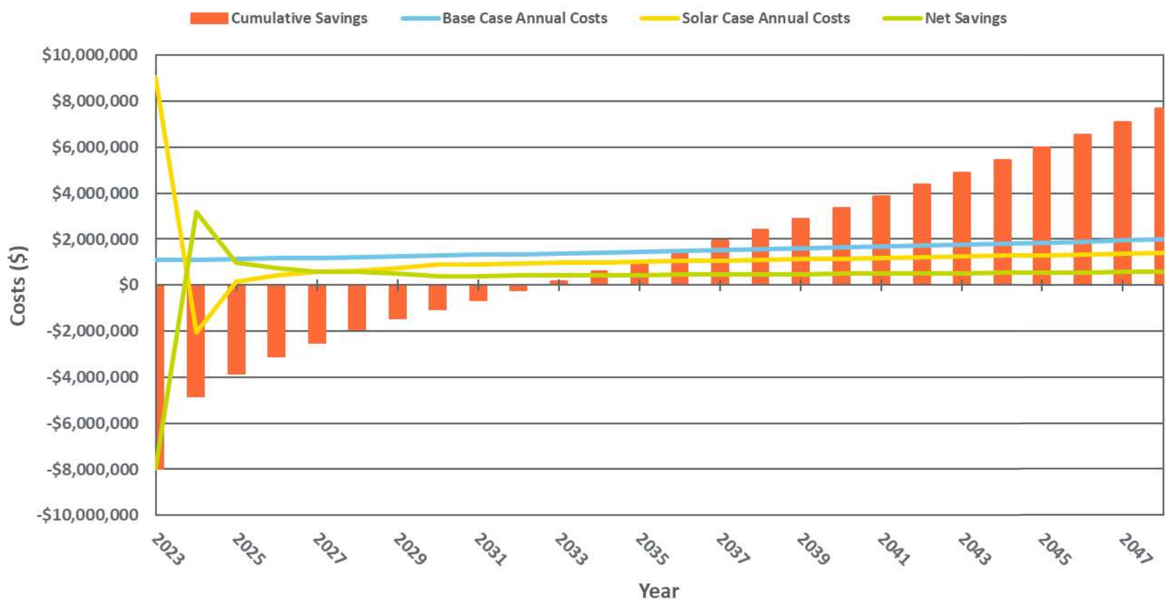
4.2.2 Financial Analysis

Contrasting the annual costs of the proposed solar array systems and the base case of continuing to use grid power can provide a relative comparison to weigh against for GSWC.

Figure 43:On Site Solar vs Grid Power Costs

illustrates the annual costs of both scenarios and the annual and cumulative savings difference between them.

Figure 43:On Site Solar vs Grid Power Costs



Some milestones and values to note in Figure 43: On Site Solar vs Grid Power Costs include the initial Solar Case Annual Cost fluctuations, the break-even point, the annual cost trends, and the Cumulative Savings trend. The high starting point of the Solar Case Annual Costs (yellow line) assumes and includes the capital costs of all sites being built in 2023. The reversal into the negative costs is due to the rebates provided by the federal ITC in 2024 and depreciation expense write-offs until 2027. From there, maintenance and replacement costs along with minor electric utility bills gradually carry the cost upward. These costs, along with the Base Case Annual Costs (blue line), grow at the assumed average inflation rate of 2.5%. The Net Savings (green line) is the difference of the Base Case Annual Costs and the Solar Case Annual Costs. The Cumulative Savings (orange bar) is the cumulative Net Savings starting from 2023. The break-even point occurs in 2032 or approximately 9.5 years.

To encapsulate the benefit of a 25-year analysis, Table 38 presents the net present value cost and annual levelized cost of both the base case and proposed solar case. The proposed projects included in the solar case will reduce GSWC's cost by $122,337 over 20 years or nearly $11,317 per year on a levelized cost basis. These projects will reduce GSWC's annual revenue requirement for its water utility customers while providing over 100 percent renewable energy.

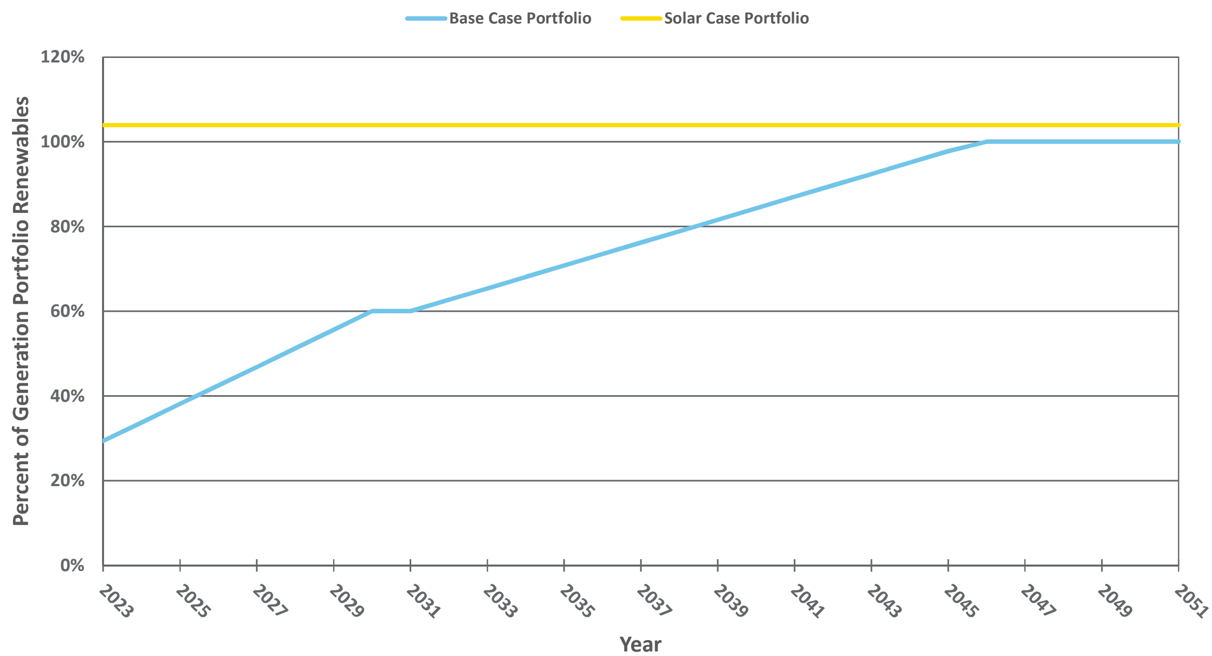
Table 38: Total Proposed System Financial Results

	Base Case	Solar Case	Solar Savings
Net Present Value of Costs	$13,629,828	$13,507,491	$122,337
Levelized Costs Per Year	$1,260,856	$1,249,539	$11,317

4.2.3 Renewable Energy Content

As discussed in Section 4.1.1 through 4.1.3, SCE and IID are expected to transition towards a 100% renewable generation portfolio gradually by 2045. Under the systems proposed by 1898 & Co., the total renewable energy produced would be about 140 GWh, which is 104% of all the site's energy requirements.

Figure 44: Renewable Generation Percentage by Year



4.2.4 GHG Emissions

A communal benefit of GSWC's early transition to renewable energy is the offset of greenhouse gas (GHG) emissions that otherwise would be produced by the local utility to cover GSWC's energy requirements. The benefit of GHG emission reduction is realized, starting in year one and sees maximum benefit the earlier the system is built. The recommended system would provide a total emission reduction of 2,670 tons of CO2, 1,611 lbs of NO_x, 19.4 lbs of SO_x, and 135 lbs of NH_3 within the first year of operation if built in 2023. The annual emission reduction diminishes over time as both SCE and IID transition their generation portfolio to a zero-emission power supply in 2045.

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Attachment 2-5 Response to SN2-017 SCADA Response

Golden State
Water Company
A Subsidiary of American States Water Company

January 10, 2024

To: Susan Nasserie, Public Advocates Office
CALIFORNIA PUBLIC UTILITIES COMMISSION
505 Van Ness Avenue
San Francisco, CA 94102

Subject: Data Request SN2-017 (A.23-08-010) SCADA
Due Date: January 5, 2024 Extension Due Date: January 10, 2024

Dear Susan Nasserie,

In response to the above referenced data request number, we are pleased to submit the following responses:

SCADA Recorded Capital Expenditures for Region I, II, and III

Question 1:
For each water system in Region I, II, and III, please provide the recorded SCADA capital expenditures from 2018 to 2022, as shown in Table 1 (in Excel format).

Response 1:
See Excel file titled **"SN2-017 (SCADA) Q.1 - SCADA Expenditures 2018-2022"**, tab "Q1 and Q2 – By RMA".

Question 2:
For each system, provide the last SCADA upgrade year and its associated budget amount, as shown in Table 1 (in Excel format).

Response 2:
See Excel file titled **"SN2-017 (SCADA) Q.1 - SCADA Expenditures 2018-2022"**, spreadsheet "Q1 and Q2 – By RMA". Budget amount provided for completed SCADA system upgrades.

Question 3:
For each system, provide annual spending from 2018 to 2022 including a detailed breakdown (in Excel format) and its associated supporting documentation such as invoices, etc.

Response 3:
See Excel file titled **"SN2-017 (SCADA) Q.1 - SCADA Expenditures 2018-2022"**, spreadsheet "Q3 – Detailed Breakdown". Spreadsheet provides breakdown of expenditures for the SCADA upgrade projects and provides invoice references.

As representation of project spend, GSWC has included supporting documentation for two completed SCADA upgrade projects – West Orange and Cypress Ridge systems - with the largest majority of the spending.

Please refer to the following *Work Order & Description* in the "Q3 – Detailed Breakdown" spreadsheet to find associated invoices.

- W.26931200 - West OC SCADA, Phase III
- W.16400043 - CR, SCADA System

Question 4:
For each RMA, provide the quantifiable cost savings for each year, 2018-2022, as a result of the SCADA investment.

Table 1. SCADA for Region I, II and III								
Recorded Capital Expenditures (2018 to 2022)							Last Upgrade	
RMA	Water System	2018	2019	2020	2021	2022	Year	Budget Amount
xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx

Response 4:
In 2016, GSWC hired Cannon Engineering Consultants (Cannon) to conduct a companywide SCADA Assessment (Assessment). The SCADA Assessment confirmed that SCADA hardware, software, and telemetry was obsolete in many of GSWC's Districts and required maintenance, upgrade, and/or replacement. To address these findings, GSWC developed a SCADA Master Plan guiding the upgrade of SCADA hardware and software throughout the entire company. The Master Plan establishes a strategy for reliability, consistency, and security among the SCADA systems across the company, including remote sites, District office sites, and corporate office sites. In addition, a key objective of the Master Plan is to set the foundation to standardize all future upgrades and additions to the SCADA systems. Overall, the primary benefits of upgrading SCADA companywide include standardization, increased security and improved reliability.

Due to the company-wide SCADA upgrades program being in an execution phase, GSWC cannot quantify potential cost savings at this time.

SCADA Labor

Question 5:
Please refer to Jeung and Kubiak Field Technology Testimony – Vol 1 of 2 – PA.pdf, PDF pages 56-73 and SEC-41_CONFIDENTIAL_Labor and SEC-40_EXP_Labor for the following questions.

a. In Excel format and with clickable formulas, provide the following information for 2022 as it relates to each field position which utilizes SCADA technology.

   i. Position Title;
   ii. Employee Number;
   iii. Region/District;
   iv. Total Labor Regular Hours.

b. In Excel format and with clickable formulas, for each Region/District, provide the total number of field employees and total number of Labor Regular hours.

Response 5:

a. See spreadsheet “Q5(a) – SCADA Labor” in Excel file titled **“SN2-017 (SCADA) Q.5 - SCADA Labor”**. Water Distribution Operators also utilize SCADA technology when they provide back-fill and support for Water Supply Operators. However, Water Distribution Operators were excluded from the dataset provided because SCADA is not one of their primary job duties.
b. See spreadsheet “Q5(b) – SCADA Labor” in Excel file titled **“SN2-017 (SCADA) Q.5 - SCADA Labor”**.

END OF RESPONSE

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Attachment 2-6 Response SN2-017 (SCADA)
Q.1 - SCADA Expenditures 2018-2022

Table 1. SCADA for Region I, II and III

Recorded Capital Expenditures (2018 to 2022)							Last Upgrade	
Region	**Water System**	**2018**	**2019**	**2020**	**2021**	**2022**	**Year**	**Budget Amount**
Region I	117. Arden	131,354	169,506	80,216			2020	381,076
	118. Cordova				234	65,522		
	124. Bay Point				29,726	132,873		
	146. Los Osos				104,220	745,880		
	159. Orcutt System				28,523	58,840		
	164. Cypress Ridge	116,997	244,104	558,600	318,263	3,472	2022	1,260,146
	167. Simi Valley			46,348	150,112	617,597		
	Total	248,351	413,610	685,164	631,078	1,624,184		
	Escalated	299,149	488,920	791,709	719,145	1,624,184		
	Five Year Average	784,621						
Region III	269. West Orange	611,523	574,520	70,177	42,939	7,806	2022	1,310,093
	274. Cowan Heights	202,259	212,274	78,364	21,511	4,345	2022	524,898
	275. Placentia	214,361	215,685	122,048	46,238	2,865	2022	603,920
	276. Yorba Linda	143,977	145,422	78,623	31,401	1,447	2022	403,380
	347. Barstow		12,163	11,096	786,529	292,677		
	352. Calipatria				68,202	139,948		
	358. Del Norte			79,153	105,072	(62,893)		
	359. Del Sur	156	39,925	118,730	167,129	71,774		
	364. Apple Valley South				24,724	43,417		
	365. Desert View				18,451	77,931		
	366. Apple Valley North		82,767	(15)	14,744	46,906		
	367. Lucerne Valley				23,700	24,852		
	372. Wrightwood				75,041	186,753		
	R3 Total	1,172,275	1,282,756	558,175	1,425,681	837,828		
	Escalated	1,412,052	1,516,321	644,973	1,624,635	837,828		
	Five Year Average	1,207,162						
Grand Total		**1,420,626**	**1,696,366**	**1,243,339**	**2,056,759**	**2,462,011**		

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Attachment 3-1 Early Retirements Adjustment Summary

System	Adjustment Amount
Region I	
Arden	$190
Baypoint	$348,267
ClearLake	$64,932
Cordova	$4,580,903
Cypress Ridge	$189,357
Los Ossos	$74,721
Nippon	$1,932
Orcutt	$607,780
Simi	$1,072,162
Region I	$6,940,244

System	Adjustment Amount
Region II	
Artesia System	$1,767,435
Roseton	$14,064
Norwalk System	$1,329,613
Bell - Bell Gardens	$968,316
Florence-Graham	$4,556,036
Hollydale System	$123,125
Culver City System	$1,853,043
Southwest System	$10,499,668
Willowbrook System	$371,830
Willowbrook	$ 3,639
Central Basin West Systems (Temp)	$47,891
Otis	$7,593
Bissell	$67,513
Doty	$10,826
Dalton	$15,899
Ballona	$39,299
Region II	$21,675,790

System	Adjustment Amount
Region III	
Apple Valley North	$165,329
Apple Valley South	$223,507
Barstow	$1,389,381
Calipatria-Niland	$70,963
Claremont	$3,160,302
Cowan Heights	$159,310
Lucerne Valley	$189,412
Morongo Del Sur	$100,166
Mountain/Desert District Apple Valley Office	$22,485
Mountain/Desert District Barstow Office	$32,505
Mountain/Desert District Morongo Valley Office	$103
Mountain/Desert District Wrightwood Office	$6,525
Orange County District Placentia Office	$157,026
Placentia	$487,338
San Dimas	$1,981,814
South Arcadia	$323,306
South San Gabriel	$1,197,856
West Orange County	$3,798,709
Wrightwood	$2,325,179
Yorba Linda	$8,127
Region III	$15,799,343

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Attachment 3-2 Early Retirements Calculation

WO Number	System	Asset Placed in Servce	Original Recorded Amount	Contributions	Asset Retired	Service Life	Expected Life	%of EL	NBV	Partial or Full retirement
15931627	Orcutt	8/25/2020	32,629.25		11/1/2020	0.19	20.92	0.01	32338.68	Partial
13111219	Clearlake	2/10/2020	6,609.10		11/1/2020	0.73	18.69	0.04	6352.39	Partial
13111220	Clearlake	2/10/2020	685.88		11/1/2020	0.73	18.69	0.04	659.24	Partial
12411288	Baypoint	1/13/2020	30,457.49		11/1/2020	0.80	15.80	0.05	28909.84	Partial
14631225	Los Osos	9/30/2020	1,045.93		10/1/2021	1.00	18.42	0.05	988.98	Partial
14631226	Los Osos	9/30/2020	679.79		10/1/2021	1.00	18.42	0.05	642.78	Partial
14631224	Los Osos	9/30/2020	15,049.52		10/1/2021	1.00	18.42	0.05	14230.09	Partial
13111198	Clearlake	10/4/2019	986.06		11/1/2020	1.08	18.69	0.06	929.11	Partial
11811565	Cordova	10/2/2019	115,928.62		11/1/2020	1.08	18.66	0.06	109187.10	Partial
11811598	Cordova	10/2/2019	2,224.10		11/1/2020	1.08	18.66	0.06	2094.76	Partial
15931417	Orcutt	11/30/2018	21,377.68		1/1/2020	1.09	20.92	0.05	20266.24	Partial
12411255	Baypoint	9/30/2019	26,318.06		11/1/2020	1.09	15.80	0.07	24501.51	Partial
12411255	Baypoint	9/30/2019	26,318.06		11/1/2020	1.09	15.80	0.07	24501.51	Partial
15931463	Orcutt	10/22/2019	19,661.16		12/1/2020	1.11	20.92	0.05	18615.79	Partial
11811565	Cordova	10/2/2019	33,792.40		12/1/2020	1.17	18.66	0.06	31678.42	Partial
11811565	Cordova	10/2/2019	115,928.62		12/1/2020	1.17	18.66	0.06	108676.38	Partial
11811598	Cordova	10/2/2019	2,224.10		12/1/2020	1.17	18.66	0.06	2084.97	Partial
16731235	Simi Valley	6/26/2019	41,298.93		9/1/2020	1.19	14.95	0.08	38021.30	Partial
12411258	Baypoint	5/13/2019	7,656.29		11/1/2020	1.47	15.80	0.09	6941.94	Partial
16731302	Simi Valley	2/28/2020	26,547.84		11/1/2021	1.68	14.95	0.11	23569.91	Partial
16731304	Simi Valley	2/28/2020	3,441.15		11/1/2021	1.68	14.95	0.11	3055.15	Partial
13111219	Clearlake	2/10/2020	6,609.10		12/1/2021	1.81	18.69	0.10	5969.74	Partial
16731326	Simi Valley	1/7/2021	33,174.58		11/1/2022	1.82	14.95	0.12	29143.21	Partial
12411207	Baypoint	3/2/2018	24,031.22		1/1/2020	1.84	15.80	0.12	21238.92	Partial
16731185	Simi Valley	3/1/2018	21,753.19		1/1/2020	1.84	14.95	0.12	19077.85	Partial
11811494	Cordova	12/31/2018	16,801.77		11/1/2020	1.84	18.66	0.10	15146.19	Partial
12411288	Baypoint	1/13/2020	30,457.49		12/1/2021	1.88	15.80	0.12	26823.42	Partial
15931414	Orcutt	12/11/2018	14,207.87		11/1/2020	1.89	20.92	0.09	12922.16	Partial
15931408	Orcutt	12/11/2018	8,090.92		11/1/2020	1.89	20.92	0.09	7358.75	Partial
11811494	Cordova	12/31/2018	758.36		12/1/2020	1.92	18.66	0.10	680.29	Full
11811494	Cordova	12/31/2018	16,801.77		12/1/2020	1.92	18.66	0.10	15072.17	Partial
15931417	Orcutt	11/30/2018	21,377.68		11/1/2020	1.92	20.92	0.09	19412.36	Partial
11700230	Arden	5/14/2020	212.91		6/1/2022	2.05	18.66	0.11	189.52	Full
15931627	Orcutt	8/25/2020	32,629.25		10/1/2022	2.10	20.92	0.10	29351.79	Partial
15931627	Orcutt	8/25/2020	32,629.25		10/1/2022	2.10	20.92	0.10	29351.79	Partial
15931627	Orcutt	8/25/2020	32,629.25		10/1/2022	2.10	20.92	0.10	29351.79	Partial
13111197	Clearlake	10/24/2019	13,288.82		12/1/2021	2.11	18.69	0.11	11790.95	Partial
11811565	Cordova	10/2/2019	115,928.62		12/1/2021	2.17	18.66	0.12	102462.61	Partial
12411255	Baypoint	9/30/2019	26,318.06		12/1/2021	2.17	15.80	0.14	22698.65	Partial
15931627	Orcutt	8/25/2020	32,629.25		11/1/2022	2.19	20.92	0.10	29219.32	Partial
15931629	Orcutt	8/13/2020	11,137.03		11/1/2022	2.22	20.92	0.11	9955.65	Partial
16731235	Simi Valley	6/26/2019	41,298.93		11/1/2021	2.35	14.95	0.16	34796.66	Partial
13111166	Clearlake	5/3/2018	7,544.52		11/1/2020	2.50	18.69	0.13	6534.89	Partial
14631148	Los Osos	4/20/2018	7,837.18		11/1/2020	2.54	18.42	0.14	6757.54	Partial
11811468	Cordova	5/15/2018	146,413.06		12/1/2020	2.55	18.66	0.14	126395.95	Partial
16731133	Simi Valley	6/14/2017	50,608.44		1/1/2020	2.55	14.95	0.17	41972.57	Partial
15931407	Orcutt	4/11/2018	12,060.81		11/1/2020	2.56	20.92	0.12	10584.01	Partial
15931407	Orcutt	4/11/2018	12,060.81		11/1/2020	2.56	20.92	0.12	10584.01	Partial
15931411	Orcutt	4/9/2018	9,234.00		11/1/2020	2.57	20.92	0.12	8100.91	Partial
15931411	Orcutt	4/9/2018	9,234.00		11/1/2020	2.57	20.92	0.12	8100.91	Partial
16731136	Simi Valley	5/16/2017	3,799.55		1/1/2020	2.63	14.95	0.18	3131.00	Partial
11811565	Cordova	10/2/2019	115,928.62		6/1/2022	2.67	18.66	0.14	99364.23	Partial
11811565	Cordova	10/2/2019	33,792.40		6/1/2022	2.67	18.66	0.14	28963.99	Partial
11811598	Cordova	10/2/2019	2,224.10		6/1/2022	2.67	18.66	0.14	1906.31	Partial
11811580	Cordova	10/30/2019	97,337.96		7/1/2022	2.67	18.66	0.14	83401.30	Partial
16731302	Simi Valley	2/28/2020	26,547.84		11/1/2022	2.68	14.95	0.18	21793.86	Partial
12411288	Baypoint	1/13/2020	30,457.49		10/1/2022	2.72	15.80	0.17	25217.67	Partial
12411288	Baypoint	1/13/2020	30,457.49		10/1/2022	2.72	15.80	0.17	25217.67	Partial
12411289	Baypoint	1/6/2020	916.56		10/1/2022	2.74	15.80	0.17	757.76	Partial
16731237	Simi Valley	1/25/2019	6,298.09		11/1/2021	2.77	14.95	0.19	5131.03	Partial
11811363	Cordova	12/31/2017	49,361.00		11/1/2020	2.84	18.66	0.15	41851.42	Partial
16400038	Cypress Ridge	7/14/2017	6,742.56		6/1/2020	2.88	20.92	0.14	5812.76	Partial
11811363	Cordova	12/31/2017	49,361.00		12/1/2020	2.92	18.66	0.16	41633.96	Partial
11811433	Cordova	11/1/2017	79,715.56		12/1/2020	3.08	18.66	0.17	66534.41	Partial
12411163	Baypoint	5/4/2017	3,430.02		7/1/2020	3.16	15.80	0.20	2743.56	Partial
12411143	Baypoint	10/24/2016	9,347.34		1/1/2020	3.19	15.80	0.20	7460.43	Partial
13111132	Clearlake	8/17/2017	5,107.70		11/1/2020	3.21	18.69	0.17	4230.27	Partial
15931305	Orcutt	6/14/2017	826.37		9/1/2020	3.22	20.92	0.15	699.21	Partial
16731133	Simi Valley	6/14/2017	50,608.44		9/1/2020	3.22	14.95	0.22	39709.25	Partial
11811159	Cordova	10/2/2016	398.84		1/1/2020	3.25	18.66	0.17	329.38	Partial
14631118	Los Osos	7/27/2017	3,799.80		11/1/2020	3.27	18.42	0.18	3125.41	Partial
15931302	Orcutt	7/7/2017	11,861.74		11/1/2020	3.32	20.92	0.16	9977.47	Partial
15931302	Orcutt	7/7/2017	11,861.74		11/1/2020	3.32	20.92	0.16	9977.47	Partial
16731235	Simi Valley	6/26/2019	41,298.93		11/1/2022	3.35	14.95	0.22	32033.76	Partial
13111089	Clearlake	10/20/2016	4,244.71		3/1/2020	3.36	18.69	0.18	3480.69	Partial
13111089	Clearlake	10/20/2016	4,244.71		3/1/2020	3.36	18.69	0.18	3480.69	Partial
11811348	Cordova	6/8/2017	66,993.29		12/1/2020	3.48	18.66	0.19	54479.46	Partial
11811348	Cordova	6/8/2017	66,993.29		12/1/2020	3.48	18.66	0.19	54479.46	Partial
11811348	Cordova	6/8/2017	66,993.29		12/1/2020	3.48	18.66	0.19	54479.46	Partial
15931184	Orcutt	11/23/2016	551.77		7/1/2020	3.61	20.92	0.17	456.68	Full
11811645	Cordova	7/29/2018	49,891.48		6/1/2022	3.84	18.66	0.21	39612.36	Partial
16200319	Nipomo	11/28/2018	2,366.64		10/1/2022	3.84	20.92	0.18	1931.80	Partial
15931182	Orcutt	9/15/2016	302.26		9/1/2020	3.96	20.92	0.19	244.98	Partial
15931183	Orcutt	9/15/2016	2,975.04		9/1/2020	3.96	20.92	0.19	2411.28	Partial
13111089	Clearlake	10/20/2016	4,244.71		11/1/2020	4.04	18.69	0.22	3328.25	Partial
16400012	Cypress Ridge	11/17/2016	212,586.15		12/1/2020	4.04	20.92	0.19	171522.08	Partial
16400012	Cypress Ridge	11/17/2016	14,038.30		12/1/2020	4.04	20.92	0.19	11326.60	Partial
11811297	Cordova	9/15/2016	64,528.46		12/1/2020	4.21	18.66	0.23	49954.43	Partial
11811297	Cordova	9/15/2016	64,528.46		12/1/2020	4.21	18.66	0.23	49954.43	Partial
15931183	Orcutt	9/15/2016	5,288.98		12/1/2020	4.21	20.92	0.20	4223.70	Partial
11811228	Cordova	9/6/2016	108,480.72		12/1/2020	4.24	18.66	0.23	83836.52	Partial
11811227	Cordova	9/2/2016	8,966.21		12/1/2020	4.25	18.66	0.23	6924.04	Partial
16731069	Simi Valley	10/2/2015	147,982.94		1/1/2020	4.25	14.95	0.28	105887.35	Partial
12411059	Baypoint	9/26/2015	50,993.99		1/1/2020	4.27	15.80	0.27	37215.64	Partial
16731071	Simi Valley	8/19/2015	62,750.17		1/1/2020	4.37	14.95	0.29	44394.04	Partial
16731133	Simi Valley	6/14/2017	50,608.44		11/1/2021	4.39	14.95	0.29	35757.72	Partial
11811363	Cordova	12/31/2017	49,361.00		6/1/2022	4.42	18.66	0.24	37668.96	Partial
15931407	Orcutt	4/11/2018	12,060.81		10/1/2022	4.48	20.92	0.21	9479.96	Partial
15931411	Orcutt	4/9/2018	9,234.00		11/1/2022	4.57	20.92	0.22	7218.14	Partial
14631053	Los Osos	8/6/2015	4,312.66		3/1/2020	4.57	18.42	0.25	3241.86	Partial
11811346	Cordova	8/24/2017	48,959.23		6/1/2022	4.77	18.66	0.26	36434.90	Partial
11811434	Cordova	9/2/2017	7,456.67		7/1/2022	4.83	18.66	0.26	5526.17	Full
14631094	Los Osos	11/9/2016	3,549.61		10/1/2021	4.90	18.42	0.27	2605.96	Partial
11811199	Cordova	12/11/2015	101,104.13		11/1/2020	4.90	18.66	0.26	74572.41	Partial
16731069	Simi Valley	10/2/2015	147,982.94		9/1/2020	4.92	14.95	0.33	99269.23	Partial
11811199	Cordova	12/11/2015	101,104.13		12/1/2020	4.98	18.66	0.27	74127.00	Partial
11811199	Cordova	12/11/2015	13,092.45		12/1/2020	4.98	18.66	0.27	9599.05	Partial
11811199	Cordova	12/11/2015	101,104.13		12/1/2020	4.98	18.66	0.27	74127.00	Partial
16731071	Simi Valley	8/19/2015	62,750.17		9/1/2020	5.04	14.95	0.34	41587.72	Partial
13111054	Clearlake	10/16/2015	5,133.51		11/1/2020	5.05	18.69	0.27	3746.75	Partial
11811348	Cordova	6/8/2017	66,993.29		7/1/2022	5.07	18.66	0.27	48802.98	Partial
15931057	Orcutt	10/30/2015	28,416.07		12/1/2020	5.09	20.92	0.24	21498.10	Partial
12411143	Baypoint	10/24/2016	9,347.34		12/1/2021	5.11	15.80	0.32	6325.69	Partial
11811130	Cordova	10/23/2015	111,097.80		12/1/2020	5.11	18.66	0.27	80654.69	Partial
11811130	Cordova	10/23/2015	111,097.80		12/1/2020	5.11	18.66	0.27	80654.69	Partial
12411053	Baypoint	10/24/2014	9,119.54		1/1/2020	5.19	15.80	0.33	6122.50	Partial

