Anza Electric Cooperative, Inc.

Executive/Staff Summary

(Board Meeting of October 24, 2024)

Title:

2021-2024 Work Plan Extension

Board action recommended:

Approve as proposed

Background:

Anza Electric Cooperative, Inc. (AEC) has historically planned our outside plant system work on a four (4) year basis. This process is in keeping with the original Rural Electrification Administration (now Rural Utility Service, or RUS) format used for outside plant Operations and Maintenance (O&M) work and financing.

Our current Work Plan (Plan) cycle ends in 2024.

Considerations:

Plan goals

As shown in the original plan on page I-2, the following table summarizes the existing priorities:

Table I-3 – 2021-2024 Construction Work Plan Summaries

Year	2021	2022	2023	2024	Total
Replacements	$236,050	$236,050	$236,050	$236,050	$944,200
Distribution	$706,900	$836,900	$1,633,900	$854,400	$4,032,100
Substation	$2,270,000	$0	$100,000	$2,000,000	$4,370,000
Sectionalizing	$80,000	$25,000	$25,000	$25,000	$155,000
Headquarters	$0	$0	$0	$0	$0
Transmission	$0	$4,100,000	$354,000	$0	$4,454,000
Total	$3,292,950	$5,197,950	$2,348,950	$3,115,450	$13,955,300

These line items have been modified over the course of the existing Plan.

Plan financing

The total valuation of the current Plan as shown in Exhibit 1 (Current Plan) in Section V. "Summary of System Improvements" beginning on page V-1 is **$13,955,300**. To date, with **$11,732,659** spent in absolute dollars (disregarding aggregate inflation over the period of 26.26%) our progress on this Plan is 84% complete. The loan package used to finance this work was executed with CFC in 2022, in the total amount of $9.5M.

An additional year for the plan will enable us to complete more of this work. A further consideration is that our priorities do change over the life of any work plan that we have in place; therefore, we will re-evaluate the remaining items and add any new items necessary for the safe and efficient operation of our system.

Additionally, during the previous two years' time, we have been successful in obtaining grants for a variety of infrastructure projects, totaling more than $12M. Most of these grants will require cost shares ranging from approximately 30% to 100%. A new loan package, when considered, will need to encompass these added cost share amounts. These calculations will be made prior to pursuing a new construction work plan loan.

Adding a year to the existing plan defers the expense of preparing a new plan as well.

Conclusion:

It is management's recommendation to extend our current plan for one year. A new estimate of work to be completed and a necessary loan structure will be brought to the board for consideration in Q1 2025.

ANZA ELECTRIC COOPERATIVE, INC.
CA 41 ANZA
Anza, California

FOUR YEAR CONSTRUCTION WORK PLAN

2021 – 2024



I hereby certify that this 2021-2024 Construction Work Plan was prepared by me or under my direct supervision and that I am a duly registered professional engineer under the laws of the State of California.

_____ _____

Date Elizabeth C. Hames

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I. EXECUTIVE SUMMARY

This 2021-2024 Construction Work Plan has been prepared at the request of the management of the Anza Electric Cooperative, Inc. (CA 41, Anza) of Anza, California. Anza Electric Cooperative (AEC) receives power at the 34.5 kV Mountain Center delivery point from Arizona Electric Power Cooperative, Inc. The primary purpose of this Work Plan is to provide AEC with estimated construction costs, as well as an overall construction program. This Construction Work Plan will recommend changes that are necessary in order to provide continued efficient and adequate electric service to all the Cooperative's consumers throughout the planning period. This Work Plan will provide basic data for use in preparing the annual budget and to support a request for additional loan funds that might be required from an outside source.

A. Losses

At the end of 2019, AEC's electric system had 748 miles of energized line and total system kWh sales of 61,032,385 for the calendar year, which equates to 81,594 kWh/mile. Cooperative records indicate that system losses for 2019 were 10.66%. Table I-1 shows losses for the past five-year period, starting in 2015. Several projects proposed in this work plan will reduce distribution losses on the system.

Table I-1 - Energy Losses

YEAR	2015	2016	2017	2018	2019	5 YR AVG
Energy Losses %	9.70%	8.75%	7.08%	9.18%	10.66%	9.07%

B. Outages

The average outage minutes per consumer over the past five years are 1988. The power supplier outages account for 95% of the five-year average. The last five-year history is shown in Table I-2.

Table I-2 – Outage Minutes per Consumer

YEAR	2015	2016	2017	2018	2019	5 YR AVG
POWER SUPPLIER	210.00	930.60	1725.00	6209.34	345.00	1883.99
EXTREME STORM	0.30	5.39	0.23	143.43	26.51	35.17
PLANNED	0.44	-	-	105.00	-	21.09
ALL OTHER	22.68	54.18	61.28	58.99	42.64	47.95
TOTALS	233.42	990.17	1786.51	6516.76	414.16	1988.20

C. Summary of Costs

Table I-3 is a summary of costs for construction proposed in this work plan for AEC. Construction costs are separated into six categories: replacements, distribution construction, substation construction, headquarters, transmission construction, and sectionalizing. A total of all construction by year and for all four years is given in the final row.

Table I-3 – 2021-2024 Construction Work Plan Summaries

Year	2021	2022	2023	2024	Total
Replacements	$236,050	$236,050	$236,050	$236,050	$944,200
Distribution	$706,900	$836,900	$1,633,900	$854,400	$4,032,100
Substation	$2,270,000	$0	$100,000	$2,000,000	$4,370,000
Sectionalizing	$80,000	$25,000	$25,000	$25,000	$155,000
Headquarters	$0	$0	$0	$0	$0
Transmission	$0	$4,100,000	$354,000	$0	$4,454,000
Total	$3,292,950	$5,197,950	$2,348,950	$3,115,450	$13,955,300

Table I-4 on the following page further exemplifies the cost distribution.

Table I-4 – Supplemental 740c Attachment

Anza Electric Cooperative - CA 41 2021- 2024 Four Year Construction Work Plan

		Loan Funds	Other Sources	General Funds	Total Costs
1. DISTRIBUTION FACILITIES					
	New Tie Lines - Series 200				
200.18	Bautista - FDR 4100, Build 0.1mi 3ph 477 ACSR (Carryover)	$9,000	$0	$0	$9,000
200.19	Bautista - FDR 4200, Build 0.1mi 3ph 477 ACSR (Carryover)	$9,000	$0	$0	$9,000
200.20	Bautista - FDR 4200, Build 1.0 mi 3ph 477 ACSR (Carryover)	$90,000	$0	$0	$90,000
	Conversions and Line Changes - Series 300				
300.17	Lake Riverside - Fdr 3100, Convert 4.0 mi to 3Ø 477 ACSR (Carryover)	$240,000	$0	$0	$240,000
300.21	Lake Riverside - Fdr 3100, Convert 1.2 mi to 3Ø 477 ACSR	$108,000	$0	$0	$108,000
300.22	Lake Riverside - Fdr 3200, Convert 0.1mi to 3Ø 477 ACSR	$13,500	$0	$0	$13,500
300.23	Tony Lappos - Fdr 1100, Convert 7.0 mi to 3Ø 477 ACSR	$630,000	$0	$0	$630,000
300.24	Tony Lappos - Fdr 1300, Convert 4.5 mi to 3Ø 477 ACSR	$405,000	$0	$0	$405,000
	New Substations and Switching - Series 400				
400.02	Build New Bautista Sub 12 MVA, 34.5kV:12.47kV (Carryover)	$2,000,000	$0	$0	$2,000,000
	Substation, Switching Station, and Metering Point Changes - Series 500				
500.01	Tony Lappos - Rebuild with metal superstructure and bus bars	$2,000,000	$0	$0	$2,000,000
500.02	Lake Hemet - Replace 12.47kV Regulators with 3-333 kVA	$100,000	$0	$0	$100,000
500.03	Lake Riverside - Replace substation transformer with 10 MVA	$150,000	$0	$0	$150,000
500.04	Lake Riverside - Replace 12.47kV Regulators with 3-500 kVA	$120,000	$0	$0	$120,000
	Miscellaneous Distribution Equipment - Series 600				
601	230 Overhead Transformers @ $1,760 each	$404,800	$0	$0	$404,800
601	110 Padmount Transformers @ $2,560 each	$281,600	$0	$0	$281,600
601	10 Transformers > 100 kVA @ $63,140 each	$631,400	$0	$0	$631,400
601	4,800 New AMI Meters @ $220 each	$1,056,000	$0	$0	$1,056,000
601	20 PT's and CT's @ $440 each	$8,800	$0	$0	$8,800
603	Sectionalizing Equipment	$155,000	$0	$0	$155,000
604	Line Regulators	$112,000	$0	$0	$112,000
605	Line Capacitors	$28,000	$0	$0	$28,000
606	120 Dist Poles @ $1,660 each	$199,200	$0	$0	$199,200
607	Miscellaneous Replacements	$745,000	$0	$0	$745,000
	Other Distribution Items - Series 700				
702	10 Security Lights @ $500 each	$5,000	$0	$0	$5,000
2. TRANSMISSION FACILITIES					
	New Line - Series 800				
800.03	Build 0.25 mi 34.5kV 477 ACSR to Bautista Substation (Carryover)	$30,000	$0	$0	$30,000
800.04	Build 3.0 mi 34.5kV 477 ACSR w/ 12.47kV 477 ACSR underbuild	$4,100,000	$0	$0	$4,100,000
	and 10.4 mi 34.5kV 4/0 ACSR with 12.47kV 4/0 ACSR underbuild (Carryover)				
	New Stations and Switching - Series 900				
	None	$0	$0	$0	$0
	Transmission Line and Station Changes - Series 1000				
	None	$0	$0	$0	$0
	Other Transmission Items - Series 1100				
1105	Replace 34.5kV regulators at Lake Hemet Substation with 3-1MVA	$300,000	$0	$0	$300,000
1106	Install two 1200 kVAR switched capacitor banks on transmission line	$24,000	$0	$0	$24,000
TOTALS: 2021- 2024 CONSTRUCTION WORK PLAN		$13,955,300	$0	$0	$13,955,300

II. HISTORICAL SYSTEM DATA

This section of the report will provide a review of past experiences in regard to consumer growth, power usage and costs, substation capacity, system losses, and outages and service reliability. The historical data was provided by AEC. Other sections of the report will detail voltage drop, feeder losses, power factor, system coordination, and construction costs.

A. Consumer, kW, and kWh Data

In 2019, AEC provided electric service to an average of 4,450 residential consumers using an average of 933 kWh per month, 11 irrigation consumers using an average of 2,588 kWh per month, 326 small commercial consumers using an average of 2,774 kWh per month, and 2 other public authority consumers using an average of 770 kWh per month.

Figure II-1 and II-2 show the trend of new services, net gain services, and average number of consumers for the past five years, starting in 2015. Over the past two years, the Cooperative's average consumers have increased slightly with new services added each year. For the past two-year period, the Cooperative has connected 105 new services and has had a net gain of 105 new services, due to there being no retired services in 2018 or 2019.

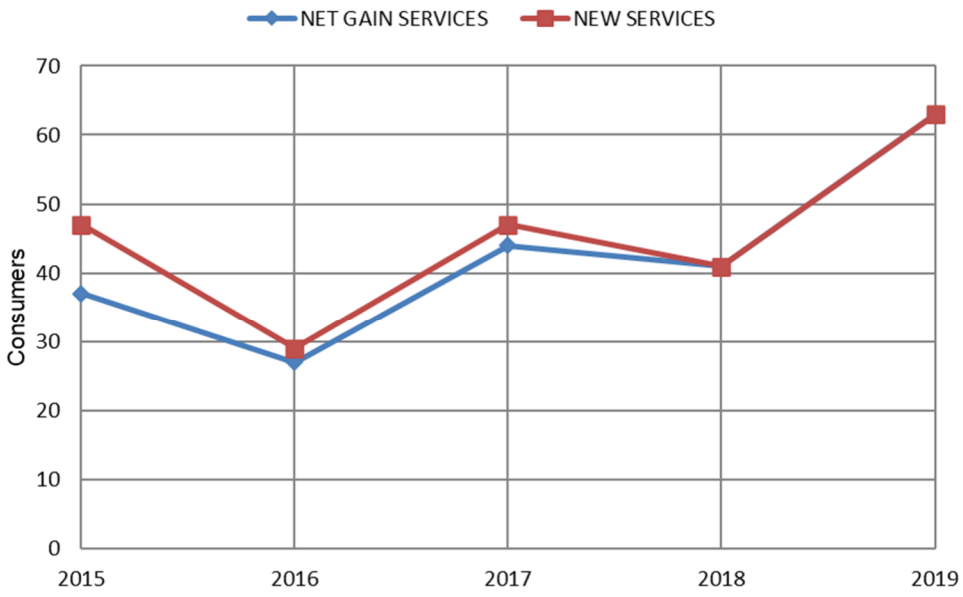


Figure II-1 - New Consumers

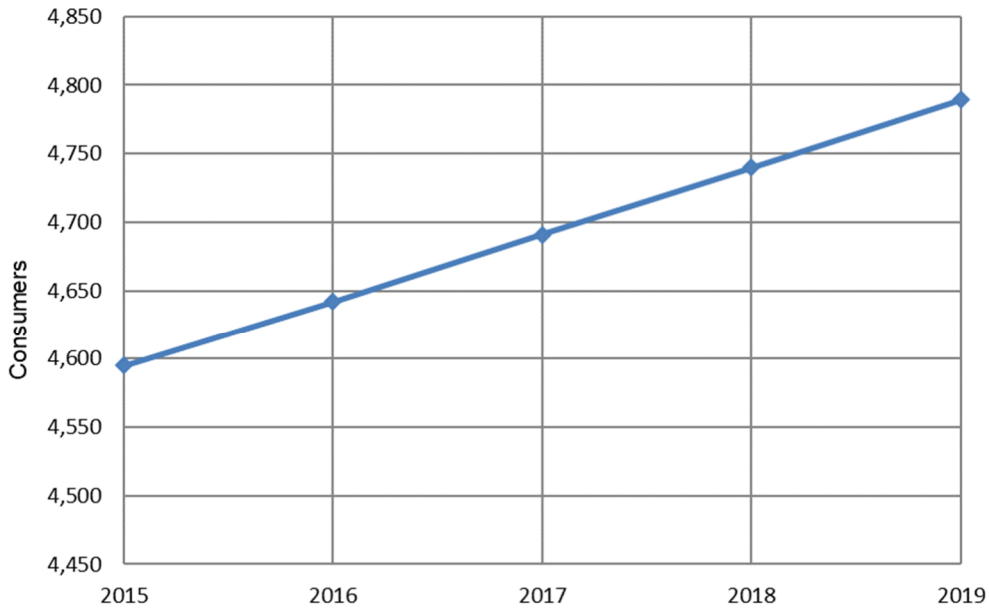


Figure II-2 - Average Consumers

Purchases and sales of electric power have been steady over the past five years. Overall, purchases slightly increased from 57,077 MWh in 2015 to 63,695 MWh in 2019. Sales increased from 51,250 MWh in 2015 to 61,032 MWh in 2019. Figures II-2, II-3, and II-4 show the power purchases and sales, cost of purchases, and cost per kWh for the past five years.

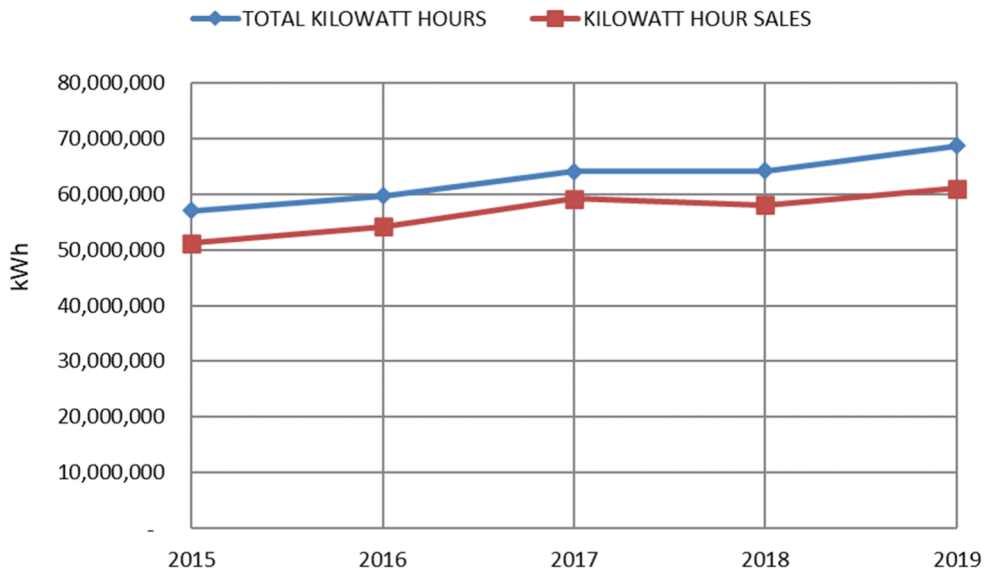


Figure II-3 - kWh Purchases and Sales

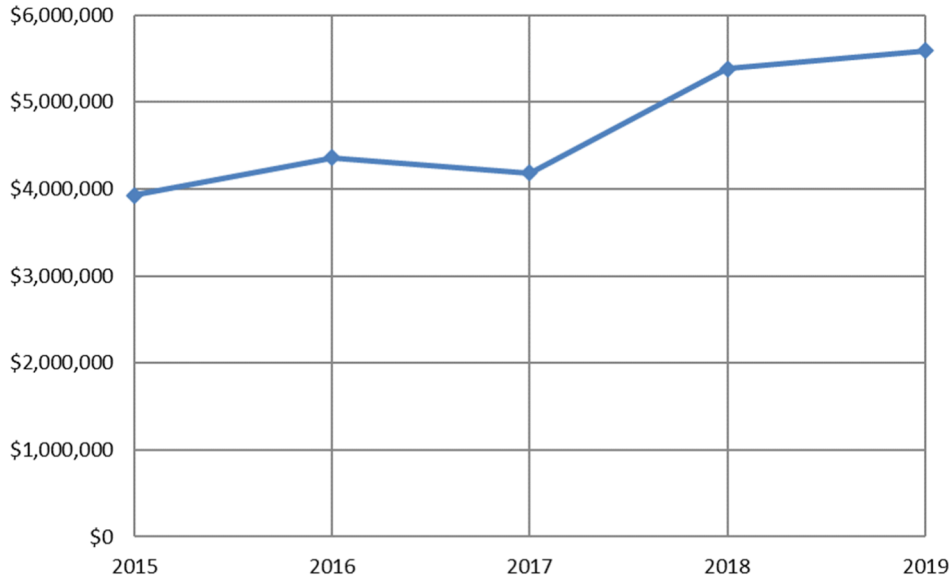


Figure II - 4 - Cost of Purchased Power

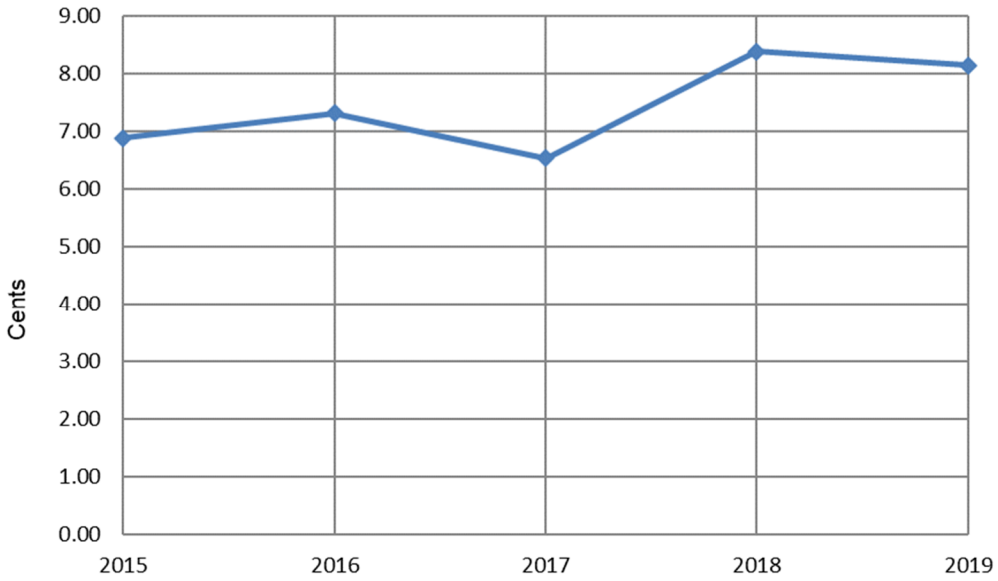


Figure II - 5 - Cost Per kWh

Losses on the system have remained fairly constant since 2015, with the exception of 2017 where losses dropped to 7.1%. A high of 10.7% occurred in 2019. The percent losses for the past five years are given below in Figure II-6, as well as in Table I-1 in the previous section. The costs for the losses over the past five years are given in Figure II-7 below.