12411061	Baypoint	8/14/2015	5,375.17	11/1/2020	5.22	15.80	0.33	3598.42	Partial
15931302	Orcutt	7/7/2017	11,861.74	10/1/2022	5.24	20.92	0.25	8891.64	Partial
14631040	Los Osos	9/29/2014	6,207.02	1/1/2020	5.26	18.42	0.29	4434.09	Partial
11811131	Cordova	8/14/2015	57,272.94	12/1/2020	5.30	18.66	0.28	40990.23	Partial
13111047	Clearlake	10/23/2014	1,897.91	3/1/2020	5.36	18.69	0.29	1353.78	Partial
16731133	Simi Valley	6/14/2017	50,608.44	11/1/2022	5.39	14.95	0.36	32372.01	Partial
14631040	Los Osos	9/29/2014	897.30	3/1/2020	5.42	18.42	0.29	632.99	Full
16400007	Cypress Ridge	4/29/2016	625.77	10/1/2021	5.43	20.92	0.26	463.43	Full
16400007	Cypress Ridge	4/29/2016	312.87	10/1/2021	5.43	20.92	0.26	231.70	Full
16731059	Simi Valley	6/30/2014	109,076.68	1/1/2020	5.51	14.95	0.37	68871.94	Partial
16731107	Simi Valley	2/23/2016	15,905.50	11/1/2021	5.69	14.95	0.38	9847.54	Partial
11811227	Cordova	9/2/2016	8,966.21	6/1/2022	5.75	18.66	0.31	6203.81	Partial
11811297	Cordova	9/15/2016	64,528.46	7/1/2022	5.79	18.66	0.31	44486.80	Partial
11811079	Cordova	12/5/2014	496,477.13	11/1/2020	5.91	18.66	0.32	339143.12	Partial
11811082	Cordova	12/5/2014	147,851.93	11/1/2020	5.91	18.66	0.32	100997.53	Partial
15931181	Orcutt	10/28/2016	3,460.45	10/1/2022	5.93	20.92	0.28	2479.78	Partial
11811079	Cordova	12/5/2014	496,477.13	12/1/2020	5.99	18.66	0.32	336955.90	Partial
14631051	Los Osos	9/14/2015	6,193.85	10/1/2021	6.05	18.42	0.33	4158.39	Partial
16731069	Simi Valley	10/2/2015	147,982.94	11/1/2021	6.09	14.95	0.41	87714.64	Partial
16731069	Simi Valley	10/2/2015	147,982.94	11/1/2021	6.09	14.95	0.41	87714.64	Partial
14631040	Los Osos	9/29/2014	6,207.02	11/1/2020	6.10	18.42	0.33	4152.45	Partial
11811112	Cordova	10/23/2015	62,370.98	12/1/2021	6.11	18.66	0.33	41936.95	Partial
13111054	Clearlake	10/16/2015	5,133.51	12/1/2021	6.13	18.69	0.33	3449.54	Partial
11811076	Cordova	10/31/2013	3,747.71	1/1/2020	6.17	18.66	0.33	2507.77	Partial
11811076	Cordova	10/31/2013	12,763.41	1/1/2020	6.17	18.66	0.33	8540.62	Partial
12411059	Baypoint	9/26/2015	50,993.99	12/1/2021	6.19	15.80	0.39	31025.11	Partial
16731071	Simi Valley	8/19/2015	62,750.17	11/1/2021	6.21	14.95	0.42	36688.15	Partial
15931046	Orcutt	6/12/2014	5,405.20	9/1/2020	6.23	20.92	0.30	3796.24	Partial
14631030	Los Osos	11/25/2013	8,147.08	3/1/2020	6.27	18.42	0.34	5373.98	Partial
14631030	Los Osos	11/25/2013	15,173.66	3/1/2020	6.27	18.42	0.34	10008.86	Partial
16731070	Simi Valley	7/10/2015	19,359.21	11/1/2021	6.32	14.95	0.42	11176.82	Partial
15931046	Orcutt	6/12/2014	17,155.68	11/1/2020	6.39	20.92	0.31	11911.91	Partial
15931046	Orcutt	6/12/2014	17,155.68	11/1/2020	6.39	20.92	0.31	11911.91	Partial
15931046	Orcutt	6/12/2014	17,155.68	11/1/2020	6.39	20.92	0.31	11911.91	Partial
11811199	Cordova	12/11/2015	101,104.13	6/1/2022	6.48	18.66	0.35	66005.65	Partial
11811199	Cordova	12/11/2015	101,104.13	6/1/2022	6.48	18.66	0.35	66005.65	Partial
11811112	Cordova	10/23/2015	62,370.98	6/1/2022	6.61	18.66	0.35	40269.99	Partial
11811130	Cordova	10/23/2015	111,097.80	6/1/2022	6.61	18.66	0.35	71730.58	Partial
16731107	Simi Valley	2/23/2016	15,905.50	11/1/2022	6.69	14.95	0.45	8783.47	Partial
15931033	Orcutt	12/4/2013	1,127.03	9/1/2020	6.75	20.92	0.32	763.50	Partial
15931057	Orcutt	10/30/2015	28,416.07	10/1/2022	6.93	20.92	0.33	19008.53	Partial
11811082	Cordova	12/5/2014	147,851.93	12/1/2021	6.99	18.66	0.37	92421.31	Partial
15931057	Orcutt	10/30/2015	28,416.07	11/1/2022	7.01	20.92	0.34	18893.17	Partial
12411059	Baypoint	9/26/2015	50,993.99	10/1/2022	7.02	15.80	0.44	28336.65	Partial
16731069	Simi Valley	10/2/2015	147,982.94	11/1/2022	7.09	14.95	0.47	77814.58	Partial
11811053	Cordova	10/30/2013	14,493.42	12/1/2020	7.09	18.66	0.38	8983.12	Partial
12411053	Baypoint	10/24/2014	33,874.77	12/1/2021	7.11	15.80	0.45	18629.87	Partial
13111047	Clearlake	10/23/2014	1,897.91	12/1/2021	7.11	18.69	0.38	1175.74	Partial
16731071	Simi Valley	8/19/2015	62,750.17	10/1/2022	7.12	14.95	0.48	32846.71	Partial
11811079	Cordova	12/5/2014	496,477.13	6/1/2022	7.49	18.66	0.40	297075.59	Partial
11811079	Cordova	12/5/2014	496,477.13	6/1/2022	7.49	18.66	0.40	297075.59	Partial
11811082	Cordova	12/5/2014	147,851.93	6/1/2022	7.49	18.66	0.40	88469.73	Partial
15931021	Orcutt	11/30/2012	30,752.11	11/1/2020	7.93	20.92	0.38	19101.24	Partial
15931021	Orcutt	11/30/2012	2,037.67	11/1/2020	7.93	20.92	0.38	1265.67	Partial
15931021	Orcutt	11/30/2012	30,752.11	11/1/2020	7.93	20.92	0.38	19101.24	Partial
14631014	Los Osos	12/4/2012	10,646.72	12/1/2020	8.00	18.42	0.43	6023.37	Partial
14631014	Los Osos	12/4/2012	1,883.69	12/1/2020	8.00	18.42	0.43	1065.70	Partial
11811023	Cordova	11/30/2012	29,544.55	12/1/2020	8.01	18.66	0.43	16862.83	Partial
11811023	Cordova	11/30/2012	29,544.55	12/1/2020	8.01	18.66	0.43	16862.83	Partial
15931021	Orcutt	11/30/2012	30,752.11	12/1/2020	8.01	20.92	0.38	18980.42	Partial
15911101	Orcutt	11/1/2011	17,640.14	1/1/2020	8.17	20.92	0.39	10749.01	Partial
15931046	Orcutt	6/12/2014	17,155.68	10/1/2022	8.31	20.92	0.40	10341.47	Partial
13111101	Clearlake	11/1/2011	11,203.53	3/1/2020	8.34	18.69	0.45	6206.43	Partial
15931046	Orcutt	6/12/2014	5,405.20	11/1/2022	8.39	20.92	0.40	3236.32	Partial
11811070	Cordova	12/16/2013	5,200.72	6/1/2022	8.46	18.66	0.45	2841.58	Partial
11811053	Cordova	10/30/2013	14,493.42	6/1/2022	8.59	18.66	0.46	7818.92	Partial
14631014	Los Osos	12/4/2012	13,983.87	10/1/2021	8.83	18.42	0.48	7278.93	Partial
15931033	Orcutt	12/4/2013	21,199.60	10/1/2022	8.83	20.92	0.42	12251.66	Partial
15931033	Orcutt	12/4/2013	21,199.60	10/1/2022	8.83	20.92	0.42	12251.66	Partial
11811024	Cordova	9/1/2011	150,008.06	7/1/2020	8.84	18.66	0.47	78943.86	Partial
11811024	Cordova	9/1/2011	150,008.06	7/1/2020	8.84	18.66	0.47	78943.86	Partial
13111020	Clearlake	11/30/2012	4,330.08	12/1/2021	9.01	18.69	0.48	2243.24	Partial
11811019	Cordova	9/1/2011	61,231.28	12/1/2020	9.26	18.66	0.50	30848.08	Partial
11811024	Cordova	9/1/2011	150,008.06	12/1/2020	9.26	18.66	0.50	75573.49	Partial
11811024	Cordova	9/1/2011	150,008.06	12/1/2020	9.26	18.66	0.50	75573.49	Partial
11811024	Cordova	9/1/2011	150,008.06	12/1/2020	9.26	18.66	0.50	75573.49	Partial
11811024	Cordova	9/1/2011	150,008.06	12/1/2020	9.26	18.66	0.50	75573.49	Partial
11811024	Cordova	9/1/2011	150,008.06	12/1/2020	9.26	18.66	0.50	75573.49	Partial
11811019	Cordova	9/1/2011	61,231.28	12/1/2020	9.26	18.66	0.50	30848.08	Partial
11811101	Cordova	9/1/2011	13,814.04	12/1/2020	9.26	18.66	0.50	6959.46	Partial
11811019	Cordova	9/1/2011	61,231.28	12/1/2020	9.26	18.66	0.50	30848.08	Partial
11811024	Cordova	9/1/2011	150,008.06	12/1/2020	9.26	18.66	0.50	75573.49	Partial
11811024	Cordova	9/1/2011	150,008.06	12/1/2020	9.26	18.66	0.50	75573.49	Partial
11811101	Cordova	9/1/2011	13,814.04	12/1/2020	9.26	18.66	0.50	6959.46	Partial
15931021	Orcutt	11/30/2012	30,752.11	10/1/2022	9.84	20.92	0.47	16286.18	Partial
15931021	Orcutt	11/30/2012	30,752.11	10/1/2022	9.84	20.92	0.47	16286.18	Partial
15911001	Orcutt	1/1/2010	9,340.40	1/1/2020	10.01	20.92	0.48	4873.24	Partial
15911001	Orcutt	1/1/2010	60,923.77	1/1/2020	10.01	20.92	0.48	31786.25	Partial

Note: JDE_ACT_CNV work orders are linked to aged assets with missing information that are not available in JDE/Power Plant

WO Number	System		Asset Placed in Servce	Year	Month	Placed in Service Date	Original Recorded Amount	Contributions	Asset Retired	Date Diff	Depreciation Rate	EL	SL as % of EL	NBV	Partial or Full retirement
21900111	Artesia System	Hydrants	200110	2001	10	10/1/2001	6,610.46		Aug-22	20.85	1.6%	63.69	0.33	$ 4,446.91	Partial
21900430	Artesia System	Hydrants	201103	2011	03	3/1/2011	9,929.06		Nov-22	11.68	1.6%	63.69	0.18	$ 8,108.39	Partial
21911043	Artesia System	Hydrants	201406	2014	06	6/1/2014	61,522.55		Jul-22	8.09	1.6%	63.69	0.13	$ 53,710.64	Partial
21911086	Roseton	Hydrants	201309	2013	09	9/1/2013	15,754.78		Jul-20	6.84	1.6%	63.69	0.11	$ 14,063.99	Full
21911192	Artesia System	Hydrants	201605	2016	05	5/1/2016	3,407.58		Dec-20	4.59	1.6%	63.69	0.07	$ 3,162.07	Partial
21911192	Artesia System	Hydrants	201605	2016	05	5/1/2016	3,407.58		Nov-22	6.51	1.6%	63.69	0.10	$ 3,059.47	Partial
21911178	Artesia System	Hydrants	201707	2017	07	7/1/2017	206,815.64		May-22	4.84	1.6%	63.69	0.08	$ 191,114.37	Partial
21911257	Artesia System	Hydrants	201812	2018	12	12/1/2018	32,157.78		Jul-20	1.58	1.6%	63.69	0.02	$ 31,358.28	Partial
21911281	Artesia System	Hydrants	201910	2019	10	10/1/2019	47,317.69		Dec-20	1.17	1.6%	63.69	0.02	$ 46,448.61	Partial
21911320	Artesia System	Hydrants	201911	2019	11	11/1/2019	4,202.00		Apr-22	2.42	1.6%	63.69	0.04	$ 4,042.58	Partial
22000291	Norwalk System	Hydrants	200903	2009	03	3/1/2009	59,201.16		Apr-21	12.09	1.6%	63.69	0.19	$ 47,961.08	Partial
22011047	Norwalk System	Hydrants	201310	2013	10	10/1/2013	292,259.86		Apr-21	7.50	1.6%	63.69	0.12	$ 257,827.40	Partial
22011135	Norwalk System	Hydrants	201611	2016	11	11/1/2016	24,822.06		Feb-22	5.25	1.6%	63.69	0.08	$ 22,774.23	Partial
22011135	Norwalk System	Hydrants	201611	2016	11	11/1/2016	24,822.06		Apr-21	4.42	1.6%	63.69	0.07	$ 23,100.95	Partial
22011210	Norwalk System	Hydrants	201903	2019	03	3/1/2019	3,162.70		Apr-21	2.09	1.6%	63.69	0.03	$ 3,059.04	Partial
22011210	Norwalk System	Hydrants	201903	2019	03	3/1/2019	3,162.70		Apr-22	3.09	1.6%	63.69	0.05	$ 3,009.38	Partial
22700346	Bell - Bell Gardens System	Hydrants	201104	2011	04	4/1/2011	94,328.10		May-22	11.09	1.6%	63.69	0.17	$ 77,903.74	Partial
22811126	Florence-Graham System	Hydrants	201605	2016	05	5/1/2016	144,154.34		Jun-22	6.09	1.6%	63.69	0.10	$ 130,376.58	Partial
22811126	Florence-Graham System	Hydrants	201605	2016	05	5/1/2016	144,154.34		Jun-21	5.09	1.6%	63.69	0.08	$ 132,639.80	Partial
22911039	Hollydale System	Hydrants	201310	2013	10	10/1/2013	122,526.02		Aug-20	6.84	1.6%	63.69	0.11	$ 109,371.36	Partial
23600125	Culver City System	Hydrants	199704	1997	04	4/1/1997	17,444.27		Jul-21	24.27	1.6%	63.69	0.38	$ 10,798.49	Partial
23600125	Culver City System	Hydrants	199704	1997	04	4/1/1997	17,444.27		May-22	25.10	1.6%	63.69	0.39	$ 10,570.38	Partial
23611302	Culver City System	Hydrants	201805	2018	05	5/1/2018	287,454.62		Feb-20	1.76	1.6%	63.69	0.03	$ 279,528.98	Partial
25003247	Southwest System	Hydrants	201205	2012	05	5/1/2012	26,241.61		Sep-22	10.34	1.6%	63.69	0.16	$ 21,980.58	Partial
25011011	Southwest System	Hydrants	201001	2010	01	1/1/2010	1,524.04		Jan-20	10.01	1.6%	63.69	0.16	$ 1,284.63	Full
25031123	Southwest System	Hydrants	201312	2013	12	12/1/2013	19,888.28		May-20	6.42	1.6%	63.69	0.10	$ 17,883.92	Partial
25031374	Southwest System	Hydrants	201608	2016	08	8/1/2016	18,026.39		May-22	5.75	1.6%	63.69	0.09	$ 16,398.86	Partial
25031347	Southwest System	Hydrants	201410	2014	10	10/1/2014	21,135.35		May-21	6.59	1.6%	63.69	0.10	$ 18,949.85	Partial
25031296	Southwest System	Hydrants	201411	2014	11	11/1/2014	222,210.84		May-22	7.50	1.6%	63.69	0.12	$ 196,040.73	Partial
25000791	Southwest System	Hydrants	200004	2000	04	4/1/2000	20,993.67		May-22	22.10	1.6%	63.69	0.35	$ 13,710.85	Partial
25032143	Southwest System	Hydrants	201904	2019	04	4/1/2019	27,439.01		May-22	3.08	1.6%	63.69	0.05	$ 26,110.04	Partial
25031637	Southwest System	Hydrants	201807	2018	07	7/1/2018	272,668.74		May-22	3.84	1.6%	63.69	0.06	$ 256,248.85	Partial
25031637	Southwest System	Hydrants	201807	2018	07	7/1/2018	272,668.74		Dec-21	3.42	1.6%	63.69	0.05	$ 258,019.85	Partial
25031654	Southwest System	Hydrants	201709	2017	09	9/1/2017	28,547.63		Dec-21	4.25	1.6%	63.69	0.07	$ 26,641.87	Partial
25031722	Southwest System	Hydrants	201612	2016	12	12/1/2016	70,176.50		Oct-21	4.84	1.6%	63.69	0.08	$ 64,848.76	Partial
25000489	Southwest System	Hydrants	199803	1998	03	3/1/1998	1,265.96		May-21	23.18	1.6%	63.69	0.36	$ 805.17	Partial
25000489	Southwest System	Hydrants	199803	1998	03	3/1/1998	1,265.96		May-22	24.18	1.6%	63.69	0.38	$ 785.30	Partial
22700061	Bell - Bell Gardens System	Hydrants	199711	1997	11	11/1/1997	111,720.00		May-22	24.51	1.6%	63.69	0.38	$ 68,725.28	Partial
22700061	Bell - Bell Gardens System	Hydrants	199711	1997	11	11/1/1997	111,720.00		Aug-22	24.76	1.6%	63.69	0.39	$ 68,283.17	Partial
21911035	Artesia System	Meters	201212	2012	12	12/1/2012	22,398.76		Jun-21	8.50	5.8%	17.21	0.49	$ 11,331.78	Partial
21731041	Central Basin East CSA Office	Meters	201404	2014	04	4/1/2014	1,639.90		Jul-20	6.25	5.8%	17.21	0.36	$ 1,043.95	Partial
21911031	Artesia System	Meters	201212	2012	12	12/1/2012	6,028.18		Jun-21	8.50	5.8%	17.21	0.49	$ 3,049.72	Partial
21911032	Artesia System	Meters	201212	2012	12	12/1/2012	3,110.28		Jun-21	8.50	5.8%	17.21	0.49	$ 1,573.53	Partial
21911062	Artesia System	Meters	201304	2013	04	4/1/2013	10,559.29		Sep-21	8.42	5.8%	17.21	0.49	$ 5,390.81	Partial
21911064	Artesia System	Meters	201311	2013	11	11/1/2013	33,684.90		Jun-21	7.59	5.8%	17.21	0.44	$ 18,837.81	Partial
21911064	Artesia System	Meters	201311	2013	11	11/1/2013	33,684.90		Jan-22	8.17	5.8%	17.21	0.47	$ 17,690.36	Partial
21911064	Artesia System	Meters	201311	2013	11	11/1/2013	33,684.90		Jan-22	8.17	5.8%	17.21	0.47	$ 17,690.36	Partial
21911093	Artesia System	Meters	201410	2014	10	10/1/2014	50,758.03		Jan-22	7.26	5.8%	17.21	0.42	$ 29,355.26	Partial
21911093	Artesia System	Meters	201410	2014	10	10/1/2014	50,758.03		Jun-21	6.67	5.8%	17.21	0.39	$ 31,084.29	Partial
21911116	Artesia System	Meters	201511	2015	11	11/1/2015	1,739.08		Jun-21	5.59	5.8%	17.21	0.32	$ 1,174.64	Partial
21911116	Artesia System	Meters	201511	2015	11	11/1/2015	1,739.08		Jan-22	6.17	5.8%	17.21	0.36	$ 1,115.40	Partial
21911117	Artesia System	Meters	201511	2015	11	11/1/2015	901.49		Jun-21	5.59	5.8%	17.21	0.32	$ 608.90	Full
21911133	Artesia System	Meters	201511	2015	11	11/1/2015	1,249.91		Jan-22	6.17	5.8%	17.21	0.36	$ 801.66	Partial
21911133	Artesia System	Meters	201511	2015	11	11/1/2015	1,249.91		Sep-21	5.84	5.8%	17.21	0.34	$ 825.93	Partial
21911133	Artesia System	Meters	201511	2015	11	11/1/2015	7,437.57		Jun-21	5.59	5.8%	17.21	0.32	$ 5,023.60	Partial
21911133	Artesia System	Meters	201511	2015	11	11/1/2015	7,437.57		Jan-22	6.17	5.8%	17.21	0.36	$ 4,770.25	Partial
21911164	Artesia System	Meters	201611	2016	11	11/1/2016	7,221.20		Jun-21	4.58	5.8%	17.21	0.27	$ 5,298.16	Partial
21911164	Artesia System	Meters	201610	2016	10	10/1/2016	3,742.43		Jun-21	4.67	5.8%	17.21	0.27	$ 2,727.34	Partial
21911164	Artesia System	Meters	201610	2016	10	10/1/2016	3,742.43		Jan-22	5.25	5.8%	17.21	0.31	$ 2,599.85	Partial
21911164	Artesia System	Meters	201611	2016	11	11/1/2016	1,630.18		Jan-22	5.17	5.8%	17.21	0.30	$ 1,140.52	Partial
21911164	Artesia System	Meters	201611	2016	11	11/1/2016	1,630.18		Sep-21	4.84	5.8%	17.21	0.28	$ 1,172.18	Partial
21911219	Artesia System	Meters	201708	2017	08	8/1/2017	22,378.67		Jun-21	3.84	5.8%	17.21	0.22	$ 17,391.60	Partial
21911219	Artesia System	Meters	201708	2017	08	8/1/2017	22,378.67		Jan-22	4.42	5.8%	17.21	0.26	$ 16,629.29	Partial
21911219	Artesia System	Meters	201708	2017	08	8/1/2017	22,378.67		Dec-20	3.34	5.8%	17.21	0.19	$ 18,039.92	Partial
21911219	Artesia System	Meters	201708	2017	08	8/1/2017	14,946.46		Jan-22	4.42	5.8%	17.21	0.26	$ 11,106.51	Partial
21911219	Artesia System	Meters	201708	2017	08	8/1/2017	453.95		Jan-22	4.42	5.8%	17.21	0.26	$ 337.32	Partial
21911219	Artesia System	Meters	201708	2017	08	8/1/2017	453.95		Sep-21	4.09	5.8%	17.21	0.24	$ 346.14	Partial
21911238	Artesia System	Meters	201712	2017	12	12/1/2017	12,595.35		Jan-22	4.09	5.8%	17.21	0.24	$ 9,604.03	Partial
21911238	Artesia System	Meters	201712	2017	12	12/1/2017	12,595.35		Jun-21	3.50	5.8%	17.21	0.20	$ 10,033.08	Partial
21911239	Artesia System	Meters	201810	2018	10	10/1/2018	1,465.19		Jun-21	2.67	5.8%	17.21	0.16	$ 1,238.03	Partial
21911239	Artesia System	Meters	201810	2018	10	10/1/2018	1,465.19		Jun-21	2.67	5.8%	17.21	0.16	$ 1,238.03	Partial
21911241	Artesia System	Meters	201712	2017	12	12/1/2017	1,608.83		Jun-21	3.50	5.8%	17.21	0.20	$ 1,281.55	Partial
21911241	Artesia System	Meters	201712	2017	12	12/1/2017	229,814.17		Jan-22	4.09	5.8%	17.21	0.24	$ 175,234.75	Partial
21911259	Artesia System	Meters	201810	2018	10	10/1/2018	51,492.29		Jun-21	2.67	5.8%	17.21	0.16	$ 43,508.95	Partial
21911259	Artesia System	Meters	201810	2018	10	10/1/2018	51,492.29		Jan-22	3.25	5.8%	17.21	0.19	$ 41,754.91	Partial
21911259	Artesia System	Meters	201810	2018	10	10/1/2018	28,431.61		Jun-21	2.67	5.8%	17.21	0.16	$ 24,023.59	Partial
21911259	Artesia System	Meters	201810	2018	10	10/1/2018	28,431.61		Jan-22	3.25	5.8%	17.21	0.19	$ 23,055.09	Partial
21911292	Artesia System	Meters	201909	2019	09	9/1/2019	12,806.88		Jun-21	1.75	5.8%	17.21	0.10	$ 11,504.23	Partial
21911292	Artesia System	Meters	201909	2019	09	9/1/2019	13,166.78		Jun-21	1.75	5.8%	17.21	0.10	$ 11,827.52	Partial
21911292	Artesia System	Meters	201909	2019	09	9/1/2019	12,806.88		Jan-22	2.34	5.8%	17.21	0.14	$ 11,067.98	Partial
21911292	Artesia System	Meters	201909	2019	09	9/1/2019	13,166.78		Jan-22	2.34	5.8%	17.21	0.14	$ 11,379.01	Partial
21911309	Artesia System	Meters	201910	2019	10	10/1/2019	25,410.67		Sep-21	1.92	5.8%	17.21	0.11	$ 22,575.25	Partial
21911334	Artesia System	Meters	202003	2020	03	3/1/2020	4,468.47		Jun-21	1.25	5.8%	17.21	0.07	$ 4,143.41	Partial
21911334	Artesia System	Meters	202003	2020	03	3/1/2020	4,468.47		Jan-22	1.84	5.8%	17.21	0.11	$ 3,991.20	Partial
21911334	Artesia System	Meters	202003	2020	03	3/1/2020	1,570.81		Sep-21	1.50	5.8%	17.21	0.09	$ 1,433.54	Partial
22011034	Norwalk System	Meters	201212	2012	12	12/1/2012	3,094.91		Jun-21	8.50	5.8%	17.21	0.49	$ 1,565.75	Partial
22011055	Norwalk System	Meters	201310	2013	10	10/1/2013	11,577.50		Aug-21	7.84	5.8%	17.21	0.46	$ 6,305.01	Partial
22011055	Norwalk System	Meters	201310	2013	10	10/1/2013	11,577.50		Jan-22	8.26	5.8%	17.21	0.48	$ 6,023.05	Partial
22011053	Norwalk System	Meters	201304	2013	04	4/1/2013	4,485.38		Jun-21	8.17	5.8%	17.21	0.47	$ 2,355.60	Partial
22011123	Norwalk System	Meters	201511	2015	11	11/1/2015	760.65		Jan-22	6.17	5.8%	17.21	0.36	$ 487.86	Partial
22011123	Norwalk System	Meters	201511	2015	11	11/1/2015	760.65		Aug-21	5.75	5.8%	17.21	0.33	$ 506.38	Partial
22011123	Norwalk System	Meters	201511	2015	11	11/1/2015	5,969.40		Aug-21	5.75	5.8%	17.21	0.33	$ 3,973.98	Partial
22011123	Norwalk System	Meters	201511	2015	11	11/1/2015	5,969.40		Apr-22	6.42	5.8%	17.21	0.37	$ 3,743.09	Partial
22011141	Norwalk System	Meters	201610	2016	10	10/1/2016	20,316.53		Jun-21	4.67	5.8%	17.21	0.27	$ 14,805.89	Partial
22011141	Norwalk System	Meters	201610	2016	10	10/1/2016	7,233.23		Jan-22	5.25	5.8%	17.21	0.31	$ 5,024.90	Partial
22011130	Norwalk System	Meters	201610	2016	10	10/1/2016	66.53		Aug-21	4.84	5.8%	17.21	0.28	$ 47.84	Partial
22011130	Norwalk System	Meters	201610	2016	10	10/1/2016	66.53		Apr-22	5.50	5.8%	17.21	0.32	$ 45.27	Partial
22011175	Norwalk System	Meters	201708	2017	08	8/1/2017	29,476.18		Jun-21	3.84	5.8%	17.21	0.22	$ 22,907.43	Partial
22011175	Norwalk System	Meters	201708	2017	08	8/1/2017	29,476.18		Jun-21	3.84	5.8%	17.21	0.22	$ 22,907.43	Partial
22011175	Norwalk System	Meters	201708	2017	08	8/1/2017	12,774.12		Jan-22	4.42	5.8%	17.21	0.26	$ 9,492.28	Partial
22011191	Norwalk System	Meters	201712	2017	12	12/1/2017	7,875.69		Feb-22	4.17	5.8%	17.21	0.24	$ 5,966.40	Partial
22011194	Norwalk System	Meters	201712	2017	12	12/1/2017	342,011.54		Apr-22	4.33	5.8%	17.21	0.25	$ 255,886.29	Partial
22011194	Norwalk System	Meters	201712	2017	12	12/1/2017	342,011.54		Aug-21	3.67	5.8%	17.21	0.21	$ 269,115.39	Partial
22011207	Norwalk System	Meters	201810	2018	10	10/1/2018	49,457.81		Feb-22	3.34	5.8%	17.21	0.19	$ 39,861.11	Partial
22011207	Norwalk System	Meters	201810	2018	10	10/1/2018	49,457.81		Jun-21	2.67	5.8%	17.21	0.16	$ 41,789.90	Partial
22011207	Norwalk System	Meters	201810	2018	10	10/1/2018	15,696.41		Jan-22	3.25	5.8%	17.21	0.19	$ 12,728.16	Partial

22011207	Norwalk System	Meters	201810	2018	10	10/1/2018	26,849.05	Aug-21	2.84	5.8%	17.21	0.16	$ 22,425.69	Partial
22011207	Norwalk System	Meters	201810	2018	10	10/1/2018	26,849.05	Apr-22	3.50	5.8%	17.21	0.20	$ 21,387.16	Partial
22011242	Norwalk System	Meters	201909	2019	09	9/1/2019	6,063.29	Feb-22	2.42	5.8%	17.21	0.14	$ 5,210.10	Partial
22011242	Norwalk System	Meters	201909	2019	09	9/1/2019	15,349.27	Aug-21	1.92	5.8%	17.21	0.11	$ 13,638.98	Partial
22011242	Norwalk System	Meters	201909	2019	09	9/1/2019	6,063.29	Jun-21	1.75	5.8%	17.21	0.10	$ 5,446.56	Partial
22011242	Norwalk System	Meters	201909	2019	09	9/1/2019	15,349.27	Apr-22	2.58	5.8%	17.21	0.15	$ 13,045.27	Partial
22011242	Norwalk System	Meters	201909	2019	09	9/1/2019	1,562.40	Aug-21	1.92	5.8%	17.21	0.11	$ 1,388.31	Partial
22011258	Norwalk System	Meters	201910	2019	10	10/1/2019	53.01	Apr-22	2.50	5.8%	17.21	0.15	$ 45.31	Full
22011272	Norwalk System	Meters	202006	2020	06	6/1/2020	4,592.18	Feb-22	1.67	5.8%	17.21	0.10	$ 4,146.29	Partial
22011272	Norwalk System	Meters	202006	2020	06	6/1/2020	4,922.10	Dec-20	0.50	5.8%	17.21	0.03	$ 4,778.72	Partial
22011272	Norwalk System	Meters	202006	2020	06	6/1/2020	921.94	Aug-21	1.17	5.8%	17.21	0.07	$ 859.42	Partial
22011272	Norwalk System	Meters	202006	2020	06	6/1/2020	4,922.10	Aug-21	1.17	5.8%	17.21	0.07	$ 4,588.33	Partial
22011272	Norwalk System	Meters	202006	2020	06	6/1/2020	4,922.10	Apr-22	1.83	5.8%	17.21	0.11	$ 4,397.94	Partial
22011272	Norwalk System	Meters	202006	2020	06	6/1/2020	4,922.10	Dec-20	0.50	5.8%	17.21	0.03	$ 4,778.72	Partial
22750049	Bell - Bell Gardens System	Meters	201212	2012	12	12/1/2012	1,938.36	May-21	8.42	5.8%	17.21	0.49	$ 990.20	Partial
22750115	Bell - Bell Gardens System	Meters	201512	2015	12	12/1/2015	1,815.01	Feb-22	6.18	5.8%	17.21	0.36	$ 1,163.81	Partial
22750115	Bell - Bell Gardens System	Meters	201512	2015	12	12/1/2015	1,815.01	May-21	5.42	5.8%	17.21	0.31	$ 1,243.55	Partial
22750115	Bell - Bell Gardens System	Meters	201512	2015	12	12/1/2015	1,815.01	Mar-22	6.25	5.8%	17.21	0.36	$ 1,155.72	Partial
22750133	Bell - Bell Gardens System	Meters	201601	2016	01	1/1/2016	9,430.04	May-21	5.33	5.8%	17.21	0.31	$ 6,507.48	Partial
22750133	Bell - Bell Gardens System	Meters	201601	2016	01	1/1/2016	9,430.04	Dec-22	6.92	5.8%	17.21	0.40	$ 5,638.37	Partial
22750151	Bell - Bell Gardens System	Meters	201601	2016	01	1/1/2016	10,967.80	May-21	5.33	5.8%	17.21	0.31	$ 7,568.66	Partial
22750151	Bell - Bell Gardens System	Meters	201601	2016	01	1/1/2016	2,207.89	Nov-22	6.84	5.8%	17.21	0.40	$ 1,330.68	Partial
22750151	Bell - Bell Gardens System	Meters	201601	2016	01	1/1/2016	10,967.80	Feb-22	6.09	5.8%	17.21	0.35	$ 7,086.81	Partial
22750151	Bell - Bell Gardens System	Meters	201601	2016	01	1/1/2016	3,835.33	May-21	5.33	5.8%	17.21	0.31	$ 2,646.69	Partial
22750151	Bell - Bell Gardens System	Meters	201601	2016	01	1/1/2016	10,967.80	Feb-20	4.09	5.8%	17.21	0.24	$ 8,363.02	Partial
22750158	Bell - Bell Gardens System	Meters	201710	2017	10	10/1/2017	2,233.15	May-21	3.58	5.8%	17.21	0.21	$ 1,768.20	Partial
22750158	Bell - Bell Gardens System	Meters	201710	2017	10	10/1/2017	2,233.15	May-21	3.58	5.8%	17.21	0.21	$ 1,768.20	Partial
22750158	Bell - Bell Gardens System	Meters	201710	2017	10	10/1/2017	2,233.15	Nov-22	5.09	5.8%	17.21	0.30	$ 1,573.04	Partial
22750180	Bell - Bell Gardens System	Meters	201801	2018	01	1/1/2018	7,271.39	Dec-22	4.92	5.8%	17.21	0.29	$ 5,193.77	Partial
22750148	Bell - Bell Gardens System	Meters	201710	2017	10	10/1/2017	15,182.40	May-21	3.58	5.8%	17.21	0.21	$ 12,021.35	Partial
22750148	Bell - Bell Gardens System	Meters	201710	2017	10	10/1/2017	15,182.40	Feb-20	2.34	5.8%	17.21	0.14	$ 13,120.95	Partial
22750201	Bell - Bell Gardens System	Meters	201811	2018	11	11/1/2018	4,184.61	May-21	2.50	5.8%	17.21	0.15	$ 3,577.13	Partial
22750202	Bell - Bell Gardens System	Meters	201712	2017	12	12/1/2017	12,615.93	Feb-22	4.17	5.8%	17.21	0.24	$ 9,557.47	Partial
22750215	Bell - Bell Gardens System	Meters	201811	2018	11	11/1/2018	22,034.77	May-21	2.50	5.8%	17.21	0.15	$ 18,835.97	Partial
22750233	Bell - Bell Gardens System	Meters	201910	2019	10	10/1/2019	5,565.95	Dec-22	3.17	5.8%	17.21	0.18	$ 4,540.87	Partial
22750234	Bell - Bell Gardens System	Meters	201910	2019	10	10/1/2019	731.43	Feb-22	2.34	5.8%	17.21	0.14	$ 632.00	Full
22750235	Bell - Bell Gardens System	Meters	201903	2019	03	3/1/2019	4,310.55	May-21	2.17	5.8%	17.21	0.13	$ 3,767.12	Partial
22750235	Bell - Bell Gardens System	Meters	201903	2019	03	3/1/2019	4,310.55	Jan-20	0.84	5.8%	17.21	0.05	$ 4,100.59	Partial
22750235	Bell - Bell Gardens System	Meters	201903	2019	03	3/1/2019	4,310.55	Nov-22	3.67	5.8%	17.21	0.21	$ 3,390.43	Partial
22750235	Bell - Bell Gardens System	Meters	201903	2019	03	3/1/2019	4,310.55	Mar-22	3.00	5.8%	17.21	0.17	$ 3,558.53	Partial
22750236	Bell - Bell Gardens System	Meters	201903	2019	03	3/1/2019	5,660.95	Feb-22	2.93	5.8%	17.21	0.17	$ 4,698.58	Partial
22750244	Bell - Bell Gardens System	Meters	201912	2019	12	12/1/2019	80,061.65	May-21	1.42	5.8%	17.21	0.08	$ 73,472.97	Partial
22750244	Bell - Bell Gardens System	Meters	201912	2019	12	12/1/2019	80,061.65	Nov-22	2.92	5.8%	17.21	0.17	$ 66,476.48	Partial
22750244	Bell - Bell Gardens System	Meters	201912	2019	12	12/1/2019	14,376.02	Feb-22	2.17	5.8%	17.21	0.13	$ 12,561.36	Partial
22750244	Bell - Bell Gardens System	Meters	201912	2019	12	12/1/2019	80,061.65	Feb-22	2.17	5.8%	17.21	0.13	$ 69,955.61	Partial
22750244	Bell - Bell Gardens System	Meters	201912	2019	12	12/1/2019	80,061.65	Feb-22	2.17	5.8%	17.21	0.13	$ 69,955.61	Partial
22750244	Bell - Bell Gardens System	Meters	201912	2019	12	12/1/2019	15,532.96	May-21	1.42	5.8%	17.21	0.08	$ 14,254.67	Partial
22750244	Bell - Bell Gardens System	Meters	201912	2019	12	12/1/2019	15,532.96	Feb-22	2.17	5.8%	17.21	0.13	$ 13,572.26	Partial
22750257	Bell - Bell Gardens System	Meters	202003	2020	03	3/1/2020	2,950.60	Nov-22	2.67	5.8%	17.21	0.16	$ 2,492.67	Partial
22750257	Bell - Bell Gardens System	Meters	202003	2020	03	3/1/2020	2,950.60	Feb-22	1.92	5.8%	17.21	0.11	$ 2,620.89	Partial
22750328	Bell - Bell Gardens System	Meters	202108	2021	08	8/1/2021	18,064.38	Nov-22	1.25	5.8%	17.21	0.07	$ 16,750.30	Partial
22811025	Florence-Graham System	Meters	201212	2012	12	12/1/2012	16,266.20	Feb-20	7.17	5.8%	17.21	0.42	$ 9,487.62	Partial
22811025	Florence-Graham System	Meters	201212	2012	12	12/1/2012	16,266.20	Jul-21	8.59	5.8%	17.21	0.50	$ 8,151.58	Partial
22811027	Florence-Graham System	Meters	201210	2012	10	10/1/2012	11,388.13	Feb-20	7.34	5.8%	17.21	0.43	$ 6,531.80	Partial
22811027	Florence-Graham System	Meters	201210	2012	10	10/1/2012	11,388.13	May-21	8.59	5.8%	17.21	0.50	$ 5,707.00	Partial
22811027	Florence-Graham System	Meters	201210	2012	10	10/1/2012	11,388.13	Jan-20	7.25	5.8%	17.21	0.42	$ 6,587.99	Partial
22811053	Florence-Graham System	Meters	201312	2013	12	12/1/2013	47,323.72	Jan-20	6.09	5.8%	17.21	0.35	$ 30,585.62	Partial
22811053	Florence-Graham System	Meters	201312	2013	12	12/1/2013	47,323.72	May-21	7.42	5.8%	17.21	0.43	$ 26,924.63	Partial
22811053	Florence-Graham System	Meters	201312	2013	12	12/1/2013	47,323.72	Apr-20	6.34	5.8%	17.21	0.37	$ 29,900.12	Partial
22811053	Florence-Graham System	Meters	201312	2013	12	12/1/2013	47,323.72	Feb-22	8.18	5.8%	17.21	0.47	$ 24,845.55	Partial
22811054	Florence-Graham System	Meters	201312	2013	12	12/1/2013	4,019.58	Jan-20	6.09	5.8%	17.21	0.35	$ 2,597.88	Partial
22811054	Florence-Graham System	Meters	201312	2013	12	12/1/2013	4,019.58	May-21	7.42	5.8%	17.21	0.43	$ 2,286.92	Partial
22811055	Florence-Graham System	Meters	201312	2013	12	12/1/2013	23,137.01	Jul-21	7.59	5.8%	17.21	0.44	$ 12,939.05	Partial
22811055	Florence-Graham System	Meters	201312	2013	12	12/1/2013	23,137.01	Apr-22	8.34	5.8%	17.21	0.48	$ 11,929.93	Partial
22811055	Florence-Graham System	Meters	201312	2013	12	12/1/2013	23,137.01	Jan-20	6.09	5.8%	17.21	0.35	$ 14,953.60	Partial
22811055	Florence-Graham System	Meters	201312	2013	12	12/1/2013	23,137.01	Feb-20	6.17	5.8%	17.21	0.36	$ 14,839.43	Partial
22811115	Florence-Graham System	Meters	201512	2015	12	12/1/2015	27,038.08	Feb-20	4.17	5.8%	17.21	0.24	$ 20,483.29	Partial
22811115	Florence-Graham System	Meters	201512	2015	12	12/1/2015	27,038.08	Apr-22	6.34	5.8%	17.21	0.37	$ 17,083.23	Partial
22811116	Florence-Graham System	Meters	201512	2015	12	12/1/2015	121,248.31	Feb-20	4.17	5.8%	17.21	0.24	$ 91,854.30	Partial
22811116	Florence-Graham System	Meters	201512	2015	12	12/1/2015	121,248.31	May-22	6.42	5.8%	17.21	0.37	$ 76,028.24	Partial
22811116	Florence-Graham System	Meters	201512	2015	12	12/1/2015	121,248.31	May-21	5.42	5.8%	17.21	0.31	$ 83,072.76	Partial
22811116	Florence-Graham System	Meters	201512	2015	12	12/1/2015	121,248.31	Jan-20	4.09	5.8%	17.21	0.24	$ 92,452.60	Partial
22811116	Florence-Graham System	Meters	201512	2015	12	12/1/2015	121,248.31	Jul-21	5.59	5.8%	17.21	0.32	$ 81,895.46	Partial
22811143	Florence-Graham System	Meters	201710	2017	10	10/1/2017	981.02	Jan-20	2.25	5.8%	17.21	0.13	$ 852.66	Partial
22811144	Florence-Graham System	Meters	201710	2017	10	10/1/2017	11,261.28	Jul-21	3.75	5.8%	17.21	0.22	$ 8,807.28	Partial
22811161	Florence-Graham System	Meters	201710	2017	10	10/1/2017	21,000.82	Feb-20	2.34	5.8%	17.21	0.14	$ 18,149.35	Partial
22811161	Florence-Graham System	Meters	201710	2017	10	10/1/2017	21,000.82	May-21	3.58	5.8%	17.21	0.21	$ 16,628.35	Partial
22811161	Florence-Graham System	Meters	201710	2017	10	10/1/2017	21,000.82	Jul-21	3.75	5.8%	17.21	0.22	$ 16,424.43	Partial
22811161	Florence-Graham System	Meters	201710	2017	10	10/1/2017	21,000.82	Jan-20	2.25	5.8%	17.21	0.13	$ 18,252.98	Partial
22811161	Florence-Graham System	Meters	201710	2017	10	10/1/2017	21,000.82	Feb-20	2.34	5.8%	17.21	0.14	$ 18,149.35	Partial
22811147	Florence-Graham System	Meters	201603	2016	03	3/1/2016	5,357.14	Feb-20	3.92	5.8%	17.21	0.23	$ 4,136.02	Partial
22811147	Florence-Graham System	Meters	201603	2016	03	3/1/2016	5,980.51	Jan-20	3.84	5.8%	17.21	0.22	$ 4,646.81	Partial
22811147	Florence-Graham System	Meters	201603	2016	03	3/1/2016	1,855.00	May-21	5.17	5.8%	17.21	0.30	$ 1,297.82	Partial
22811147	Florence-Graham System	Meters	201603	2016	03	3/1/2016	5,357.14	May-22	6.17	5.8%	17.21	0.36	$ 3,436.77	Partial
22811147	Florence-Graham System	Meters	201603	2016	03	3/1/2016	5,357.14	May-21	5.17	5.8%	17.21	0.30	$ 3,748.02	Partial
22811147	Florence-Graham System	Meters	201603	2016	03	3/1/2016	2,453.30	Feb-20	3.92	5.8%	17.21	0.23	$ 1,894.09	Partial
22811147	Florence-Graham System	Meters	201603	2016	03	3/1/2016	5,357.14	Feb-20	3.92	5.8%	17.21	0.23	$ 4,136.02	Partial
22811179	Florence-Graham System	Meters	201801	2018	01	1/1/2018	3,262.53	Feb-20	2.08	5.8%	17.21	0.12	$ 2,867.32	Partial
22811179	Florence-Graham System	Meters	201801	2018	01	1/1/2018	3,262.53	Apr-22	4.25	5.8%	17.21	0.25	$ 2,457.06	Partial
22811180	Florence-Graham System	Meters	201801	2018	01	1/1/2018	309.48	Feb-20	2.08	5.8%	17.21	0.12	$ 271.99	Partial
22811203	Florence-Graham System	Meters	201712	2017	12	12/1/2017	16,212.62	Feb-20	2.17	5.8%	17.21	0.13	$ 14,168.71	Partial
22811203	Florence-Graham System	Meters	201712	2017	12	12/1/2017	16,212.62	Apr-22	4.33	5.8%	17.21	0.25	$ 12,129.96	Partial
22811204	Florence-Graham System	Meters	201712	2017	12	12/1/2017	219,188.93	May-22	4.42	5.8%	17.21	0.26	$ 162,946.13	Partial
22811180	Florence-Graham System	Meters	201801	2018	01	1/1/2018	54,025.13	Feb-20	2.08	5.8%	17.21	0.12	$ 47,480.82	Partial
22811180	Florence-Graham System	Meters	201801	2018	01	1/1/2018	54,025.13	May-22	4.33	5.8%	17.21	0.25	$ 40,429.14	Partial
22811232	Florence-Graham System	Meters	201811	2018	11	11/1/2018	12,862.62	Jan-20	1.17	5.8%	17.21	0.07	$ 11,990.41	Partial
22811232	Florence-Graham System	Meters	201811	2018	11	11/1/2018	12,862.62	May-21	2.50	5.8%	17.21	0.15	$ 10,995.35	Partial
22811232	Florence-Graham System	Meters	201811	2018	11	11/1/2018	398.89	Feb-20	1.25	5.8%	17.21	0.07	$ 369.87	Full
22811232	Florence-Graham System	Meters	201811	2018	11	11/1/2018	12,862.62	Jul-21	2.67	5.8%	17.21	0.15	$ 10,870.45	Partial
22811232	Florence-Graham System	Meters	201811	2018	11	11/1/2018	12,862.62	Feb-20	1.25	5.8%	17.21	0.07	$ 11,926.94	Partial
22811249	Florence-Graham System	Meters	201903	2019	03	3/1/2019	30,570.27	Apr-20	1.09	5.8%	17.21	0.06	$ 28,638.42	Partial
22811249	Florence-Graham System	Meters	201903	2019	03	3/1/2019	30,570.27	Feb-22	2.93	5.8%	17.21	0.17	$ 25,373.26	Partial
22811249	Florence-Graham System	Meters	201903	2019	03	3/1/2019	30,570.27	Feb-20	0.92	5.8%	17.21	0.05	$ 28,930.39	Partial
22811251	Florence-Graham System	Meters	201903	2019	03	3/1/2019	48,280.69	Jul-21	2.34	5.8%	17.21	0.14	$ 41,725.19	Partial
22811252	Florence-Graham System	Meters	201903	2019	03	3/1/2019	716,544.55	May-21	2.17	5.8%	17.21	0.13	$ 626,210.47	Partial
22811252	Florence-Graham System	Meters	201903	2019	03	3/1/2019	716,544.55	May-22	3.17	5.8%	17.21	0.18	$ 584,579.23	Partial
22811252	Florence-Graham System	Meters	201903	2019	03	3/1/2019	716,544.55	Jul-21	2.34	5.8%	17.21	0.14	$ 619,252.92	Partial
22811252	Florence-Graham System	Meters	201903	2019	03	3/1/2019	6,601.71	May-22	3.17	5.8%	17.21	0.18	$ 5,385.88	Partial
22811252	Florence-Graham System	Meters	201903	2019	03	3/1/2019	6,601.71	May-21	2.17	5.8%	17.21	0.13	$ 5,769.44	Partial