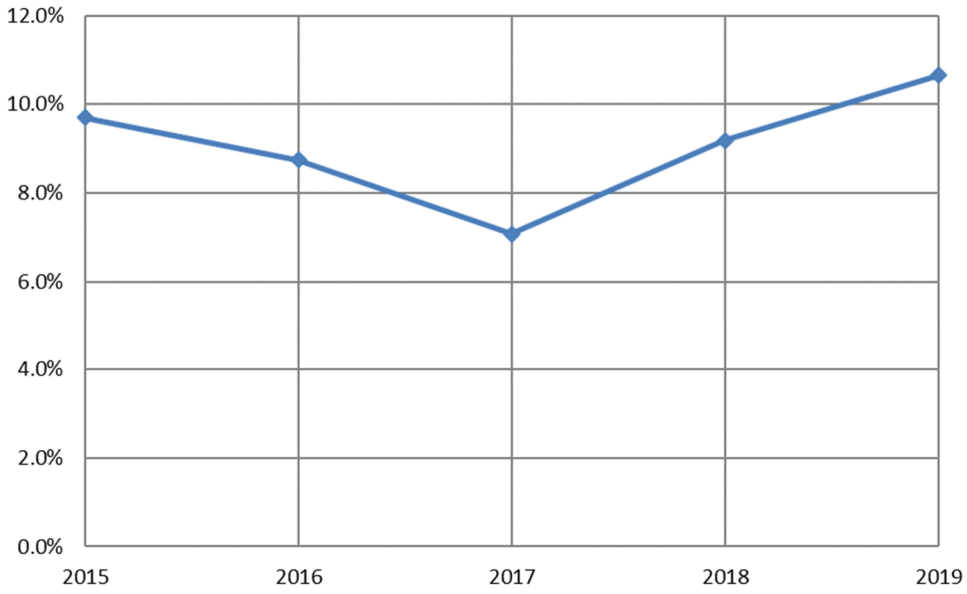


Figure II-6 - Percent Losses

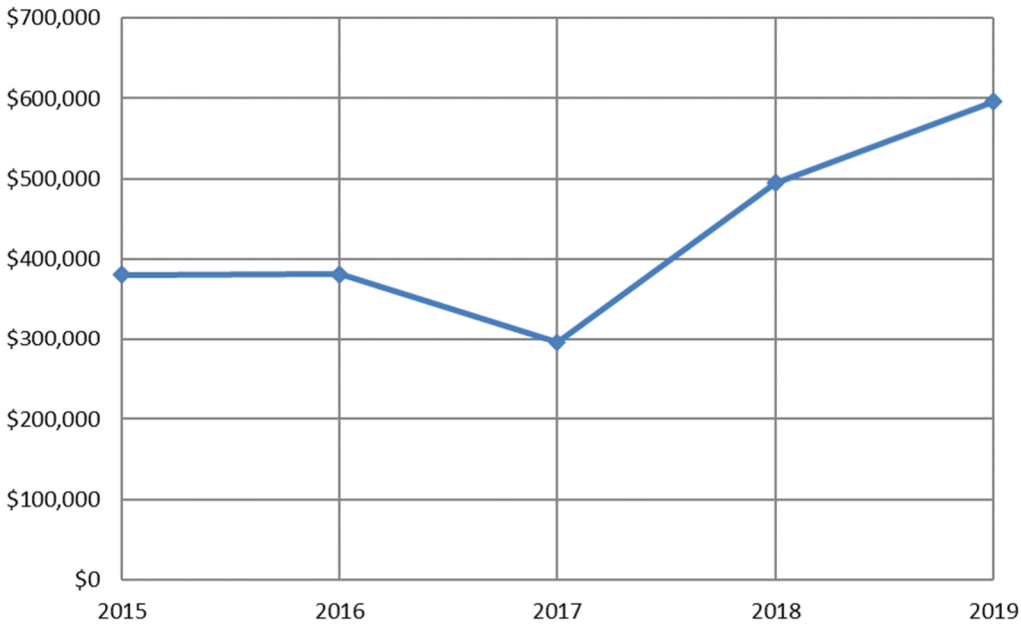


Figure II-7 - Cost of Losses

Several corrective measures have been implemented by the Cooperative to help reduce losses on their system. Typical measures are listed below:

1. Disconnecting or removing distribution transformers that are not serving loads if it is economical to do so.
2. Transformers are prevented from being over-excited by maintaining proper voltage and correct tap connections.
3. Good load balancing on three-phase lines is maintained to keep losses at a minimum.
4. Capacitors are used to provide power factor correction and reduce line losses due to a reduction in line current.
5. Metering for commercial and industrial consumers is checked for proper connections, registration, and multipliers. Employees are alert for bypassing or tampering with meters.
6. Conductors and transformers are sized to properly serve loads economically.

Power costs have increased over the past five years, so keeping losses down is an important factor in overall operations of electric systems. Reducing these losses should remain a primary concern to the Cooperative.

B. Substation Load Data

The system non-coincidental peak of 14.9 MW occurred in 2018. Figure II-8 on the following page shows the system peaks from 2015 to 2019. The Cooperative had a very low peak in 2019 (13.9 MW), but load levels returned to normal in 2020 and are expected to continue to increase.

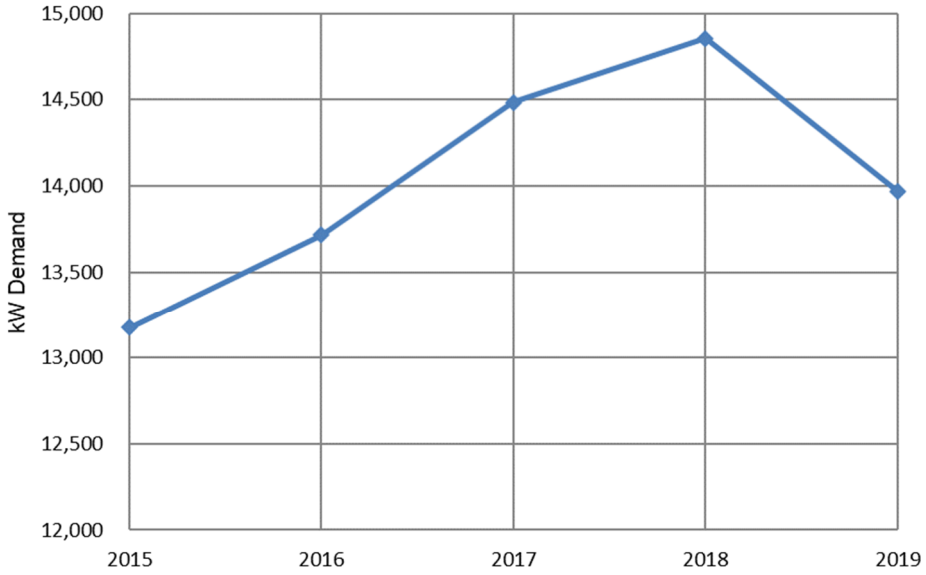


Figure II-8 - System Peak Demand

Figure II-9 shows the annual load factors from 2015 to 2019.

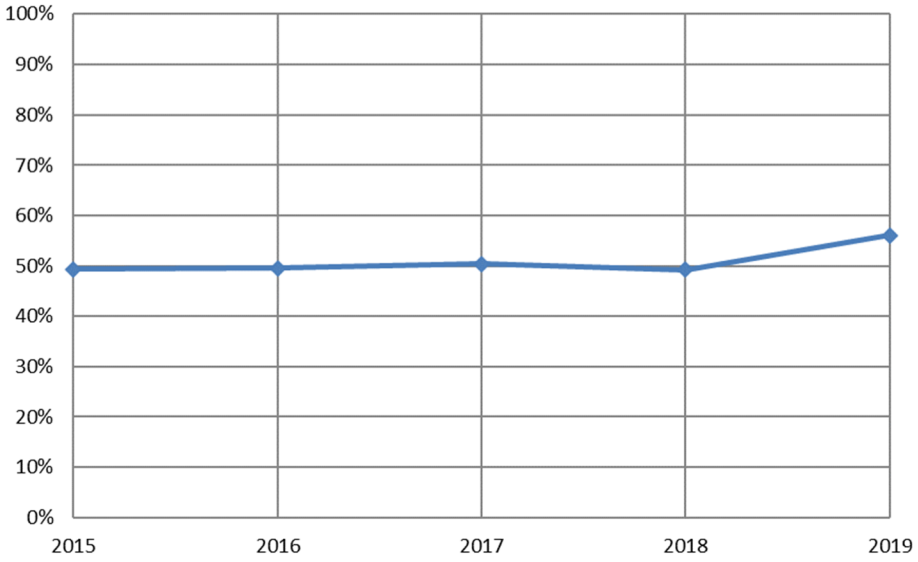


Figure II-9 - Load Factor

The system historically peaks in the summer months, usually June through August. Billing data for July 2020 was used for modeling the existing substations. Table II-1 lists the peak demand at each substation for July 2020. It shows present transformer capacities and voltages at each substation. Loads are shown in kW, power factor, and kVA. The percentage of capacity used is shown for each substation. The loading at Lake Riverside Substation in 2020 exceeds the 5 MVA transformer rating.

Table II-1 – Present Peak Substation Loading (2020)

SUBSTATION	VOLTAGE kV	RATING MVA	BASE CAPACITY kVA	PEAK kW	PEAK kVAR	PEAK PF	PEAK kVA	% BASE CAPACITY USED
Lake Hemet	7.2/12.47 kV	3	3,000	1,536	219	99.0%	1,552	51.7%
Lake Riverside	7.2/12.47 kV	5	5,000	5,160	738	99.0%	5,213	104.3%
Tony Lappos	7.2/12.47 kV	12/16/20	12,000	9,712	1,384	99.0%	9,810	81.8%
Total Subs			**20,000**	**16,408**	**2,341**		**16,574**	**82.9%**

C. System Outages and Reliability

The Cooperative has an average of 1988 outage-minutes per consumer over the past five years. Figure II-10 depicts outage minutes per consumer. The outage minutes per consumer are broken out into four categories. These categories are power supplier, extreme storm, scheduled, and all other. Table I-2 in the Executive Summary also shows the outage minutes in numerical format for the past five-year period.

The outage minutes for 2016 through 2018 are very high and result in a large five-year average. The power supplier outages account for 95% of the five-year average.

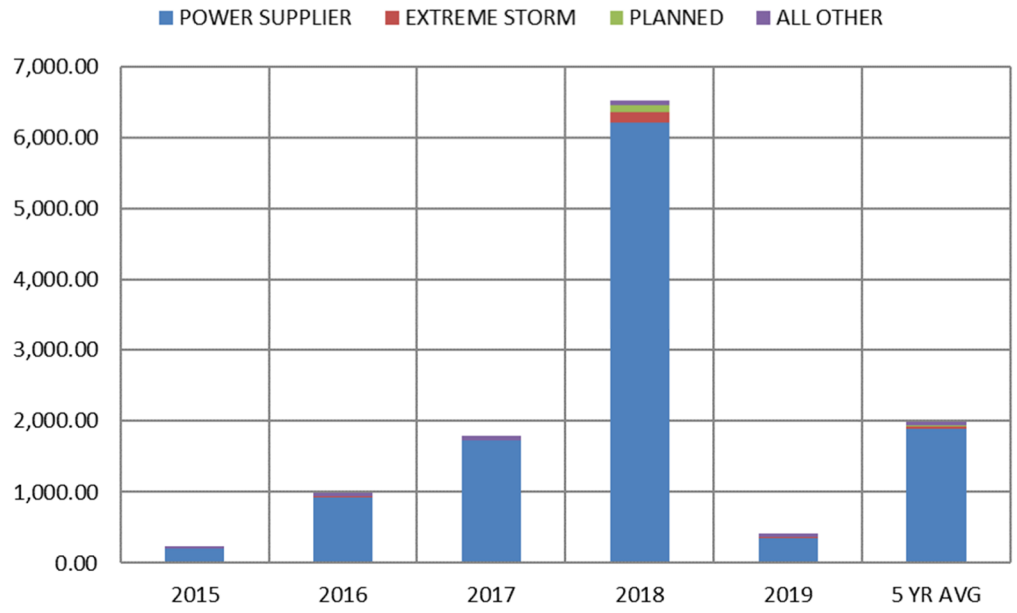


Figure II-10 - Average Outage Minute Per Consumer

III. STATUS OF CURRENT REPORTS

A. Status of Previous 2017 - 2020 CWP Projects

The cooperative only completed one project from the previous workplan. Approximately 95% of the costs from the previous work plan will be carried over into the new workplan. A summary of the status of the previous construction work plan is shown below.

Status of Previous Consruction Work Plan

Code	Description	Total Cost	Status
	A. Distribution		
	New Tie Lines - Series 200		
200.18	Bautista - FDR 4100, build 0.1 mi of 477 ACSR, substation to PC-94	$7,000	Carryover
200.19	Bautista - FDR 4200, build 0.1 mi of 477 ACSR, substation to PC-94	$7,000	Carryover
200.20	Bautista - FDR 4200, build 1.0 mi of 477 ACSR, substation to PC-421	$90,000	Carryover
	Conversions and Line Changes - Series 300		
300.17	Lake Riverside - FDR 3100, convert 4.0 mi of 1-ph to 3-ph 1/0 ACSR, PC-367 to PC-547	$200,000	Carryover
300.18	Lake Riverside - FDR 3100, convert 2.5 mi of 1-ph to 3-ph 1/0 ACSR, PC-7863 to PC-1318	$125,000	Not Needed
300.19	Lake Riverside - FDR 3100, convert 2.8 mi of 1-ph to 3-ph 1/0 ACSR, PC-8159 to PC-8051	$140,000	Not Needed
300.20	Tony Lappos - FDR 1100, convert 1.0 mi of 1-ph to 3-ph 1/0 ACSR, PC-2307 to PC-2459	$50,000	Not Needed
	New Substations and Switching - Series 400		
400.02	New Baustista Substation, 12/16/20 MVA, 34.5/12.47 kV	$1,850,000	Carryover
	Substation, Switching Station, and Metering Point Changes - Series 500		
500.01	Tony Lappos - Replace wooden structures with metal superstructures and bus bars	$1,000,000	Carryover
	Miscellaneous Distribution Equipment - Series 600		
604	1. Lake Riverside - Fdr 3200, install 3-100 amp regulators	$55,000	Carryover
	2. Tony Lappos - Fdr 1100, reclocate 3-100 amp regulators	$2,000	Carryover
	3. Tony Lappos - Fdr 1300, install 3-150 amp regulators	$55,000	Completed
605	1. Bautista - Fdr 4100, add 300 kVAR switched capacitor	$12,000	Carryover
	2. Bautista - Fdr 4200, add 300 kVAR switched capacitor	$12,000	Carryover
	3. Bautista - Fdr 4200, add 300 kVAR switched capacitor	$12,000	Not Needed
	B. Transmission		
	New Line - Series 800		
800.03	Build 0.25 mi 34.5kV 477 ACSR, Bautista to new transmission line	$30,000	Carryover
800.04	Build 3.0 mi 34.5kV 477 ACSR with 12.47kV 477 ACSR underbuild, 10.4 mi 34.5kV 4/0 ACSR with 12.47kV 4/0 ACSR underbuild	$4,100,000	Carryover
	Total 2017-2020 CWP	$7,747,000	
	Completed Items	$55,000	0.71%
	Carryover Items	$7,365,000	95.07%
	Not Needed	$327,000	4.22%
	Totals	$7,747,000	100.00%

B. Status of Long Range Plan

The Cooperative does not have an active Long Range Plan (LRP).

C. Coordination Study

The Cooperative has requested a coordination review upon completion of the workplan. The Engineer will begin a coordination study as soon as the workplan is complete.

IV. PROJECTED SYSTEM

A. Special Equipment and Ordinary Replacements

Actual historical cost data associated with special equipment and replacement requirements of the system was gathered for 2018 and 2019. Table IV-1 shows the projected Special Equipment and Replacements money from the 2017-2020 CWP, 2018-2019, and projections for the 2021-2024 Construction Work Plan.

AEC wishes to double the estimated replacements from the previous workplan. AEC will be implementing a fire mitigation strategy that involves increased pole inspections and thus increased pole replacements.

Table IV-1 – Comparison of Special Equipment and Replacements – [2021-2024]

							[2021- 2024] CWP Projections		
Anza - CA41	[2008- 2011] CWP Projections			2018- 2019 Actual			Inflation = 3.50%	Avg =	9.06%
Special Equipment	Quan.	Avg. Cost	Total	Quan.	Avg. Cost	Total	Quan.	Avg. Cost	Total
OH Transformers	170	$1,320	$224,400	113	$1,611	$182,063	230	$1,760	$404,800
PM Transformers	25	$1,390	$34,750	52	$2,346	$121,983	110	$2,560	$281,600
Transformers >100kVA				2	$57,888	$115,776	10	$63,140	$631,400
Meters	5,223	$200	$1,044,600	1,122	$196	$219,965	4,800	$220	$1,056,000
Pole Intersets									
PT's & CT's	50	$500	$25,000	6	$397	$2,380	20	$440	$8,800
Increased Capacity									
Security Lights	160	$500	$80,000	0	$0	$0	10	$500	$5,000
Sub- Total - Sp. Equip.			$1,408,750			$1,408,750			$2,387,600
Replacements - Dist.	Quan.	Avg. Cost	Total	Quan.	Avg. Cost	Total	Quan.	Avg. Cost	Total
Dist. Poles	60	$1,520	$91,200				120	$1,660	$199,200
Dist. Crossarms	80	$620	$49,600				160	$680	$108,800
Arrestors & Cutouts	400	$310	$124,000		**See Note 1		800	$340	$272,000
Grounds	40	$420	$16,800				80	$460	$36,800
Insulator Strings	80	$350	$28,000				160	$390	$62,400
Miscellaneous Units	250	$480	$120,000				500	$530	$265,000
Total			$429,600						$944,200
Replacements - Tran.	Quan.	Avg. Cost	Total	Quan.	Avg. Cost	Total	Quan.	Avg. Cost	Total
Trans. Poles	10	$5,840	$58,400				20	$6,370	$127,400
Trans. Crossarms	20	$1,750	$35,000		**See Note 1		40	$1,910	$76,400
Insulators	30	$590	$17,700				60	$650	$39,000
Total			$111,100						$242,800
GRAND TOTALS		Total Cost	$1,949,450					Total Cost	$3,574,600
		Loan Funds	$1,949,450					Loan Funds	$3,776,340

**Note 1- AEC did not provide replacement data for 2018- 2019. As part of a fire mitigation effort, AEC has requested that the 2021- 2024 replacements be doubled from the previous work plan.