22811252	Florence-Graham System	Meters	201903	2019	03	3/1/2019	6,601.71	Feb-20	0.92	5.8%	17.21	0.05	$ 6,247.57	Partial
22811252	Florence-Graham System	Meters	201903	2019	03	3/1/2019	716,544.55	Apr-22	3.09	5.8%	17.21	0.18	$ 588,000.97	Partial
22811267	Florence-Graham System	Meters	201912	2019	12	12/1/2019	8,748.03	Feb-20	0.17	5.8%	17.21	0.01	$ 8,661.70	Partial
22811267	Florence-Graham System	Meters	201912	2019	12	12/1/2019	3,298.00	Apr-22	2.33	5.8%	17.21	0.14	$ 2,850.73	Partial
22811250	Florence-Graham System	Meters	201910	2019	10	10/1/2019	10,781.86	May-21	1.58	5.8%	17.21	0.09	$ 9,789.88	Partial
22811267	Florence-Graham System	Meters	201912	2019	12	12/1/2019	8,748.03	Feb-20	0.17	5.8%	17.21	0.01	$ 8,661.70	Partial
22811267	Florence-Graham System	Meters	201912	2019	12	12/1/2019	3,298.00	Jun-22	2.50	5.8%	17.21	0.15	$ 2,818.70	Partial
22811267	Florence-Graham System	Meters	201912	2019	12	12/1/2019	3,298.00	Feb-20	0.17	5.8%	17.21	0.01	$ 3,265.45	Partial
22811267	Florence-Graham System	Meters	201912	2019	12	12/1/2019	3,298.00	May-21	1.42	5.8%	17.21	0.08	$ 3,026.59	Partial
22811290	Florence-Graham System	Meters	202003	2020	03	3/1/2020	14,126.81	Apr-22	2.08	5.8%	17.21	0.12	$ 12,415.57	Partial
22811291	Florence-Graham System	Meters	202003	2020	03	3/1/2020	752.92	May-22	2.17	5.8%	17.21	0.13	$ 658.12	Partial
22811291	Florence-Graham System	Meters	202003	2020	03	3/1/2020	19,109.37	May-21	1.17	5.8%	17.21	0.07	$ 17,813.57	Partial
22811291	Florence-Graham System	Meters	202003	2020	03	3/1/2020	19,109.37	May-22	2.17	5.8%	17.21	0.13	$ 16,703.31	Partial
22811291	Florence-Graham System	Meters	202003	2020	03	3/1/2020	19,109.37	Apr-22	2.08	5.8%	17.21	0.12	$ 16,794.57	Partial
22811291	Florence-Graham System	Meters	202003	2020	03	3/1/2020	19,109.37	Jul-21	1.33	5.8%	17.21	0.08	$ 17,628.02	Partial
22911091	Hollydale System	Meters	201801	2018	01	1/1/2018	759.11	Apr-22	4.25	5.8%	17.21	0.25	$ 571.70	Partial
22911124	Hollydale System	Meters	201910	2019	10	10/1/2019	1,126.70	Aug-21	1.84	5.8%	17.21	0.11	$ 1,006.54	Partial
22911124	Hollydale System	Meters	201910	2019	10	10/1/2019	1,126.70	Oct-22	3.00	5.8%	17.21	0.17	$ 930.14	Partial
22911126	Hollydale System	Meters	201903	2019	03	3/1/2019	254.93	Oct-22	3.59	5.8%	17.21	0.21	$ 201.77	Partial
22911130	Hollydale System	Meters	201912	2019	12	12/1/2019	3,325.84	Oct-22	2.84	5.8%	17.21	0.16	$ 2,777.91	Partial
22911136	Hollydale System	Meters	202004	2020	04	4/1/2020	545.78	Mar-22	1.92	5.8%	17.21	0.11	$ 485.05	Partial
22911149	Hollydale System	Meters	202011	2020	11	11/1/2020	1,514.60	Oct-22	1.92	5.8%	17.21	0.11	$ 1,346.08	Partial
23011016	Willowbrook System	Meters	201212	2012	12	12/1/2012	2,299.75	May-21	8.42	5.8%	17.21	0.49	$ 1,174.82	Partial
23011028	Willowbrook System	Meters	201312	2013	12	12/1/2013	3,890.80	Jan-20	6.09	5.8%	17.21	0.35	$ 2,514.65	Partial
23011029	Willowbrook System	Meters	201312	2013	12	12/1/2013	19,204.65	May-21	7.42	5.8%	17.21	0.43	$ 10,926.40	Partial
23011057	Willowbrook System	Meters	201512	2015	12	12/1/2015	14,648.61	May-21	5.42	5.8%	17.21	0.31	$ 10,036.43	Partial
23011057	Willowbrook System	Meters	201512	2015	12	12/1/2015	14,648.61	May-21	5.42	5.8%	17.21	0.31	$ 10,036.43	Partial
23011082	Willowbrook System	Meters	201801	2018	01	1/1/2018	2,317.20	May-21	3.33	5.8%	17.21	0.19	$ 1,868.68	Partial
23011085	Willowbrook System	Meters	201801	2018	01	1/1/2018	10,571.67	May-21	3.33	5.8%	17.21	0.19	$ 8,525.41	Partial
23011085	Willowbrook System	Meters	201801	2018	01	1/1/2018	10,571.67	Oct-22	4.75	5.8%	17.21	0.28	$ 7,653.73	Partial
23011085	Willowbrook System	Meters	201801	2018	01	1/1/2018	10,571.67	Mar-22	4.16	5.8%	17.21	0.24	$ 8,013.85	Partial
23011096	Willowbrook System	Meters	201811	2018	11	11/1/2018	10,806.91	Aug-21	2.75	5.8%	17.21	0.16	$ 9,079.81	Partial
23011097	Willowbrook System	Meters	201712	2017	12	12/1/2017	44,887.17	May-21	3.42	5.8%	17.21	0.20	$ 35,977.29	Partial
23011097	Willowbrook System	Meters	201712	2017	12	12/1/2017	44,887.17	May-21	3.42	5.8%	17.21	0.20	$ 35,977.29	Partial
23011126	Willowbrook System	Meters	201903	2019	03	3/1/2019	8,120.72	May-21	2.17	5.8%	17.21	0.13	$ 7,096.95	Partial
23011126	Willowbrook System	Meters	201903	2019	03	3/1/2019	8,120.72	May-21	2.17	5.8%	17.21	0.13	$ 7,096.95	Partial
23011126	Willowbrook System	Meters	201903	2019	03	3/1/2019	8,120.72	Oct-22	3.59	5.8%	17.21	0.21	$ 6,427.36	Partial
23011126	Willowbrook System	Meters	201903	2019	03	3/1/2019	98,660.93	May-21	2.17	5.8%	17.21	0.13	$ 86,222.84	Partial
23011143	Willowbrook System	Meters	202003	2020	03	3/1/2020	1,029.56	Mar-22	2.00	5.8%	17.21	0.12	$ 909.93	Partial
23011143	Willowbrook System	Meters	202003	2020	03	3/1/2020	1,029.56	Oct-22	2.59	5.8%	17.21	0.15	$ 874.85	Partial
23011143	Willowbrook System	Meters	202003	2020	03	3/1/2020	1,029.56	Oct-22	2.59	5.8%	17.21	0.15	$ 874.85	Partial
23011143	Willowbrook System	Meters	202003	2020	03	3/1/2020	4,763.85	May-21	1.17	5.8%	17.21	0.07	$ 4,440.81	Partial
23011143	Willowbrook System	Meters	202003	2020	03	3/1/2020	4,763.85	Oct-22	2.59	5.8%	17.21	0.15	$ 4,048.01	Partial
23011143	Willowbrook System	Meters	202003	2020	03	3/1/2020	4,763.85	Mar-22	2.00	5.8%	17.21	0.12	$ 4,210.29	Partial
23011042	Willowbrook	Meters	201312	2013	12	12/1/2013	5,674.28	Feb-20	6.17	5.8%	17.21	0.36	$ 3,639.32	Partial
23600689	Culver City System	Meters	201109	2011	09	9/1/2011	11,871.74	Jan-20	8.34	5.8%	17.21	0.48	$ 6,119.43	Partial
23611065	Culver City System	Meters	201209	2012	09	9/1/2012	361.89	Feb-21	8.42	5.8%	17.21	0.49	$ 184.75	Partial
23611065	Culver City System	Meters	201209	2012	09	9/1/2012	32,487.85	Mar-21	8.50	5.8%	17.21	0.49	$ 16,441.14	Partial
23611065	Culver City System	Meters	201209	2012	09	9/1/2012	32,487.85	Jan-20	7.34	5.8%	17.21	0.43	$ 18,638.96	Partial
23611065	Culver City System	Meters	201209	2012	09	9/1/2012	8,938.84	Dec-20	8.25	5.8%	17.21	0.48	$ 4,651.74	Partial
23611065	Culver City System	Meters	201209	2012	09	9/1/2012	8,938.84	Jan-20	7.34	5.8%	17.21	0.43	$ 5,128.40	Partial
23611065	Culver City System	Meters	201209	2012	09	9/1/2012	8,938.84	Mar-21	8.50	5.8%	17.21	0.49	$ 4,523.68	Partial
23611101	Culver City System	Meters	201109	2011	09	9/1/2011	11,850.95	Jan-20	8.34	5.8%	17.21	0.48	$ 6,108.71	Partial
23611115	Culver City System	Meters	201312	2013	12	12/1/2013	8,681.00	Mar-22	8.25	5.8%	17.21	0.48	$ 4,518.94	Partial
23611115	Culver City System	Meters	201312	2013	12	12/1/2013	8,681.00	Mar-21	7.25	5.8%	17.21	0.42	$ 5,023.31	Partial
23611115	Culver City System	Meters	201312	2013	12	12/1/2013	8,681.00	Jan-20	6.09	5.8%	17.21	0.35	$ 5,610.59	Partial
23611115	Culver City System	Meters	201312	2013	12	12/1/2013	8,681.00	Mar-21	7.25	5.8%	17.21	0.42	$ 5,023.31	Partial
23611115	Culver City System	Meters	201312	2013	12	12/1/2013	9,750.56	Apr-22	8.34	5.8%	17.21	0.48	$ 5,027.59	Partial
23611115	Culver City System	Meters	201312	2013	12	12/1/2013	9,750.56	Mar-21	7.25	5.8%	17.21	0.42	$ 5,642.22	Partial
23611115	Culver City System	Meters	201312	2013	12	12/1/2013	9,750.56	Jan-20	6.09	5.8%	17.21	0.35	$ 6,301.85	Partial
23611115	Culver City System	Meters	201312	2013	12	12/1/2013	9,750.56	Jan-20	6.09	5.8%	17.21	0.35	$ 6,301.85	Partial
23611115	Culver City System	Meters	201312	2013	12	12/1/2013	9,750.56	Dec-20	7.01	5.8%	17.21	0.41	$ 5,781.90	Partial
23611115	Culver City System	Meters	201312	2013	12	12/1/2013	9,750.56	Jul-21	7.59	5.8%	17.21	0.44	$ 5,452.86	Partial
23611115	Culver City System	Meters	201312	2013	12	12/1/2013	9,750.56	Mar-22	8.25	5.8%	17.21	0.48	$ 5,075.71	Partial
23611206	Culver City System	Meters	201511	2015	11	11/1/2015	4,844.49	Mar-21	5.33	5.8%	17.21	0.31	$ 3,343.09	Partial
23611206	Culver City System	Meters	201511	2015	11	11/1/2015	4,844.49	Jan-20	4.17	5.8%	17.21	0.24	$ 3,670.82	Partial
23611207	Culver City System	Meters	201511	2015	11	11/1/2015	11,958.99	Dec-20	5.09	5.8%	17.21	0.30	$ 8,423.99	Partial
23611207	Culver City System	Meters	201511	2015	11	11/1/2015	11,958.99	Mar-22	6.33	5.8%	17.21	0.37	$ 7,557.85	Partial
23611207	Culver City System	Meters	201511	2015	11	11/1/2015	11,958.99	Mar-21	5.33	5.8%	17.21	0.31	$ 8,252.66	Partial
23611238	Culver City System	Meters	201512	2015	12	12/1/2015	38,582.73	Mar-21	5.25	5.8%	17.21	0.31	$ 26,809.43	Partial
23611238	Culver City System	Meters	201512	2015	12	12/1/2015	38,582.73	Nov-22	6.92	5.8%	17.21	0.40	$ 23,063.10	Partial
23611238	Culver City System	Meters	201512	2015	12	12/1/2015	25,144.20	Jul-21	5.59	5.8%	17.21	0.32	$ 16,983.30	Partial
23611238	Culver City System	Meters	201512	2015	12	12/1/2015	25,144.20	Feb-22	6.18	5.8%	17.21	0.36	$ 16,122.78	Partial
23611238	Culver City System	Meters	201512	2015	12	12/1/2015	11,355.53	Apr-22	6.34	5.8%	17.21	0.37	$ 7,174.66	Partial
23611271	Culver City System	Meters	201612	2016	12	12/1/2016	12,368.43	Mar-21	4.25	5.8%	17.21	0.25	$ 9,314.85	Partial
23611271	Culver City System	Meters	201612	2016	12	12/1/2016	12,368.43	Nov-22	5.92	5.8%	17.21	0.34	$ 8,113.89	Partial
23611272	Culver City System	Meters	201612	2016	12	12/1/2016	4,673.48	Jul-21	4.58	5.8%	17.21	0.27	$ 3,428.91	Partial
23611272	Culver City System	Meters	201612	2016	12	12/1/2016	4,673.48	Nov-22	5.92	5.8%	17.21	0.34	$ 3,065.88	Partial
23611273	Culver City System	Meters	201612	2016	12	12/1/2016	15,502.50	Jan-20	3.08	5.8%	17.21	0.18	$ 12,723.92	Partial
23611273	Culver City System	Meters	201612	2016	12	12/1/2016	15,502.50	Mar-21	4.25	5.8%	17.21	0.25	$ 11,675.16	Partial
23611273	Culver City System	Meters	201612	2016	12	12/1/2016	15,502.50	Mar-22	5.25	5.8%	17.21	0.30	$ 10,774.47	Partial
23611274	Culver City System	Meters	201612	2016	12	12/1/2016	50,634.26	Jan-20	3.08	5.8%	17.21	0.18	$ 41,558.85	Partial
23611274	Culver City System	Meters	201612	2016	12	12/1/2016	50,634.26	Dec-20	4.00	5.8%	17.21	0.23	$ 38,858.80	Partial
23611274	Culver City System	Meters	201612	2016	12	12/1/2016	50,634.26	Apr-22	5.33	5.8%	17.21	0.31	$ 34,941.70	Partial
23611274	Culver City System	Meters	201612	2016	12	12/1/2016	50,634.26	Mar-21	4.25	5.8%	17.21	0.25	$ 38,133.41	Partial
23611274	Culver City System	Meters	201612	2016	12	12/1/2016	50,634.26	Mar-22	5.25	5.8%	17.21	0.30	$ 35,191.56	Partial
23611274	Culver City System	Meters	201612	2016	12	12/1/2016	50,634.26	Jan-20	3.08	5.8%	17.21	0.18	$ 41,558.85	Partial
23611274	Culver City System	Meters	201612	2016	12	12/1/2016	50,634.26	Jul-21	4.58	5.8%	17.21	0.27	$ 37,150.11	Partial
23611274	Culver City System	Meters	201612	2016	12	12/1/2016	1,119.64	Dec-20	4.00	5.8%	17.21	0.23	$ 859.26	Partial
23611274	Culver City System	Meters	201612	2016	12	12/1/2016	1,119.64	Jan-20	3.08	5.8%	17.21	0.18	$ 918.96	Partial
23611308	Culver City System	Meters	201702	2017	02	2/1/2017	13,942.27	Jan-20	2.92	5.8%	17.21	0.17	$ 11,580.93	Partial
23611308	Culver City System	Meters	201702	2017	02	2/1/2017	13,942.27	Nov-22	5.75	5.8%	17.21	0.33	$ 9,283.95	Partial
23611308	Culver City System	Meters	201702	2017	02	2/1/2017	82,813.03	Apr-22	5.16	5.8%	17.21	0.30	$ 57,964.92	Partial
23611308	Culver City System	Meters	201702	2017	02	2/1/2017	82,813.03	Mar-21	4.08	5.8%	17.21	0.24	$ 63,185.00	Partial
23611353	Culver City System	Meters	201711	2017	11	11/1/2017	5,677.44	Nov-22	5.00	5.8%	17.21	0.29	$ 4,027.24	Partial
23611353	Culver City System	Meters	201711	2017	11	11/1/2017	5,677.44	Feb-22	4.25	5.8%	17.21	0.25	$ 4,273.96	Partial
23611356	Culver City System	Meters	201711	2017	11	11/1/2017	14,491.26	Mar-22	4.33	5.8%	17.21	0.25	$ 10,844.38	Partial
23611356	Culver City System	Meters	201711	2017	11	11/1/2017	14,491.26	Jan-20	2.17	5.8%	17.21	0.13	$ 12,666.67	Partial
23611356	Culver City System	Meters	201711	2017	11	11/1/2017	14,491.26	Jan-20	2.17	5.8%	17.21	0.13	$ 12,666.67	Partial
23611394	Culver City System	Meters	201711	2017	11	11/1/2017	46,905.42	Dec-20	3.08	5.8%	17.21	0.18	$ 38,498.35	Partial
23611506	Culver City System	Meters	201811	2018	11	11/1/2018	49,973.62	Nov-22	4.00	5.8%	17.21	0.23	$ 38,351.80	Partial
23611506	Culver City System	Meters	201811	2018	11	11/1/2018	49,973.62	Mar-21	2.33	5.8%	17.21	0.14	$ 43,204.17	Partial
23611453	Culver City System	Meters	201811	2018	11	11/1/2018	10,432.27	Jan-20	1.17	5.8%	17.21	0.07	$ 9,724.86	Partial
23611453	Culver City System	Meters	201811	2018	11	11/1/2018	10,432.27	Apr-22	3.42	5.8%	17.21	0.20	$ 8,361.52	Partial
23611453	Culver City System	Meters	201811	2018	11	11/1/2018	10,432.27	Jan-20	1.17	5.8%	17.21	0.07	$ 9,724.86	Partial
23611453	Culver City System	Meters	201811	2018	11	11/1/2018	10,432.27	Dec-20	2.08	5.8%	17.21	0.12	$ 9,168.56	Partial
23611453	Culver City System	Meters	201811	2018	11	11/1/2018	10,432.27	Mar-22	3.33	5.8%	17.21	0.19	$ 8,412.99	Partial
23611506	Culver City System	Meters	201811	2018	11	11/1/2018	79,825.83	Nov-22	4.00	5.8%	17.21	0.23	$ 61,261.60	Partial
23611451	Culver City System	Meters	201811	2018	11	11/1/2018	942.80	Jan-20	1.17	5.8%	17.21	0.07	$ 878.87	Partial

23611506	Culver City System	Meters	201811	2018	11	11/1/2018	79,825.83	Feb-22	3.25	5.8%	17.21	0.19	$ 64,730.48	Partial
23611506	Culver City System	Meters	201811	2018	11	11/1/2018	79,825.83	Feb-21	2.25	5.8%	17.21	0.13	$ 69,368.36	Partial
23611451	Culver City System	Meters	201811	2018	11	11/1/2018	942.80	Mar-22	3.33	5.8%	17.21	0.19	$ 760.31	Partial
23611549	Culver City System	Meters	201812	2018	12	12/1/2018	12,428.88	May-22	3.42	5.8%	17.21	0.20	$ 9,961.81	Full
23611565	Culver City System	Meters	201903	2019	03	3/1/2019	5,897.92	Feb-21	1.93	5.8%	17.21	0.11	$ 5,237.93	Partial
23611565	Culver City System	Meters	201903	2019	03	3/1/2019	5,897.92	Nov-22	3.67	5.8%	17.21	0.21	$ 4,638.96	Partial
23611565	Culver City System	Meters	201903	2019	03	3/1/2019	5,897.92	Feb-22	2.93	5.8%	17.21	0.17	$ 4,895.26	Partial
23611567	Culver City System	Meters	201903	2019	03	3/1/2019	384.47	Mar-21	2.00	5.8%	17.21	0.12	$ 339.73	Full
23611625	Culver City System	Meters	201912	2019	12	12/1/2019	9,426.94	Jan-20	0.08	5.8%	17.21	0.00	$ 9,380.42	Partial
23611625	Culver City System	Meters	201912	2019	12	12/1/2019	9,426.94	Jan-20	0.08	5.8%	17.21	0.00	$ 9,380.42	Partial
23611625	Culver City System	Meters	201912	2019	12	12/1/2019	9,426.94	Mar-21	1.25	5.8%	17.21	0.07	$ 8,742.68	Partial
23611625	Culver City System	Meters	201912	2019	12	12/1/2019	9,426.94	Apr-22	2.33	5.8%	17.21	0.14	$ 8,148.46	Partial
23611564	Culver City System	Meters	201903	2019	03	3/1/2019	11,421.55	Nov-22	3.67	5.8%	17.21	0.21	$ 8,983.53	Partial
23611564	Culver City System	Meters	201903	2019	03	3/1/2019	11,421.55	Feb-22	2.93	5.8%	17.21	0.17	$ 9,479.86	Partial
23611564	Culver City System	Meters	201903	2019	03	3/1/2019	11,421.55	Mar-21	2.00	5.8%	17.21	0.12	$ 10,092.55	Partial
23611564	Culver City System	Meters	201903	2019	03	3/1/2019	11,421.55	Jul-21	2.34	5.8%	17.21	0.14	$ 9,870.74	Partial
23611625	Culver City System	Meters	201912	2019	12	12/1/2019	8,474.76	Mar-22	2.25	5.8%	17.21	0.13	$ 7,367.23	Partial
23611625	Culver City System	Meters	201912	2019	12	12/1/2019	8,474.76	Mar-21	1.25	5.8%	17.21	0.07	$ 7,859.62	Partial
23611625	Culver City System	Meters	201912	2019	12	12/1/2019	8,474.76	Feb-22	2.17	5.8%	17.21	0.13	$ 7,405.01	Partial
23611625	Culver City System	Meters	201912	2019	12	12/1/2019	8,474.76	Jul-21	1.58	5.8%	17.21	0.09	$ 7,695.04	Partial
23611660	Culver City System	Meters	201909	2019	09	9/1/2019	9,848.48	Mar-21	1.50	5.8%	17.21	0.09	$ 8,990.97	Partial
23611661	Culver City System	Meters	201912	2019	12	12/1/2019	11,207.87	Apr-22	2.33	5.8%	17.21	0.14	$ 9,687.86	Partial
23611661	Culver City System	Meters	201912	2019	12	12/1/2019	11,207.87	Jul-21	1.58	5.8%	17.21	0.09	$ 10,176.69	Partial
23611661	Culver City System	Meters	201912	2019	12	12/1/2019	11,207.87	Mar-21	1.25	5.8%	17.21	0.07	$ 10,394.34	Partial
23611698	Culver City System	Meters	202005	2020	05	5/1/2020	10,402.96	Feb-22	1.76	5.8%	17.21	0.10	$ 9,341.51	Partial
23611698	Culver City System	Meters	202005	2020	05	5/1/2020	3,260.61	Mar-22	1.83	5.8%	17.21	0.11	$ 2,913.39	Partial
23611698	Culver City System	Meters	202005	2020	05	5/1/2020	9,842.20	Mar-22	1.83	5.8%	17.21	0.11	$ 8,794.10	Partial
23611783	Culver City System	Meters	202102	2021	02	2/1/2021	8,495.68	Nov-22	1.75	5.8%	17.21	0.10	$ 7,632.90	Partial
23611783	Culver City System	Meters	202102	2021	02	2/1/2021	11,504.65	Mar-22	1.08	5.8%	17.21	0.06	$ 10,784.95	Partial
23611783	Culver City System	Meters	202102	2021	02	2/1/2021	16,141.22	Mar-22	1.08	5.8%	17.21	0.06	$ 15,131.47	Partial
25031071	Southwest System	Meters	201211	2012	11	11/1/2012	22,171.95	Mar-21	8.33	5.8%	17.21	0.48	$ 11,435.85	Partial
25031101	Southwest System	Meters	201210	2012	10	10/1/2012	6,797.19	Mar-21	8.42	5.8%	17.21	0.49	$ 3,472.32	Partial
25031101	Southwest System	Meters	201210	2012	10	10/1/2012	6,797.19	Mar-21	8.42	5.8%	17.21	0.49	$ 3,472.32	Partial
25031103	Southwest System	Meters	201210	2012	10	10/1/2012	22,580.36	Mar-21	8.42	5.8%	17.21	0.49	$ 11,535.08	Partial
25031103	Southwest System	Meters	201210	2012	10	10/1/2012	22,580.36	Mar-21	8.42	5.8%	17.21	0.49	$ 11,535.08	Partial
25031071	Southwest System	Meters	201211	2012	11	11/1/2012	153,050.00	Mar-21	8.33	5.8%	17.21	0.48	$ 78,940.17	Partial
25031225	Southwest System	Meters	201311	2013	11	11/1/2013	70,497.25	Apr-22	8.42	5.8%	17.21	0.49	$ 36,013.22	Partial
25031225	Southwest System	Meters	201311	2013	11	11/1/2013	70,497.25	Nov-21	8.01	5.8%	17.21	0.47	$ 37,707.68	Partial
25031225	Southwest System	Meters	201311	2013	11	11/1/2013	70,497.25	Apr-22	8.42	5.8%	17.21	0.49	$ 36,013.22	Partial
25031225	Southwest System	Meters	201311	2013	11	11/1/2013	70,497.25	Mar-21	7.33	5.8%	17.21	0.43	$ 40,456.98	Partial
25031227	Southwest System	Meters	201311	2013	11	11/1/2013	51,524.48	Apr-22	8.42	5.8%	17.21	0.49	$ 26,321.06	Partial
25031227	Southwest System	Meters	201311	2013	11	11/1/2013	51,524.48	Oct-21	7.92	5.8%	17.21	0.46	$ 27,813.75	Partial
25031227	Southwest System	Meters	201311	2013	11	11/1/2013	51,524.48	Mar-21	7.33	5.8%	17.21	0.43	$ 29,568.88	Partial
25031251	Southwest System	Meters	201411	2014	11	11/1/2014	56,674.44	Apr-22	7.42	5.8%	17.21	0.43	$ 32,244.68	Partial
25031251	Southwest System	Meters	201411	2014	11	11/1/2014	56,674.44	Jun-22	7.59	5.8%	17.21	0.44	$ 31,694.38	Partial
25031251	Southwest System	Meters	201411	2014	11	11/1/2014	121,396.12	Apr-22	7.42	5.8%	17.21	0.43	$ 69,067.81	Partial
25031251	Southwest System	Meters	201411	2014	11	11/1/2014	121,396.12	Mar-21	6.33	5.8%	17.21	0.37	$ 76,719.95	Partial
25031251	Southwest System	Meters	201411	2014	11	11/1/2014	121,396.12	Jul-21	6.67	5.8%	17.21	0.39	$ 74,362.47	Partial
25031251	Southwest System	Meters	201411	2014	11	11/1/2014	121,396.12	Mar-21	6.33	5.8%	17.21	0.37	$ 76,719.95	Partial
25031251	Southwest System	Meters	201411	2014	11	11/1/2014	56,674.44	Dec-21	7.09	5.8%	17.21	0.41	$ 33,336.26	Partial
25031223	Southwest System	Meters	201311	2013	11	11/1/2013	115,166.59	Mar-22	8.33	5.8%	17.21	0.48	$ 59,400.66	Partial
25031223	Southwest System	Meters	201311	2013	11	11/1/2013	115,166.59	Jul-21	7.67	5.8%	17.21	0.45	$ 63,855.33	Partial
25031223	Southwest System	Meters	201311	2013	11	11/1/2013	115,166.59	Mar-21	7.33	5.8%	17.21	0.43	$ 66,091.83	Partial
25031224	Southwest System	Meters	201311	2013	11	11/1/2013	128,125.61	Apr-22	8.42	5.8%	17.21	0.49	$ 65,452.42	Partial
25031224	Southwest System	Meters	201311	2013	11	11/1/2013	128,125.61	Jun-22	8.59	5.8%	17.21	0.50	$ 64,208.34	Partial
25031224	Southwest System	Meters	201311	2013	11	11/1/2013	128,125.61	Dec-21	8.09	5.8%	17.21	0.47	$ 67,920.19	Partial
25031224	Southwest System	Meters	201311	2013	11	11/1/2013	128,125.61	Apr-22	8.42	5.8%	17.21	0.49	$ 65,452.42	Partial
25031334	Southwest System	Meters	201411	2014	11	11/1/2014	35,022.64	Apr-22	7.42	5.8%	17.21	0.43	$ 19,925.98	Partial
25031334	Southwest System	Meters	201411	2014	11	11/1/2014	35,022.64	Nov-21	7.01	5.8%	17.21	0.41	$ 20,767.78	Partial
25031334	Southwest System	Meters	201411	2014	11	11/1/2014	35,022.64	Apr-22	7.42	5.8%	17.21	0.43	$ 19,925.98	Partial
25031334	Southwest System	Meters	201411	2014	11	11/1/2014	35,022.64	Mar-21	6.33	5.8%	17.21	0.37	$ 22,133.62	Partial
25031334	Southwest System	Meters	201411	2014	11	11/1/2014	35,022.64	Apr-22	7.42	5.8%	17.21	0.43	$ 19,925.98	Partial
25031336	Southwest System	Meters	201411	2014	11	11/1/2014	35,936.68	Apr-22	7.42	5.8%	17.21	0.43	$ 20,446.02	Partial
25031336	Southwest System	Meters	201411	2014	11	11/1/2014	35,936.68	Oct-21	6.92	5.8%	17.21	0.40	$ 21,487.12	Partial
25031336	Southwest System	Meters	201411	2014	11	11/1/2014	35,936.68	Mar-21	6.33	5.8%	17.21	0.37	$ 22,711.27	Partial
25031336	Southwest System	Meters	201411	2014	11	11/1/2014	35,936.68	Apr-22	7.42	5.8%	17.21	0.43	$ 20,446.02	Partial
25031336	Southwest System	Meters	201411	2014	11	11/1/2014	35,936.68	Apr-22	7.42	5.8%	17.21	0.43	$ 20,446.02	Partial
25031439	Southwest System	Meters	201512	2015	12	12/1/2015	338,372.75	Oct-21	5.84	5.8%	17.21	0.34	$ 223,593.84	Partial
25031439	Southwest System	Meters	201512	2015	12	12/1/2015	338,372.75	Apr-22	6.34	5.8%	17.21	0.37	$ 213,791.04	Partial
25031439	Southwest System	Meters	201512	2015	12	12/1/2015	338,372.75	Mar-21	5.25	5.8%	17.21	0.31	$ 235,120.21	Partial
25031439	Southwest System	Meters	201512	2015	12	12/1/2015	338,372.75	Apr-22	6.34	5.8%	17.21	0.37	$ 213,791.04	Partial
25031439	Southwest System	Meters	201512	2015	12	12/1/2015	338,372.75	Mar-21	5.25	5.8%	17.21	0.31	$ 235,120.21	Partial
25031498	Southwest System	Meters	201507	2015	07	7/1/2015	10,200.56	Sep-21	6.18	5.8%	17.21	0.36	$ 6,540.73	Partial
25031510	Southwest System	Meters	201512	2015	12	12/1/2015	102,648.08	Nov-21	5.92	5.8%	17.21	0.34	$ 67,322.46	Partial
25031510	Southwest System	Meters	201512	2015	12	12/1/2015	102,648.08	Mar-21	5.25	5.8%	17.21	0.31	$ 71,325.59	Partial
25031510	Southwest System	Meters	201512	2015	12	12/1/2015	102,648.08	Apr-22	6.34	5.8%	17.21	0.37	$ 64,855.22	Partial
25031510	Southwest System	Meters	201512	2015	12	12/1/2015	102,648.08	Apr-22	6.34	5.8%	17.21	0.37	$ 64,855.22	Partial
25031586	Southwest System	Meters	201610	2016	10	10/1/2016	39,963.94	Apr-22	5.50	5.8%	17.21	0.32	$ 27,190.28	Partial
25031586	Southwest System	Meters	201610	2016	10	10/1/2016	39,963.94	Mar-21	4.42	5.8%	17.21	0.26	$ 29,709.39	Partial
25031587	Southwest System	Meters	201610	2016	10	10/1/2016	347,821.45	Apr-22	5.50	5.8%	17.21	0.32	$ 236,647.42	Partial
25031587	Southwest System	Meters	201610	2016	10	10/1/2016	347,821.45	Apr-22	5.50	5.8%	17.21	0.32	$ 236,647.42	Partial
25031587	Southwest System	Meters	201610	2016	10	10/1/2016	347,821.45	Aug-21	4.84	5.8%	17.21	0.28	$ 250,101.25	Partial
25031620	Southwest System	Meters	201612	2016	12	12/1/2016	883,794.68	Oct-21	4.84	5.8%	17.21	0.28	$ 635,493.17	Partial
25031620	Southwest System	Meters	201612	2016	12	12/1/2016	10,009.31	Dec-21	5.00	5.8%	17.21	0.29	$ 7,100.01	Partial
25031620	Southwest System	Meters	201612	2016	12	12/1/2016	54,767.04	Mar-21	4.25	5.8%	17.21	0.25	$ 41,245.87	Partial
25031620	Southwest System	Meters	201612	2016	12	12/1/2016	883,794.68	Mar-21	4.25	5.8%	17.21	0.25	$ 665,598.85	Partial
25031620	Southwest System	Meters	201612	2016	12	12/1/2016	54,767.04	Apr-22	5.33	5.8%	17.21	0.31	$ 37,793.65	Partial
25031620	Southwest System	Meters	201612	2016	12	12/1/2016	54,767.04	Jul-21	4.58	5.8%	17.21	0.27	$ 40,182.31	Partial
25031620	Southwest System	Meters	201612	2016	12	12/1/2016	50,342.61	Nov-21	4.92	5.8%	17.21	0.29	$ 35,950.47	Partial
25031620	Southwest System	Meters	201612	2016	12	12/1/2016	10,009.31	Jun-22	5.50	5.8%	17.21	0.32	$ 6,810.04	Partial
25031620	Southwest System	Meters	201612	2016	12	12/1/2016	10,009.31	Apr-22	5.33	5.8%	17.21	0.31	$ 6,907.23	Partial
25031620	Southwest System	Meters	201612	2016	12	12/1/2016	54,767.04	Mar-21	4.25	5.8%	17.21	0.25	$ 41,245.87	Partial
25031620	Southwest System	Meters	201612	2016	12	12/1/2016	54,767.04	Apr-22	5.33	5.8%	17.21	0.31	$ 37,793.65	Partial
25031620	Southwest System	Meters	201612	2016	12	12/1/2016	54,767.04	Mar-22	5.25	5.8%	17.21	0.30	$ 38,063.90	Partial
25031620	Southwest System	Meters	201612	2016	12	12/1/2016	54,767.04	Apr-22	5.33	5.8%	17.21	0.31	$ 37,793.65	Partial
25031633	Southwest System	Meters	201606	2016	06	6/1/2016	6,905.82	Sep-21	5.25	5.8%	17.21	0.31	$ 4,797.45	Partial
25031802	Southwest System	Meters	201711	2017	11	11/1/2017	7,248.39	Dec-21	4.08	5.8%	17.21	0.24	$ 5,528.10	Partial
25031802	Southwest System	Meters	201711	2017	11	11/1/2017	7,248.39	Jun-22	4.58	5.8%	17.21	0.27	$ 5,318.11	Partial
25031802	Southwest System	Meters	201711	2017	11	11/1/2017	138,287.46	Apr-22	4.42	5.8%	17.21	0.26	$ 102,803.58	Partial
25031802	Southwest System	Meters	201711	2017	11	11/1/2017	138,287.46	Apr-22	4.42	5.8%	17.21	0.26	$ 102,803.58	Partial
25031732	Southwest System	Meters	201711	2017	11	11/1/2017	2,255.59	Oct-21	3.92	5.8%	17.21	0.23	$ 1,742.16	Partial
25031732	Southwest System	Meters	201711	2017	11	11/1/2017	2,255.59	Mar-21	3.33	5.8%	17.21	0.19	$ 1,819.00	Partial
25031732	Southwest System	Meters	201711	2017	11	11/1/2017	2,255.59	Mar-21	3.33	5.8%	17.21	0.19	$ 1,819.00	Partial
25031732	Southwest System	Meters	201711	2017	11	11/1/2017	2,255.59	Apr-22	4.42	5.8%	17.21	0.26	$ 1,676.82	Partial
25031732	Southwest System	Meters	201711	2017	11	11/1/2017	2,255.59	Nov-21	4.00	5.8%	17.21	0.23	$ 1,731.03	Partial
25031802	Southwest System	Meters	201711	2017	11	11/1/2017	21,650.23	Jul-21	3.67	5.8%	17.21	0.21	$ 17,039.16	Partial
25031802	Southwest System	Meters	201711	2017	11	11/1/2017	38,491.73	Nov-21	4.00	5.8%	17.21	0.23	$ 29,540.12	Partial
25031802	Southwest System	Meters	201711	2017	11	11/1/2017	21,650.23	Apr-22	4.42	5.8%	17.21	0.26	$ 16,094.89	Partial
25031802	Southwest System	Meters	201711	2017	11	11/1/2017	21,650.23	Nov-20	3.00	5.8%	17.21	0.17	$ 17,873.15	Partial