B. Substation Area Analysis and System Improvements

This section of the report will examine voltage drop, losses, and conductor loading experienced on the system during the projected peak demand in 2024. The AEC 2019 Load Forecast was used to estimate load growth over the four-year work plan period. The 2020 load data was grown based on the forecasted growth rates to estimate the 2024 peak loading. Table IV-2 shows the total and annual growth at each substation for 2024.

Table IV-2 – Projected Growth Rates

SUBSTATION	2020 Peak kW	2024 Peak kW	Total % Growth	Annual % Growth
Lake Hemet	1,536	1,643	7%	1.4%
Lake Riverside	5,160	5,521	7%	1.4%
Tony Lappos	9,712	10,392	7%	1.4%
TOTAL Subs	**16,408**	**17,556**	**7%**	**1.4%**
Load Forcast CP	14,800	15,600	5%	1.3%
Ratio of TOTAL Sum / NCP	1.11	1.13		

Table IV-3 lists the peak loading data for 2024 on each substation on the existing system. It shows transformer capacities and rated voltages at each substation. Loads are shown in kW, kVAR, and kVA. Capacity used is shown in percent of transformer base capacity. Lake Riverside Substation is expected to be loaded above 100% of its 5 MVA capacity.

Table IV-3 – Projected Peak Substation Loading on the Existing System (2024)

SUBSTATION	VOLTAGE kV	RATING MVA	BASE CAPACITY kVA	PEAK kW	PEAK kVAR	PEAK PF	PEAK kVA	% BASE CAPACITY USED
Lake Hemet	7.2/12.47 kV	3	3,000	1,643	234	99.0%	1,660	55.3%
Lake Riverside	7.2/12.47 kV	5	5,000	5,521	790	99.0%	5,577	111.5%
Tony Lappos	7.2/12.47 kV	12/16/20	12,000	10,392	1,481	99.0%	10,497	87.5%
Total Subs			**20,000**	**17,556**	**2,505**		**17,734**	**88.7%**

Table IV-4 lists the peak loading data for each substation for the projected system with the recommended work plan projects (2024). It shows transformer capacities and rated voltages at each substation. Loads are shown in kW, kVAR, and kVA. Capacity used is shown in percent of transformer base capacity.

Table IV-4 – Projected Peak Substation Loading on the Projected System (2024)

SUBSTATION	VOLTAGE kV	RATING MVA	BASE CAPACITY kVA	PEAK kW	PEAK kVAR	PEAK PF	PEAK kVA	% BASE CAPACITY USED
Lake Hemet	7.2/12.47 kV	3	3,000	1,643	234	99.0%	1,660	55.3%
Lake Riverside	7.2/12.47 kV	10/11.2/12.5//14	10,000	5,521	790	99.0%	5,577	55.8%
Tony Lappos	7.2/12.47 kV	12/16/20	12,000	6,092	868	99.0%	6,154	51.3%
New Bautista	7.2/12.47 kV	12/16/20	12,000	4,300	613	99.0%	4,343	36.2%
Total Subs			**37,000**	**17,556**	**2,505**		**17,734**	**47.9%**

Table IV-5 is a chart that summarizes the voltage conditions, load flows, losses, and conductor loading for each circuit on the distribution system. These quantities are given for the present system (2020), present system with projected loading (2024), and the projected system (2024). This provides a side-by-side comparison of loading, losses, conductor loading, and voltage drop. This provides a good indication of the economics of line conversion. Lines loaded between 50-55% of their ampacity ratings may be economical to convert on AEC's system. This is mainly determined by the cost of construction and power losses. The Cooperative typically runs their substations output voltages at 126 volts and the allowable voltage drops are designed to keep all consumers at 118 volts on the primary side of distribution transformers.

Voltage drops show the maximum regulated drops on the circuit determined by power flow analyses. Regulated voltage drop should be 8.0 volts or less for each circuit.

Table IV-5 – Voltage Drop Summaries for AEC CWP 2021-2024

Substation	Fdr.	Feeder Loading in kW			Feeder Loading in kVAR			kW Losses			Heaviest Loaded Conductor (%)			Max Voltage Drop (120 Volt Base)		
		Exist. Sys. 2015 Load	Exist. Sys. 2020 Load	Proj. Sys. 2020 Load	Exist. Sys. 2015 Load	Exist. Sys. 2020 Load	Proj. Sys. 2020 Load	Exist. Sys. 2015 Load	Exist. Sys. 2020 Load	Proj. Sys. 2020 Load	Exist. Sys. 2015 Load	Exist. Sys. 2020 Load	Proj. Sys. 2020 Load	Exist. Sys. 2015 Load	Exist. Sys. 2020 Load	Proj. Sys. 2020 Load
Lake Hemet	2100	506	536	536	384	408	408	0	0	0	14	15	15	0.9	0.9	0.9
	2200	1,114	1,186	1,186	223	258	255	38	43	41	29	31	27	7.6	8.1	7.1
Lake Riverside	3100	2,534	2,711	2,715	465	546	527	125	143	72	70	75	43	14.7	15.8	6.1
	3300	2,775	2,969	2,997	127	204	209	107	122	110	60	64	52	13.2	14.2	8.0
Tony Lappos	1100	2,581	2,777	2,642	445	551	478	317	369	209	59	63	52	12.6	13.6	7.8
	1200	2,711	2,904	700	316	424	-509	145	167	4	59	63	20	11.1	11.9	2.4
	1300	3,291	3,533	3,384	189	313	188	252	292	99	69	74	48	9.6	10.4	7.3
	1400	2,769	2,969	665	508	616	-284	140	161	2	71	76	12	7.3	7.7	1.8
Bautista	4100			2,208			463			27			31			4.2
	4200			2,156			500			50			44			7.4

Sample power flows for the existing system with projected loading and projected system and loading are in Appendices A1 & A2.

The following paragraphs will discuss the problem areas and proposed system improvements.

1. Lake Hemet Substation Service Area

Lake Hemet Substation has three 1 MVA, 34.5:12.47 kV transformers. The load level of this substation service area projected for the 2021-2024 work plan period is approximately 1,643 kW and peak kVA is projected to be 1,660 kVA or 55% of its rated 3 MVA base capacity.

Projected voltage drop calculations indicate the possibility for problems of low voltage, approximately 117.8 volts worst-case, on Feeder 2200. There appears to be imbalance by up to 30 amps between A and B phase. Balancing the single-phase lines on this circuit will help to maintain adequate voltages.

The three 12.47 kV single-phase 167 kVA regulators at the Lake Hemet Substation will also need to be upgraded for increased loading. We recommend installing three single-phase 333 kVA regulators.

Summary of Construction, Lake Hemet Substation Service Area

500.02	3rd Year, Replace 12.47 kV Regulators with 333 kVA Single-Phase Regulators at Lake Hemet Substation	$100,000

2. Lake Riverside Substation Service Area

Lake Riverside Substation has three 1.667 MVA, 34.5:12.47 kV transformers. The load level of this substation service area projected for the 2021-2024 work plan period is approximately 5,521 kW and peak kVA is projected to be 5,577 kVA or 112% of its rated 5 MVA base capacity.

On Feeder 3100, existing and projected voltage drop calculations indicate problems of low voltage, approximately 110 volts worst-case, on single-phase lines downline of reclosers RC-6 and RC-36. There is significant imbalance on Feeder 3100, with up to 70 amps of difference between A and C phases. The single-phase lines downline of reclosers RC-6 and RC-36 are projected to have over 40 amps of load on them. Additionally, the #4 ACSR single-phase line downline of recloser RC-36 is loaded to 64% of its capacity with projected load levels.

The general rule for single phase lines is to keep line loading at or below 30 amps. This helps to avoid large unbalances of phases which can lead to voltage problems. While voltage regulators could certainly fix the voltage issue, converting the single-phase lines to three-phase will allow for future growth and will be the best option for long term planning. It will eliminate the continuous need for voltage regulator additions and relocations as load grows over time and help to balance load. As a carryover from the previous workplan, we recommend converting 4 miles of single-phase line to three-phase 1/0 ACSR from line section PC-3671 to line section PC-547, downline of recloser RC-36. Recloser RC-36 will need to be replaced with a three phase recloser after the recommended line sections are converted to three-phase. We then recommend balancing the phase load along this newly converted line.

The 1/0 ACSR feeder on Feeder 3100 will be loaded above 50% of its capacity with projected load levels, even with corrected load balance. We recommend converting the south feeder overhead line to 477 ACSR from line section PC-274 to line section PC-4875, approximately 1.2 miles of line. We also recommend installing three 100-amp regulators at Node 3120 on Feeder 3100 to improve voltages downline of recloser RC-6.

On Feeder 3200, existing and projected voltage drop calculations indicate problems of low voltage, approximately 111 volts worst-case, on single-phase lines downline of recloser

RC-9. The single-phase lines downline of reclosers RC-17 and RC-18 are projected to have over 20 amps of load on them.

The 1/0 ACSR feeder on Feeder 3200 will be loaded above 60% of its capacity with projected load levels. We recommend converting the north feeder overhead line to 477 ACSR from line section PC-1706 to line section PC-1708, approximately 0.1 miles of line. We also recommend installing three 100-amp regulators at prior to recloser RC-9 on circuit 3200.

The 5 MVA transformer at Lake Riverside is loaded above 100% of its capacity. Anza has already purchased a new 10/11.2/12.5//14 MVA transformer for Lake Riverside. The new transformer does not have an LTC.

The three 12.47 kV single-phase 250 kVA regulators at the Lake Riverside Substation will also need to be upgraded for increased loading. We recommend installing three single-phase 500 kVA regulators.

Summary of Construction, Lake Riverside Substation Service Area

300.17	2nd Year, Carryover, Feeder 3100, Convert 4.0 miles of 1Ø #4 ACSR to 3Ø 1/0 ACSR	$240,000
300.21	4th Year, Feeder 3100, Convert 1.2 miles of 3Ø 1/0 ACSR to 3Ø 477 ACSR	$108,000
300.22	4th Year, Feeder 3200, Convert 0.1 miles of 3Ø 1/0 ACSR to 3Ø 477 ACSR	$13,500
500.03	1st Year, Replace Lake Riverside Substation 5 MVA transformer with 10/12/16 MVA transformer – Labor Only	$150,000
500.04	1st Year, Replace 12.47 kV Regulators with 500 kVA Single-Phase Regulators at Lake Riverside Substation	$120,000
604	1st Year, Feeder 3100, Install three 100-amp regulators at Node 3120	$55,000
604	1st Year, Feeder 3200, Install three 100-amp regulators upline of RC-6	$55,000

3. Tony Lappos Substation Service Area

Tony Lappos Substation has one 12/16/20, 34.5:12.47 kV transformer. The load level of this substation service area projected for the 2021-2024 work plan period is approximately 10,392 kW and peak kVA is projected to be 10,497 kVA or 88% of its rated 12 MVA base capacity.

On Feeder 1100, existing and projected voltage drop calculations indicate problems of low voltage, approximately 110 volts worst-case, on three-phase lines between recloser R-11 and the Bull Canyon regulators, between Node 1108 and the Pinyon regulators, and on the single-phase lines downline of recloser RC-3. Additionally, the 1/0 ACSR feeder is loaded above 50% of its capacity with projected load levels.

There are already two cascaded regulator banks on Feeder 1100, and the voltages still continue to drop below 118 volts per unit. The load is fairly balanced and even with a complete balancing of the load, low voltages still occur. We recommend a combination of line conversion, regulator relocation, and load balancing to improve voltages on Feeder 1100. First, we recommend converting the 1/0 ACSR feeder to 477 ACSR from the substation to Node 1106, approximately 7 miles. Next, we recommend moving the Bull Canyon regulators from their existing location to line section PC-7063. Finally, we recommend ensuring the load downline of the Pinyon regulators is completely balanced.

On Feeder 1200, existing and projected voltage drop calculations indicate problems of low voltage, approximately 115 volts worst-case, on lines between Node 1202 and the Bautista regulators. Additionally, the 1/0 ACSR feeder at Node 1201 is loaded above 60% of its capacity with projected load levels. Approximately 2.1 MW of load will be shifted from Tony Lappos Feeder 1100 onto the new Bautista Substation. The new open points can be found in the projected system map in the Appendices. This load shift will alleviate the voltage and line capacity problems in this area.

On Feeder 1300, existing and projected voltage drop calculations indicate problems of low voltage, approximately 117 volts worst-case, on single-phase lines between recloser R-32 and Node 1306 and downline of recloser RC-28. Additionally, the 1/0 ACSR feeder is loaded above 70% of its capacity with projected load levels.

We recommend converting the 1/0 ACSR south feeder to 477 ACSR from the substation to line section PC-5068, approximately 4.5 miles. This line conversion will eliminate any voltage and line capacity problems in Feeder 1300.

On Feeder 1400, existing and projected voltage drop calculations indicate that the #2 ACSR line at line section PC-780 is loaded above 60% of its capacity. There are no voltage problems on this feeder. Approximately 2.2 MW of load will be shifted from Tony Lappos Feeder 1400 onto the new Bautista Substation. The new open points can be found in the projected system map in the Appendices. This load shift will alleviate the line capacity problems in this area.

As a carryover from the previous workplan, the Cooperative plans to rebuild Tony Lappos Substation due to its aging wooden structures. The new Tony Lappos Substation will still utilize a 12 MVA base rated transformer and will be constructed with a metal superstructure and bus bars.

Summary of Construction, Tony Lappos Substation Service Area

300.23	3rd Year, Feeder 1100, Convert 7.0 miles of 3Ø 1/0 ACSR to 3Ø 477 ACSR	$630,000
300.24	3rd Year, Feeder 1300, Convert 4.5 miles of 3Ø 1/0 ACSR to 3Ø 477 ACSR	$405,000
500.01	1st Year, Carryover, Rebuild Tony Lappos Substation with a 12 MVA transformer	$2,000,000
604	3rd Year, Feeder 1100, Relocate Bull Canyon regulators	$2,000

4. New Bautista Substation Service Area

A new 12/16/20, 34.5:12.47 kV substation will be built to the west of Tony Lappos Substation. The new Bautista Substation is a carryover from the previous workplan. The new substation will pick up load from Tony Lappos Substation, improving reliability, voltages, and line loading in the affected service area.

The Bautista substation will have three bays, with two active feeders: Feeder 4100 and Feeder 4200. About 0.1 miles of three phase 477 ACSR double circuit will need to be constructed for Feeders 4100 and 4200, running south from the substation to line section PC-94. About 1 mile of three-phase 477 ACSR will need to be constructed for Feeder 4200, running north from the substation to line section PC-421. Approximately 4.3 MW of load will be shifted from the Tony Lappos Substation onto Bautista Substation. The new open points can be found in the projected system map in the Appendices.

After load has been moved onto Bautista from Tony Lappos, new capacitors will be necessary to improve power factor. We recommend installing one 300 kVAR switched capacitor bank at the end of line section PC-4993 on Feeder 4100 and one 300 kVAR switched capacitor bank at the end of line section PC-6337 on Feeder 4200.

As part of a carryover transmission line rebuild (Project 800.04), several conductors will be converted and rebuilt as underbuilt for the new transmission line. The three-phase 1/0 ACSR from line section PC-94 to PC-3422 will be converted to three-phase 4/0 ACSR. The single phase #4 ACSR from line section PC-8797 to PC-2154 and from PC-1233 to PC-8765 will be converted to three-phase 4/0 ACSR. Additionally, the single phase #4 ACSR from line section PC-2739 to PC-9070 will be converted to three-phase 4/0 ACSR. Two new line sections of 4/0 ACSR will be constructed from PC-2154 to PC-1233 and from PC-8765 to PC-2739. Load from PC-2739 to PC-9151 will then be backfed north onto the new line section. Recloser RC-39 will need to be replaced with a three phase recloser after the recommended line sections are converted to three-phase. These conversions will provide reliability and improved service in the Tony Lappos and Bautista Substation service areas.

Summary of Construction, Bautista Substation Service Area

400.02	4th Year, Carryover, Construct new 34.5kV:12.47kV, 12/16/20 MVA Bautista Substation with 3 bays	$2,000,000
200.18	4th Year, Carryover, Feeder 4100, Build 0.1 miles of 3Ø 477 ACSR	$9,000
200.19	4th Year, Carryover, Feeder 4200, Build 0.1 miles of 3Ø 477 ACSR	$9,000
200.20	4th Year, Carryover, Feeder 4200, Build 1.0 miles of 3Ø 477 ACSR	$90,000
605	4th Year, Feeder 4200, Install 300 kVAR switched capacitor bank	$14,000
605	4th Year, Feeder 4100, Install 300 kVAR switched capacitor bank	$14,000

C. Transmission Improvements

As a carryover from the previous work plan, the Cooperative will re-build a portion of the 34.5 kV transmission system from Lake Riverside substation to Tony Lappos substation. The recommended re-build will move the current transmission line north to the highway and circumvent the tribal land. The location change of the transmission line is a modification from the previous work plan in order to move off tribal lands. The 3 miles from the intersection of Kirby Road and Kenworthy Bautista Road to the new Bautista substation will be 34.5 kV 477 ACSR overbuild with 12.47 kV 477 ACSR underbuild. The 10.4 miles from the new Bautista substation to Riverside substation will be 34.5 kV 4/0 ACSR overbuild with 12.47 kV 4/0 ACSR underbuild. The proposed new transmission route will mostly follow existing distribution lines, with two small sections outside of existing right of way. Approximately 5 miles of single-phase distribution on the Bautista and Riverside circuits will be converted to three phase distribution as a result of the transmission rebuild.

As part of the new Bautista Substation project, a new 0.25 mile 34.5 kV 477 ACSR tap will be built from the new upgraded transmission line to the new Bautista substation.

The 34.5 kV 1500 kVA regulator located at Lake Hemet Substation will need to be upgraded for increased loading. We recommend installing three single-phase 1 MVA regulators.

The Cooperative has requested that capacitors be added to the 34.5 kV transmission line to ensure compliance with the Southern California Edison contract for the delivery point at Mountain Center. The Cooperative must maintain a leading power factor by 5% at loads of 12 MW or above. We recommend installing 2400 kVAR of capacitance north of the Tony Lappos Substation to assist in power factor support.

Summary of Construction, Transmission System

800.03	3rd Year, Carryover, Build 0.25 miles 34.5kV 477 ACSR as a tap to the new Bautista Substation	$30,000
800.04	2nd Year, Carryover, Build 3 miles 34.5kV 477 ACSR with 12.47kV 477 ACSR underbuild and 10.4 miles 34.5kV 4/0 ACSR with 12.47kV 4/0 ACSR underbuild	$1,850,000
1105	3rd Year, Replace 34.5 kV Regulators with 1 MVA Single-Phase Regulators at Lake Hemet Substation	$300,000
1106	3rd Year, Install one 2400 kVAR switched capacitor bank	$24,000

D. Sectionalizing Equipment

The Cooperative will replace various sectionalizing equipment across the system throughout the workplan period. The estimated cost for these replacements is $100,000.

The Cooperative plans to replace the existing MC001 recloser at Mountain Center to improve protection and coordination with downline transmission devices. The existing recloser will be replaced with a sub mounted Viper recloser. The estimated cost for this recloser is $55,000.

Summary of Construction, Sectionalizing Equipment

603	Various Sectionalizing Equipment System Wide	$100,000
603	New 34.5 kV Viper Recloser at Mountain Center	$55,000

E. Miscellaneous Distribution Equipment

1. Meter Upgrades

The cooperative plans to replace approximately 4,800 AMR meters with Elster AMI meters. The existing meters are approaching the end of their useful life.

Summary of Meter Upgrades

601	¼th each Year, replace approximately 4,800 meters with new AMI meters	$1,056,000

2. Distribution Replacements

As part of a fire mitigation effort, the Cooperative plans to increase pole inspections and has doubled the budget from the last workplan for distribution replacements.

V. SUMMARY OF SYSTEM IMPROVEMENTS

This section of the report lists the proposed construction anticipated for the 2021-2024 Construction Work Plan period. The following pages provide greater detail on all construction items proposed in this work plan. Construction costs shown are totals.

	Year 2021	Year 2022	Year 2023	Year 2024	Total
A. Distribution					
2. New Tie Lines - 200					
200.18 a. Bautista - FDR 4100, Build 0.1mi 3ph 477 ACSR (Carryover)	$0	$0	$0	$9,000	$9,000
200.19 b. Bautista - FDR 4200, Build 0.1mi 3ph 477 ACSR (Carryover)	$0	$0	$0	$9,000	$9,000
200.20 c. Bautista - FDR 4200, Build 1.0 mi 3ph 477 ACSR (Carryover)	$0	$0	$0	$90,000	$90,000
Total - New Tie Lines	**$0**	**$0**	**$0**	**$108,000**	**$108,000**
3. Conversion and Line Changes - 300					
300.17 a. Lake Riverside - Fdr 3100, Convert 4.0 mi of 1Ø #4 ACSR to 3Ø 1/0 ACSR (Carryover)	$0	$240,000	$0	$0	$240,000
300.21 b. Lake Riverside - Fdr 3100, Convert 1.2 mi of 3Ø 1/0 ACSR to 3Ø 477 ACSR	$0	$0	$0	$108,000	$108,000
300.22 c. Lake Riverside - Fdr 3200, Convert 0.1mi of 3Ø 1/0 ACSR to 3Ø 477 ACSR	$0	$0	$0	$13,500	$13,500
300.23 d. Tony Lappos - Fdr 1100, Convert 7.0 mi of 3Ø 1/0 ACSR to 3Ø 477 ACSR	$0	$0	$630,000	$0	$630,000
300.24 e. Tony Lappos - Fdr 1300, Convert 4.5 mi of 3Ø 1/0 ACSR to 3Ø 477 ACSR	$0	$0	$405,000	$0	$405,000
Total - Conversion and Line Changes	**$0**	**$240,000**	**$1,035,000**	**$121,500**	**$1,396,500**
4. New Substations, Switching Stations, and Metering Points - 400					
400.02 a. Build New Bautista Sub 12 MVA, 34.5kV:12.47kV (Carryover)	$0	$0	$0	$2,000,000	$2,000,000
Total - New Stations and Metering Points	**$0**	**$0**	**$0**	**$2,000,000**	**$2,000,000**
5. Substation, Switching Station, Metering Point Changes - 500					
500.01 a. Tony Lappos - Rebuild with metal superstructure and bus bars and 12 MVA transformer (Carryover)	$2,000,000	$0	$0	$0	$2,000,000
500.02 b. Lake Hemet - Replace 12.47kV Regulators with 3-333 kVA	$0	$0	$100,000	$0	$100,000
500.03 c. Lake Riverside - Replace substation transformer with 10 MVA	$150,000	$0	$0	$0	$150,000
500.04 d. Lake Riverside - Replace 12.47kV Regulators with 3-500 kVA	$120,000	$0	$0	$0	$120,000
Total - Station and Metering Point Changes	**$2,270,000**	**$0**	**$100,000**	**$0**	**$2,370,000**

		Year 2021	Year 2022	Year 2023	Year 2024	Total
A. Distribution Continued...						
6. Miscellaneous Distribution Equipment - 600						
601	a. Transformers and Meters					
	1) 230 Overhead Transformers @ $1,760 each	$101,200	$101,200	$101,200	$101,200	$404,800
	2) 110 Padmount Transformers @ $2,560 each	$70,400	$70,400	$70,400	$70,400	$281,600
	3) 10 Transformers > 100 kVA @ $63,140 each	$157,850	$157,850	$157,850	$157,850	$631,400
	4) 4,800 New AMI Meters @ $220 each	$264,000	$264,000	$264,000	$264,000	$1,056,000
	5) 20 PT's and CT's @ $440 each	$2,200	$2,200	$2,200	$2,200	$8,800
	Total - Transformers & Meters	$595,650	$595,650	$595,650	$595,650	$2,382,600
602	b. Service Changes	$0	$0	$0	$0	$0
603	c. Line Sectionalizing Equipment					
	1) Various Sectionalizing Equipment System Wide	$25,000	$25,000	$25,000	$25,000	$100,000
	2) New 34.5 kV Viper Recloser at Mountain Center	$55,000	$0	$0	$0	$55,000
	Total - Line Sectionalizing Equipment	$80,000	$25,000	$25,000	$25,000	$155,000
604	d. Line Regulators					
	1) Lake Riverside - Fdr 3100, Install three 100-amp regulators	$55,000	$0	$0	$0	$55,000
	2) Lake Riverside - Fdr 3200, Install three 100-amp regulators	$55,000	$0	$0	$0	$55,000
	3) Tony Lappos - Fdr 1100, Reclocate Bull Canyon regulators	$0	$0	$2,000	$0	$2,000
	Total - Line Regulators	$110,000	$0	$2,000	$0	$112,000
605	e. Line Capacitors					
	1) Bautista - Fdr 4200, Install one 300 kVAR cap bank	$0	$0	$0	$14,000	$14,000
	2) Bautista - Fdr 4100, Install one 300 kVAR cap bank	$0	$0	$0	$14,000	$14,000
	Total - Line Capacitors	$0	$0	$0	$28,000	$28,000
606	f. Pole Replacements and/or Additions					
	1) 120 Dist Poles @ $1,660 each	$49,800	$49,800	$49,800	$49,800	$199,200
	Total - Pole Replacements	$49,800	$49,800	$49,800	$49,800	$199,200
607	g. Miscellaneous Replacements					
	1) 160 Crossarms @ $680 each	$27,200	$27,200	$27,200	$27,200	$108,800
	2) 800 Arresters & Cutouts @ $340 each	$68,000	$68,000	$68,000	$68,000	$272,000
	3) 80 Grounds @ $460 each	$9,200	$9,200	$9,200	$9,200	$36,800
	4) 160 Insulator Strings @ $390 each	$15,600	$15,600	$15,600	$15,600	$62,400
	5) Misc. Units	$66,250	$66,250	$66,250	$66,250	$265,000
	Total - Miscellaneous Replacements	$186,250	$186,250	$186,250	$186,250	$745,000
	Total - Miscellaneous Distribution Equipment	**$1,021,700**	**$856,700**	**$858,700**	**$884,700**	**$3,621,800**
7. Other Distribution Items - 700						
701	a. Engineering Fees - Included in line estimates	$0	$0	$0	$0	$0
702	b. Security Lights					
	1) 10 Security Lights @ $500 each	$1,250	$1,250	$1,250	$1,250	$5,000
	Total - Security Lights	$1,250	$1,250	$1,250	$1,250	$5,000
703	c. General Fund Reimbursement	$0	$0	$0	$0	$0
704	d. Load Management/SCADA	$0	$0	$0	$0	$0
705	e. AMR Equipment	$0	$0	$0	$0	$0
	Total - Other Distribution Items	**$1,250**	**$1,250**	**$1,250**	**$1,250**	**$5,000**
	Grand Total Distribtuion	**$3,292,950**	**$1,097,950**	**$1,994,950**	**$3,115,450**	**$9,501,300**

			Year 2021	Year 2022	Year 2023	Year 2024	Total
B. Transmission							
1. Transmission Lines - 800							
800.03	a.	Build 0.25 mi 34.5kV 477 ACSR to Bautista Substation (Carryover)	$0	$0	$30,000	$0	$30,000
800.04	b.	Build 3.0 mi 34.5kV 477 ACSR w/ 12.47kV 477 ACSR underbuild and 10.4 mi 34.5kV 4/0 ACSR with 12.47kV 4/0 ACSR underbuild (Carryover)	$0	$4,100,000	$0	$0	$4,100,000
		Total - Transmission Lines	**$0**	**$4,100,000**	**$30,000**	**$0**	**$4,130,000**
2. New Transmission Substations & Switching - 900							
		Total - New Transmission Stations	**$0**	**$0**	**$0**	**$0**	**$0**
3. Transmission Line & Station Changes - 1000							
		Total - Transmission Line & Station Changes	**$0**	**$0**	**$0**	**$0**	**$0**
4. Other Transmission Items - 1100							
1105	a.	Replace 34.5kV regulators at Lake Hemet Substation with 3-1MVA	$0	$0	$300,000	$0	$300,000
1106	b.	Install two 1200 kVAR switched capacitor banks on transmission line	$0	$0	$24,000	$0	$24,000
		Total - Other Transmission Items	**$0**	**$0**	**$324,000**	**$0**	**$324,000**
		Grand Total Transmission	**$0**	**$4,100,000**	**$354,000**	**$0**	**$4,454,000**
C. Generation - 1200							
		Grand Total Generation	**$0**	**$0**	**$0**	**$0**	**$0**
D. Headquarters and Service Facilities - 1300							
		Grand Total Headquarters and Service Facilities	**$0**	**$0**	**$0**	**$0**	**$0**
E. Acquisitions - 1400							
		Grand Total Acquisitions	**$0**	**$0**	**$0**	**$0**	**$0**
		Grand Total - All Costs	**$3,292,950**	**$5,197,950**	**$2,348,950**	**$3,115,450**	**$13,955,300**

Appendix A

Existing System with Projected Loading
Distribution Voltage Analyses

Unbalanced Voltage Drop Report
Source: Lake Hemet

Database: P:\CA 41-ANZA\CWP\2020-2023\VOLTAGE DROP\2021-2024 CWP EXI-PRO.WM\
Title:
Case:

Units Displayed In Volts
-Base Voltage:120.0-

Element Name	Parent Name	Cnf	Type/ Conductor	Pri kV	Base Volt	Element Drop	Accum Drop	Thru Amps	% Cap	Thru KW	KVAR	% PF	kW Loss	% Loss	mi From Src	Element Length (mi)	Element KW	Element KVAR	Element Cons On	Element Cons Thru	
Lake Hemet		A	Lake Hemet	20.91Y	126.0	0.00	0.00	38.52	0	733	335	91	0.00	0.0			0	0	0	0	
		B		20.91Y	126.0	0.00	0.00	21.25	0	412	167	93					0	0	0	0	
		C		20.91Y	126.0	0.00	0.00	29.69	0	577	229	93					0	0	0	0	
---------- Feeder No. 2200 (2200) Beginning with Device R-8 ----------																					
R-8	PC-3413	A	R-8	7.53Y	125.5	0.00	0.51	71.38	0	518	144	96	0.00	0.0	0.004		0	0	0	0	
		B		7.53Y	125.5	0.00	0.50	37.36	0	276	52	98					0	0	0	0	
		C		7.53Y	125.5	0.00	0.50	52.62	0	391	62	99					0	0	0	0	
P PC-3287	PC-3286	A	1/0ACSR	7.53Y	125.4	0.00	0.58	-0.00	0	0	0	100	0.00	0.0	0.057	0.002	0	0	0	0	P
P		B		7.53Y	125.5	0.00	0.52	-0.00	0	0	0	0					0	0	0	0	P
		C		7.53Y	125.4	0.00	0.56	-0.00	0	0	0	0					0	0	0	0	
P PC-2807	PC-4696	A	1/0ACSR	7.47Y	124.5	0.00	1.48	-0.00	0	0	0	100	0.00	0.0	0.771	0.041	0	0	0	0	P
P		B		7.51Y	125.2	0.00	0.79	-0.00	0	0	0	0					0	0	0	0	P
P		C		7.48Y	124.7	0.00	1.25	-0.00	0	0	0	0					0	0	0	0	P
P PC-4916	PC-4790	B	4ACSR	7.39Y	123.1	0.00	2.90	-0.10	0	0	-1	0	0.00	0.0	6.768	0.007	0	0	0	0	P
P PC-4917	PC-4916	B	4ACSR	7.39Y	123.1	0.00	2.90	-0.10	0	0	-1	0	0.00	0.0	6.817	0.049	0	0	0	0	P
P PC-4918	PC-4917	B	4ACSR	7.39Y	123.1	0.00	2.90	-0.10	0	0	-1	0	0.00	0.0	6.886	0.069	0	0	0	0	P
P PC-4919	PC-4918	B	4ACSR	7.39Y	123.1	0.00	2.90	-0.10	0	0	-1	0	0.00	0.0	6.958	0.072	0	0	0	0	P
P PC-2355	PC-4919	B	2CN	7.39Y	123.1	0.00	2.90	-0.10	0	0	-1	0	0.00	0.0	7.032	0.075	0	0	0	0	P
P PC-2356	PC-2355	B	2CN	7.39Y	123.1	0.00	2.90	-0.05	0	0	0	100	0.00	0.0	7.131	0.099	0	0	0	0	P
P T682	PC-7173	B	Transforme	0.12Y	123.0	0.07	2.97	0.69	5	4	3	80	0.00	0.0	6.807	0.000	0	0	0	0	P
P PC-1964	PC-1963														7.448	0.001	0	0	0	0	P
P T99	PC-1964														7.448	0.000	0	0	0	0	P
P PC-2579	PC-1963														7.529	0.082	0	0	0	0	P
P T100	PC-2579														7.529	0.000	0	0	0	0	P
P PC-834	PC-1963														7.498	0.051	0	0	0	0	P
P T946	PC-1960	B	Transforme	0.12Y	122.7	0.03	3.29	0.03	2	0	0	100	0.00	0.0	7.259	0.000	0	0	0	0	P
P PC-2757	PC-4930	B	4ACSR	7.37Y	122.8	-0.00	3.16	-0.04	0	0	0	100	0.00	0.0	7.007	0.043	0	0	0	0	P
P PC-2758	PC-2757	B	2CN	7.37Y	122.8	-0.00	3.16	-0.04	0	0	0	100	0.00	0.0	7.077	0.069	0	0	0	0	P
P T945	PC-4930	B	Transforme	0.12Y	122.8	0.02	3.18	0.01	1	0	0	100	0.00	0.0	6.964	0.000	0	0	0	0	P
P T942	PC-2257	B	Transforme	0.12Y	122.9	0.03	3.12	0.05	1	0	0	100	0.00	0.0	6.766	0.000	0	0	0	0	P
P PC-2756	PC-4947	B	2CN	7.38Y	122.9	0.00	3.07	-0.03	0	0	0	100	0.00	0.0	6.773	0.069	0	0	0	0	P
P T104	PC-2756	B	Transforme	0.12Y	122.9	0.02	3.09	0.01	1	0	0	100	0.00	0.0	6.773	0.000	0	0	0	0	P
P CP-28	PC-2592	A	Cap (150)	7.16Y	119.3	0.00	6.71	-6.90	0	0	-49	0	0.00	0.0	4.833	0.000	0	0	0	0	P
		B		7.44Y	124.0	0.00	1.96	-7.18	0	0	-53	0					0	0	0	0	
P		C		7.23Y	120.6	0.00	5.42	-6.98	0	0	-50	0					0	0	0	0	P
P CON-3832	T2958	A	Consumer	0.12Y	118.5	0.00	7.55	52.70	0	5	4	78	0.00	0.0	5.060	0.000	5	4	0	0	P
P CON-4430	T634	C	Consumer	0.12Y	119.0	0.00	6.96	3.95	0	0	0	100	0.00	0.0	7.795	0.000	0	0	0	0	P
P T632	PC-3179	C	Transforme	0.12Y	118.3	1.01	7.73	1.15	55	7	5	81	0.00	0.0	7.518	0.000	0	0	0	0	P
P CON-3238	T632	C	Consumer	0.12Y	118.3	0.00	7.73	69.09	0	7	5	81	0.00	0.0	7.518	0.000	7	5	0	0	P
P CON-3242	T635	C	Consumer	0.12Y	119.0	0.00	7.03	5.64	0	1	0	100	0.00	0.0	7.587	0.000	1	0	0	0	P
P CON-4914	T633	C	Consumer	0.12Y	119.2	0.00	6.77	2.40	0	0	0	100	0.00	0.0	7.562	0.000	0	0	0	0	P
P T2955	PC-3177	C	Transforme	0.12Y	119.2	0.12	6.84	0.28	8	2	1	89	0.00	0.0	7.393	0.000	0	0	0	0	P
P CON-3830	T2955	C	Consumer	0.12Y	119.2	0.00	6.84	16.81	0	2	1	89	0.00	0.0	7.393	0.000	2	1	0	0	P
P T636	PC-3175	C	Transforme	0.12Y	118.9	0.38	7.09	2.09	30	12	9	80	0.00	0.0	7.328	0.000	0	0	0	0	P
P CON-3243	T636	C	Consumer	0.12Y	118.9	0.00	7.09	125.48	0	12	9	80	0.00	0.0	7.328	0.000	12	9	0	0	P
P PC-2787	PC-612	C	2CN	7.16Y	119.4	-0.00	6.61	-0.07	0	0	0	100	0.00	0.0	7.042	0.131	0	0	0	0	P
P PC-2788	PC-2787	C	2CN	7.16Y	119.4	0.00	6.61	-0.00	0	0	0	100	0.00	0.0	7.044	0.002	0	0	0	0	P

SAMPLE

KEY-> L = Low Voltage H = High Voltage C = Capacity Over Limit (%capacity or load amps) G = Generator Out of kvar Limits P = Power Factor Low

Unbalanced Voltage Drop Report
Source: Lake Hemet

Database: P:\CA 41-ANZA\CWP\2020-2023\VOLTAGE DROP\2021-2024 CWP EXI-PRO.WM\
Title:
Case:

Units Displayed In Volts
-Base Voltage:120.0-

Element Name	Parent Name	Cnf	Type/ Conductor	Pri kV	Base Volt	Element Drop	Accum Drop	Thru Amps	% Cap	Thru KW	KVAR	% PF	kW Loss	% Loss	mi From Src	Element Length (mi)	Element KW	Element KVAR	Element Cons On	Element Cons Thru	
L PC-2395	PC-2398	A	2CN	7.08Y	118.0	0.05	8.01	10.74	6	73	21	96	0.03	0.0	6.517	0.115	0	0	0	0	L
L PC-2391	PC-2395	A	2CN	7.08Y	118.0	0.02	8.04	8.28	5	56	16	96	0.01	0.0	6.582	0.065	0	0	0	0	L
L PC-3263	PC-2391	A	2CN	7.08Y	117.9	0.02	8.06	7.91	5	54	16	96	0.01	0.0	6.644	0.062	0	0	0	0	L
L PC-2389	PC-3263	A	2CN	7.08Y	117.9	0.01	8.06	1.12	1	8	2	97	0.00	0.0	6.763	0.119	0	0	0	0	L
L PC-2390	PC-2389	A	2CN	7.08Y	117.9	0.00	8.07	0.33	0	2	0	100	0.00	0.0	6.885	0.123	0	0	0	0	L
L T2954	PC-2390	A	Transforme	0.12Y	117.9	0.04	8.11	0.35	5	2	1	89	0.00	0.0	6.885	0.000	0	0	0	0	L
L CON-3829	T2954	A	Consumer	0.12Y	117.9	0.00	8.11	20.82	0	2	1	89	0.00	0.0	6.885	0.000	2	1	0	0	L
L T2934	PC-2389	A	Transforme	0.12Y	117.6	0.38	8.44	0.81	39	5	2	93	-0.00	0.0	6.763	0.000	0	0	0	0	L
L CON-3803	T2934	A	Consumer	0.12Y	117.6	0.00	8.44	25.35	0	3	1	95	0.00	0.0	6.763	0.000	3	1	0	0	L
L CON-3804	T2934	A	Consumer	0.12Y	117.6	0.00	8.44	23.18	0	3	1	95	0.00	0.0	6.763	0.000	3	1	0	0	L
L PC-2949	PC-3263	A	4/015KVUG	7.08Y	117.9	0.00	8.06	6.54	2	44	13	96	0.00	0.0	6.659	0.015	0	0	0	0	L
L PC-2948	PC-2949	A	2CN	7.07Y	117.9	0.03	8.09	6.54	4	44	14	95	0.01	0.0	6.755	0.096	0	0	0	0	L
L PC-2946	PC-2948	A	4/015KVUG	7.07Y	117.9	0.00	8.09	0.92	0	6	2	95	0.00	0.0	6.756	0.001	0	0	0	0	L
L T2939	PC-2946	A	Transforme	0.12Y	117.6	0.31	8.40	0.92	44	6	2	95	0.00	0.0	6.756	0.000	0	0	0	0	L
L CON-3808	T2939	A	Consumer	0.12Y	117.6	0.00	8.40	18.33	0	2	1	89	0.00	0.0	6.756	0.000	2	1	0	0	L
L CON-3809	T2939	A	Consumer	0.12Y	117.6	0.00	8.40	36.92	0	4	1	97	0.00	0.0	6.756	0.000	4	1	0	0	L
L PC-2947	PC-2948														6.797	0.042	0	0	0	0	L
L T2935	PC-2947														6.797	0.000	0	0	0	0	L
L CON-3818	T2935														6.797	0.000	3	1	0	0	L
L PC-350	PC-2948														6.825	0.070	0	0	0	0	L
L PC-349	PC-350														6.926	0.101	0	0	0	0	L
L PC-348	PC-349	A	2CN	7.07Y	117.9	0.01	8.13	3.44	2	23	8	94	0.00	0.0	6.964	0.038	0	0	0	0	L
L PC-342	PC-348	A	2CN	7.07Y	117.9	0.01	8.14	2.19	1	15	5	95	0.00	0.0	7.040	0.075	0	0	0	0	L
L PC-3503	PC-342	A	Unknown 1/	7.07Y	117.9	0.00	8.14	2.20	1	15	5	95	0.00	0.0	7.042	0.002	0	0	0	0	L
L T3359	PC-3503	A	Transforme	0.12Y	117.1	0.74	8.88	2.20	106	15	5	95	0.00	0.0	7.042	0.000	0	0	0	0	L
L CON-1281	T3359	A	Consumer	0.12Y	117.1	0.00	8.88	83.95	0	9	3	95	0.00	0.0	7.042	0.000	10	3	0	0	L
L CON-4371	T3359	A	Consumer	0.12Y	117.1	0.00	8.88	48.09	0	5	2	93	0.00	0.0	7.042	0.000	5	2	0	0	L
L PC-343	PC-348	A	2CN	7.07Y	117.9	0.00	8.13	1.25	1	8	3	94	0.00	0.0	6.975	0.011	0	0	0	0	L
L T2936	PC-343	A	Transforme	0.12Y	117.4	0.42	8.55	1.26	60	8	3	94	0.00	0.0	6.975	0.000	0	0	0	0	L
L CON-3805	T2936	A	Consumer	0.12Y	117.4	0.00	8.55	34.40	0	4	1	97	0.00	0.0	6.975	0.000	4	1	0	0	L
L CON-3900	T2936	A	Consumer	0.12Y	117.4	0.00	8.55	40.95	0	5	2	93	0.00	0.0	6.975	0.000	5	2	0	0	L
L T2937	PC-349	A	Transforme	0.12Y	117.5	0.42	8.54	1.25	60	8	3	94	0.00	0.0	6.926	0.000	0	0	0	0	L
L CON-3806	T2937	A	Consumer	0.12Y	117.5	0.00	8.54	31.28	0	3	1	95	0.00	0.0	6.926	0.000	4	1	0	0	L
L CON-3807	T2937	A	Consumer	0.12Y	117.5	0.00	8.54	43.54	0	5	2	93	0.00	0.0	6.926	0.000	5	2	0	0	L
L T2938	PC-350	A	Transforme	0.12Y	117.7	0.19	8.29	0.56	27	4	1	97	0.00	0.0	6.825	0.000	0	0	0	0	L
L CON-3819	T2938	A	Consumer	0.12Y	117.7	0.00	8.29	33.52	0	4	1	97	0.00	0.0	6.825	0.000	4	1	0	0	L
L PC-3262	PC-3263	A	4/015KVUG	7.08Y	117.9	0.00	8.06	0.26	0	2	1	89	0.00	0.0	6.646	0.002	0	0	0	0	L
L T2940	PC-3262	A	Transforme	0.12Y	117.9	0.09	8.15	0.26	12	2	1	89	0.00	0.0	6.646	0.000	0	0	0	0	L
L CON-3810	T2940	A	Consumer	0.12Y	117.9	0.00	8.15	15.49	0	2	1	89	0.00	0.0	6.646	0.000	2	1	0	0	L
L T2941	PC-2391	A	Transforme	0.12Y	117.8	0.13	8.17	0.37	18	3	1	95	0.00	0.0	6.582	0.000	0	0	0	0	L
L CON-3811	T2941	A	Consumer	0.12Y	117.8	0.00	8.17	22.42	0	3	1	95	0.00	0.0	6.582	0.000	3	1	0	0	L
L PC-2392	PC-2395	A	4/015KVUG	7.08Y	118.0	0.00	8.01	0.67	0	5	2	93	0.00	0.0	6.518	0.001	0	0	0	0	L

SAMPLE

KEY-> L = Low Voltage H = High Voltage C = Capacity Over Limit (%capacity or load amps) G = Generator Out of kvar Limits P = Power Factor Low

Unbalanced Voltage Drop Report
Source: Lake Hemet

Database: P:\CA 41-ANZA\CWP\2020-2023\VOLTAGE DROP\2021-2024 CWP EXI-PRO.WM\
Title:
Case:

Units Displayed In Volts
-Base Voltage:120.0-

Element Name	Parent Name	Cnf	Type/ Conductor	Pri kV	Base Volt	Element Drop	Accum Drop	Thru Amps	% Cap	Thru KW	KVAR	% PF	kW Loss	% Loss	mi From Src	Element Length (mi)	Element KW	Element KVAR	Element Cons On	Element Cons Thru	
L T2942	PC-2392	A	Transforme	0.12Y	117.8	0.23	8.24	0.67	32	5	2	93	0.00	0.0	6.518	0.000	0	0	0	0	L
L CON-3813	T2942	A	Consumer	0.12Y	117.8	0.00	8.24	40.27	0	5	1	98	0.00	0.0	6.518	0.000	5	2	0	0	L
L PC-2393	PC-2395	A	2CN	7.08Y	118.0	0.00	8.02	1.81	1	12	4	95	0.00	0.0	6.546	0.029	0	0	0	0	L
L PC-2394	PC-2393	A	2CN	7.08Y	118.0	0.01	8.03	1.82	1	12	4	95	0.00	0.0	6.684	0.138	0	0	0	0	L
L T2933	PC-2394	A	Transforme	0.12Y	117.8	0.18	8.20	1.84	26	12	4	95	0.00	0.0	6.684	0.000	0	0	0	0	L
L CON-3800	T2933	A	Consumer	0.12Y	117.8	0.00	8.20	28.23	0	3	1	95	0.00	0.0	6.684	0.000	3	1	0	0	L
L CON-3801	T2933	A	Consumer	0.12Y	117.8	0.00	8.20	39.94	0	4	1	97	0.00	0.0	6.684	0.000	5	1	0	0	L
L CON-3802	T2933	A	Consumer	0.12Y	117.8	0.00	8.20	42.11	0	5	2	93	0.00	0.0	6.684	0.000	5	2	0	0	L
L T2932	PC-2396	A	Transforme	0.12Y	117.8	0.20	8.17	0.91	26	6	2	95	0.00	0.0	6.415	0.000	0	0	0	0	L
L CON-3798	T2932	A	Consumer	0.12Y	117.8	0.00	8.17	14.48	0	2	1	89	0.00	0.0	6.415	0.000	2	1	0	0	L
L CON-3799	T2932	A	Consumer	0.12Y	117.8	0.00	8.17	40.00	0	4	1	97	0.00	0.0	6.415	0.000	5	1	0	0	L
L T2943	PC-2397	A	Transforme	0.12Y	117.8	0.20	8.16	0.59	29	4	1	97	0.00	0.0	6.543	0.000	0	0	0	0	L
L CON-3812	T2943	A	Consumer	0.12Y	117.8	0.00	8.16	35.69	0	4	1	97	0.00	0.0	6.543	0.000	4	1	0	0	L
L T2931	PC-2399	A	Transforme	0.12Y	117.3	0.82	8.73	1.76	84	12	4	95	0.00	0.0	6.326	0.000	0	0	0	0	L
L CON-3796	T2931	A	Consumer	0.12Y	117.3	0.00	8.73	73.83	0	8	3	94	0.00	0.0	6.326	0.000	8	3	0	0	L
L CON-3797	T2931	A	Consumer	0.12Y	117.3	0.00	8.73	31.62	0	4	1	97	0.00	0.0	6.326	0.000	4	1	0	0	L
L T2930	PC-1946														6.285	0.000	0	0	0	0	L
L CON-3794	T2930														6.285	0.000	1	0	0	0	L
L CON-3795	T2930														6.285	0.000	1	0	0	0	L
L T2946	PC-3165														6.263	0.000	0	0	0	0	L
L CON-3816	T2946														6.263	0.000	3	1	0	0	L
L CON-3817	T2946	A	Consumer	0.12Y	117.9	0.00	8.09	20.52	0	2	1	89	0.00	0.0	6.263	0.000	2	1	0	0	L
L T2947	PC-2403	A	Transforme	0.12Y	117.8	0.39	8.18	0.84	40	6	2	95	0.00	0.0	6.125	0.000	0	0	0	0	L
L CON-3820	T2947	A	Consumer	0.12Y	117.8	0.00	8.18	22.19	0	2	1	89	0.00	0.0	6.125	0.000	3	1	0	0	L
L CON-4798	T2947	A	Consumer	0.12Y	117.8	0.00	8.18	27.99	0	3	1	95	0.00	0.0	6.125	0.000	3	1	0	0	L
L T2948	PC-2404	A	Transforme	0.12Y	117.9	0.43	8.13	0.92	44	6	2	95	0.00	0.0	5.999	0.000	0	0	0	0	L
L CON-3821	T2948	A	Consumer	0.12Y	117.9	0.00	8.13	32.50	0	4	1	97	0.00	0.0	5.999	0.000	4	1	0	0	L
L CON-3822	T2948	A	Consumer	0.12Y	117.9	0.00	8.13	22.48	0	3	1	95	0.00	0.0	5.999	0.000	3	1	0	0	L
P PC-3157	PC-3160	A	2CN	7.11Y	118.5	-0.00	7.46	-0.07	0	0	0	100	0.00	0.0	5.828	0.132	0	0	0	0	P
		B		7.44Y	123.9	0.01	2.06	2.25	1	14	10	81					0	0	0	0	
P		C		7.22Y	120.4	-0.00	5.64	-0.07	0	0	0	0					0	0	0	0	P
T2952	PC-3157	A	Transforme	0.12Y	118.5	0.01	7.47	0.00	0	0	0	100	-0.00	0.0	5.828	0.000	0	0	0	0	
P		B		0.12Y	123.0	0.96	3.02	2.29	66	14	10	79					0	0	0	0	P
		C		0.12Y	120.4	0.01	5.65	0.00	0	0	0	100					0	0	0	0	
P PC-3168	PC-3167	A	2CN	7.13Y	118.8	0.01	7.15	3.99	2	23	17	80	0.01	0.0	5.432	0.079	0	0	0	0	P
P		B		7.44Y	124.0	0.01	2.03	3.96	2	24	18	80					0	0	0	0	P
P		C		7.22Y	120.3	0.01	5.69	3.98	2	23	17	80					0	0	0	0	P
P XFMR163	PC-3168	A	Transforme	0.12Y	118.0	0.80	7.95	1.90	55	11	8	81	0.00	0.0	5.432	0.000	0	0	0	0	P
P		B		0.12Y	123.2	0.79	2.83	1.88	54	11	8	79					0	0	0	0	P
P		C		0.12Y	119.5	0.80	6.49	1.89	54	11	8	79					0	0	0	0	P
P CON-4995	XFMR163	A	Consumer	0.12Y	118.0	0.00	7.95	113.69	0	11	8	81	0.00	0.0	5.432	0.000	11	8	0	0	P
		B		0.12Y	123.2	0.00	2.83	112.76	0	11	8	80					11	8	0	0	
P		C		0.12Y	119.5	0.00	6.49	113.40	0	11	8	80					11	8	0	0	P
L T2904	PC-3168	A	Transforme	0.12Y	118.0	0.89	8.05	2.12	61	12	9	80	0.00	0.0	5.432	0.000	0	0	0	0	L
P		B		0.12Y	123.1	0.88	2.92	2.10	60	12	9	79					0	0	0	0	P
P		C		0.12Y	119.4	0.89	6.58	2.11	61	12	9	79					0	0	0	0	P
L CON-3658	T2904	A	Consumer	0.12Y	118.0	0.00	8.05	127.05	0	12	9	80	0.00	0.0	5.432	0.000	12	9	0	0	L
		B		0.12Y	123.1	0.00	2.92	126.00	0	12	9	80					12	9	0	0	
P		C		0.12Y	119.4	0.00	6.58	126.72	0	12	9	80					12	9	0	0	P

SAMPLE

KEY-> L = Low Voltage H = High Voltage C = Capacity Over Limit (%capacity or load amps) G = Generator Out of kvar Limits P = Power Factor Low

Unbalanced Voltage Drop Report
Source: Lake Hemet

Database: P:\CA 41-ANZA\CWP\2020-2023\VOLTAGE DROP\2021-2024 CWP EXI-PRO.WM\
Title:
Case:

Units Displayed In Volts
-Base Voltage:120.0-

	Element Name	Parent Name	Cnf	Type/ Conductor	Pri kV	Base Volt	Element Drop	Accum Drop	Thru Amps	% Cap	Thru KW	KVAR	% PF	kW Loss	% Loss	mi From Src	Element Length (mi)	Element KW	Element KVAR	Element Cons On	Element Cons Thru	
P	T2966	PC-3727	A	Transforme	0.12Y	118.3	0.52	7.70	0.59	28	3	3	71	0.00	0.0	5.868	0.000	0	0	0	0	P
P	CON-3883	T2966	A	Consumer	0.12Y	118.3	0.00	7.70	35.29	0	3	3	71	0.00	0.0	5.868	0.000	3	3	0	0	P
P	T2961	PC-474	A	Transforme	0.12Y	118.2	0.58	7.78	0.66	31	4	3	80	0.00	0.0	5.787	0.000	0	0	0	0	P
P			B		0.12Y	123.4	0.57	2.60	0.65	31	4	3	80					0	0	0	0	P
P			C		0.12Y	119.7	0.57	6.26	0.65	31	4	3	80					0	0	0	0	P
P	CON-3880	T2961	A	Consumer	0.12Y	118.2	0.00	7.78	39.35	0	4	3	80	0.00	0.0	5.787	0.000	4	3	0	0	P
			B		0.12Y	123.4	0.00	2.60	39.02	0	4	3	80					4	3	0	0	
P			C		0.12Y	119.7	0.00	6.26	39.25	0	4	3	80					4	3	0	0	P
L	T2959	PC-475	A	Transforme	0.12Y	117.3	1.46	8.67	1.66	80	9	7	79	0.00	0.0	5.823	0.000	0	0	0	0	L
L	CON-3879	T2959	A	Consumer	0.12Y	117.3	0.00	8.67	99.65	0	9	7	79	0.00	0.0	5.823	0.000	10	7	0	0	L
P	PC-2268	PC-3061	A	Unknown 1/	7.14Y	119.0	0.00	7.02	-0.00	0	0	0	100	0.00	0.0	5.139	0.001	0	0	0	0	P
P	CON-3877	XFMR63	A	Consumer	0.12Y	118.6	0.00	7.35	15.55	0	1	1	71	0.00	0.0	5.161	0.000	1	1	0	0	P
P	PC-3598	PC-9491	C	4ACSR	7.22Y	120.4	0.00	5.63	-0.00	0	0	0	100	0.00	0.0	5.371	0.066	0	0	0	0	P
P	PC-3083	PC-3081	A	Unknown 1/	7.15Y	119.1	0.00	6.86	0.89	0	5	4	78	0.00	0.0	4.961	0.001	0	0	0	0	P
			B		7.44Y	124.0	0.00	1.97	0.38	0	3	0	99					0	0	0	0	
P	PC-3084	PC-3083	A	Unknown 1/	7.15Y	119.1	0.00	6.86	0.89	0	5	4	78	0.00	0.0	4.963	0.002	0	0	0	0	P
			B		7.44Y	124.0	0.00	1.97	0.38	0	3	0	99					0	0	0	0	
P	XFMR26	PC-3084	A-B	Transforme	0.21D	118.8	1.32	7.22	0.37	18	4	3	80	-0.00	0.0	4.963	0.000	0	0	0	0	P
			B-C		0.21D	124.0	2.98	2.04	0.38	18								0	0	0	0	
			C-A		0.22D	125.6	-3.47	0.36	0.00	0								0	0	0	0	
	CON-3854	XFMR26														4.963	0.000	1	1	0	0	
P																		1	1	0	0	P
P																		1	1	0	0	P
P	PC-9813	PC-3309														5.460	0.094	0	0	0	0	P
P	PC-7483	PC-9800														6.988	0.098	0	0	0	0	P
P	PC-9816	PC-2253														6.696	0.029	0	0	0	0	P
L	T3090	PC-3104	A	Transforme	0.12Y	118.0	0.44	8.01	0.94	45	6	2	95	0.00	0.0	6.906	0.000	0	0	0	0	L
L	CON-4099	T3090	A	Consumer	0.12Y	118.0	0.00	8.01	56.19	0	6	2	95	0.00	0.0	6.906	0.000	6	2	0	0	L
L	T3085	PC-3111	A	Transforme	0.12Y	117.8	0.57	8.16	1.22	59	8	3	94	0.00	0.0	7.129	0.000	0	0	0	0	L
L	CON-4092	T3085	A	Consumer	0.12Y	117.8	0.00	8.16	13.86	0	2	1	89	0.00	0.0	7.129	0.000	2	1	0	0	L
L	CON-4093	T3085	A	Consumer	0.12Y	117.8	0.00	8.16	59.57	0	7	2	96	0.00	0.0	7.129	0.000	7	2	0	0	L
P	PC-1662	PC-964	A	2CN	7.10Y	118.3	0.00	7.67	-0.00	0	0	0	100	0.00	0.0	6.866	0.001	0	0	0	0	P
L	T3162	PC-2939	A	Transforme	0.12Y	117.9	0.38	8.11	1.14	55	8	3	94	0.00	0.0	6.991	0.000	0	0	0	0	L
L	CON-3906	T3162	A	Consumer	0.12Y	117.9	0.00	8.11	50.64	0	6	2	95	0.00	0.0	6.991	0.000	6	2	0	0	L
L	CON-3909	T3162	A	Consumer	0.12Y	117.9	0.00	8.11	18.02	0	2	1	89	0.00	0.0	6.991	0.000	2	1	0	0	L
L	T3163	PC-2940	A	Transforme	0.12Y	117.9	0.34	8.07	1.01	48	7	2	96	0.00	0.0	7.124	0.000	0	0	0	0	L
L	CON-3907	T3163	A	Consumer	0.12Y	117.9	0.00	8.07	60.30	0	7	2	96	0.00	0.0	7.124	0.000	7	2	0	0	L
L	T3159	PC-339	A	Transforme	0.12Y	118.0	0.23	8.00	0.67	32	4	2	89	0.00	0.0	7.215	0.000	0	0	0	0	L
L	CON-3902	T3159	A	Consumer	0.12Y	118.0	0.00	8.00	40.08	0	4	1	97	0.00	0.0	7.215	0.000	5	1	0	0	L
L	T3416	PC-8682	A	Transforme	0.12Y	117.7	0.49	8.34	0.78	37	4	3	80	0.00	0.0	7.951	0.000	0	0	0	0	L
L	CON-4431	T3416	A	Consumer	0.12Y	117.7	0.00	8.34	46.81	0	4	3	80	0.00	0.0	7.951	0.000	4	3	0	0	L
P	PC-3652	PC-1869	A	2CN	7.09Y	118.2	0.00	7.83	0.99	1	6	4	83	0.00	0.0	7.607	0.001	0	0	0	0	P
L	T3616	PC-3652	A	Transforme	0.12Y	117.5	0.63	8.46	0.99	48	6	4	83	0.00	0.0	7.607	0.000	0	0	0	0	L
L	CON-4831	T3616	A	Consumer	0.12Y	117.5	0.00	8.46	59.54	0	6	4	83	0.00	0.0	7.607	0.000	6	4	0	0	L
L	T3319	PC-3468	A	Transforme	0.12Y	117.9	0.28	8.10	0.83	40	6	2	95	0.00	0.0	7.542	0.000	0	0	0	0	L
L	CON-4321	T3319	A	Consumer	0.12Y	117.9	0.00	8.10	49.75	0	6	2	95	0.00	0.0	7.542	0.000	6	2	0	0	L
L	T2975	PC-3128	A	Transforme	0.12Y	117.8	0.43	8.23	1.27	61	9	3	95	0.00	0.0	7.409	0.000	0	0	0	0	L