25031802	Southwest System	Meters	201711	2017	11	11/1/2017	21,650.23	Mar-21	3.33	5.8%	17.21	0.19	$ 17,459.60	Partial
25031802	Southwest System	Meters	201711	2017	11	11/1/2017	38,491.73	Mar-21	3.33	5.8%	17.21	0.19	$ 31,041.25	Partial
25031802	Southwest System	Meters	201711	2017	11	11/1/2017	38,491.73	Apr-22	4.42	5.8%	17.21	0.26	$ 28,614.94	Partial
25031802	Southwest System	Meters	201711	2017	11	11/1/2017	38,491.73	Apr-22	4.42	5.8%	17.21	0.26	$ 28,614.94	Partial
25031804	Southwest System	Meters	201711	2017	11	11/1/2017	645.55	Sep-21	3.84	5.8%	17.21	0.22	$ 501.69	Full
25031914	Southwest System	Meters	201810	2018	10	10/1/2018	10,264.45	Dec-21	3.17	5.8%	17.21	0.18	$ 8,374.06	Partial
25031915	Southwest System	Meters	201803	2018	03	3/1/2018	94,942.10	Nov-21	3.67	5.8%	17.21	0.21	$ 74,675.97	Partial
25031915	Southwest System	Meters	201803	2018	03	3/1/2018	94,942.10	Oct-21	3.59	5.8%	17.21	0.21	$ 75,144.46	Partial
25031916	Southwest System	Meters	201803	2018	03	3/1/2018	8,446.01	May-21	3.17	5.8%	17.21	0.18	$ 6,890.52	Partial
25031916	Southwest System	Meters	201803	2018	03	3/1/2018	265,066.37	Oct-21	3.59	5.8%	17.21	0.21	$ 209,793.86	Partial
25031916	Southwest System	Meters	201803	2018	03	3/1/2018	265,066.37	Aug-21	3.42	5.8%	17.21	0.20	$ 212,367.62	Partial
25031917	Southwest System	Meters	201810	2018	10	10/1/2018	6,356.69	Apr-22	3.50	5.8%	17.21	0.20	$ 5,063.55	Partial
25031917	Southwest System	Meters	201810	2018	10	10/1/2018	6,356.69	Oct-21	3.00	5.8%	17.21	0.17	$ 5,247.71	Partial
25031917	Southwest System	Meters	201810	2018	10	10/1/2018	6,356.69	Mar-21	2.42	5.8%	17.21	0.14	$ 5,464.24	Partial
25031917	Southwest System	Meters	201810	2018	10	10/1/2018	6,356.69	Aug-21	2.84	5.8%	17.21	0.16	$ 5,309.43	Partial
25031917	Southwest System	Meters	201810	2018	10	10/1/2018	6,356.69	Feb-22	3.34	5.8%	17.21	0.19	$ 5,123.25	Partial
25031917	Southwest System	Meters	201810	2018	10	10/1/2018	6,356.69	Apr-22	3.50	5.8%	17.21	0.20	$ 5,063.55	Partial
25031967	Southwest System	Meters	201808	2018	08	8/1/2018	271,081.72	Oct-21	3.17	5.8%	17.21	0.18	$ 221,156.86	Partial
25031967	Southwest System	Meters	201808	2018	08	8/1/2018	271,081.72	Apr-22	3.67	5.8%	17.21	0.21	$ 213,303.51	Partial
25031967	Southwest System	Meters	201808	2018	08	8/1/2018	271,081.72	Apr-22	3.67	5.8%	17.21	0.21	$ 213,303.51	Partial
25031967	Southwest System	Meters	201808	2018	08	8/1/2018	271,081.72	Mar-21	2.58	5.8%	17.21	0.15	$ 230,391.02	Partial
25031967	Southwest System	Meters	201808	2018	08	8/1/2018	25,217.17	Nov-21	3.25	5.8%	17.21	0.19	$ 20,448.51	Partial
25031967	Southwest System	Meters	201808	2018	08	8/1/2018	25,217.17	Apr-22	3.67	5.8%	17.21	0.21	$ 19,842.40	Partial
25031967	Southwest System	Meters	201808	2018	08	8/1/2018	17,171.85	Jul-21	2.92	5.8%	17.21	0.17	$ 14,260.80	Partial
25031967	Southwest System	Meters	201808	2018	08	8/1/2018	17,171.85	Mar-21	2.58	5.8%	17.21	0.15	$ 14,594.27	Partial
25031967	Southwest System	Meters	201808	2018	08	8/1/2018	17,171.85	Apr-22	3.67	5.8%	17.21	0.21	$ 13,511.85	Partial
25031967	Southwest System	Meters	201808	2018	08	8/1/2018	25,217.17	Mar-21	2.58	5.8%	17.21	0.15	$ 21,431.95	Partial
25031967	Southwest System	Meters	201808	2018	08	8/1/2018	271,081.72	Apr-22	3.67	5.8%	17.21	0.21	$ 213,303.51	Partial
25031967	Southwest System	Meters	201808	2018	08	8/1/2018	4,589.01	Apr-22	3.67	5.8%	17.21	0.21	$ 3,610.91	Partial
25031967	Southwest System	Meters	201808	2018	08	8/1/2018	271,081.72	Mar-21	2.58	5.8%	17.21	0.15	$ 230,391.02	Partial
25031967	Southwest System	Meters	201808	2018	08	8/1/2018	271,081.72	Oct-21	3.17	5.8%	17.21	0.18	$ 221,156.86	Partial
25032104	Southwest System	Meters	201901	2019	01	1/1/2019	21,779.88	Mar-22	3.16	5.8%	17.21	0.18	$ 17,775.63	Partial
25032104	Southwest System	Meters	201901	2019	01	1/1/2019	21,779.88	Apr-22	3.25	5.8%	17.21	0.19	$ 17,668.16	Partial
25032105	Southwest System	Meters	201903	2019	03	3/1/2019	9,385.42	Jun-22	3.25	5.8%	17.21	0.19	$ 7,610.60	Partial
25032105	Southwest System	Meters	201903	2019	03	3/1/2019	9,385.42	Apr-22	3.09	5.8%	17.21	0.18	$ 7,701.73	Partial
25032105	Southwest System	Meters	201903	2019	03	3/1/2019	9,385.42	Apr-22	3.09	5.8%	17.21	0.18	$ 7,701.73	Partial
25032105	Southwest System	Meters	201903	2019	03	3/1/2019	9,385.42	Mar-22	3.00	5.8%	17.21	0.17	$ 7,748.05	Partial
25032106	Southwest System	Meters	201901	2019	01	1/1/2019	39,847.50	Apr-22	3.25	5.8%	17.21	0.19	$ 32,324.88	Partial
25032106	Southwest System	Meters	201901	2019	01	1/1/2019	39,847.50	Apr-22	3.25	5.8%	17.21	0.19	$ 32,324.88	Partial
25032106	Southwest System	Meters	201901	2019	01	1/1/2019	39,847.50	Apr-22	3.25	5.8%	17.21	0.19	$ 32,324.88	Partial
25032106	Southwest System	Meters	201901	2019	01	1/1/2019	39,847.50	Apr-22	3.25	5.8%	17.21	0.19	$ 32,324.88	Partial
25032107	Southwest System	Meters	201901	2019	01	1/1/2019	128,191.53	Apr-22	3.25	5.8%	17.21	0.19	$ 103,990.87	Partial
25032107	Southwest System	Meters	201901	2019	01	1/1/2019	128,191.53	Apr-22	3.25	5.8%	17.21	0.19	$ 103,990.87	Partial
25032107	Southwest System	Meters	201901	2019	01	1/1/2019	128,191.53	Apr-22	3.25	5.8%	17.21	0.19	$ 103,990.87	Partial
25032107	Southwest System	Meters	201901	2019	01	1/1/2019	128,191.53	Feb-22	3.09	5.8%	17.21	0.18	$ 105,194.78	Partial
25032108	Southwest System	Meters	201904	2019	04	4/1/2019	2,197.11	Oct-21	2.50	5.8%	17.21	0.15	$ 1,877.46	Partial
25032108	Southwest System	Meters	201904	2019	04	4/1/2019	2,197.11	Apr-22	3.00	5.8%	17.21	0.17	$ 1,813.80	Partial
25032155	Southwest System	Meters	202003	2020	03	3/1/2020	160,416.89	Apr-22	2.08	5.8%	17.21	0.12	$ 140,984.87	Partial
25032155	Southwest System	Meters	202003	2020	03	3/1/2020	47,860.00	Jun-22	2.25	5.8%	17.21	0.13	$ 41,597.79	Partial
25032155	Southwest System	Meters	202003	2020	03	3/1/2020	73,240.41	Apr-22	2.08	5.8%	17.21	0.12	$ 64,368.47	Partial
25032155	Southwest System	Meters	202003	2020	03	3/1/2020	73,240.41	Apr-22	2.08	5.8%	17.21	0.12	$ 64,368.47	Partial
25032155	Southwest System	Meters	202003	2020	03	3/1/2020	96,392.00	Apr-22	2.08	5.8%	17.21	0.12	$ 84,715.60	Partial
25032155	Southwest System	Meters	202003	2020	03	3/1/2020	96,392.00	Mar-22	2.00	5.8%	17.21	0.12	$ 85,191.25	Partial
25032155	Southwest System	Meters	202003	2020	03	3/1/2020	160,416.89	Apr-22	2.08	5.8%	17.21	0.12	$ 140,984.87	Partial
25032285	Southwest System	Meters	202003	2020	03	3/1/2020	1,858.09	Apr-22	2.08	5.8%	17.21	0.12	$ 1,633.01	Partial
25032446	Southwest System	Meters	202011	2020	11	11/1/2020	44,870.48	Aug-22	1.75	5.8%	17.21	0.10	$ 40,313.63	Partial
22431029	Bell - Bell Gardens System	Meters	201312	2013	12	12/1/2013	52,104.10	Feb-22	8.18	5.8%	17.21	0.47	$ 27,355.31	Partial
22011057	Norwalk System	Meters	201304	2013	04	4/1/2013	35,045.79	Aug-21	8.34	5.8%	17.21	0.48	$ 18,064.77	Partial
21731031	Artesia System	Meters	201403	2014	03	3/1/2014	3,903.87	Jan-22	7.84	5.8%	17.21	0.46	$ 2,124.77	Partial
22431029	Florence-Graham System	Meters	201312	2013	12	12/1/2013	24,987.14	May-21	7.42	5.8%	17.21	0.43	$ 14,216.33	Partial
21731031	Norwalk System	Meters	201403	2014	03	3/1/2014	96,305.25	Feb-22	7.93	5.8%	17.21	0.46	$ 51,941.14	Partial
21731031	Artesia System	Meters	201403	2014	03	3/1/2014	3,903.87	Sep-21	7.51	5.8%	17.21	0.44	$ 2,200.58	Partial
22011089	Norwalk System	Meters	201403	2014	03	3/1/2014	63,900.50	Aug-21	7.42	5.8%	17.21	0.43	$ 36,335.57	Partial
22011089	Norwalk System	Meters	201403	2014	03	3/1/2014	63,900.50	Apr-22	8.09	5.8%	17.21	0.47	$ 33,863.89	Partial
22431029	Florence-Graham System	Meters	201312	2013	12	12/1/2013	24,987.14	May-22	8.42	5.8%	17.21	0.49	$ 12,764.57	Partial
22431029	Florence-Graham System	Meters	201312	2013	12	12/1/2013	24,987.14	May-21	7.42	5.8%	17.21	0.43	$ 14,216.33	Partial
22431029	Bell - Bell Gardens System	Meters	201312	2013	12	12/1/2013	52,104.10	Feb-22	8.18	5.8%	17.21	0.47	$ 27,355.31	Partial
22431029	Florence-Graham System	Meters	201312	2013	12	12/1/2013	24,987.14	Feb-20	6.17	5.8%	17.21	0.36	$ 16,026.05	Partial
22431029	Bell - Bell Gardens System	Meters	201312	2013	12	12/1/2013	5,870.43	Mar-22	8.25	5.8%	17.21	0.48	$ 3,055.89	Partial
22431029	Florence-Graham System	Meters	201312	2013	12	12/1/2013	24,987.14	Jan-20	6.09	5.8%	17.21	0.35	$ 16,149.35	Partial
21731031	Artesia System	Meters	201403	2014	03	3/1/2014	3,903.87	Jun-21	7.26	5.8%	17.21	0.42	$ 2,257.75	Partial
22431029	Florence-Graham System	Meters	201312	2013	12	12/1/2013	24,987.14	Apr-22	8.34	5.8%	17.21	0.48	$ 12,883.90	Partial
22431029	Florence-Graham System	Meters	201312	2013	12	12/1/2013	24,987.14	Jul-21	7.59	5.8%	17.21	0.44	$ 13,973.71	Partial
21900119	Artesia System	Services	199806	1998	06	6/1/1998	6,100.06	Aug-22	24.18	1.4%	69.93	0.35	$ 3,990.51	Partial
21900119	Artesia System	Services	199806	1998	06	6/1/1998	800.83	Oct-22	24.35	1.4%	69.93	0.35	$ 521.97	Full
21900430	Artesia System	Services	201103	2011	03	3/1/2011	13,747.94	Oct-22	11.59	1.4%	69.93	0.17	$ 11,468.51	Partial
21911175	Artesia System	Services	201605	2016	05	5/1/2016	4,926.04	Aug-22	6.25	1.4%	69.93	0.09	$ 4,485.44	Partial
21911178	Artesia System	Services	201707	2017	07	7/1/2017	763,901.52	Nov-22	5.34	1.4%	69.93	0.08	$ 705,571.46	Partial
21911178	Artesia System	Services	201707	2017	07	7/1/2017	57,765.99	Nov-22	5.34	1.4%	69.93	0.08	$ 53,355.09	Partial
22410002	Central Basin West Systems (Temp)	Services	200012	2000	12	12/1/2000	67,426.16	Mar-21	20.26	1.4%	69.93	0.29	$ 47,891.32	Partial
22410106	Willowbrook System	Services	200112	2001	12	12/1/2001	1,031.49	Mar-21	19.26	1.4%	69.93	0.28	$ 747.40	Full
22410802	Bell - Bell Gardens System	Services	200806	2008	06	6/1/2008	98,323.93	Mar-21	12.76	1.4%	69.93	0.18	$ 80,388.35	Partial
22750034	Bell - Bell Gardens System	Services	201110	2011	10	10/1/2011	1,072.04	Sep-21	9.93	1.4%	69.93	0.14	$ 919.87	Partial
22750120	Bell - Bell Gardens System	Services	201502	2015	02	2/1/2015	1,158.25	Apr-22	7.17	1.4%	69.93	0.10	$ 1,039.54	Full
22750153	Bell - Bell Gardens System	Services	201604	2016	04	4/1/2016	967.77	Mar-22	5.92	1.4%	69.93	0.08	$ 885.87	Partial
22750170	Bell - Bell Gardens System	Services	201610	2016	10	10/1/2016	2,666.33	Apr-22	5.50	1.4%	69.93	0.08	$ 2,456.57	Partial
22750182	Bell - Bell Gardens System	Services	201706	2017	06	6/1/2017	4,112.08	Apr-22	4.84	1.4%	69.93	0.07	$ 3,827.73	Partial
22800066	Florence-Graham System	Services	199810	1998	10	10/1/1998	303.88	Sep-21	22.93	1.4%	69.93	0.33	$ 204.22	Partial
22800118	Florence-Graham System	Services	199907	1999	07	7/1/1999	17,061.93	Aug-22	23.10	1.4%	69.93	0.33	$ 11,425.53	Partial
22800337	Florence-Graham System	Services	201105	2011	05	5/1/2011	234,100.31	May-20	9.01	1.4%	69.93	0.13	$ 203,944.09	Partial
22800367	Florence-Graham System	Services	201106	2011	06	6/1/2011	38,962.41	Dec-21	10.51	1.4%	69.93	0.15	$ 33,106.86	Partial
22800385	Florence-Graham System	Services	201210	2012	10	10/1/2012	28,362.22	Sep-22	9.92	1.4%	69.93	0.14	$ 24,337.54	Partial
22800385	Florence-Graham System	Services	201210	2012	10	10/1/2012	133,731.85	Sep-22	9.92	1.4%	69.93	0.14	$ 114,754.90	Partial
22811019	Florence-Graham System	Services	201201	2012	01	1/1/2012	3,795.61	Oct-22	10.76	1.4%	69.93	0.15	$ 3,211.80	Partial
23000135	Willowbrook System	Services	200709	2007	09	9/1/2007	20,201.47	Mar-21	13.51	1.4%	69.93	0.19	$ 16,299.60	Partial
23000152	Willowbrook System	Services	201210	2012	10	10/1/2012	97,445.01	Mar-21	8.42	1.4%	69.93	0.12	$ 85,713.19	Partial
23011059	Willowbrook System	Services	201512	2015	12	12/1/2015	5,494.72	Mar-21	5.25	1.4%	69.93	0.08	$ 5,082.04	Partial
23600106	Culver City System	Services	199804	1998	04	4/1/1998	4,978.16	Jul-21	23.27	1.4%	69.93	0.33	$ 3,321.92	Partial
23600285	Culver City System	Services	200105	2001	05	5/1/2001	8,057.86	Jul-21	20.18	1.4%	69.93	0.29	$ 5,732.48	Partial
23600608	Culver City System	Services	201102	2011	02	2/1/2011	21,591.09	Jul-21	10.42	1.4%	69.93	0.15	$ 18,374.14	Partial
23611095	Culver City System	Services	201310	2013	10	10/1/2013	69,766.40	Jul-21	7.75	1.4%	69.93	0.11	$ 62,031.12	Partial
23611449	Culver City System	Services	201712	2017	12	12/1/2017	95,618.85	Oct-21	3.84	1.4%	69.93	0.05	$ 90,374.22	Partial
23611344	Culver City System	Services	201612	2016	12	12/1/2016	9,017.20	Jul-21	4.58	1.4%	69.93	0.07	$ 8,426.17	Partial
23611635	Culver City System	Services	201907	2019	07	7/1/2019	13,064.97	Nov-21	2.34	1.4%	69.93	0.03	$ 12,627.84	Partial
25000620	Southwest System	Services	199901	1999	01	1/1/1999	5,565.86	Nov-21	22.85	1.4%	69.93	0.33	$ 3,747.24	Partial
25002904	Southwest System	Services	201003	2010	03	3/1/2010	11,573.30	Jul-20	10.34	1.4%	69.93	0.15	$ 9,861.64	Partial
25002904	Southwest System	Services	201003	2010	03	3/1/2010	11,573.30	Dec-20	10.76	1.4%	69.93	0.15	$ 9,792.27	Partial
25002904	Southwest System	Services	201003	2010	03	3/1/2010	11,573.30	Nov-22	12.68	1.4%	69.93	0.18	$ 9,474.87	Partial
25003272	Southwest System	Services	201109	2011	09	9/1/2011	6,097.93	Dec-21	10.26	1.4%	69.93	0.15	$ 5,203.47	Partial

25031010	Southwest System	Services	201111	2011	11	11/1/2011	55,380.90	Dec-21	10.09	1.4%	69.93	0.14	$ 47,389.83	Partial
25031434	Southwest System	Services	201512	2015	12	12/1/2015	153,291.63	Dec-21	6.01	1.4%	69.93	0.09	$ 140,127.20	Partial
25031527	Southwest System	Services	201602	2016	02	2/1/2016	10,344.01	Jul-20	4.42	1.4%	69.93	0.06	$ 9,690.73	Partial
25031676	Southwest System	Services	201801	2018	01	1/1/2018	5,545.09	May-20	2.33	1.4%	69.93	0.03	$ 5,360.21	Partial
25010402	Southwest System	Services	200412	2004	12	12/1/2004	61,813.83	Mar-22	17.26	1.4%	69.93	0.25	$ 46,559.24	Partial
23611003	Culver City System	Services	201001	2010	01	1/1/2010	9,290.99	Jul-21	11.50	1.4%	69.93	0.16	$ 7,762.54	Partial
25000791	Southwest System	Services	200004	2000	04	4/1/2000	20,795.27	Dec-21	21.68	1.4%	69.93	0.31	$ 14,347.59	Partial
25010402	Southwest System	Services	200412	2004	12	12/1/2004	61,813.83	Dec-21	17.01	1.4%	69.93	0.24	$ 46,777.20	Partial
25010402	Southwest System	Services	200412	2004	12	12/1/2004	61,813.83	Mar-21	16.26	1.4%	69.93	0.23	$ 47,443.18	Partial
22410502	Bell - Bell Gardens System	Services	200512	2005	12	12/1/2005	55,168.00	Mar-22	16.26	1.4%	69.93	0.23	$ 42,342.39	Partial
22900095	Hollydale System	Services	200612	2006	12	12/1/2006	8,082.41	Mar-21	14.26	1.4%	69.93	0.20	$ 6,434.55	Partial
22410502	Bell - Bell Gardens System	Services	200512	2005	12	12/1/2005	55,168.00	Mar-21	15.26	1.4%	69.93	0.22	$ 43,131.29	Partial
22410502	Bell - Bell Gardens System	Services	200512	2005	12	12/1/2005	55,168.00	Sep-21	15.76	1.4%	69.93	0.23	$ 42,733.60	Partial
21200063	Otis	Total Pumping	201201	2012	01	1/1/2012	11,293.32	Sep-22	10.67	3.1%	32.57	0.33	$ 7,592.60	Partial
22750058	Bissell	Total Pumping	201509	2015	09	9/1/2015	78,338.52	Mar-20	4.50	3.1%	32.57	0.14	$ 67,512.76	Partial
25002612	Doty	Total Pumping	200612	2006	12	12/1/2006	18,745.59	Sep-20	13.76	3.1%	32.57	0.42	$ 10,825.91	Full
25031280	Dalton	Total Pumping	201707	2017	07	7/1/2017	17,715.85	Nov-20	3.34	3.1%	32.57	0.10	$ 15,899.45	Partial
25031441	Ballona	Total Pumping	201502	2015	02	2/1/2015	47,729.60	Nov-20	5.75	3.1%	32.57	0.18	$ 39,299.11	Partial

Note: JDE_ACT_CNV work orders are linked to aged assets with missing information that are not available in JDE/Power Plant

System	Account	Asset Placed in Servce	In Service Year	In Service Month	Asset Placed in Servce Date	Original Recorded Amount	Contributions	Asset Retired	Years in Service	Dep Rate	EL	Service Life as % of EL	NBV	Partial or Full retirement
Claremont	Services	202002	2020	02	2/1/2020	299,152.86		Dec-20	0.83	1.33%	75.19	0.01	295839.07	Partial
South Arcadia	Meters	202004	2020	04	4/1/2020	3,588.77		Mar-21	0.92	5.84%	17.12	0.05	3396.99	Partial
Barstow	Meters	201912	2019	12	12/1/2019	30,750.19		Dec-20	1.00	5.84%	17.12	0.06	28949.46	Partial
Claremont	Meters	202110	2021	10	10/1/2021	119,625.86		Nov-22	1.08	5.84%	17.12	0.06	112046.37	Partial
Claremont	Meters	202110	2021	10	10/1/2021	119,625.86		Nov-22	1.08	5.84%	17.12	0.06	112046.37	Partial
Claremont	Meters	202110	2021	10	10/1/2021	32,697.84		Nov-22	1.08	5.84%	17.12	0.06	30626.10	Partial
West Orange County	Meters	201911	2019	11	11/1/2019	63,152.02		Dec-20	1.08	5.84%	17.12	0.06	59150.71	Partial
West Orange County	Meters	201911	2019	11	11/1/2019	97,233.34		Dec-20	1.08	5.84%	17.12	0.06	91072.64	Partial
Apple Valley South	Meters	201901	2019	01	1/1/2019	1,486.09		Mar-20	1.16	5.84%	17.12	0.07	1385.04	Partial
Claremont	Meters	202110	2021	10	10/1/2021	26,589.16		Dec-22	1.17	5.84%	17.12	0.07	24776.84	Partial
San Dimas	Meters	202003	2020	03	3/1/2020	28,257.51		May-21	1.17	5.84%	17.12	0.07	26331.48	Partial
West Orange County	Meters	201910	2019	10	10/1/2019	28,598.59		Dec-20	1.17	5.84%	17.12	0.07	26644.73	Partial
Barstow	Meters	201912	2019	12	12/1/2019	30,750.19		Mar-21	1.25	5.84%	17.12	0.07	28506.66	Partial
West Orange County	Meters	201911	2019	11	11/1/2019	97,233.34		Mar-21	1.33	5.84%	17.12	0.08	89672.48	Partial
West Orange County	Meters	201911	2019	11	11/1/2019	97,233.34		Mar-21	1.33	5.84%	17.12	0.08	89672.48	Partial
Placentia	Meters	201911	2019	11	11/1/2019	38,153.89		Mar-21	1.33	5.84%	17.12	0.08	35187.04	Partial
Claremont	Services	201908	2019	08	8/1/2019	100,563.10		Dec-20	1.34	1.33%	75.19	0.02	98774.90	Partial
Placentia	Meters	201902	2019	02	2/1/2019	4,782.11		Jul-20	1.41	5.84%	17.12	0.08	4387.30	Partial
Claremont	Meters	201912	2019	12	12/1/2019	38,843.08		May-21	1.42	5.84%	17.12	0.08	35629.98	Partial
Apple Valley South	Meters	201810	2018	10	10/1/2018	860.38		Mar-20	1.42	5.84%	17.12	0.08	789.21	Partial
Cowan Heights	Meters	201810	2018	10	10/1/2018	4,416.65		Apr-20	1.50	5.84%	17.12	0.09	4029.40	Partial
Wrightwood	Services	201807	2018	07	7/1/2018	455,809.67		Mar-21	2.67	1.33%	75.19	0.04	439632.55	Partial
Wrightwood	Services	201807	2018	07	7/1/2018	455,809.67		Mar-21	2.67	1.33%	75.19	0.04	439632.55	Partial
San Dimas	Meters	201902	2019	02	2/1/2019	70,525.69		Sep-20	1.58	5.84%	17.12	0.09	64003.47	Partial
Wrightwood	Services	201406	2014	06	6/1/2014	477,650.87		Dec-20	6.51	1.33%	75.19	0.09	436314.44	Partial
South San Gabriel	Pumping Equipment	201808	2018	08	8/1/2018	21,993.97		Apr-20	1.67	3.31%	30.21	0.06	20779.31	Full Retirement
South San Gabriel	Pumping Equipment	201808	2018	08	8/1/2018	26,435.34		Apr-20	1.67	3.31%	30.21	0.06	24975.39	Full Retirement
South San Gabriel	Pumping Equipment	201808	2018	08	8/1/2018	20,333.67		Apr-20	1.67	3.31%	30.21	0.06	19210.70	Full Retirement
South San Gabriel	Meters	201904	2019	04	4/1/2019	76,995.42		Dec-20	1.67	5.84%	17.12	0.10	69480.67	Partial
Lucerne Valley	Services	202010	2020	10	10/1/2020	193,920.55		Jul-22	1.75	1.33%	75.19	0.02	189412.35	Partial
Claremont	Meters	201912	2019	12	12/1/2019	38,843.08		Sep-21	1.75	5.84%	17.12	0.10	34865.55	Partial
Wrightwood	Services	201510	2015	10	10/1/2015	449,480.65		Mar-21	5.42	1.33%	75.19	0.07	417084.30	Partial
San Dimas	Meters	201902	2019	02	2/1/2019	11,259.92		Dec-20	1.83	5.84%	17.12	0.11	10054.66	Partial
San Dimas	Services	201806	2018	06	6/1/2018	107,654.35		Apr-20	1.84	1.33%	75.19	0.02	105026.11	Partial
South San Gabriel	Meters	201904	2019	04	4/1/2019	26,301.86		Mar-21	1.92	5.84%	17.12	0.11	23356.05	Partial
South San Gabriel	Meters	201904	2019	04	4/1/2019	76,995.42		Mar-21	1.92	5.84%	17.12	0.11	68371.93	Partial
South San Gabriel	Meters	201904	2019	04	4/1/2019	76,995.42		Mar-21	1.92	5.84%	17.12	0.11	68371.93	Partial
South San Gabriel	Meters	201904	2019	04	4/1/2019	76,995.42		Mar-21	1.92	5.84%	17.12	0.11	68371.93	Partial
South San Gabriel	Meters	201904	2019	04	4/1/2019	76,995.42		Mar-21	1.92	5.84%	17.12	0.11	68371.93	Partial
Claremont	Meters	201808	2018	08	8/1/2018	11,081.58		Jul-20	1.92	5.84%	17.12	0.11	9840.44	Partial
Claremont	Meters	201808	2018	08	8/1/2018	18,081.75		Jul-20	1.92	5.84%	17.12	0.11	16056.59	Partial
Claremont	Meters	201905	2019	05	5/1/2019	4,137.43		Apr-21	1.92	5.84%	17.12	0.11	3673.38	Partial
West Orange County	Meters	201812	2018	12	12/1/2018	96,524.25		Nov-20	1.92	5.84%	17.12	0.11	85698.09	Partial
West Orange County	Meters	201812	2018	12	12/1/2018	96,524.25		Nov-20	1.92	5.84%	17.12	0.11	85698.09	Partial
South San Gabriel	Meters	201810	2018	10	10/1/2018	17,320.04		Sep-20	1.92	5.84%	17.12	0.11	15377.42	Partial
South San Gabriel	Meters	201810	2018	10	10/1/2018	17,320.04		Sep-20	1.92	5.84%	17.12	0.11	15377.42	Partial
South San Gabriel	Meters	201810	2018	10	10/1/2018	20,138.17		Sep-20	1.92	5.84%	17.12	0.11	17879.47	Partial
South San Gabriel	Meters	201810	2018	10	10/1/2018	20,138.17		Sep-20	1.92	5.84%	17.12	0.11	17879.47	Partial
South San Gabriel	Meters	201810	2018	10	10/1/2018	20,138.17		Sep-20	1.92	5.84%	17.12	0.11	17879.47	Partial
South San Gabriel	Meters	201810	2018	10	10/1/2018	2,934.41		Sep-20	1.92	5.84%	17.12	0.11	2605.29	Partial
Cowan Heights	Meters	202007	2020	07	7/1/2020	104.37		Jul-22	2.00	5.84%	17.12	0.12	92.18	Full Retirement
San Dimas	Meters	201905	2019	05	5/1/2019	2,484.88		May-21	2.00	5.84%	17.12	0.12	2194.25	Partial
San Dimas	Meters	201905	2019	05	5/1/2019	6,773.83		May-21	2.00	5.84%	17.12	0.12	5981.56	Partial
Claremont	Meters	201905	2019	05	5/1/2019	13,862.14		May-21	2.00	5.84%	17.12	0.12	12240.82	Partial
Claremont	Meters	201905	2019	05	5/1/2019	18,271.73		May-21	2.00	5.84%	17.12	0.12	16134.67	Partial
Claremont	Meters	201808	2018	08	8/1/2018	12,726.25		Aug-20	2.00	5.84%	17.12	0.12	11237.79	Partial
Claremont	Meters	201808	2018	08	8/1/2018	49,104.33		Aug-20	2.00	5.84%	17.12	0.12	43361.09	Partial
San Dimas	Meters	201902	2019	02	2/1/2019	9,210.38		Mar-21	2.08	5.84%	17.12	0.12	8091.87	Partial
West Orange County	Meters	202004	2020	04	4/1/2020	69,390.98		May-22	2.08	5.84%	17.12	0.12	60953.04	Partial
West Orange County	Meters	202004	2020	04	4/1/2020	69,390.98		May-22	2.08	5.84%	17.12	0.12	60953.04	Partial
South Arcadia	Meters	202004	2020	04	4/1/2020	7,910.20		May-22	2.08	5.84%	17.12	0.12	6948.32	Partial
West Orange County	Meters	201811	2018	11	11/1/2018	52,099.66		Dec-20	2.08	5.84%	17.12	0.12	45756.01	Partial
Claremont	Meters	201808	2018	08	8/1/2018	18,261.45		Sep-20	2.09	5.84%	17.12	0.12	16035.01	Partial
West Orange County	Meters	202010	2020	10	10/1/2020	607.68		Dec-22	2.17	5.84%	17.12	0.13	530.77	Partial
Wrightwood	Meters	201411	2014	11	11/1/2014	102,800.27		Mar-21	6.33	5.84%	17.12	0.37	64772.39	Partial
Apple Valley South	Meters	202005	2020	05	5/1/2020	2,336.63		Jul-22	2.17	5.84%	17.12	0.13	2040.91	Partial
West Orange County	Meters	202003	2020	03	3/1/2020	3,601.07		May-22	2.17	5.84%	17.12	0.13	3145.32	Partial
West Orange County	Meters	202003	2020	03	3/1/2020	3,601.07		May-22	2.17	5.84%	17.12	0.13	3145.32	Partial
Claremont	Meters	201905	2019	05	5/1/2019	29,695.26		Jul-21	2.17	5.84%	17.12	0.13	25932.28	Partial
West Orange County	Meters	201810	2018	10	10/1/2018	37,044.46		Dec-20	2.17	5.84%	17.12	0.13	32350.19	Partial
South San Gabriel	Meters	202002	2020	02	2/1/2020	1,893.82		May-22	2.25	5.84%	17.12	0.13	1645.35	Partial
San Dimas	Meters	201902	2019	02	2/1/2019	9,210.38		May-21	2.25	5.84%	17.12	0.13	8001.98	Partial
San Dimas	Meters	201902	2019	02	2/1/2019	9,210.38		May-21	2.25	5.84%	17.12	0.13	8001.98	Partial
San Dimas	Meters	201902	2019	02	2/1/2019	71,641.68		May-21	2.25	5.84%	17.12	0.13	62242.29	Partial
West Orange County	Meters	202004	2020	04	4/1/2020	131,242.86		Jul-22	2.25	5.84%	17.12	0.13	114002.80	Partial
South Arcadia	Meters	202004	2020	04	4/1/2020	11,583.85		Jul-22	2.25	5.84%	17.12	0.13	10062.20	Partial
West Orange County	Meters	201812	2018	12	12/1/2018	96,524.25		Mar-21	2.25	5.84%	17.12	0.13	83844.82	Partial
Cowan Heights	Meters	201712	2017	12	12/1/2017	2,442.74		Mar-20	2.25	5.84%	17.12	0.13	2121.86	Partial
Claremont	Meters	202003	2020	03	3/1/2020	52,868.01		Jun-22	2.25	5.84%	17.12	0.13	45914.81	Partial
Claremont	Meters	202003	2020	03	3/1/2020	1,737.91		Jun-22	2.25	5.84%	17.12	0.13	1509.34	Partial
San Dimas	Meters	202003	2020	03	3/1/2020	473.59		Jun-22	2.25	5.84%	17.12	0.13	411.30	Partial
Placentia	Meters	202003	2020	03	3/1/2020	16,509.11		Jun-22	2.25	5.84%	17.12	0.13	14337.83	Partial
Calipatria-Niland	Meters	201809	2018	09	9/1/2018	85.07		Dec-20	2.25	5.84%	17.12	0.13	73.88	Full Retirement
San Dimas	Pumping Equipment	201805	2018	05	5/1/2018	12,198.71		Aug-20	2.25	3.31%	30.21	0.07	11288.28	Full Retirement
South San Gabriel	Meters	202002	2020	02	2/1/2020	1,893.82		Jun-22	2.33	5.84%	17.12	0.14	1635.96	Partial
Calipatria-Niland	Meters	202002	2020	02	2/1/2020	925.06		Jun-22	2.33	5.84%	17.12	0.14	799.10	Partial
South San Gabriel	Meters	202002	2020	02	2/1/2020	9,927.39		Jun-22	2.33	5.84%	17.12	0.14	8575.68	Partial
San Dimas	Pumping Equipment	201901	2019	01	1/1/2019	11,207.05		May-21	2.33	3.31%	30.21	0.08	10342.17	Full Retirement
Wrightwood	Meters	201411	2014	11	11/1/2014	102,800.27		Mar-21	6.33	5.84%	17.12	0.37	64772.39	Partial
Wrightwood	Meters	201411	2014	11	11/1/2014	102,800.27		Jun-22	7.59	5.84%	17.12	0.44	57255.64	Partial
Apple Valley South	Meters	201711	2017	11	11/1/2017	17,774.22		Mar-20	2.33	5.84%	17.12	0.14	15354.08	Partial
Claremont	Meters	202003	2020	03	3/1/2020	19,665.98		Jul-22	2.33	5.84%	17.12	0.14	16985.11	Partial
San Dimas	Meters	202003	2020	03	3/1/2020	28,257.51		Jul-22	2.33	5.84%	17.12	0.14	24405.45	Partial
San Dimas	Meters	202003	2020	03	3/1/2020	38,843.74		Jul-22	2.33	5.84%	17.12	0.14	33548.56	Partial
Cowan Heights	Meters	202003	2020	03	3/1/2020	6,953.41		Jul-22	2.33	5.84%	17.12	0.14	6005.52	Partial
Placentia	Meters	202003	2020	03	3/1/2020	56,903.36		Jul-22	2.33	5.84%	17.12	0.14	49146.29	Partial
Morongo Del Sur	Meters	202008	2020	08	8/1/2020	3,034.83		Dec-22	2.33	5.84%	17.12	0.14	2621.12	Partial
West Orange County	Meters	201808	2018	08	8/1/2018	32,089.25		Dec-20	2.34	5.84%	17.12	0.14	27709.71	Partial
San Dimas	Meters	201808	2018	08	8/1/2018	79,022.07		Dec-20	2.34	5.84%	17.12	0.14	68237.14	Partial
San Dimas	Meters	201808	2018	08	8/1/2018	11,677.29		Dec-20	2.34	5.84%	17.12	0.14	10083.57	Partial
San Dimas	Meters	201808	2018	08	8/1/2018	56,156.00		Dec-20	2.34	5.84%	17.12	0.14	48491.83	Partial
Claremont	Meters	201905	2019	05	5/1/2019	13,862.14		Sep-21	2.34	5.84%	17.12	0.14	11968.02	Partial
South San Gabriel	Meters	202002	2020	02	2/1/2020	1,893.82		Jul-22	2.41	5.84%	17.12	0.14	1626.87	Partial
South San Gabriel	Meters	201810	2018	10	10/1/2018	17,320.04		Mar-21	2.42	5.84%	17.12	0.14	14875.84	Partial
South San Gabriel	Meters	201810	2018	10	10/1/2018	20,138.17		Mar-21	2.42	5.84%	17.12	0.14	17296.27	Partial
Claremont	Pumping Equipment	201711	2017	11	11/1/2017	1,181.25		Apr-20	2.42	3.31%	30.21	0.08	1086.77	Full Retirement
Claremont	Meters	202003	2020	03	3/1/2020	19,665.98		Aug-22	2.42	5.84%	17.12	0.14	16887.57	Partial
San Dimas	Meters	202003	2020	03	3/1/2020	30,443.04		Aug-22	2.42	5.84%	17.12	0.14	26142.05	Partial
Barstow	Meters	201806	2018	06	6/1/2018	21,406.05		Nov-20	2.42	5.84%	17.12	0.14	18378.38	Partial
Claremont	Meters	201806	2018	06	6/1/2018	2,300.15		Nov-20	2.42	5.84%	17.12	0.14	1974.82	Partial
Barstow	Meters	201806	2018	06	6/1/2018	2,348.77		Nov-20	2.42	5.84%	17.12	0.14	2016.56	Partial
Barstow	Meters	201806	2018	06	6/1/2018	54,410.24		Nov-20	2.42	5.84%	17.12	0.14	46714.46	Partial
West Orange County	Meters	201911	2019	11	11/1/2019	97,233.34		May-22	2.50	5.84%	17.12	0.15	83045.05	Partial
Claremont	Meters	201912	2019	12	12/1/2019	38,843.08		Jun-22	2.50	5.84%	17.12	0.15	33168.88	Partial
Placentia	Meters	201911	2019	11	11/1/2019	38,153.89		Jun-22	2.58	5.84%	17.12	0.15	32397.23	Partial
Placentia	Meters	201911	2019	11	11/1/2019	72,388.84		Jul-22	2.67	5.84%	17.12	0.16	61119.35	Partial
Placentia	Meters	201911	2019	11	11/1/2019	72,388.84		Jul-22	2.67	5.84%	17.12	0.16	61119.35	Partial
Cowan Heights	Meters	201911	2019	11	11/1/2019	29,521.40		Jul-22	2.67	5.84%	17.12	0.16	24925.51	Partial
Cowan Heights	Meters	201911	2019	11	11/1/2019	4,697.39		Jul-22	2.67	5.84%	17.12	0.16	3966.10	Partial
Wrightwood	Meters	201411	2014	11	11/1/2014	102,800.27		Dec-22	8.09	5.84%	17.12	0.47	54245.65	Partial
Wrightwood	Meters	201602	2016	02	2/1/2016	59,419.33		Mar-21	5.08	5.84%	17.12	0.30	41783.67	Partial
Wrightwood	Meters	201602	2016	02	2/1/2016	59,419.33		Mar-21	5.08	5.84%	17.12	0.30	41783.67	Partial
Wrightwood	Meters	201602	2016	02	2/1/2016	59,419.33		Mar-21	5.08	5.84%	17.12	0.30	41783.67	Partial
San Dimas	Services	201708	2017	08	8/1/2017	72,733.08		Apr-20	2.67	1.33%	75.19	0.04	70151.71	Partial
Claremont	Meters	202003	2020	03	3/1/2020	52,868.01		Nov-22	2.67	5.84%	17.12	0.16	44620.60	Partial
Barstow	Meters	201806	2018	06	6/1/2018	3,680.69		Feb-21	2.67	5.84%	17.12	0.16	3105.91	Partial
Barstow	Meters	201806	2018	06	6/1/2018	3,680.69		Feb-21	2.67	5.84%	17.12	0.16	3105.91	Partial
Barstow	Meters	201806	2018	06	6/1/2018	54,410.24		Feb-21	2.67	5.84%	17.12	0.16	45913.54	Partial
Barstow	Meters	201806	2018	06	6/1/2018	21,406.05		Mar-21	2.75	5.84%	17.12	0.16	17967.38	Partial
Barstow	Meters	201806	2018	06	6/1/2018	21,406.05		Mar-21	2.75	5.84%	17.12	0.16	17967.38	Partial
Claremont	Meters	201808	2018	08	8/1/2018	49,104.33		May-21	2.75	5.84%	17.12	0.16	41216.21	Partial
South San Gabriel	Meters	201806	2018	06	6/1/2018	247.43		Mar-21	2.75	5.84%	17.12	0.16	207.68	Partial
Claremont	Meters	201808	2018	08	8/1/2018	18,081.75		May-21	2.75	5.84%	17.12	0.16	15177.10	Partial
San Dimas	Meters	201808	2018	08	8/1/2018	79,022.07		May-21	2.75	5.84%	17.12	0.16	66327.96	Partial
San Dimas	Meters	201808	2018	08	8/1/2018	56,156.00		May-21	2.75	5.84%	17.12	0.16	47135.10	Partial
San Dimas	Meters	201808	2018	08	8/1/2018	56,156.00		May-21	2.75	5.84%	17.12	0.16	47135.10	Partial
Claremont	Meters	201802	2018	02	2/1/2018	3,102.53		Nov-20	2.75	5.84%	17.12	0.16	2604.14	Full Retirement
Claremont	Meters	202003	2020	03	3/1/2020	19,665.98		Dec-22	2.75	5.84%	17.12	0.16	16503.69	Partial
South San Gabriel	Pumping Equipment	201709	2017	09	9/1/2017	3,723.93		Jul-20	2.83	3.31%	30.21	0.09	3374.74	Full Retirement
South San Gabriel	Pumping Equipment	201709	2017	09	9/1/2017	3,723.93		Jul-20	2.83	3.31%	30.21	0.09	3374.74	Full Retirement
South San Gabriel	Pumping Equipment	201709	2017	09	9/1/2017	3,723.93		Jul-20	2.83	3.31%	30.21	0.09	3374.74	Full Retirement
South San Gabriel	Pumping Equipment	201709	2017	09	9/1/2017	3,723.93		Jul-20	2.83	3.31%	30.21	0.09	3374.74	Full Retirement
Wrightwood	Meters	201602	2016	02	2/1/2016	59,419.33		Jun-22	6.33	5.84%	17.12	0.37	37438.93	Partial
Calipatria-Niland	Meters	201908	2019	08	8/1/2019	5,083.99		Jun-22	2.84	5.84%	17.12	0.17	4242.08	Partial
Calipatria-Niland	Meters	201908	2019	08	8/1/2019	5,083.99		Jun-22	2.84	5.84%	17.12	0.17	4242.08	Partial
Calipatria-Niland		201906	2019	06	6/1/2019	6,356.32		Apr-22	2.84	3.31%	30.21	0.09	5759.72	Full Retirement
San Dimas	Services	201806	2018	06	6/1/2018	107,654.35		Apr-21	2.84	1.33%	75.19	0.04	103594.31	Partial
Claremont	Meters	201711	2017	11	11/1/2017	40,519.98		Sep-20	2.84	5.84%	17.12	0.17	33809.87	Partial
South San Gabriel	Meters	201711	2017	11	11/1/2017	20,771.85		Sep-20	2.84	5.84%	17.12	0.17	17332.03	Partial
South San Gabriel	Meters	201711	2017	11	11/1/2017	17,435.63		Sep-20	2.84	5.84%	17.12	0.17	14548.29	Partial
South San Gabriel	Meters	201711	2017	11	11/1/2017	17,435.63		Sep-20	2.84	5.84%	17.12	0.17	14548.29	Partial
Claremont	Pumping Equipment	201911	2019	11	11/1/2019	18,222.00		Oct-22	2.92	3.31%	30.21	0.10	16462.13	Partial
South Arcadia	Pumping Equipment	201811	2018	11	11/1/2018	4,143.11		Oct-21	2.92	3.31%	30.21	0.10	3742.97	Full Retirement
Claremont	Meters	201912	2019	12	12/1/2019	38,843.08		Nov-22	2.92	5.84%	17.12	0.17	32218.00	Partial
West Orange County	Meters	201712	2017	12	12/1/2017	145,831.37		Nov-20	2.92	5.84%	17.12	0.17	120958.37	Partial
West Orange County	Meters	201712	2017	12	12/1/2017	145,831.37		Nov-20	2.92	5.84%	17.12	0.17	120958.37	Partial
West Orange County	Meters	201712	2017	12	12/1/2017	145,831.37		Nov-20	2.92	5.84%	17.12	0.17	120958.37	Partial
West Orange County	Meters	201712	2017	12	12/1/2017	27,595.99		Dec-20	3.00	5.84%	17.12	0.18	22756.76	Partial
Claremont	Meters	201711	2017	11	11/1/2017	9,610.46		Nov-20	3.00	5.84%	17.12	0.18	7925.17	Partial
Claremont	Meters	201711	2017	11	11/1/2017	6,577.57		Nov-20	3.00	5.84%	17.12	0.18	5424.13	Partial
Placentia	Pumping Equipment	201911	2019	11	11/1/2019	20,508.40		Dec-22	3.08	3.31%	30.21	0.10	18414.26	Full Retirement
Placentia	Meters	201911	2019	11	11/1/2019	38,153.89		Dec-22	3.08	5.84%	17.12	0.18	31280.09	Partial
San Dimas	Meters	201905	2019	05	5/1/2019	4,594.79		Jun-22	3.09	5.84%	17.12	0.18	3766.26	Partial