SAMPLE

KEY-> L = Low Voltage H = High Voltage C = Capacity Over Limit (%capacity or load amps) G = Generator Out of kvar Limits P = Power Factor Low

Unbalanced Voltage Drop Report
Source: Lake Hemet

Database: P:\CA 41-ANZA\CWP\2020-2023\VOLTAGE DROP\2021-2024 CWP EXI-PRO.WM\
Title:
Case:

Units Displayed In Volts
-Base Voltage:120.0-

Element Name	Parent Name	Cnf	Type/ Conductor	Pri kV	Base Volt	Element Drop	Accum Drop	Thru Amps	% Cap	Thru KW	KVAR	% PF	kW Loss	% Loss	mi From Src	Element Length (mi)	Element KW	Element KVAR	Element Cons On	Element Cons Thru	
L CON-3897	T2975	A	Consumer	0.12Y	117.8	0.00	8.23	35.45	0	4	1	97	0.00	0.0	7.409	0.000	4	1	0	0	L
L CON-3899	T2975	A	Consumer	0.12Y	117.8	0.00	8.23	37.86	0	4	1	97	0.00	0.0	7.409	0.000	4	1	0	0	L
L CON-4835	T2975	A	Consumer	0.12Y	117.8	0.00	8.23	3.18	0	0	0	100	0.00	0.0	7.409	0.000	0	0	0	0	L
P T3539	PC-3127	A	Transforme	0.12Y	118.2	0.01	7.81	0.01	0	0	0	100	0.00	0.0	7.348	0.000	0	0	0	0	P
P CON-2688	T3539	A	Consumer	0.12Y	118.2	0.00	7.81	0.32	0	0	0	100	0.00	0.0	7.348	0.000	0	0	0	0	P
P PC-341	PC-340	A	2CN	7.09Y	118.2	-0.00	7.80	-0.02	0	0	0	100	0.00	0.0	7.372	0.041	0	0	0	0	P
P PC-513	PC-512	C	2CN	7.18Y	119.8	0.00	6.25	-0.05	0	0	0	100	0.00	0.0	7.024	0.110	0	0	0	0	P
P PC-3570	PC-980	A	2CN	7.10Y	118.4	-0.00	7.64	-0.03	0	0	0	100	0.00	0.0	7.190	0.054	0	0	0	0	P
P PC-3575	PC-3619	A	2CN	7.10Y	118.3	-0.00	7.66	-0.02	0	0	0	100	0.00	0.0	7.266	0.036	0	0	0	0	P
L T3217	PC-3619	A	Transforme	0.12Y	117.9	0.42	8.08	1.26	60	8	3	94	0.00	0.0	7.230	0.000	0	0	0	0	L
L CON-4402	T3217	A	Consumer	0.12Y	117.9	0.00	8.08	46.77	0	5	2	93	0.00	0.0	7.230	0.000	5	2	0	0	L
L CON-4619	T3217	A	Consumer	0.12Y	117.9	0.00	8.08	28.81	0	3	1	95	0.00	0.0	7.230	0.000	3	1	0	0	L
L T2858	PC-981	A	Transforme	0.12Y	117.7	0.61	8.25	1.31	63	9	3	95	0.00	0.0	7.041	0.000	0	0	0	0	L
L CON-3644	T2858	A	Consumer	0.12Y	117.7	0.00	8.25	15.47	0	2	1	89	0.00	0.0	7.041	0.000	2	1	0	0	L
L CON-3645	T2858	A	Consumer	0.12Y	117.7	0.00	8.25	63.06	0	7	2	96	0.00	0.0	7.041	0.000	7	2	0	0	L
P PC-3199	PC-4470	A	1/0ACSR	7.10Y	118.4	0.00	7.63	-0.00	0	0	0	100	0.00	0.0	7.302	0.062	0	0	0	0	P
		B		7.42Y	123.7	0.01	2.30	3.96	2	28	9	96					0	0	0	0	
P																	0	0	0	0	P
P PC-3216	PC-3214														7.968	0.073	0	0	0	0	P
P PC-2166	PC-1558														8.258	0.032	0	0	0	0	P
P																	0	0	0	0	P
P																	0	0	0	0	P
P PC-9540	PC-2166														8.298	0.040	0	0	0	0	P
P																	0	0	0	0	P
P		C		7.18Y	119.7	0.00	6.26	-0.01	0	0	0	-1					0	0	0	0	P
P PC-9539	PC-9540	A	1/0ACSR	7.10Y	118.4	-0.00	7.64	-0.01	0	0	0	100	0.00	0.0	8.366	0.069	0	0	0	0	P
P		B		7.42Y	123.6	0.00	2.39	-0.01	0	0	0	0					0	0	0	0	P
P		C		7.18Y	119.7	-0.00	6.26	-0.01	0	0	0	-1					0	0	0	0	P
P PC-9538	PC-9539	A	1/0ACSR	7.10Y	118.4	0.00	7.64	-0.01	0	0	0	100	0.00	0.0	8.408	0.042	0	0	0	0	P
P		B		7.42Y	123.6	-0.00	2.39	-0.01	0	0	0	0					0	0	0	0	P
P		C		7.18Y	119.7	-0.00	6.26	-0.01	0	0	0	-1					0	0	0	0	P
P PC-9537	PC-9538	A	1/0ACSR	7.10Y	118.4	0.00	7.64	-0.00	0	0	0	100	0.00	0.0	8.463	0.055	0	0	0	0	P
P		B		7.42Y	123.6	0.00	2.39	-0.00	0	0	0	0					0	0	0	0	P
P		C		7.18Y	119.7	0.00	6.26	-0.00	0	0	0	-1					0	0	0	0	P
P PC-9542	PC-9537	A	1/0ACSR	7.10Y	118.4	0.00	7.64	-0.00	0	0	0	100	0.00	0.0	8.509	0.045	0	0	0	0	P
P		B		7.42Y	123.6	0.00	2.39	-0.00	0	0	0	0					0	0	0	0	P
P		C		7.18Y	119.7	0.00	6.26	-0.00	0	0	0	-1					0	0	0	0	P
P PC-3013	PC-3012	A	1/0ACSR	7.10Y	118.3	-0.00	7.65	-0.00	0	0	0	100	0.00	0.0	8.832	0.100	0	0	0	0	P
P		B		7.41Y	123.6	0.00	2.41	-0.00	0	0	0	0					0	0	0	0	P
		C		7.18Y	119.7	0.00	6.26	0.33	0	2	0	100					0	0	0	0	
P PC-9534	PC-9531	C	2ACSR	7.18Y	119.7	-0.00	6.26	-0.01	0	0	0	100	0.00	0.0	9.020	0.052	0	0	0	0	P
P PC-9535	PC-9534	C	2ACSR	7.18Y	119.7	-0.00	6.26	-0.00	0	0	0	100	0.00	0.0	9.077	0.057	0	0	0	0	P
P PC-9536	PC-9535	C	2ACSR	7.18Y	119.7	0.00	6.26	-0.00	0	0	0	100	0.00	0.0	9.128	0.051	0	0	0	0	P
P T3070	PC-9529	A	Transforme	0.12Y	118.2	0.12	7.77	0.13	6	1	1	71	0.00	0.0	8.474	0.000	0	0	0	0	P
P		B		0.12Y	123.5	0.12	2.53	0.13	6	1	1	80					0	0	0	0	P
P		C		0.12Y	119.6	0.12	6.38	0.13	6	1	1	80					0	0	0	0	P
P CON-4071	T3070	A	Consumer	0.12Y	118.2	0.00	7.77	7.80	0	1	1	71	0.00	0.0	8.474	0.000	1	1	0	0	P
		B		0.12Y	123.5	0.00	2.53	7.73	0	1	1	80					1	1	0	0	
P		C		0.12Y	119.6	0.00	6.38	7.78	0	1	1	80					1	1	0	0	P
P PC-3487	PC-2167	C	2CN	7.18Y	119.7	-0.00	6.26	-0.03	0	0	0	100	0.00	0.0	8.360	0.066	0	0	0	0	P
P PC-2956	PC-9511	C	2CN	7.18Y	119.7	-0.00	6.28	-0.03	0	0	0	100	0.00	0.0	8.539	0.061	0	0	0	0	P
P PC-2957	PC-9527	C	4ACSR	7.18Y	119.7	0.00	6.30	-0.12	0	0	-1	0	0.00	0.0	8.729	0.001	0	0	0	0	P

SAMPLE

KEY-> L = Low Voltage H = High Voltage C = Capacity Over Limit (%capacity or load amps) G = Generator Out of kvar Limits P = Power Factor Low

Unbalanced Voltage Drop Report
Source: Lake Hemet

Database: P:\CA 41-ANZA\CWP\2020-2023\VOLTAGE DROP\2021-2024 CWP EXI-PRO.WM\
Title:
Case:

Units Displayed In Volts
-Base Voltage:120.0-

Element Name	Parent Name	Cnf	Type/ Conductor	Pri kV	Base Volt	Element Drop	Accum Drop	Thru Amps	% Cap	Thru KW	KVAR	% PF	kW Loss	% Loss	mi From Src	Element Length (mi)	Element KW	Element KVAR	Element Cons On	Element Cons Thru	
P PC-2928	PC-2957	C	2CN	7.18Y	119.7	-0.00	6.30	-0.12	0	0	-1	0	0.00	0.0	8.816	0.087	0	0	0	0	P
P PC-2929	PC-2928	C	2CN	7.18Y	119.7	-0.00	6.30	-0.07	0	0	-1	0	0.00	0.0	8.956	0.141	0	0	0	0	P
P PC-2930	PC-1557	C	4ACSR	7.18Y	119.7	0.00	6.31	-0.00	0	0	0	100	0.00	0.0	8.961	0.031	0	0	0	0	P
P T3060	PC-9509	C	Transforme	0.12Y	119.5	0.22	6.49	0.25	12	1	1	71	0.00	0.0	8.190	0.000	0	0	0	0	P
P CON-4057	T3060	C	Consumer	0.12Y	119.5	0.00	6.49	15.04	0	1	1	71	0.00	0.0	8.190	0.000	1	1	0	0	P
L T3020	PC-1892	A	Transforme	0.12Y	117.8	0.58	8.21	1.24	60	8	3	94	0.00	0.0	7.096	0.000	0	0	0	0	L
L CON-4009	T3020	A	Consumer	0.12Y	117.8	0.00	8.21	61.80	0	7	2	96	0.00	0.0	7.096	0.000	7	2	0	0	L
L CON-4010	T3020	A	Consumer	0.12Y	117.8	0.00	8.21	12.79	0	1	0	100	0.00	0.0	7.096	0.000	1	0	0	0	L
P T2971	PC-1874	A	Transforme	0.12Y	118.2	0.57	7.75	0.90	43	5	4	78	0.00	0.0	5.964	0.000	0	0	0	0	P
P		B		0.12Y	123.3	0.56	2.72	0.89	43	5	4	80					0	0	0	0	P
P		C		0.12Y	119.5	0.57	6.45	0.90	43	5	4	80					0	0	0	0	P
P CON-3866	T2971	A	Consumer	0.12Y	118.2	0.00	7.75	53.98	0	5	4	78	0.00	0.0	5.964	0.000	5	4	0	0	P
		B		0.12Y	123.3	0.00	2.72	53.55	0	5	4	80					5	4	0	0	
P		C		0.12Y	119.5	0.00	6.45	53.86	0	5	4	80					5	4	0	0	P
P PC-9643	PC-4646	C	1/0ACSR	7.29Y	121.6	0.00	4.45	-0.00	0	0	0	100	0.00	0.0	3.998	0.080	0	0	0	0	P
P PC-9644	PC-9643	C	1/0ACSR	7.29Y	121.6	0.00	4.45	-0.00	0	0	0	100	0.00	0.0	4.057	0.059	0	0	0	0	P
P T2797	PC-7607	A	Transforme	0.12Y	122.1	0.34	3.94	0.53	25	3	2	83	0.00	0.0	2.477	0.000	0	0	0	0	P
P		B		0.12Y	124.3	0.34	1.73	0.53	25	3	2	80					0	0	0	0	P
P		C		0.12Y	122.8	0.34	3.22	0.53	25	3	2	80					0	0	0	0	P
P CON-3611	T2797														2.477	0.000	3	2	0	0	P
																	3	2	0	0	
P																	3	2	0	0	P
P T549	PC-4695														0.831	0.000	0	0	0	0	P
P																	0	0	0	0	P
P																	0	0	0	0	P
P CON-540	T549														0.831	0.000	3	2	0	0	P
																	3	2	0	0	
P		C		0.12Y	124.4	0.00	1.57	30.69	0	3	2	80					3	2	0	0	P
P PC-9425	PC-4699	A	1/0ACSR	7.48Y	124.7	0.00	1.29	1.34	1	8	6	80	0.00	0.0	0.649	0.064	0	0	0	0	P
P		B		7.52Y	125.3	0.00	0.74	1.34	1	8	6	80					0	0	0	0	P
P		C		7.49Y	124.9	0.00	1.11	1.34	1	8	6	80					0	0	0	0	P
P PC-9426	PC-9425	A	1/0ACSR	7.48Y	124.7	0.00	1.29	1.34	1	8	6	80	0.00	0.0	0.721	0.072	0	0	0	0	P
P		B		7.52Y	125.3	0.00	0.74	1.34	1	8	6	79					0	0	0	0	P
P		C		7.49Y	124.9	0.00	1.11	1.34	1	8	6	79					0	0	0	0	P
P PC-9424	PC-9426	A	1/0ACSR	7.48Y	124.7	0.00	1.29	1.34	1	8	6	80	0.00	0.0	0.768	0.046	0	0	0	0	P
P		B		7.52Y	125.3	0.00	0.74	1.34	1	8	6	79					0	0	0	0	P
P		C		7.49Y	124.9	0.00	1.11	1.34	1	8	6	79					0	0	0	0	P
P T2795	PC-9424	A	Transforme	0.12Y	123.5	1.18	2.47	1.34	64	8	6	80	0.00	0.0	0.768	0.000	0	0	0	0	P
P		B		0.12Y	124.1	1.18	1.92	1.34	64	8	6	79					0	0	0	0	P
P		C		0.12Y	123.7	1.18	2.29	1.34	64	8	6	79					0	0	0	0	P
P CON-3608	T2795	A	Consumer	0.12Y	123.5	0.00	2.47	80.62	0	8	6	80	0.00	0.0	0.768	0.000	8	6	0	0	P
		B		0.12Y	124.1	0.00	1.92	80.56	0	8	6	80					8	6	0	0	
P		C		0.12Y	123.7	0.00	2.29	80.60	0	8	6	80					8	6	0	0	P
P T16	PC-4708	A	Transforme	0.12Y	124.9	0.05	1.05	0.11	3	1	0	100	0.00	0.0	0.371	0.000	0	0	0	0	P
P		B		0.13Y	125.3	0.05	0.70	0.11	3	1	0	80					0	0	0	0	P
P		C		0.13Y	125.1	0.05	0.94	0.11	3	1	0	80					0	0	0	0	P
P CON-3610	T16	A	Consumer	0.12Y	124.9	0.00	1.05	6.60	0	1	0	100	0.00	0.0	0.371	0.000	1	0	0	0	P
		B		0.13Y	125.3	0.00	0.70	6.60	0	1	0	80					1	0	0	0	
P		C		0.13Y	125.1	0.00	0.94	6.60	0	1	0	80					1	0	0	0	P
P PC-3561	PC-3506	A	#1/0 ACSR	7.53Y	125.5	0.00	0.51	-0.00	0	0	0	100	0.00	0.0	0.019	0.008	0	0	0	0	P
P		B		7.53Y	125.5	0.00	0.50	-0.00	0	0	0	0					0	0	0	0	P
		C		7.53Y	125.5	0.00	0.51	-0.00	0	0	0	0					0	0	0	0	
PC-4641	Lake Hemet LV	A	#1/0 ACSR	7.53Y	125.5	0.00	0.50	35.33	15	215	157	81	0.01	0.0	0.003	0.003	0	0	0	0	
P		B		7.53Y	125.5	0.00	0.50	22.74	10	135	105	79					0	0	0	0	P
P		C		7.53Y	125.5	0.00	0.50	31.44	14	186	147	78					0	0	0	0	P

SAMPLE

---------- Feeder No. 2100 (2100) Beginning with Device R-7 ----------

KEY-> L = Low Voltage H = High Voltage C = Capacity Over Limit (%capacity or load amps) G = Generator Out of kvar Limits P = Power Factor Low

Unbalanced Voltage Drop Report
Source: Lake Hemet

Database: P:\CA 41-ANZA\CWP\2020-2023\VOLTAGE DROP\2021-2024 CWP EXI-PRO.WM\
Title:
Case:

Units Displayed In Volts
-Base Voltage:120.0-

Element Name	Parent Name	Cnf	Type/ Conductor	Pri kV	Base Volt	Element Drop	Accum Drop	Thru Amps	% Cap	Thru KW	KVAR	% PF	kW Loss	% Loss	mi From Src	Element Length (mi)	Element KW	Element KVAR	Element Cons On	Element Cons Thru	
R-7	PC-4641	A	R-7	7.53Y	125.5	0.00	0.50	35.33	0	215	157	81	0.00	0.0	0.003	0.000	0	0	0	0	
		B		7.53Y	125.5	0.00	0.50	22.74	0	135	105	79					0	0	0	0	
		C		7.53Y	125.5	0.00	0.50	31.44	0	186	147	78					0	0	0	0	
PC-3507	R-7	A	#1/0 ACSR	7.53Y	125.5	0.01	0.51	35.33	15	215	157	81	0.02	0.0	0.012	0.009	0	0	0	0	
P		B		7.53Y	125.5	0.00	0.50	22.74	10	135	105	79					0	0	0	0	P
P		C		7.53Y	125.5	0.01	0.51	31.44	14	186	147	78					0	0	0	0	P
PC-3562	PC-3507	A	#1/0 ACSR	7.53Y	125.5	0.00	0.51	35.33	15	215	157	81	0.01	0.0	0.014	0.002	0	0	0	0	
P		B		7.53Y	125.5	0.00	0.50	22.74	10	135	105	79					0	0	0	0	P
P		C		7.53Y	125.5	0.00	0.51	31.44	14	186	147	78					0	0	0	0	P
PC-3280	PC-3562	A	1/0ACSR	7.53Y	125.5	0.01	0.52	14.91	6	94	61	84	0.01	0.0	0.040	0.026	0	0	0	0	
		B		7.53Y	125.5	-0.00	0.50	2.30	1	15	9	86					0	0	0	0	
P		C		7.53Y	125.5	0.01	0.52	10.99	5	65	51	78					0	0	0	0	P
PC-2712	RC-15	A	4ACSR	7.53Y	125.5	0.02	0.53	14.91	11	94	61	84	0.02	0.0	0.067	0.027	0	0	0	0	
		B		7.53Y	125.5	-0.00	0.50	2.30	2	15	9	85					0	0	0	0	
P		C		7.53Y	125.5	0.01	0.53	10.99	8	65	51	78					0	0	0	0	P
P PC-1928	PC-4758	A	4ACSR	7.52Y	125.3	0.00	0.70	-0.00	0	0	0	100	0.00	0.0	0.387	0.057	0	0	0	0	P
P		B		7.53Y	125.5	0.00	0.49	-0.00	0	0	0	0					0	0	0	0	P
P		C		7.53Y	125.4	0.00	0.56	-0.00	0	0	0	0					0	0	0	0	P
P PC-3080	PC-9336	A	2ACSR	7.51Y	125.3	0.00	0.74	0.89	0	5	4	78	0.00	0.0	1.141	0.023	0	0	0	0	P
P T2775	PC-3080	A	Transforme	0.12Y	124.5	0.78	1.53	0.89	43	5	4	78	0.00	0.0	1.141	0.000	0	0	0	0	P
P CON-3588	T2775	A	Consumer	0.12Y	124.5	0.00	1.53	53.47	0	5	4	78	0.00	0.0	1.141	0.000	5	4	0	0	P
P PC-3269	PC-9336	A	2CN	7.51Y	125.3	-0.00	0.74	-0.35	0	1	-3	-32	0.00	0.0	1.145	0.027	0	0	0	0	P
P PC-2334	PC-3269														1.200	0.056	0	0	0	0	P
P PC-2385	PC-2334														1.362	0.161	0	0	0	0	P
P PC-3265	PC-2385														1.485	0.123	0	0	0	0	P
P PC-3266	PC-3265														1.574	0.090	0	0	0	0	P
P PC-3267	PC-3266														1.647	0.073	0	0	0	0	P
P T2774	PC-9331	A	Transforme	0.13Y	125.2	0.09	0.84	0.10	5	1	0	100	0.00	0.0	2.116	0.000	0	0	0	0	P
P CON-3587	T2774	A	Consumer	0.13Y	125.2	0.00	0.84	5.76	0	1	0	100	0.00	0.0	2.116	0.000	1	0	0	0	P
P PC-821	PC-1670	A	4ACSR	7.52Y	125.3	0.00	0.73	0.91	1	5	4	78	0.00	0.0	0.743	0.050	0	0	0	0	P
P T1359	PC-821	A	Transforme	0.12Y	124.5	0.80	1.53	0.91	44	5	4	78	0.00	0.0	0.743	0.000	0	0	0	0	P
P CON-1387	T1359	A	Consumer	0.12Y	124.5	0.00	1.53	54.57	0	5	4	78	0.00	0.0	0.743	0.000	5	4	0	0	P
P T2776	PC-9346	A	Transforme	0.12Y	124.8	0.49	1.21	0.56	27	3	3	71	-0.00	0.0	0.500	0.000	0	0	0	0	P
P CON-3589	T2776	A	Consumer	0.12Y	124.8	0.00	1.21	33.31	0	3	2	83	0.00	0.0	0.500	0.000	3	2	0	0	P
P T479	PC-3070	A	Transforme	0.12Y	124.8	0.36	1.23	2.09	9	13	9	82	0.04	0.1	0.778	0.000	0	0	0	0	P
P		B		0.13Y	125.1	0.36	0.85	2.08	9	13	9	80					0	0	0	0	P
P		C		0.13Y	125.1	0.36	0.95	2.08	9	13	9	80					0	0	0	0	P
P CON-2029	T479	A	Consumer	0.12Y	124.8	0.00	1.23	125.31	0	13	9	82	0.00	0.0	0.778	0.000	13	9	0	0	P
		B		0.13Y	125.1	0.00	0.85	124.93	0	13	9	80					13	9	0	0	
P		C		0.13Y	125.1	0.00	0.95	125.02	0	13	9	80					13	9	0	0	P
PC-3020	PC-9354	A	1/0ACSR	7.51Y	125.1	0.00	0.87	4.04	2	27	13	90	0.00	0.0	0.674	0.007	0	0	0	0	
P		B		7.53Y	125.5	-0.00	0.49	-0.01	0	0	0	0					0	0	0	0	P
P		C		7.52Y	125.4	0.00	0.58	-0.01	0	0	0	0					0	0	0	0	P
P PC-3147	PC-9397	A	2ACSR	7.51Y	125.1	0.00	0.88	0.88	0	5	4	78	0.00	0.0	0.882	0.041	0	0	0	0	P
P T2785	PC-3147	A	Transforme	0.12Y	125.0	0.16	1.05	0.88	13	5	4	78	0.00	0.0	0.882	0.000	0	0	0	0	P
P CON-3596	T2785	A	Consumer	0.12Y	125.0	0.00	1.05	26.82	0	3	2	83	0.00	0.0	0.882	0.000	3	2	0	0	P
P CON-3597	T2785	A	Consumer	0.12Y	125.0	0.00	1.05	26.23	0	3	2	83	0.00	0.0	0.882	0.000	3	2	0	0	P
P T2783	PC-3149	A	Transforme	0.12Y	125.0	0.12	1.00	0.28	8	2	1	89	0.00	0.0	0.992	0.000	0	0	0	0	P
P CON-3598	T2783	A	Consumer	0.12Y	125.0	0.00	1.00	16.52	0	2	1	89	0.00	0.0	0.992	0.000	2	1	0	0	P
P T2787	PC-9399	A	Transforme	0.12Y	124.9	0.21	1.09	0.23	11	1	1	71	0.00	0.0	1.075	0.000	0	0	0	0	P
P CON-3601	T2787	A	Consumer	0.12Y	124.9	0.00	1.09	13.77	0	1	1	71	0.00	0.0	1.075	0.000	1	1	0	0	P

SAMPLE

KEY-> L = Low Voltage H = High Voltage C = Capacity Over Limit (%capacity or load amps) G = Generator Out of kvar Limits P = Power Factor Low

Unbalanced Voltage Drop Report
Source: Lake Hemet

Database: P:\CA 41-ANZA\CWP\2020-2023\VOLTAGE DROP\2021-2024 CWP EXI-PRO.WM\
Title:
Case:

Units Displayed In Volts
-Base Voltage:120.0-

Element Name	Parent Name	Cnf	Type/ Conductor	Pri kV	Base Volt	Element Drop	Accum Drop	Thru Amps	% Cap	Thru KW	KVAR	% PF	kW Loss	% Loss	mi From Src	Element Length (mi)	Element KW	Element KVAR	Element Cons On	Element Cons Thru	
P T2784	PC-3150	A	Transforme	0.12Y	125.0	0.13	1.01	0.14	7	1	1	71	0.00	0.0	0.992	0.000	0	0	0	0	P
P CON-3600	T2784	A	Consumer	0.12Y	125.0	0.00	1.01	8.47	0	1	1	71	0.00	0.0	0.992	0.000	1	1	0	0	P
PC-9400	PC-3020	A	2ACSR	7.51Y	125.1	0.01	0.88	2.56	1	18	6	95	0.00	0.0	0.735	0.061	0	0	0	0	
P		B		7.53Y	125.5	-0.00	0.49	-0.01	0	0	0	0					0	0	0	0	P
P		C		7.52Y	125.4	0.00	0.59	-0.01	0	0	0	0					0	0	0	0	P
PC-9401	PC-9400	A	2ACSR	7.51Y	125.1	0.00	0.88	2.56	1	18	6	95	0.00	0.0	0.774	0.039	0	0	0	0	
P		B		7.53Y	125.5	-0.00	0.49	-0.01	0	0	0	0					0	0	0	0	P
P		C		7.52Y	125.4	0.00	0.59	-0.01	0	0	0	0					0	0	0	0	P
PC-9402	PC-9401	A	2ACSR	7.51Y	125.1	0.01	0.89	2.56	1	18	6	95	0.00	0.0	0.852	0.078	0	0	0	0	
P		B		7.53Y	125.5	-0.00	0.49	-0.01	0	0	0	0					0	0	0	0	P
P		C		7.52Y	125.4	0.00	0.59	-0.01	0	0	0	0					0	0	0	0	P
PC-3087	PC-9402	A	2ACSR	7.51Y	125.1	0.01	0.89	2.34	1	17	5	96	0.00	0.0	0.923	0.071	0	0	0	0	
P		B		7.53Y	125.5	-0.00	0.49	-0.00	0	0	0	0					0	0	0	0	P
P		C		7.52Y	125.4	0.00	0.59	-0.00	0	0	0	0					0	0	0	0	P
P T2788	PC-9402	A	Transforme	0.12Y	124.9	0.21	1.09	0.23	11	1	1	71	0.00	0.0	0.852	0.000	0	0	0	0	P
P CON-3602	T2788	A	Consumer	0.12Y	124.9	0.00	1.09	13.81	0	1	1	71	0.00	0.0	0.852	0.000	1	1	0	0	P
P PC-9355	PC-9354	A	1/0ACSR	7.51Y	125.1	0.01	0.88	4.61	2	27	21	79	0.00	0.0	0.734	0.067	0	0	0	0	P
P		B		7.53Y	125.5	-0.00	0.49	-0.01	0	0	0	0					0	0	0	0	P
P		C		7.52Y	125.4	0.00	0.58	-0.01	0	0	0	0					0	0	0	0	P
P PC-9356	PC-9355	A	1/0ACSR	7.51Y	125.1	0.01	0.88	4.61	2	27	21	79	0.00	0.0	0.773	0.040	0	0	0	0	P
P		B		7.53Y	125.5	-0.00	0.49	-0.00	0	0	0	0					0	0	0	0	P
P		C		7.52Y	125.4	0.00	0.58	-0.00	0	0	0	0					0	0	0	0	P
P PC-9357	PC-9356														0.821	0.048	0	0	0	0	P
P																	0	0	0	0	P
P																	0	0	0	0	P
P PC-3146	PC-9357														0.873	0.052	0	0	0	0	P
P PC-3021	PC-3146														0.929	0.055	0	0	0	0	P
P T2780	PC-3021														0.929	0.000	0	0	0	0	P
P CON-3113	T2780	A	Consumer	0.12Y	122.7	0.00	3.32	149.53	0	15	11	81	0.00	0.0	0.929	0.000	14	11	0	0	P
P CON-3593	T2780	A	Consumer	0.12Y	122.7	0.00	3.32	14.71	0	1	1	71	0.00	0.0	0.929	0.000	1	1	0	0	P
P PC-9359	PC-3146	A	2ACSR	7.51Y	125.1	0.00	0.90	1.88	1	11	9	77	0.00	0.0	0.884	0.010	0	0	0	0	P
P PC-9358	PC-9359	A	2ACSR	7.51Y	125.1	0.00	0.90	1.88	1	11	9	77	0.00	0.0	0.904	0.020	0	0	0	0	P
P PC-2955	PC-9358	A	2ACSR	7.51Y	125.1	0.00	0.90	1.10	1	7	5	81	0.00	0.0	0.937	0.033	0	0	0	0	P
P T2782	PC-9362	A	Transforme	0.12Y	125.0	0.10	1.00	0.11	5	1	0	100	0.00	0.0	1.079	0.000	0	0	0	0	P
P CON-3595	T2782	A	Consumer	0.12Y	125.0	0.00	1.00	6.31	0	1	0	100	0.00	0.0	1.079	0.000	1	0	0	0	P
P T2781	PC-2955	A	Transforme	0.12Y	124.5	0.63	1.53	1.00	48	6	5	77	0.00	0.0	0.937	0.000	0	0	0	0	P
P CON-3594	T2781	A	Consumer	0.12Y	124.5	0.00	1.53	59.83	0	6	4	83	0.00	0.0	0.937	0.000	6	4	0	0	P
P T683	PC-9358	A	Transforme	0.12Y	124.4	0.69	1.59	0.78	38	5	4	78	-0.00	0.0	0.904	0.000	0	0	0	0	P
P CON-2021	T683	A	Consumer	0.12Y	124.4	0.00	1.59	27.52	0	3	2	83	0.00	0.0	0.904	0.000	3	2	0	0	P
P CON-2022	T683	A	Consumer	0.12Y	124.4	0.00	1.59	19.38	0	2	1	89	0.00	0.0	0.904	0.000	2	1	0	0	P
P T2778	PC-9354	A-B	Transforme	0.22D	124.9	-0.25	1.07	0.31	9	3	2	83	0.00	0.0	0.666	0.000	0	0	0	0	P
		B-C		0.22D	125.5	0.30	0.53	0.31	9								0	0	0	0	
H		C-A		0.22D	127.0	-1.41	-1.00	0.00	0								0	0	0	0	H
CON-3592	T2778	A-B	Consumer	0.22D	124.9	0.00	1.07	10.62	0	3	2	83	0.00	0.0	0.666	0.000	1	1	0	0	
P		B-C		0.22D	125.5	0.00	0.53	10.57	0								1	1	0	0	P
H		C-A		0.22D	127.0	0.00	-1.00	10.64	0								1	1	0	0	H
P PC-3151	PC-2712	A	1/0ACSR	7.53Y	125.5	-0.00	0.53	-0.00	0	0	0	100	0.00	0.0	0.116	0.048	0	0	0	0	P
P		B		7.53Y	125.5	-0.00	0.50	-0.00	0	0	0	0					0	0	0	0	P
P		C		7.53Y	125.5	0.01	0.54	8.97	4	52	43	78					0	0	0	0	P
C T2792	PC-3151	C	Transforme	0.12Y	121.6	3.83	4.37	8.97	258	52	43	77	-0.00	0.0	0.116	0.000	0	0	0	0	C
P CON-3607	T2792	C	Consumer	0.12Y	121.6	0.00	4.37	538.11	0	52	39	80	0.00	0.0	0.116	0.000	52	39	0	0	P
P T2791	PC-2712	A	Transforme	0.12Y	124.2	1.23	1.76	1.40	67	8	6	80	0.00	0.0	0.067	0.000	0	0	0	0	P

SAMPLE

KEY-> L = Low Voltage H = High Voltage C = Capacity Over Limit (%capacity or load amps) G = Generator Out of kvar Limits P = Power Factor Low

Appendix B

Projected System with Projected Loading
Distribution Voltage Analyses

Unbalanced Voltage Drop Report
Source: Lake Hemet

Database: P:\CA 41-ANZA\CWP\2020-2023\VOLTAGE DROP\2021-2024 CWP PRO-PRO.WM\
Title:
Case:

Units Displayed In Volts
-Base Voltage:120.0-

	Element Name	Parent Name	Cnf	Type/ Conductor	Pri kV	Base Volt	Element Drop	Accum Drop	Thru Amps	% Cap	Thru KW	KVAR	% PF	kW Loss	% Loss	mi From Src	Element Length (mi)	Element KW	Element KVAR	Element Cons On	Element Cons Thru	
	Lake Hemet		A	Lake Hemet	20.91Y	126.0	0.00	0.00	35.03	0	669	298	91	0.00	0.0			0	0	0	0	
			B		20.91Y	126.0	0.00	0.00	24.65	0	476	198	92					0	0	0	0	
			C		20.91Y	126.0	0.00	0.00	29.68	0	576	230	93					0	0	0	0	
---------- Feeder No. 2200 (2200) Beginning with Device R-8 ----------																						
	R-8	PC-3413	A	R-8	7.53Y	125.5	0.00	0.50	62.17	0	454	113	97	0.00	0.0	0.004		0	0	0	0	
			B		7.53Y	125.5	0.00	0.50	46.45	0	341	79	97					0	0	0	0	
			C		7.53Y	125.5	0.00	0.50	52.57	0	391	63	99					0	0	0	0	
P	PC-3287	PC-3286	A	1/0ACSR	7.53Y	125.4	0.00	0.56	-0.00	0	0	0	100	0.00	0.0	0.057	0.002	0	0	0	0	P
P			B		7.53Y	125.5	0.00	0.54	-0.00	0	0	0	0					0	0	0	0	P
			C		7.53Y	125.4	0.00	0.55	-0.00	0	0	0	0					0	0	0	0	
P	PC-2807	PC-4696	A	1/0ACSR	7.48Y	124.7	0.00	1.32	-0.00	0	0	0	100	0.00	0.0	0.771	0.041	0	0	0	0	P
P			B		7.50Y	125.0	0.00	1.02	-0.00	0	0	0	0					0	0	0	0	P
P			C		7.49Y	124.8	0.00	1.18	-0.00	0	0	0	0					0	0	0	0	P
P	PC-4916	PC-4790	B	4ACSR	7.32Y	122.0	0.00	3.96	-0.10	0	0	-1	0	0.00	0.0	6.768	0.007	0	0	0	0	P
P	PC-4917	PC-4916	B	4ACSR	7.32Y	122.0	0.00	3.96	-0.10	0	0	-1	0	0.00	0.0	6.817	0.049	0	0	0	0	P
P	PC-4918	PC-4917	B	4ACSR	7.32Y	122.0	0.00	3.96	-0.10	0	0	-1	0	0.00	0.0	6.886	0.069	0	0	0	0	P
P	PC-4919	PC-4918	B	4ACSR	7.32Y	122.0	0.00	3.96	-0.10	0	0	-1	0	0.00	0.0	6.958	0.072	0	0	0	0	P
P	PC-2355	PC-4919	B	2CN	7.32Y	122.0	0.00	3.96	0.10	0	0	0	100	0.00	0.0	7.032	0.075	0	0	0	0	P
P	PC-2356	PC-2355	B	2CN	7.32Y	122.0	-0.00	3.96	-0.05	0	0	0	100	0.00	0.0	7.131	0.099	0	0	0	0	P
P	T682	PC-7173	B	Transforme	0.12Y	122.0	0.07	4.03	0.69	5	4	3	80	0.00	0.0	6.807	0.000	0	0	0	0	P
P	PC-1964	PC-1963														7.448	0.001	0	0	0	0	P
P	T99	PC-1964														7.448	0.000	0	0	0	0	P
P	PC-2579	PC-1963														7.529	0.082	0	0	0	0	P
P	T100	PC-2579														7.529	0.000	0	0	0	0	P
P	PC-834	PC-1963														7.498	0.051	0	0	0	0	P
P	T946	PC-1960	B	Transforme	0.12Y	121.7	0.03	4.35	0.03	2	0	0	100	0.00	0.0	7.259	0.000	0	0	0	0	P
P	PC-2757	PC-4930	B	4ACSR	7.31Y	121.8	-0.00	4.22	-0.04	0	0	0	100	0.00	0.0	7.007	0.043	0	0	0	0	P
P	PC-2758	PC-2757	B	2CN	7.31Y	121.8	-0.00	4.22	-0.04	0	0	0	100	0.00	0.0	7.077	0.069	0	0	0	0	P
P	T102	PC-2758	B	Transforme	0.12Y	121.8	0.01	4.22	0.00	0	0	0	100	0.00	0.0	7.077	0.000	0	0	0	0	P
P	T945	PC-4930	B	Transforme	0.12Y	121.8	0.02	4.23	0.01	1	0	0	100	0.00	0.0	6.964	0.000	0	0	0	0	P
P	T942	PC-2257	B	Transforme	0.12Y	121.8	0.03	4.17	0.05	1	0	0	100	0.00	0.0	6.766	0.000	0	0	0	0	P
P	PC-2756	PC-4947	B	2CN	7.31Y	121.9	0.00	4.13	-0.03	0	0	0	100	0.00	0.0	6.773	0.069	0	0	0	0	P
P	T104	PC-2756	B	Transforme	0.12Y	121.9	0.02	4.14	0.01	1	0	0	100	0.00	0.0	6.773	0.000	0	0	0	0	P
P	CP-28	PC-2592	A	Cap (150)	7.22Y	120.3	0.00	5.68	-6.96	0	0	-50	0	0.00	0.0	4.833	0.000	0	0	0	0	P
			B		7.35Y	122.5	0.00	3.47	-7.09	0	0	-52	0					0	0	0	0	
P			C		7.26Y	121.1	0.00	4.93	-7.01	0	0	-51	0					0	0	0	0	P
P	CON-4430	T634	C	Consumer	0.12Y	119.5	0.00	6.47	3.94	0	0	0	100	0.00	0.0	7.795	0.000	0	0	0	0	P
P	T632	PC-3179	C	Transforme	0.12Y	118.8	1.01	7.24	1.15	55	7	5	81	0.00	0.0	7.518	0.000	0	0	0	0	P
P	CON-3238	T632	C	Consumer	0.12Y	118.8	0.00	7.24	69.03	0	7	5	81	0.00	0.0	7.518	0.000	7	5	0	0	P
P	CON-3242	T635	C	Consumer	0.12Y	119.5	0.00	6.54	5.63	0	1	0	100	0.00	0.0	7.587	0.000	1	0	0	0	P
P	CON-4914	T633	C	Consumer	0.12Y	119.7	0.00	6.28	2.39	0	0	0	100	0.00	0.0	7.562	0.000	0	0	0	0	P
P	T2955	PC-3177	C	Transforme	0.12Y	119.7	0.12	6.35	0.28	8	2	1	89	0.00	0.0	7.393	0.000	0	0	0	0	P
P	CON-3830	T2955	C	Consumer	0.12Y	119.7	0.00	6.35	16.79	0	2	1	89	0.00	0.0	7.393	0.000	2	1	0	0	P
P	T636	PC-3175	C	Transforme	0.12Y	119.4	0.38	6.60	2.09	30	12	9	80	0.00	0.0	7.328	0.000	0	0	0	0	P
P	CON-3243	T636	C	Consumer	0.12Y	119.4	0.00	6.60	125.37	0	12	9	80	0.00	0.0	7.328	0.000	12	9	0	0	P
P	PC-2787	PC-612	C	2CN	7.19Y	119.9	-0.00	6.12	-0.07	0	0	0	100	0.00	0.0	7.042	0.131	0	0	0	0	P
P	PC-2788	PC-2787	C	2CN	7.19Y	119.9	0.00	6.12	-0.00	0	0	0	100	0.00	0.0	7.044	0.002	0	0	0	0	P