Claremont	Meters	201905	2019	05	5/1/2019	29,695.26	Jun-22	3.09	5.84%	17.12	0.18	24340.61	Partial
Claremont	Meters	201905	2019	05	5/1/2019	13,862.14	Jun-22	3.09	5.84%	17.12	0.18	11362.52	Partial
Barstow	Pumping Equipment	201907	2019	07	7/1/2019	15,090.37	Aug-22	3.09	3.31%	30.21	0.10	13548.11	Full Retirement
Claremont	Meters	201905	2019	05	5/1/2019	13,862.14	Jul-22	3.17	5.84%	17.12	0.19	11295.98	Partial
South San Gabriel	Meters	201904	2019	04	4/1/2019	76,995.42	Jun-22	3.17	5.84%	17.12	0.19	62742.03	Partial
Morongo Del Sur	Services	201905	2019	05	5/1/2019	35,872.21	Jul-22	3.17	1.33%	75.19	0.04	34359.87	Partial
Apple Valley South	Pumping Equipment	201705	2017	05	5/1/2017	1,613.58	Jul-20	3.17	3.31%	30.21	0.10	1444.28	Full Retirement
Apple Valley South	Pumping Equipment	201705	2017	05	5/1/2017	1,613.62	Jul-20	3.17	3.31%	30.21	0.10	1444.32	Full Retirement
Barstow	Meters	201709	2017	09	9/1/2017	785.91	Nov-20	3.17	5.84%	17.12	0.19	640.42	Partial
Barstow	Meters	201712	2017	12	12/1/2017	14,724.30	Feb-21	3.17	5.84%	17.12	0.19	11996.18	Partial
Barstow	Meters	201712	2017	12	12/1/2017	49,940.11	Feb-21	3.17	5.84%	17.12	0.19	40687.21	Partial
West Orange County	Meters	201712	2017	12	12/1/2017	27,595.99	Mar-21	3.25	5.84%	17.12	0.19	22359.37	Partial
West Orange County	Meters	201712	2017	12	12/1/2017	145,831.37	Mar-21	3.25	5.84%	17.12	0.19	118158.41	Partial
South San Gabriel	Meters	201904	2019	04	4/1/2019	76,995.42	Jul-22	3.25	5.84%	17.12	0.19	62372.45	Partial
Calipatria-Niland	Meters	201709	2017	09	9/1/2017	1,891.81	Dec-20	3.25	5.84%	17.12	0.19	1532.52	Partial
Apple Valley South	Meters	201711	2017	11	11/1/2017	17,774.22	Feb-21	3.25	5.84%	17.12	0.19	14395.70	Partial
South San Gabriel	Meters	201711	2017	11	11/1/2017	3,771.02	Mar-21	3.33	5.84%	17.12	0.19	3037.33	Partial
South San Gabriel	Meters	201711	2017	11	11/1/2017	17,435.63	Mar-21	3.33	5.84%	17.12	0.19	14043.35	Partial
San Dimas	Pumping Equipment	201612	2016	12	12/1/2016	18,302.85	Apr-20	3.33	3.31%	30.21	0.11	16282.88	Full Retirement
Wrightwood	Meters	201602	2016	02	2/1/2016	59,419.33	Dec-22	6.84	5.84%	17.12	0.40	35699.13	Partial
West Orange County	Meters	201812	2018	12	12/1/2018	96,524.25	May-22	3.42	5.84%	17.12	0.20	77265.73	Partial
West Orange County	Meters	201812	2018	12	12/1/2018	96,524.25	May-22	3.42	5.84%	17.12	0.20	77265.73	Partial
San Dimas	Meters	201707	2017	07	7/1/2017	72,402.26	Dec-20	3.42	5.84%	17.12	0.20	57933.39	Partial
Barstow	Meters	201709	2017	09	9/1/2017	785.91	Feb-21	3.42	5.84%	17.12	0.20	628.85	Partial
San Dimas	Meters	201707	2017	07	7/1/2017	36,792.63	Dec-20	3.42	5.84%	17.12	0.20	29439.99	Partial
West Orange County	Meters	201709	2017	09	9/1/2017	22,689.70	Mar-21	3.50	5.84%	17.12	0.20	18053.74	Partial
West Orange County	Meters	201709	2017	09	9/1/2017	22,689.70	Mar-21	3.50	5.84%	17.12	0.20	18053.74	Partial
Claremont	Meters	201711	2017	11	11/1/2017	22,231.58	May-21	3.50	5.84%	17.12	0.20	17689.22	Partial
Claremont	Meters	201905	2019	05	5/1/2019	29,695.26	Nov-22	3.51	5.84%	17.12	0.20	23613.67	Partial
Claremont	Meters	201905	2019	05	5/1/2019	18,271.73	Nov-22	3.51	5.84%	17.12	0.20	14529.68	Partial
West Orange County	Meters	201810	2018	10	10/1/2018	3,314.53	May-22	3.58	5.84%	17.12	0.21	2620.87	Partial
Placentia	Meters	201704	2017	04	4/1/2017	25,323.95	Nov-20	3.59	5.84%	17.12	0.21	20016.05	Partial
Barstow	Meters	201704	2017	04	4/1/2017	7,863.60	Nov-20	3.59	5.84%	17.12	0.21	6215.39	Partial
Apple Valley North	Services	201811	2018	11	11/1/2018	112,570.49	Jul-22	3.67	1.33%	75.19	0.05	107082.17	Partial
Claremont	Meters	201711	2017	11	11/1/2017	40,519.98	Jul-21	3.67	5.84%	17.12	0.21	31845.46	Partial
Claremont	Meters	201611	2016	11	11/1/2016	6,208.91	Jul-20	3.67	5.84%	17.12	0.21	4879.71	Partial
Claremont	Meters	201611	2016	11	11/1/2016	6,161.72	Jul-20	3.67	5.84%	17.12	0.21	4842.62	Partial
South San Gabriel	Meters	201810	2018	10	10/1/2018	17,320.04	Jun-22	3.67	5.84%	17.12	0.21	13609.39	Partial
South San Gabriel	Meters	201810	2018	10	10/1/2018	20,138.17	Jun-22	3.67	5.84%	17.12	0.21	15823.77	Partial
Cowan Heights	Meters	201810	2018	10	10/1/2018	42,617.06	Jul-22	3.75	5.84%	17.12	0.22	33282.22	Partial
South San Gabriel	Meters	201810	2018	10	10/1/2018	20,138.17	Jul-22	3.75	5.84%	17.12	0.22	15727.11	Partial
Placentia	Pumping Equipment	201803	2018	03	3/1/2018	18,574.71	Dec-21	3.76	3.31%	30.21	0.12	16265.33	Full Retirement
Claremont	Meters	201808	2018	08	8/1/2018	11,081.58	Jun-22	3.84	5.84%	17.12	0.22	8599.31	Partial
San Dimas	Meters	201707	2017	07	7/1/2017	72,402.26	May-21	3.84	5.84%	17.12	0.22	56184.15	Partial
San Dimas	Meters	201707	2017	07	7/1/2017	22,893.70	May-21	3.84	5.84%	17.12	0.22	17765.51	Partial
San Dimas	Meters	201707	2017	07	7/1/2017	61,959.23	May-21	3.84	5.84%	17.12	0.22	48080.36	Partial
Claremont	Meters	201611	2016	11	11/1/2016	49,729.94	Sep-20	3.84	5.84%	17.12	0.22	38590.43	Partial
San Dimas	Meters	201611	2016	11	11/1/2016	30,315.21	Sep-20	3.84	5.84%	17.12	0.22	23524.60	Partial
Claremont	Meters	201808	2018	08	8/1/2018	18,081.75	Jul-22	3.92	5.84%	17.12	0.23	13944.65	Partial
San Dimas	Meters	201808	2018	08	8/1/2018	79,022.07	Jul-22	3.92	5.84%	17.12	0.23	60941.82	Partial
Barstow	Meters	201704	2017	04	4/1/2017	7,863.60	Mar-21	3.92	5.84%	17.12	0.23	6064.41	Partial
Barstow	Meters	201704	2017	04	4/1/2017	7,863.60	Mar-21	3.92	5.84%	17.12	0.23	6064.41	Partial
San Dimas	Meters	201612	2016	12	12/1/2016	10,214.61	Dec-20	4.00	5.84%	17.12	0.23	7826.84	Partial
Barstow	Meters	201611	2016	11	11/1/2016	14,886.08	Nov-20	4.00	5.84%	17.12	0.23	11406.31	Partial
Cowan Heights	Pumping Equipment	201802	2018	02	2/1/2018	956.11	Mar-22	4.08	3.31%	30.21	0.14	827.01	Full Retirement
Apple Valley South	Services	201806	2018	06	6/1/2018	87,592.96	Jul-22	4.08	1.33%	75.19	0.05	82834.07	Partial
South San Gabriel	Meters	201806	2018	06	6/1/2018	247.43	Jul-22	4.08	5.84%	17.12	0.24	188.40	Partial
Yorba Linda	Pumping Equipment	201711	2017	11	11/1/2017	746.81	Dec-21	4.08	3.31%	30.21	0.14	645.83	Full Retirement
Placentia	Pumping Equipment	201711	2017	11	11/1/2017	746.81	Dec-21	4.08	3.31%	30.21	0.14	645.83	Full Retirement
San Dimas	Meters	201611	2016	11	11/1/2016	97,146.31	Dec-20	4.08	5.84%	17.12	0.24	73971.09	Partial
San Dimas	Meters	201611	2016	11	11/1/2016	17,737.41	Dec-20	4.08	5.84%	17.12	0.24	13505.97	Partial
San Dimas	Meters	201611	2016	11	11/1/2016	18,297.54	Dec-20	4.08	5.84%	17.12	0.24	13932.48	Partial
South Arcadia	Services	201808	2018	08	8/1/2018	266,069.49	Sep-22	4.09	1.33%	75.19	0.05	251604.35	Partial
Cowan Heights	Meters	201810	2018	10	10/1/2018	42,617.06	Nov-22	4.09	5.84%	17.12	0.24	32443.52	Partial
Cowan Heights	Meters	201810	2018	10	10/1/2018	42,617.06	Nov-22	4.09	5.84%	17.12	0.24	32443.52	Partial
South San Gabriel	Meters	201608	2016	08	8/1/2016	11,614.92	Sep-20	4.09	5.84%	17.12	0.24	8842.21	Partial
South San Gabriel	Meters	201608	2016	08	8/1/2016	18,626.94	Sep-20	4.09	5.84%	17.12	0.24	14180.32	Partial
Yorba Linda	Meters	201610	2016	10	10/1/2016	1,177.58	Nov-20	4.09	5.84%	17.12	0.24	896.47	Partial
West Orange County	Meters	201810	2018	10	10/1/2018	14,482.62	Dec-22	4.17	5.84%	17.12	0.24	10955.81	Partial
West Orange County	Meters	201703	2017	03	3/1/2017	10,857.34	May-21	4.17	5.84%	17.12	0.24	8213.36	Partial
Claremont	Services	201606	2016	06	6/1/2016	300,840.74	Aug-20	4.17	1.33%	75.19	0.06	284156.36	Partial
Yorba Linda	Meters	201804	2018	04	4/1/2018	1,718.25	Jul-22	4.25	5.84%	17.12	0.25	1291.57	Partial
Claremont	Meters	201808	2018	08	8/1/2018	49,104.33	Nov-22	4.25	5.84%	17.12	0.25	36902.89	Partial
South San Gabriel	Pumping Equipment	201807	2018	07	7/1/2018	24,923.38	Oct-22	4.25	3.31%	30.21	0.14	21413.33	Full Retirement
Apple Valley South	Meters	201611	2016	11	11/1/2016	4,513.82	Feb-21	4.25	5.84%	17.12	0.25	3392.23	Partial
West Orange County	Meters	201611	2016	11	11/1/2016	30,660.65	Mar-21	4.33	5.84%	17.12	0.25	22904.73	Partial
Barstow	Meters	201611	2016	11	11/1/2016	14,886.08	Mar-21	4.33	5.84%	17.12	0.25	11120.50	Partial
Barstow	Meters	201611	2016	11	11/1/2016	14,886.08	Mar-21	4.33	5.84%	17.12	0.25	11120.50	Partial
West Orange County	Meters	201712	2017	12	12/1/2017	27,595.99	May-22	4.42	5.84%	17.12	0.26	20478.43	Partial
West Orange County	Meters	201712	2017	12	12/1/2017	145,831.37	May-22	4.42	5.84%	17.12	0.26	108218.54	Partial
Claremont	Pumping Equipment	201807	2018	07	7/1/2018	1,269.87	Dec-22	4.42	3.31%	30.21	0.15	1084.00	Full Retirement
Claremont	Pumping Equipment	201807	2018	07	7/1/2018	11,458.27	Dec-22	4.42	3.31%	30.21	0.15	9781.17	Full Retirement
Claremont	Pumping Equipment	201807	2018	07	7/1/2018	13,071.67	Dec-22	4.42	3.31%	30.21	0.15	11158.43	Full Retirement
Claremont	Pumping Equipment	201807	2018	07	7/1/2018	3,952.90	Dec-22	4.42	3.31%	30.21	0.15	3374.33	Full Retirement
West Orange County	Meters	201606	2016	06	6/1/2016	4,072.66	Nov-20	4.42	5.84%	17.12	0.26	3020.94	Partial
West Orange County	Meters	201606	2016	06	6/1/2016	4,072.66	Nov-20	4.42	5.84%	17.12	0.26	3020.94	Partial
Claremont	Meters	201611	2016	11	11/1/2016	6,161.72	May-21	4.50	5.84%	17.12	0.26	4542.91	Partial
San Dimas	Meters	201611	2016	11	11/1/2016	18,297.54	May-21	4.50	5.84%	17.12	0.26	13490.41	Partial
San Dimas	Meters	201611	2016	11	11/1/2016	30,315.21	May-21	4.50	5.84%	17.12	0.26	22350.80	Partial
Barstow	Meters	201806	2018	06	6/1/2018	54,410.24	Dec-22	4.50	5.84%	17.12	0.26	40098.17	Partial
Yorba Linda	Meters	201712	2017	12	12/1/2017	2,022.98	Jul-22	4.58	5.84%	17.12	0.27	1481.47	Partial
Calipatria-Niland	Services	201711	2017	11	11/1/2017	21,779.93	Jun-22	4.58	1.33%	75.19	0.06	20452.20	Partial
Claremont	Meters	201711	2017	11	11/1/2017	22,231.58	Jun-22	4.58	5.84%	17.12	0.27	16280.63	Partial
South San Gabriel	Meters	201608	2016	08	8/1/2016	18,626.94	Mar-21	4.58	5.84%	17.12	0.27	13640.88	Partial
Claremont	Pumping Equipment	201804	2018	04	4/1/2018	9,796.61	Nov-22	4.59	3.31%	30.21	0.15	8308.53	Full Retirement
Wrightwood	Meters	201511	2015	11	11/1/2015	26,833.56	Mar-21	5.33	5.84%	17.12	0.31	18474.37	Partial
Claremont	Meters	201711	2017	11	11/1/2017	5,811.05	Jul-22	4.67	5.84%	17.12	0.27	4227.66	Full Retirement
Placentia	Meters	201711	2017	11	11/1/2017	3,685.26	Jul-22	4.67	5.84%	17.12	0.27	2681.10	Full Retirement
Apple Valley South	Meters	201711	2017	11	11/1/2017	17,774.22	Jul-22	4.67	5.84%	17.12	0.27	12931.10	Partial
San Dimas	Pumping Equipment	201804	2018	04	4/1/2018	4,156.98	Dec-22	4.67	3.31%	30.21	0.15	3514.24	Full Retirement
Claremont	Meters	201709	2017	09	9/1/2017	7,484.67	Jun-22	4.75	5.84%	17.12	0.28	5408.12	Full Retirement
Calipatria-Niland	Meters	201709	2017	09	9/1/2017	1,891.81	Jun-22	4.75	5.84%	17.12	0.28	1366.95	Partial
Cowan Heights	Meters	201605	2016	05	5/1/2016	2,410.98	Feb-21	4.76	5.84%	17.12	0.28	1740.92	Partial
Claremont	Meters	201611	2016	11	11/1/2016	12,254.78	Sep-21	4.84	5.84%	17.12	0.28	8794.03	Partial
Barstow	Services	201503	2015	03	3/1/2015	257,829.69	Jan-20	4.84	1.33%	75.19	0.06	241228.92	Partial
Barstow	Meters	201604	2016	04	4/1/2016	9,294.66	Mar-21	4.92	5.84%	17.12	0.29	6625.23	Partial
Barstow	Meters	201604	2016	04	4/1/2016	9,294.66	Mar-21	4.92	5.84%	17.12	0.29	6625.23	Partial
San Dimas	Meters	201707	2017	07	7/1/2017	22,893.70	Jun-22	4.92	5.84%	17.12	0.29	16314.97	Partial
Claremont	Meters	201508	2015	08	8/1/2015	16,758.45	Jul-20	4.92	5.84%	17.12	0.29	11942.74	Partial
Claremont	Meters	201508	2015	08	8/1/2015	20,802.10	Jul-20	4.92	5.84%	17.12	0.29	14824.41	Partial
Placentia	Pumping Equipment	201509	2015	09	9/1/2015	21,022.24	Aug-20	4.92	3.31%	30.21	0.16	17598.34	Full Retirement
Placentia	Pumping Equipment	201509	2015	09	9/1/2015	10,051.11	Aug-20	4.92	3.31%	30.21	0.16	8414.08	Full Retirement
South Arcadia	Pumping Equipment	201510	2015	10	10/1/2015	9,376.65	Sep-20	4.92	3.31%	30.21	0.16	7848.62	Full Retirement
Claremont	Meters	201711	2017	11	11/1/2017	40,519.98	Nov-22	5.00	5.84%	17.12	0.29	28681.66	Partial
Yorba Linda	Pumping Equipment	201612	2016	12	12/1/2016	4,568.05	Dec-21	5.00	3.31%	30.21	0.17	3811.62	Full Retirement
San Dimas	Meters	201512	2015	12	12/1/2015	1,723.06	Dec-20	5.01	5.84%	17.12	0.29	1219.38	Partial
Claremont	Meters	201508	2015	08	8/1/2015	3,489.16	Aug-20	5.01	5.84%	17.12	0.29	2469.21	Partial
Placentia	Pumping Equipment	201508	2015	08	8/1/2015	6,413.58	Aug-20	5.01	3.31%	30.21	0.17	5350.97	Full Retirement
Wrightwood	Meters	201511	2015	11	11/1/2015	26,833.56	Mar-21	5.33	5.84%	17.12	0.31	18474.37	Partial
Wrightwood	Meters	201511	2015	11	11/1/2015	26,833.56	Jun-22	6.59	5.84%	17.12	0.38	16512.30	Partial
Wrightwood	Meters	201511	2015	11	11/1/2015	26,833.56	Dec-22	7.09	5.84%	17.12	0.41	15726.61	Partial
Wrightwood	Meters	201602	2016	02	2/1/2016	18,080.52	Mar-21	5.08	5.84%	17.12	0.30	12714.22	Partial
Claremont	Meters	201711	2017	11	11/1/2017	6,577.57	Dec-22	5.08	5.84%	17.12	0.30	4624.29	Partial
Claremont	Meters	201508	2015	08	8/1/2015	83,741.74	Sep-20	5.09	5.84%	17.12	0.30	58847.00	Partial
Placentia	Meters	201704	2017	04	4/1/2017	22,387.94	Jun-22	5.17	5.84%	17.12	0.30	15628.57	Partial
Wrightwood	Meters	201602	2016	02	2/1/2016	18,080.52	Jun-22	6.33	5.84%	17.12	0.37	11392.17	Partial
Wrightwood	Meters	201602	2016	02	2/1/2016	13,360.71	Nov-22	6.75	5.84%	17.12	0.39	8091.25	Partial
Claremont	Pumping Equipment	201709	2017	09	9/1/2017	7,356.36	Dec-22	5.25	3.31%	30.21	0.17	6077.51	Full Retirement
Claremont	Pumping Equipment	201709	2017	09	9/1/2017	5,789.95	Dec-22	5.25	3.31%	30.21	0.17	4783.41	Full Retirement
Claremont	Pumping Equipment	201709	2017	09	9/1/2017	9,694.62	Dec-22	5.25	3.31%	30.21	0.17	8009.28	Full Retirement
Claremont	Pumping Equipment	201709	2017	09	9/1/2017	6,316.20	Dec-22	5.25	3.31%	30.21	0.17	5218.17	Full Retirement
Barstow	Meters	201508	2015	08	8/1/2015	39,794.03	Nov-20	5.26	5.84%	17.12	0.31	27575.67	Partial
Wrightwood	Services	201807	2018	07	7/1/2018	5,520.51	Mar-21	2.67	1.33%	75.19	0.04	5324.58	Partial
Wrightwood	Services	201107	2011	07	7/1/2011	5,303.78	Mar-21	9.67	1.33%	75.19	0.13	4621.38	Partial
Claremont	Meters	201603	2016	03	3/1/2016	1,234.42	Jul-21	5.34	5.84%	17.12	0.31	849.68	Full Retirement
Wrightwood	Meters	201212	2012	12	12/1/2012	7,771.43	Mar-21	8.25	5.84%	17.12	0.48	4026.22	Partial
West Orange County	Meters	201507	2015	07	7/1/2015	253,847.74	Nov-20	5.34	5.84%	17.12	0.31	174647.25	Partial
West Orange County	Meters	201507	2015	07	7/1/2015	253,847.74	Nov-20	5.34	5.84%	17.12	0.31	174647.25	Partial
West Orange County	Meters	201507	2015	07	7/1/2015	253,847.74	Nov-20	5.34	5.84%	17.12	0.31	174647.25	Partial
Wrightwood	Meters	201908	2019	08	8/1/2019	4,435.93	Mar-21	1.58	5.84%	17.12	0.09	4025.70	Partial
West Orange County	Meters	201507	2015	07	7/1/2015	1,652.98	Dec-20	5.42	5.84%	17.12	0.32	1129.32	Partial
South San Gabriel	Meters	201503	2015	03	3/1/2015	22,189.02	Sep-20	5.51	5.84%	17.12	0.32	15049.48	Partial
South San Gabriel	Meters	201503	2015	03	3/1/2015	53,753.67	Sep-20	5.51	5.84%	17.12	0.32	36457.89	Partial
Claremont	Meters	201611	2016	11	11/1/2016	12,254.78	Jun-22	5.58	5.84%	17.12	0.33	8258.74	Partial
Claremont	Meters	201611	2016	11	11/1/2016	49,729.94	Jun-22	5.58	5.84%	17.12	0.33	33514.00	Partial
San Dimas	Meters	201611	2016	11	11/1/2016	18,297.54	Jun-22	5.58	5.84%	17.12	0.33	12331.08	Partial
Barstow	Meters	201508	2015	08	8/1/2015	39,794.03	Mar-21	5.59	5.84%	17.12	0.33	26811.63	Partial
Barstow	Meters	201508	2015	08	8/1/2015	39,794.03	Mar-21	5.59	5.84%	17.12	0.33	26811.63	Partial
Barstow	Meters	201704	2017	04	4/1/2017	499.28	Nov-22	5.59	5.84%	17.12	0.33	336.32	Partial
Claremont	Meters	201611	2016	11	11/1/2016	6,161.72	Jul-22	5.67	5.84%	17.12	0.33	4122.93	Partial
San Dimas	Meters	201611	2016	11	11/1/2016	18,297.54	Jul-22	5.67	5.84%	17.12	0.33	12243.25	Partial
Claremont	Meters	201411	2014	11	11/1/2014	5,129.77	Jul-20	5.67	5.84%	17.12	0.33	3431.61	Partial
Placentia	Meters	201704	2017	04	4/1/2017	25,323.95	Dec-22	5.67	5.84%	17.12	0.33	16936.66	Partial
Orange County District Placentia Office	Meters	201501	2015	01	1/1/2015	36,497.41	Sep-20	5.67	5.84%	17.12	0.33	24409.47	Partial
San Dimas	Meters	201501	2015	01	1/1/2015	22,535.28	Sep-20	5.67	5.84%	17.12	0.33	15071.60	Partial
South San Gabriel	Pumping Equipment	201408	2014	08	8/1/2014	13,974.70	Apr-20	5.67	3.31%	30.21	0.19	11351.40	Partial
South San Gabriel	Pumping Equipment	201408	2014	08	8/1/2014	9,663.53	Apr-20	5.67	3.31%	30.21	0.19	7849.51	Partial
South San Gabriel	Pumping Equipment	201408	2014	08	8/1/2014	13,974.70	Apr-20	5.67	3.31%	30.21	0.19	11351.40	Full Retirement
Placentia	Meters	201610	2016	10	10/1/2016	16,734.33	Jul-22	5.75	5.84%	17.12	0.34	11114.27	Partial
San Dimas	Meters	201611	2016	11	11/1/2016	97,146.31	Aug-22	5.75	5.84%	17.12	0.34	64520.69	Partial
Calipatria-Niland	Meters	201508	2015	08	8/1/2015	3,726.59	May-21	5.75	5.84%	17.12	0.34	2474.46	Full Retirement
Claremont	Meters	201411	2014	11	11/1/2014	2,943.11	Aug-20	5.75	5.84%	17.12	0.34	1954.23	Partial
Claremont	Pumping Equipment	201703	2017	03	3/1/2017	8,945.30	Dec-22	5.76	3.31%	30.21	0.19	7240.96	Full Retirement
Claremont	Services	201503	2015	03	3/1/2015	20,060.03	Dec-20	5.76	1.33%	75.19	0.08	18523.56	Partial
South San Gabriel	Meters	201411	2014	11	11/1/2014	6,165.28	Sep-20	5.84	5.84%	17.12	0.34	4063.17	Partial

Claremont	Meters	201411	2014	11	11/1/2014	36,826.05	Sep-20	5.84	5.84%	17.12	0.34	24269.84	Partial
San Dimas	Meters	201411	2014	11	11/1/2014	14,991.38	Sep-20	5.84	5.84%	17.12	0.34	9879.92	Partial
South San Gabriel	Meters	201411	2014	11	11/1/2014	9,551.72	Sep-20	5.84	5.84%	17.12	0.34	6294.97	Partial
Barstow	Pumping Equipment	201406	2014	06	6/1/2014	167,038.77	Apr-20	5.84	3.31%	30.21	0.19	134758.60	Partial
South San Gabriel	Meters	201411	2014	11	11/1/2014	6,949.08	Sep-20	5.84	5.84%	17.12	0.34	4579.72	Partial
South San Gabriel	Meters	201608	2016	08	8/1/2016	18,626.94	Jul-22	5.92	5.84%	17.12	0.35	12189.47	Partial
West Orange County	Meters	201606	2016	06	6/1/2016	4,072.66	May-22	5.92	5.84%	17.12	0.35	2665.15	Partial
Claremont	Meters	201506	2015	06	6/1/2015	10,292.38	May-21	5.92	5.84%	17.12	0.35	6733.69	Partial
Claremont	Meters	201611	2016	11	11/1/2016	6,208.91	Nov-22	6.00	5.84%	17.12	0.35	4032.31	Partial
Claremont	Meters	201611	2016	11	11/1/2016	49,729.94	Nov-22	6.00	5.84%	17.12	0.35	32296.61	Partial
Placentia	Pumping Equipment	201512	2015	12	12/1/2015	28,091.04	Dec-21	6.01	3.31%	30.21	0.20	22507.06	Full Retirement
South San Gabriel	Meters	201503	2015	03	3/1/2015	22,189.02	Mar-21	6.01	5.84%	17.12	0.35	14406.89	Partial
South San Gabriel	Meters	201503	2015	03	3/1/2015	53,753.67	Mar-21	6.01	5.84%	17.12	0.35	34901.18	Partial
Claremont	Meters	201611	2016	11	11/1/2016	6,161.72	Dec-22	6.08	5.84%	17.12	0.36	3972.09	Partial
San Dimas	Meters	201411	2014	11	11/1/2014	58,181.70	Dec-20	6.09	5.84%	17.12	0.36	37496.94	Partial
South San Gabriel	Meters	201411	2014	11	11/1/2014	6,835.00	Dec-20	6.09	5.84%	17.12	0.36	4405.02	Partial
San Dimas	Meters	201411	2014	11	11/1/2014	3,302.29	Dec-20	6.09	5.84%	17.12	0.36	2128.26	Partial
San Dimas	Meters	201411	2014	11	11/1/2014	24,157.00	Dec-20	6.09	5.84%	17.12	0.36	15568.70	Partial
West Orange County	Meters	201410	2014	10	10/1/2014	82,099.18	Nov-20	6.09	5.84%	17.12	0.36	52898.14	Partial
West Orange County	Meters	201410	2014	10	10/1/2014	82,099.18	Nov-20	6.09	5.84%	17.12	0.36	52898.14	Partial
West Orange County	Meters	201410	2014	10	10/1/2014	82,099.18	Nov-20	6.09	5.84%	17.12	0.36	52898.14	Partial
San Dimas	Meters	201501	2015	01	1/1/2015	10,861.47	Mar-21	6.17	5.84%	17.12	0.36	6949.60	Partial
Morongo Del Sur	Services	201605	2016	05	5/1/2016	33,643.27	Jul-22	6.17	1.33%	75.19	0.08	30882.53	Partial
San Dimas	Meters	201604	2016	04	4/1/2016	26,356.40	Jun-22	6.17	5.84%	17.12	0.36	16859.66	Partial
San Dimas	Meters	201503	2015	03	3/1/2015	9,289.42	May-21	6.17	5.84%	17.12	0.36	5940.77	Partial
West Orange County	Meters	201410	2014	10	10/1/2014	61,521.39	Dec-20	6.17	5.84%	17.12	0.36	39344.16	Partial
West Orange County	Meters	201410	2014	10	10/1/2014	29,112.51	Dec-20	6.17	5.84%	17.12	0.36	18618.03	Partial
West Orange County	Meters	201410	2014	10	10/1/2014	82,099.18	Dec-20	6.17	5.84%	17.12	0.36	52504.07	Partial
San Dimas	Meters	201604	2016	04	4/1/2016	26,356.40	Jul-22	6.25	5.84%	17.12	0.37	16733.15	Partial
Apple Valley South	Meters	201312	2013	12	12/1/2013	3,226.08	Mar-20	6.25	5.84%	17.12	0.37	2048.17	Partial
Calipatria-Niland	Services	201602	2016	02	2/1/2016	28,252.32	Jun-22	6.33	1.33%	75.19	0.08	25872.19	Partial
Wrightwood	Meters	201908	2019	08	8/1/2019	4,435.93	Mar-21	1.58	5.84%	17.12	0.09	4025.70	Partial
Wrightwood	Pumping Equipment	201608	2016	08	8/1/2016	4,737.84	Oct-21	5.17	3.31%	30.21	0.17	3927.09	Full Retirement
San Dimas	Meters	201501	2015	01	1/1/2015	10,861.47	May-21	6.33	5.84%	17.12	0.37	6843.60	Partial
San Dimas	Meters	201501	2015	01	1/1/2015	22,535.28	May-21	6.33	5.84%	17.12	0.37	14199.03	Partial
Wrightwood	Meters	201908	2019	08	8/1/2019	4,435.93	Dec-22	3.34	5.84%	17.12	0.19	3571.46	Partial
Wrightwood	Pumping Equipment	201608	2016	08	8/1/2016	4,238.52	Oct-21	5.17	3.31%	30.21	0.17	3513.21	Full Retirement
South San Gabriel	Meters	201411	2014	11	11/1/2014	9,551.72	Mar-21	6.33	5.84%	17.12	0.37	6018.35	Partial
Claremont	Meters	201311	2013	11	11/1/2013	83,214.82	Mar-20	6.33	5.84%	17.12	0.37	52431.99	Partial
South Arcadia	Pumping Equipment	201606	2016	06	6/1/2016	43,063.82	Oct-22	6.34	3.31%	30.21	0.21	34031.00	Partial
South San Gabriel	Meters	201602	2016	02	2/1/2016	1,237.91	Jul-22	6.42	5.84%	17.12	0.37	774.04	Partial
West Orange County	Meters	201410	2014	10	10/1/2014	61,521.39	Mar-21	6.42	5.84%	17.12	0.37	38458.25	Partial
West Orange County	Meters	201410	2014	10	10/1/2014	82,099.18	Mar-21	6.42	5.84%	17.12	0.37	51321.84	Partial
Barstow	Meters	201406	2014	06	6/1/2014	285.55	Nov-20	6.42	5.84%	17.12	0.38	178.41	Full Retirement
Claremont	Meters	201411	2014	11	11/1/2014	5,176.54	May-21	6.50	5.84%	17.12	0.38	3211.11	Partial
San Dimas	Meters	201411	2014	11	11/1/2014	58,181.70	May-21	6.50	5.84%	17.12	0.38	36091.27	Partial
Claremont	Meters	201411	2014	11	11/1/2014	6,383.87	May-21	6.50	5.84%	17.12	0.38	3960.04	Partial
San Dimas	Meters	201604	2016	04	4/1/2016	31,359.43	Oct-22	6.50	5.84%	17.12	0.38	19447.86	Partial
Wrightwood	Meters	201811	2018	11	11/1/2018	3,507.90	Mar-21	2.33	5.84%	17.12	0.14	3030.26	Partial
Wrightwood	Meters	201908	2019	08	8/1/2019	3,616.91	Jun-22	2.84	5.84%	17.12	0.17	3017.95	Partial
Barstow	Meters	201405	2014	05	5/1/2014	45,629.05	Nov-20	6.51	5.84%	17.12	0.38	28282.71	Partial
Wrightwood	Services	201512	2015	12	12/1/2015	3,127.78	Jun-22	6.50	1.33%	75.19	0.09	2857.21	Partial
West Orange County	Meters	201603	2016	03	3/1/2016	6,340.25	Oct-22	6.59	5.84%	17.12	0.38	3900.52	Full Retirement
Claremont	Meters	201411	2014	11	11/1/2014	36,826.05	Jul-21	6.67	5.84%	17.12	0.39	22484.51	Partial
Claremont	Pumping Equipment	201411	2014	11	11/1/2014	3,182.96	Jul-21	6.67	3.31%	30.21	0.22	2480.39	Full Retirement
Barstow	Meters	201604	2016	04	4/1/2016	9,294.66	Dec-22	6.67	5.84%	17.12	0.39	5673.46	Partial
Calipatria-Niland	Meters	201406	2014	06	6/1/2014	217.00	Feb-21	6.68	5.84%	17.12	0.39	132.39	Partial
Wrightwood	Meters	201811	2018	11	11/1/2018	2,168.43	Mar-21	2.33	5.84%	17.12	0.14	1873.18	Partial
Barstow	Meters	201405	2014	05	5/1/2014	4,832.50	Feb-21	6.76	5.84%	17.12	0.39	2924.24	Partial
West Orange County	Meters	201602	2016	02	2/1/2016	47,743.75	Dec-22	6.84	5.84%	17.12	0.40	28684.45	Partial
Wrightwood	Pumping Equipment	201803	2018	03	3/1/2018	2,171.89	Oct-22	4.59	3.31%	30.21	0.15	1841.99	Full Retirement
Claremont	Meters	201508	2015	08	8/1/2015	83,741.74	Jun-22	6.84	5.84%	17.12	0.40	50298.64	Partial
Claremont	Meters	201508	2015	08	8/1/2015	20,802.10	Jun-22	6.84	5.84%	17.12	0.40	12494.57	Partial
Claremont	Meters	201508	2015	08	8/1/2015	20,802.10	Jun-22	6.84	5.84%	17.12	0.40	12494.57	Partial
West Orange County	Meters	201507	2015	07	7/1/2015	38,033.46	May-22	6.84	5.84%	17.12	0.40	22844.42	Partial
West Orange County	Meters	201507	2015	07	7/1/2015	38,033.46	May-22	6.84	5.84%	17.12	0.40	22844.42	Partial
West Orange County	Meters	201507	2015	07	7/1/2015	253,847.74	May-22	6.84	5.84%	17.12	0.40	152471.11	Partial
West Orange County	Meters	201507	2015	07	7/1/2015	253,847.74	May-22	6.84	5.84%	17.12	0.40	152471.11	Partial
Claremont	Meters	201411	2014	11	11/1/2014	36,826.05	Sep-21	6.84	5.84%	17.12	0.40	22119.20	Partial
Barstow	Meters	201405	2014	05	5/1/2014	45,629.05	Mar-21	6.84	5.84%	17.12	0.40	27406.63	Partial
Barstow	Meters	201405	2014	05	5/1/2014	45,629.05	Mar-21	6.84	5.84%	17.12	0.40	27406.63	Partial
Placentia	Pumping Equipment	201310	2013	10	10/1/2013	11,970.83	Aug-20	6.84	3.31%	30.21	0.23	9261.24	Full Retirement
South San Gabriel	Meters	201311	2013	11	11/1/2013	17,496.41	Sep-20	6.84	5.84%	17.12	0.40	10509.04	Partial
South San Gabriel	Meters	201311	2013	11	11/1/2013	15,499.57	Sep-20	6.84	5.84%	17.12	0.40	9309.66	Partial
South San Gabriel	Meters	201311	2013	11	11/1/2013	15,499.57	Sep-20	6.84	5.84%	17.12	0.40	9309.66	Partial
Claremont	Meters	201308	2013	08	8/1/2013	6,074.15	Jul-20	6.92	5.84%	17.12	0.40	3619.22	Partial
Mountain/Desert District Barstow Office	Meters	201312	2013	12	12/1/2013	25,697.34	Nov-20	6.92	5.84%	17.12	0.40	15307.39	Partial
Claremont	Meters	201311	2013	11	11/1/2013	83,214.82	Nov-20	7.01	5.84%	17.12	0.41	49169.97	Partial
San Dimas	Meters	201309	2013	09	9/1/2013	14,084.92	Sep-20	7.01	5.84%	17.12	0.41	8322.50	Partial
Barstow	Meters	201311	2013	11	11/1/2013	23,475.06	Nov-20	7.01	5.84%	17.12	0.41	13870.94	Partial
Claremont	Services	201304	2013	04	4/1/2013	371,877.90	Apr-20	7.01	1.33%	75.19	0.09	337228.97	Partial
West Orange County	Meters	201511	2015	11	11/1/2015	10,614.75	Dec-22	7.09	5.84%	17.12	0.41	6221.09	Partial
Wrightwood	Meters	202104	2021	04	4/1/2021	1,592.82	Dec-22	1.67	5.84%	17.12	0.10	1437.62	Partial
Barstow	Meters	201311	2013	11	11/1/2013	1,541.36	Dec-20	7.09	5.84%	17.12	0.41	903.36	Partial
South San Gabriel	Meters	201311	2013	11	11/1/2013	17,496.41	Dec-20	7.09	5.84%	17.12	0.41	10254.30	Partial
Barstow	Services	201212	2012	12	12/1/2012	343,465.65	Jan-20	7.09	1.33%	75.19	0.09	311088.51	Partial
Mountain/Desert District Barstow Office	Meters	201312	2013	12	12/1/2013	3,905.26	Feb-21	7.18	5.84%	17.12	0.42	2268.80	Partial
Mountain/Desert District Barstow Office	Meters	201312	2013	12	12/1/2013	25,697.34	Feb-21	7.18	5.84%	17.12	0.42	14929.13	Partial
Orange County District Placentia Office	Meters	201212	2012	12	12/1/2012	4,281.16	Mar-20	7.25	5.84%	17.12	0.42	2468.00	Partial
Calipatria-Niland	Meters	201312	2013	12	12/1/2013	6,965.46	Mar-21	7.25	5.84%	17.12	0.42	4015.45	Full Retirement
Cowan Heights	Meters	201212	2012	12	12/1/2012	16,372.69	Mar-20	7.25	5.84%	17.12	0.42	9438.53	Partial
Placentia	Meters	201212	2012	12	12/1/2012	8,715.01	Mar-20	7.25	5.84%	17.12	0.42	5024.03	Partial
San Dimas	Meters	201309	2013	09	9/1/2013	92,209.27	Dec-20	7.25	5.84%	17.12	0.42	53142.05	Partial
West Orange County	Meters	201307	2013	07	7/1/2013	109,331.07	Oct-20	7.26	5.84%	17.12	0.42	62992.19	Partial
Barstow	Meters	201311	2013	11	11/1/2013	5,269.74	Feb-21	7.26	5.84%	17.12	0.42	3036.21	Partial
Barstow	Meters	201311	2013	11	11/1/2013	6,423.64	Mar-21	7.33	5.84%	17.12	0.43	3672.27	Partial
Barstow	Meters	201311	2013	11	11/1/2013	23,475.06	Mar-21	7.33	5.84%	17.12	0.43	13420.22	Partial
Barstow	Meters	201311	2013	11	11/1/2013	23,475.06	Mar-21	7.33	5.84%	17.12	0.43	13420.22	Partial
South San Gabriel	Meters	201311	2013	11	11/1/2013	15,499.57	Mar-21	7.33	5.84%	17.12	0.43	8860.79	Partial
Claremont	Meters	201508	2015	08	8/1/2015	16,758.45	Dec-22	7.34	5.84%	17.12	0.43	9575.11	Partial
Morongo Del Sur	Services	201503	2015	03	3/1/2015	34,969.87	Jul-22	7.34	1.33%	75.19	0.10	31556.17	Partial
Barstow	Meters	201508	2015	08	8/1/2015	9,416.85	Dec-22	7.34	5.84%	17.12	0.43	5380.41	Partial
San Dimas	Meters	201503	2015	03	3/1/2015	9,289.42	Jul-22	7.34	5.84%	17.12	0.43	5307.60	Partial
Claremont	Services	201304	2013	04	4/1/2013	25,344.27	Aug-20	7.34	1.33%	75.19	0.10	22870.20	Partial
West Orange County	Meters	201307	2013	07	7/1/2013	68,243.45	Nov-20	7.34	5.84%	17.12	0.43	38980.66	Partial
West Orange County	Meters	201307	2013	07	7/1/2013	68,243.45	Nov-20	7.34	5.84%	17.12	0.43	38980.66	Partial
West Orange County	Meters	201307	2013	07	7/1/2013	68,243.45	Nov-20	7.34	5.84%	17.12	0.43	38980.66	Partial
West Orange County	Meters	201307	2013	07	7/1/2013	74,268.56	Nov-20	7.34	5.84%	17.12	0.43	42422.20	Partial
San Dimas	Meters	201501	2015	01	1/1/2015	22,535.28	Jun-22	7.42	5.84%	17.12	0.43	12771.19	Partial
South San Gabriel	Services	201310	2013	10	10/1/2013	44,658.21	Mar-21	7.42	1.33%	75.19	0.10	40251.56	Partial
Mountain/Desert District Wrightwood Office	Meters	201310	2013	10	10/1/2013	5,478.79	Mar-21	7.42	5.84%	17.12	0.43	3104.94	Partial
Mountain/Desert District Wrightwood Office	Meters	201310	2013	10	10/1/2013	5,478.79	Mar-21	7.42	5.84%	17.12	0.43	3104.94	Partial
Mountain/Desert District Apple Valley Office	Meters	201210	2012	10	10/1/2012	5,242.06	Mar-20	7.42	5.84%	17.12	0.43	2970.78	Partial
San Dimas	Meters	201507	2015	07	7/1/2015	6,294.15	Dec-22	7.42	5.84%	17.12	0.43	3565.01	Partial
San Dimas	Meters	201503	2015	03	3/1/2015	9,289.42	Aug-22	7.42	5.84%	17.12	0.43	5261.53	Partial
Orange County District Placentia Office	Meters	201501	2015	01	1/1/2015	16,432.25	Jul-22	7.50	5.84%	17.12	0.44	9233.61	Full Retirement
Orange County District Placentia Office	Meters	201501	2015	01	1/1/2015	33,319.68	Jul-22	7.50	5.84%	17.12	0.44	18722.99	Partial
San Dimas	Meters	201501	2015	01	1/1/2015	10,861.47	Jul-22	7.50	5.84%	17.12	0.44	6103.28	Partial
Claremont	Meters	201501	2015	01	1/1/2015	20,841.69	Jul-22	7.50	5.84%	17.12	0.44	11711.36	Partial
Apple Valley North	Services	201501	2015	01	1/1/2015	32,351.11	Jul-22	7.50	1.33%	75.19	0.10	29123.50	Partial
Apple Valley North	Services	201501	2015	01	1/1/2015	32,351.11	Jul-22	7.50	1.33%	75.19	0.10	29123.50	Partial
Claremont	Meters	201411	2014	11	11/1/2014	36,826.05	Jun-22	7.59	5.84%	17.12	0.44	20510.64	Partial
Wrightwood	Meters	201707	2017	07	7/1/2017	1,940.87	Nov-22	5.34	5.84%	17.12	0.31	1335.63	Partial
West Orange County	Meters	201410	2014	10	10/1/2014	82,768.04	May-22	7.59	5.84%	17.12	0.44	46098.49	Partial
West Orange County	Meters	201410	2014	10	10/1/2014	61,521.39	May-22	7.59	5.84%	17.12	0.44	34264.95	Partial
West Orange County	Meters	201410	2014	10	10/1/2014	29,112.51	May-22	7.59	5.84%	17.12	0.44	16214.50	Partial
West Orange County	Meters	201410	2014	10	10/1/2014	82,099.18	May-22	7.59	5.84%	17.12	0.44	45725.96	Partial
San Dimas	Meters	201411	2014	11	11/1/2014	58,181.70	Jul-22	7.67	5.84%	17.12	0.45	32125.61	Partial
Claremont	Meters	201411	2014	11	11/1/2014	6,383.87	Jul-22	7.67	5.84%	17.12	0.45	3524.92	Partial
San Dimas	Meters	201411	2014	11	11/1/2014	24,157.00	Jul-22	7.67	5.84%	17.12	0.45	13338.53	Partial
West Orange County	Meters	201410	2014	10	10/1/2014	18,713.57	Jun-22	7.67	5.84%	17.12	0.45	10329.89	Partial
Claremont	Meters	201308	2013	08	8/1/2013	6,074.15	Apr-21	7.67	5.84%	17.12	0.45	3352.93	Partial
West Orange County	Meters	201307	2013	07	7/1/2013	109,331.07	Mar-21	7.67	5.84%	17.12	0.45	60350.75	Partial
West Orange County	Meters	201307	2013	07	7/1/2013	68,243.45	Mar-21	7.67	5.84%	17.12	0.45	37670.38	Partial
Claremont	Meters	201308	2013	08	8/1/2013	4,452.28	May-21	7.75	5.84%	17.12	0.45	2436.29	Partial
South San Gabriel	Meters	201212	2012	12	12/1/2012	23,960.24	Sep-20	7.76	5.84%	17.12	0.45	13107.21	Partial
South San Gabriel	Meters	201212	2012	12	12/1/2012	35,907.25	Sep-20	7.76	5.84%	17.12	0.45	19642.70	Partial
South San Gabriel	Meters	201212	2012	12	12/1/2012	27,292.22	Sep-20	7.76	5.84%	17.12	0.45	14929.94	Partial
Claremont	Meters	201212	2012	12	12/1/2012	102,419.05	Sep-20	7.76	5.84%	17.12	0.45	56027.32	Partial
South San Gabriel	Meters	201212	2012	12	12/1/2012	3,919.35	Sep-20	7.76	5.84%	17.12	0.45	2144.04	Partial
Apple Valley South	Services	201409	2014	09	9/1/2014	95,388.39	Jul-22	7.84	1.33%	75.19	0.10	85447.61	Partial
West Orange County	Meters	201307	2013	07	7/1/2013	2,395.76	May-21	7.84	5.84%	17.12	0.46	1299.08	Partial
Claremont	Meters	201308	2013	08	8/1/2013	27,137.08	Jul-21	7.92	5.84%	17.12	0.46	14584.55	Partial
Claremont	Services	201410	2014	10	10/1/2014	219,019.27	Sep-22	7.92	1.33%	75.19	0.11	195939.08	Partial
Barstow	Meters	201212	2012	12	12/1/2012	36,201.13	Nov-20	7.92	5.84%	17.12	0.46	19450.14	Partial
West Orange County	Meters	201212	2012	12	12/1/2012	62,298.15	Nov-20	7.92	5.84%	17.12	0.46	33471.55	Partial
Claremont	Meters	201212	2012	12	12/1/2012	102,419.05	Nov-20	7.92	5.84%	17.12	0.46	55027.71	Partial
Orange County District Placentia Office	Meters	201212	2012	12	12/1/2012	23,639.37	Nov-20	7.92	5.84%	17.12	0.46	12700.96	Partial
Orange County District Placentia Office	Meters	201407	2014	07	7/1/2014	86,442.52	Jul-22	8.01	5.84%	17.12	0.47	46028.91	Partial
Mountain/Desert District Wrightwood Office	Meters	201411	2014	11	11/1/2014	590.90	Nov-22	8.01	5.84%	17.12	0.47	314.64	Partial
Orange County District Placentia Office	Meters	201407	2014	07	7/1/2014	34,735.48	Jul-22	8.01	5.84%	17.12	0.47	18495.95	Partial
West Orange County	Meters	201212	2012	12	12/1/2012	26,876.41	Dec-20	8.01	5.84%	17.12	0.47	14311.15	Partial
San Dimas	Meters	201212	2012	12	12/1/2012	10,840.28	Dec-20	8.01	5.84%	17.12	0.47	5772.23	Partial
South San Gabriel	Meters	201212	2012	12	12/1/2012	3,919.35	Dec-20	8.01	5.84%	17.12	0.47	2086.98	Partial
San Dimas	Meters	201212	2012	12	12/1/2012	7,230.66	Dec-20	8.01	5.84%	17.12	0.47	3850.18	Partial
South San Gabriel	Meters	201212	2012	12	12/1/2012	3,919.35	Dec-20	8.01	5.84%	17.12	0.47	2086.98	Partial
Wrightwood	Meters	202004	2020	04	4/1/2020	1,507.52	Jun-22	2.17	5.84%	17.12	0.13	1316.73	Partial
San Dimas	Meters	201211	2012	11	11/1/2012	76,910.13	Dec-20	8.09	5.84%	17.12	0.47	40583.94	Partial
Mountain/Desert District Morongo Valley Office	Meters	201405	2014	05	5/1/2014	196.57	Jul-22	8.17	5.84%	17.12	0.48	102.75	Partial
Morongo Del Sur	Pumping Equipment	201207	2012	07	7/1/2012	1,023.86	Sep-20	8.18	3.31%	30.21	0.27	746.80	Partial
West Orange County	Meters	201212	2012	12	12/1/2012	26,876.41	Mar-21	8.25	5.84%	17.12	0.48	13924.13	Partial
West Orange County	Meters	201212	2012	12	12/1/2012	10,258.14	Mar-21	8.25	5.84%	17.12	0.48	5314.54	Partial
South San Gabriel	Meters	201212	2012	12	12/1/2012	2,230.43	Mar-21	8.25	5.84%	17.12	0.48	1155.54	Partial
West Orange County	Meters	201212	2012	12	12/1/2012	81,059.77	Mar-21	8.25	5.84%	17.12	0.48	41995.45	Partial
Wrightwood	Meters	202004	2020	04	4/1/2020	1,507.52	Dec-22	2.67	5.84%	17.12	0.16	1272.59	Partial
Barstow	Meters	201212	2012	12	12/1/2012	7,614.42	Mar-21	8.25	5.84%	17.12	0.48	3944.88	Partial
Orange County District Placentia Office	Meters	201212	2012	12	12/1/2012	23,639.37	Mar-21	8.25	5.84%	17.12	0.48	12247.08	Partial

Barstow	Meters	201212	2012	12	12/1/2012	7,614.42		Mar-21	8.25	5.84%	17.12	0.48	3944.88	Partial
South San Gabriel	Meters	201212	2012	12	12/1/2012	3,919.35		Mar-21	8.25	5.84%	17.12	0.48	2030.54	Partial
South San Gabriel	Meters	201212	2012	12	12/1/2012	3,919.35		Mar-21	8.25	5.84%	17.12	0.48	2030.54	Partial
South San Gabriel	Meters	201212	2012	12	12/1/2012	3,919.35		Mar-21	8.25	5.84%	17.12	0.48	2030.54	Partial
South San Gabriel	Meters	201212	2012	12	12/1/2012	3,919.35		Mar-21	8.25	5.84%	17.12	0.48	2030.54	Partial
Orange County District Placentia Office	Meters	201112	2011	12	12/1/2011	24,558.81		Mar-20	8.25	5.84%	17.12	0.48	12719.50	Partial
Claremont	Meters	201212	2012	12	12/1/2012	102,419.05		Apr-21	8.34	5.84%	17.12	0.49	52553.26	Partial
Barstow	Meters	201210	2012	10	10/1/2012	96,717.14		Feb-21	8.34	5.84%	17.12	0.49	49596.55	Partial
San Dimas	Meters	201401	2014	01	1/1/2014	2,922.79		Jun-22	8.42	5.84%	17.12	0.49	1485.71	Full Retirement
San Dimas	Services	201206	2012	06	6/1/2012	140,309.45		Nov-20	8.42	1.33%	75.19	0.11	124588.06	Partial
Placentia	Pumping Equipment	201310	2013	10	10/1/2013	40,933.76		Dec-22	9.17	3.31%	30.21	0.30	28505.73	Partial
Cowan Heights	Pumping Equipment	201204	2012	04	4/1/2012	11,524.26		Jul-21	9.25	3.31%	30.21	0.31	7993.99	Partial
Barstow	Pumping Equipment	201105	2011	05	5/1/2011	18,519.05		Sep-20	9.35	3.31%	30.21	0.31	12790.62	Full Retirement
South Arcadia	Pumping Equipment	201305	2013	05	5/1/2013	8,243.59		Oct-22	9.42	3.31%	30.21	0.31	5671.95	Full Retirement
Wrightwood	Meters	202101	2021	01	1/1/2021	645.26		Nov-22	1.83	5.84%	17.12	0.11	576.19	Partial
Claremont	Pumping Equipment	201106	2011	06	6/1/2011	2,115.71		Oct-21	10.34	3.31%	30.21	0.34	1391.43	Full Retirement
South San Gabriel	Services	201204	2012	04	4/1/2012	7,770.27	(7,770.27)	Sep-22	10.42	1.33%	75.19	0.14	6692.94	Full Retirement
Mountain/Desert District Apple Valley Office	Services	201109	2011	09	9/1/2011	22,801.32		Jul-22	10.84	1.33%	75.19	0.14	19514.51	Partial
San Dimas	Pumping Equipment	201106	2011	06	6/1/2011	20,212.01		Sep-22	11.26	3.31%	30.21	0.37	12678.69	Partial
San Dimas	Pumping Equipment	201104	2011	04	4/1/2011	21,749.70		Dec-22	11.68	3.31%	30.21	0.39	13343.46	Full Retirement

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Attachment 4-1 Response to SIH-004 2011 to 2016 Plant Additions Response

Golden State Water Company
A Subsidiary of American States Water Company

September 15, 2023

Sari Ibrahim, Public Advocates Office
CALIFORNIA PUBLIC UTILITIES COMMISSION
505 Van Ness Avenue
San Francisco, CA 94102

Subject: Data Request SIH-004 (A.23-08-010) 2011-2016 Plant Additions
Due Date (Revised): September 15, 2023

Dear Sari Ibrahim,

In response to the above referenced data request number, we are pleased to submit the following responses:

Utility Plant Inservice Additions to Rate Base
For all utility plant in service assets added into rate base between the years 2011 through 2016, please provide an Excel table detailing the following information:

Question 1:
A description of asset.

Response 1:
As agreed with Cal Advocates, GSWC is providing responses for 2012 through 2016, based on the unitized asset closing. See attachment "SIH 2012-2016 questions 1-12".

Question 2:
The funding project number.

Response 2:
See attachment "SIH 2012-2016 questions 1-12".

Question 3:
The project name.

Response 3:
See attachment “SIH 2012-2016 questions 1-12”.

Question 4:
The CSA to which it belongs.

Response 4:
See attachment “SIH 2012-2016 questions 1-12”.

Question 5:
The system to which it belongs.

Response 5:
See attachment “SIH 2012-2016 questions 1-12”.

Question 6:
The department to which it belongs.

Response 6:
See attachment “SIH 2012-2016 questions 1-12”.

Question 7:
The budget group to which it belongs.

Response 7:
See attachment “SIH 2012-2016 questions 1-12”.

Question 8:
The month and year the addition was added into rate base.

Response 8:
See attachment “SIH 2012-2016 questions 1-12”.

Question 9:
The dollar amount recorded and added into ratebase related to the asset.

Response 9:
See attachment “SIH 2012-2016 questions 1-12”.

Question 10:
Identify whether the addition is still in service.

Response 10:

See attachment “SIH 2012-2016 questions 1-12”.

Question 11:
If the asset has been retired, identify the month and year it was removed from service. And provide Net Book Value (NBV) at the time of retirement.

Response 11:
See attachment “SIH 2012-2016 questions 1-12”.

Question 12:
The decision in which the budget associated with the asset was adopted into rate base.

Response 12:
To determine the decision in which the budget associated with the asset was adopted into rate base, first GSWC identified the budget year from the internal GSWC funding project number. The “Funding Project” number (column N) associated with each asset contains two digits that represent the capital budget year corresponding to the asset addition. The fourth and fifth digits within the Funding Project number represent the actual capital budget year for the asset. For example, for a Funding Project number of “1151601-01” in column N the fourth and fifth digits of “16” indicate that the capital budget year for this particular asset was 2016. The code referencing method varies slightly when referring to a General Office asset. As GO funding projects only have two digit for their cost center (the first group of digits in the Funding Project number), the relevant digits for GO assets will be the third and fourth digits. GO assets will be noted as such in column K with a “General Office” or “GO-COPS” description. GSWC then identified the decision number in which a capital budget for that same year was reviewed and approved by the Commission. For example, a project with GSWC Funding Project number 115<u>16</u>01-01, is from GSWC’s 20<u>16</u> capital budget. The 2016 budget was reviewed and approved in D.16-12-067.

Note, that the acquisition of the Rural Water Company assets in 2015 does not have a GSWC funding project number.

END OF RESPONSE

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Attachment 4-2 Response to SIH-014
Recorded Plant Additions Response

Golden State
Water Company
A Subsidiary of American States Water Company

January 12, 2024

Sari Ibrahim, Public Advocates Office
CALIFORNIA PUBLIC UTILITIES COMMISSION
505 Van Ness Avenue
San Francisco, CA 94102

Subject: Data Request SIH-014 (A.23-08-010) Recorded Plant Additions
Due Date: January 12, 2024

Dear Sari Ibrahim,

In response to the above referenced data request number, we are pleased to submit the following responses:

<u>Plant in Service Land</u>

Question 1a:

a. Refering to the Excel workbook SIH-004 2012-2016, questions 1-12, provided in SIH-004 2011 to 2016 Plant Additions Response, please provide the following information: For the below listed pumps/motors added in 2015, provide the most recent five years of hour meter readings. If no hour meter readings are avaliable, provide the monthly power usage billing associated with the pump/motor. Provide the hour meter information in an Excel workbook format:

   i. Well #2 Pump asset ID: 147227835 (Margarita Well #2)
   ii. Well #2 Motor asset ID: 147227838 (Margarita Well #2)
   iii. Pumping Plant-Motor-Tanglewood #2 asset ID 146882655 (Pinewood)
   iv. Woodmere 980 gpm Pump asset ID147030458 (Woodmere 2 Pump)
   v. Pioneer #3 pump asset ID 146849311
   vi. Pump - Park Well #17 asset ID 147343535
   vii. Ridgemont Plant Pump Motor asset ID 147193135
   viii. Goulds Pump asset ID 147066677

Response 1a:
In response to i – viii, see attached spreadsheet titled **"SIH-014 Q.a.i-viii Hours Run"**.

Question 1b:

b. For the following pressure relief valves added in 2015 provide the most recent 5 years of recorded pressure data. In addition, identify whether the pressure relief valve is capable of generating electricity. If they are capable of generating electricity provide the most recent five years of recorded generation data. Provide the information in an Excel workbook format:

  i. 8" PRV/PSV asset ID 146856375
  ii. 12" PRV/PSV asset ID 146856378
  iii. 8" PRV/PSV 120th & Budlong asset ID 146856381
  iv. 6" PRV/PSV El Segundo/Halldale asset ID 146856384
  v. 6" PRV/PSV asset ID 146856387
  vi. 2" PRV asset ID 146854322
  vii. 6" PRV asset ID 146854325
  viii. 10" PRV asset ID 147136758
  ix. 8" PRV asset ID 147070408

Response 1b:
In response to i – ix, GSWC does not have the most recent 5 years of recorded pressure data. For a PRV/PSV station to feasibly generate power, the combination of the following factors must be sufficient: pressure-drop, flow rate, continuous flow and power feed-in tariff. These stations run intermittently and would not be able to generate sufficient power generation revenues to justify the cost to install and maintain the equipment.

Question 1c:

c. Please provide a list of all generators, mobile and stationary, that GSWC owns in each region. Identify the power rating in kilowatts and the system to which it belongs. Provide the information in an Excel workbook format.

Response 1c:
See attachment **"SIH-014 Q.c Stationary and Portable Gensets"**.

Question 1d:

d. For the meters making up the $332,360.47 in the 2015 additions cell J13 associated with Meters-Small-5/8 inch asset ID 147226795, provide the list of meters and identify the customer number and address to which each belongs. Provide the information in an Excel workbook format.

Response 1d:

See attachment **"SIH-014 Q.d Meter Installs 2015"**.

Question 1e:

e. For the following reservoirs provide the most recent five years of recorded water level data Provide the information in an Excel workbook format:

   i. The 2014 Bear Valley Reservoir asset ID 146711605

   ii. The 2015 reservoirs Evora #1 and #2 asset IDs 1515315 and 1515310 respectively.

   iii. The 2016 White Bark 2.0 MG Welded Steel Reservoir asset ID 147482925

   iv. The 2016 Valley Crest Reservoir asset ID 147486008

Response 1e:

e. Response

   i. Historical water level recordings are not available for the Bear Valley South Reservoir (water level data for this tank is not currently monitored/recorded in SCADA).

   ii. See attachment **"SIH-014 Q.e.ii Evora Tank Levels 2019-2024"**. Note that Evora Reservoirs #1 and #2 are influenced by the exact same conditions and therefore only report a single value in the SCADA system.

   iii. Historical water level recordings are not available for the White Bark Reservoir (water level data for this tank is monitored/recorded in SCADA, but is only available for the past 3 months and in order to extract/extrapolate the data into Excel format a SCADA contractor would have to be employed).

   iv. Historical water level recordings are not available for the Valley Crest Reservoir (water level data for this tank is not currently monitored/recorded in SCADA, as Apple Valley North does not yet have a SCADA system that can run trends via historian).

END OF RESPONSE