SAMPLE

KEY-> L = Low Voltage H = High Voltage C = Capacity Over Limit (%capacity or load amps) G = Generator Out of kvar Limits P = Power Factor Low

Unbalanced Voltage Drop Report
Source: Lake Hemet

Database: P:\CA 41-ANZA\CWP\2020-2023\VOLTAGE DROP\2021-2024 CWP PRO-PRO.WM\
Title:
Case:

Units Displayed In Volts
-Base Voltage:120.0-

Element Name	Parent Name	Cnf	Type/ Conductor	Pri kV	Base Volt	Element Drop	Accum Drop	Thru Amps	% Cap	Thru KW	KVAR	% PF	kW Loss	% Loss	mi From Src	Element Length (mi)	Element KW	Element KVAR	Element Cons On	Element Cons Thru	
P PC-3157	PC-3160	A	2CN	7.17Y	119.6	-0.00	6.41	-0.07	0	0	0	100	0.00	0.0	5.828	0.132	0	0	0	0	P
		B		7.34Y	122.4	0.01	3.60	2.25	1	13	10	81					0	0	0	0	
P		C		7.25Y	120.8	-0.00	5.15	-0.07	0	0	0	0					0	0	0	0	P
T2952	PC-3157	A	Transforme	0.12Y	119.6	0.01	6.42	0.00	0	0	0	100	0.00	0.0	5.828	0.000	0	0	0	0	
P		B		0.12Y	121.4	0.96	4.56	2.29	66	13	10	79					0	0	0	0	P
		C		0.12Y	120.8	0.01	5.16	0.00	0	0	0	100					0	0	0	0	
P PC-3168	PC-3167	A	2CN	7.19Y	119.9	0.01	6.10	3.98	2	23	17	80	0.01	0.0	5.432	0.079	0	0	0	0	P
P		B		7.35Y	122.4	0.01	3.57	3.96	2	23	17	80					0	0	0	0	P
P		C		7.25Y	120.8	0.01	5.21	3.98	2	23	17	80					0	0	0	0	P
P XFMR163	PC-3168	A	Transforme	0.12Y	119.1	0.80	6.90	1.89	55	11	8	81	-0.00	0.0	5.432	0.000	0	0	0	0	P
P		B		0.12Y	121.6	0.79	4.37	1.88	54	11	8	79					0	0	0	0	P
P		C		0.12Y	120.0	0.80	6.00	1.89	54	11	8	79					0	0	0	0	P
P CON-4995	XFMR163	A	Consumer	0.12Y	119.1	0.00	6.90	113.48	0	11	8	81	0.00	0.0	5.432	0.000	11	8	0	0	P
		B		0.12Y	121.6	0.00	4.37	113.01	0	11	8	80					11	8	0	0	
P		C		0.12Y	120.0	0.00	6.00	113.31	0	11	8	80					11	8	0	0	P
P T2904	PC-3168	A	Transforme	0.12Y	119.0	0.89	6.99	2.11	61	12	9	80	0.00	0.0	5.432	0.000	0	0	0	0	P
P		B		0.12Y	121.5	0.89	4.46	2.10	61	12	9	79					0	0	0	0	P
P		C		0.12Y	119.9	0.89	6.09	2.11	61	12	9	79					0	0	0	0	P
P CON-3658	T2904	A	Consumer	0.12Y	119.0	0.00	6.99	126.81	0	12	9	80	0.00	0.0	5.432	0.000	12	9	0	0	P
		B		0.12Y	121.5	0.00	4.46	126.28	0	12	9	80					12	9	0	0	
P		C		0.12Y	119.9	0.00	6.09	126.62	0	12	9	80					12	9	0	0	P
P T2966	PC-3727	A	Transforme	0.12Y	119.4	0.52	6.64	0.59	28	3	3	71	0.00	0.0	5.868	0.000	0	0	0	0	P
P CON-3883	T2966	A	Consumer	0.12Y	119.4	0.00	6.64	35.22	0	3	3	71	0.00	0.0	5.868	0.000	3	3	0	0	P
P T2961	PC-474														5.787	0.000	0	0	0	0	P
P																	0	0	0	0	P
P																	0	0	0	0	P
P CON-3880	T2961														5.787	0.000	4	3	0	0	P
																	4	3	0	0	
P																	4	3	0	0	P
P T2959	PC-475														5.823	0.000	0	0	0	0	P
P CON-3879	T2959	A	Consumer	0.12Y	118.4	0.00	7.61	99.45	0	9	7	79	0.00	0.0	5.823	0.000	10	7	0	0	P
P PC-2268	PC-3061	A	Unknown 1/	7.20Y	120.0	0.00	5.96	-0.00	0	0	0	100	0.00	0.0	5.139	0.001	0	0	0	0	P
P CON-3877	XFMR63	A	Consumer	0.12Y	119.7	0.00	6.30	15.52	0	1	1	71	0.00	0.0	5.161	0.000	1	1	0	0	P
P PC-3598	PC-9491	C	4ACSR	7.25Y	120.9	0.00	5.14	-0.00	0	0	0	100	0.00	0.0	5.371	0.066	0	0	0	0	P
P PC-3083	PC-3081	A	Unknown 1/	7.21Y	120.2	0.00	5.81	0.89	0	5	4	78	0.00	0.0	4.961	0.001	0	0	0	0	P
		B		7.35Y	122.5	0.00	3.51	0.37	0	3	0	99					0	0	0	0	
P PC-3084	PC-3083	A	Unknown 1/	7.21Y	120.2	0.00	5.81	0.89	0	5	4	78	0.00	0.0	4.963	0.002	0	0	0	0	P
		B		7.35Y	122.5	0.00	3.51	0.38	0	3	0	99					0	0	0	0	
P XFMR26	PC-3084	A-B	Transforme	0.21D	119.8	0.69	6.17	0.37	18	4	3	80	-0.00	0.0	4.963	0.000	0	0	0	0	P
		B-C		0.21D	122.4	1.68	3.57	0.38	18								0	0	0	0	
		C-A		0.21D	123.4	-1.54	2.62	0.00	0								0	0	0	0	
CON-3854	XFMR26	A-B	Consumer	0.21D	119.8	0.00	6.17	12.91	0	4	3	80	0.00	0.0	4.963	0.000	1	1	0	0	
P		B-C		0.21D	122.4	0.00	3.57	12.87	0								1	1	0	0	P
P		C-A		0.21D	123.4	0.00	2.62	13.00	0								1	1	0	0	P
P PC-9813	PC-3309	C	2CN	7.26Y	120.9	-0.00	5.06	-0.05	0	0	0	100	0.00	0.0	5.460	0.094	0	0	0	0	P
P PC-7483	PC-9800	C	2CN	7.22Y	120.4	-0.00	5.65	-0.05	0	0	0	100	0.00	0.0	6.988	0.098	0	0	0	0	P
P PC-9816	PC-2253	C	2CN	7.22Y	120.4	0.00	5.63	-0.01	0	0	0	100	0.00	0.0	6.696	0.029	0	0	0	0	P
P PC-1662	PC-964	A	2CN	7.16Y	119.4	0.00	6.63	-0.00	0	0	0	100	0.00	0.0	6.866	0.001	0	0	0	0	P
P T3416	PC-8682	A	Transforme	0.12Y	118.7	0.49	7.29	0.78	37	4	3	80	0.00	0.0	7.951	0.000	0	0	0	0	P
P CON-4431	T3416	A	Consumer	0.12Y	118.7	0.00	7.29	46.72	0	4	3	80	0.00	0.0	7.951	0.000	4	3	0	0	P
P PC-3652	PC-1869	A	2CN	7.15Y	119.2	0.00	6.78	0.99	1	6	4	83	0.00	0.0	7.607	0.001	0	0	0	0	P
P T3616	PC-3652	A	Transforme	0.12Y	118.6	0.63	7.41	0.99	48	6	4	83	0.00	0.0	7.607	0.000	0	0	0	0	P
P CON-4831	T3616	A	Consumer	0.12Y	118.6	0.00	7.41	59.43	0	6	4	83	0.00	0.0	7.607	0.000	6	4	0	0	P
P T3539	PC-3127	A	Transforme	0.12Y	119.2	0.01	6.77	0.01	0	0	0	100	0.00	0.0	7.348	0.000	0	0	0	0	P

SAMPLE

KEY-> L = Low Voltage H = High Voltage C = Capacity Over Limit (%capacity or load amps) G = Generator Out of kvar Limits P = Power Factor Low

Unbalanced Voltage Drop Report
Source: Lake Hemet

Database: P:\CA 41-ANZA\CWP\2020-2023\VOLTAGE DROP\2021-2024 CWP PRO-PRO.WM\
Title:
Case:

Units Displayed In Volts
-Base Voltage:120.0-

Element Name	Parent Name	Cnf	Type/ Conductor	Pri kV	Base Volt	Element Drop	Accum Drop	Thru Amps	% Cap	Thru KW	KVAR	% PF	kW Loss	% Loss	mi From Src	Element Length (mi)	Element KW	Element KVAR	Element Cons On	Element Cons Thru	
P CON-2688	T3539	A	Consumer	0.12Y	119.2	0.00	6.77	0.32	0	0	0	100	0.00	0.0	7.348	0.000	0	0	0	0	P
P PC-341	PC-340	A	2CN	7.15Y	119.2	-0.00	6.76	-0.02	0	0	0	100	0.00	0.0	7.372	0.041	0	0	0	0	P
P PC-513	PC-512	C	2CN	7.21Y	120.2	0.00	5.76	-0.05	0	0	0	100	0.00	0.0	7.024	0.110	0	0	0	0	P
P PC-3570	PC-980	A	2CN	7.16Y	119.4	-0.00	6.60	-0.03	0	0	0	100	0.00	0.0	7.190	0.054	0	0	0	0	P
P PC-3575	PC-3619	A	2CN	7.16Y	119.4	-0.00	6.61	-0.02	0	0	0	100	0.00	0.0	7.266	0.036	0	0	0	0	P
P PC-3199	PC-4470	A	1/0ACSR	7.16Y	119.4	0.00	6.58	-0.00	0	0	0	100	0.00	0.0	7.302	0.062	0	0	0	0	P
		B		7.33Y	122.2	0.01	3.83	3.97	2	28	9	96					0	0	0	0	
P		C		7.22Y	120.3	-0.00	5.72	-0.00	0	0	0	0					0	0	0	0	P
P PC-3216	PC-3214	B	2CN	7.33Y	122.1	0.00	3.88	-0.04	0	0	0	100	0.00	0.0	7.968	0.073	0	0	0	0	P
P PC-2166	PC-1558	A	1/0ACSR	7.16Y	119.4	-0.00	6.60	-0.01	0	0	0	100	0.00	0.0	8.258	0.032	0	0	0	0	P
P		B		7.32Y	122.1	0.00	3.92	-0.01	0	0	0	0					0	0	0	0	P
P		C		7.21Y	120.2	0.00	5.77	-0.01	0	0	0	0					0	0	0	0	P
P PC-9540	PC-2166	A	1/0ACSR	7.16Y	119.4	-0.00	6.60	-0.01	0	0	0	100	0.00	0.0	8.298	0.040	0	0	0	0	P
P		B		7.32Y	122.1	-0.00	3.92	-0.01	0	0	0	0					0	0	0	0	P
P		C		7.21Y	120.2	-0.00	5.77	-0.01	0	0	0	0					0	0	0	0	P
P PC-9539	PC-9540	A	1/0ACSR	7.16Y	119.4	-0.00	6.60	-0.01	0	0	0	100	0.00	0.0	8.366	0.069	0	0	0	0	P
P		B		7.32Y	122.1	0.00	3.92	-0.01	0	0	0	0					0	0	0	0	P
P		C		7.21Y	120.2	0.00	5.77	-0.01	0	0	0	0					0	0	0	0	P
P PC-9538	PC-9539	A	1/0ACSR	7.16Y	119.4	0.00	6.60	-0.01	0	0	0	100	0.00	0.0	8.408	0.042	0	0	0	0	P
P		B		7.32Y	122.1	-0.00	3.92	-0.01	0	0	0	0					0	0	0	0	P
P		C		7.21Y	120.2	0.00	5.77	-0.01	0	0	0	0					0	0	0	0	P
P PC-9537	PC-9538														8.463	0.055	0	0	0	0	P
P																	0	0	0	0	P
P																	0	0	0	0	P
P PC-9542	PC-9537														8.509	0.045	0	0	0	0	P
P																	0	0	0	0	P
P																	0	0	0	0	P
P PC-3013	PC-3012														8.832	0.100	0	0	0	0	P
P																	0	0	0	0	P
		C		7.21Y	120.2	0.00	5.78	0.33	0	2	0	100					0	0	0	0	
P PC-9534	PC-9531	C	2ACSR	7.21Y	120.2	-0.00	5.78	-0.01	0	0	0	100	0.00	0.0	9.020	0.052	0	0	0	0	P
P PC-9535	PC-9534	C	2ACSR	7.21Y	120.2	0.00	5.78	-0.00	0	0	0	100	0.00	0.0	9.077	0.057	0	0	0	0	P
P PC-9536	PC-9535	C	2ACSR	7.21Y	120.2	0.00	5.78	-0.00	0	0	0	100	0.00	0.0	9.128	0.051	0	0	0	0	P
P T3070	PC-9529	A	Transforme	0.12Y	119.3	0.12	6.72	0.13	6	1	1	71	0.00	0.0	8.474	0.000	0	0	0	0	P
P		B		0.12Y	121.9	0.12	4.06	0.13	6	1	1	80					0	0	0	0	P
P		C		0.12Y	120.1	0.12	5.89	0.13	6	1	1	80					0	0	0	0	P
P CON-4071	T3070	A	Consumer	0.12Y	119.3	0.00	6.72	7.78	0	1	1	71	0.00	0.0	8.474	0.000	1	1	0	0	P
		B		0.12Y	121.9	0.00	4.06	7.75	0	1	1	80					1	1	0	0	
P		C		0.12Y	120.1	0.00	5.89	7.77	0	1	1	80					1	1	0	0	P
P PC-3487	PC-2167	C	2CN	7.21Y	120.2	-0.00	5.77	-0.03	0	0	0	100	0.00	0.0	8.360	0.066	0	0	0	0	P
P PC-2956	PC-9511	C	2CN	7.21Y	120.2	-0.00	5.80	-0.03	0	0	0	100	0.00	0.0	8.539	0.061	0	0	0	0	P
P PC-2957	PC-9527	C	4ACSR	7.21Y	120.2	0.00	5.81	-0.12	0	0	-1	0	0.00	0.0	8.729	0.001	0	0	0	0	P
P PC-2928	PC-2957	C	2CN	7.21Y	120.2	-0.00	5.81	-0.12	0	0	-1	0	0.00	0.0	8.816	0.087	0	0	0	0	P
P PC-2929	PC-2928	C	2CN	7.21Y	120.2	-0.00	5.81	-0.07	0	0	-1	0	0.00	0.0	8.956	0.141	0	0	0	0	P
P PC-2930	PC-1557	C	4ACSR	7.21Y	120.2	0.00	5.82	-0.00	0	0	0	100	0.00	0.0	8.961	0.031	0	0	0	0	P
P T3060	PC-9509	C	Transforme	0.12Y	120.0	0.22	6.01	0.25	12	1	1	71	0.00	0.0	8.190	0.000	0	0	0	0	P
P CON-4057	T3060	C	Consumer	0.12Y	120.0	0.00	6.01	15.02	0	1	1	71	0.00	0.0	8.190	0.000	1	1	0	0	P
P T2971	PC-1874	A	Transforme	0.12Y	119.3	0.57	6.71	0.90	43	5	4	78	0.00	0.0	5.964	0.000	0	0	0	0	P
P		B		0.12Y	121.7	0.57	4.25	0.89	43	5	4	80					0	0	0	0	P
P		C		0.12Y	120.0	0.57	5.96	0.90	43	5	4	80					0	0	0	0	P
P CON-3866	T2971	A	Consumer	0.12Y	119.3	0.00	6.71	53.88	0	5	4	78	0.00	0.0	5.964	0.000	5	4	0	0	P
		B		0.12Y	121.7	0.00	4.25	53.67	0	5	4	80					5	4	0	0	
P		C		0.12Y	120.0	0.00	5.96	53.81	0	5	4	80					5	4	0	0	P
P PC-9643	PC-4646	C	1/0ACSR	7.32Y	121.9	-0.00	4.06	-0.00	0	0	0	100	0.00	0.0	3.998	0.080	0	0	0	0	P

SAMPLE

KEY-> L = Low Voltage H = High Voltage C = Capacity Over Limit (%capacity or load amps) G = Generator Out of kvar Limits P = Power Factor Low

Unbalanced Voltage Drop Report
Source: Lake Hemet

Database: P:\CA 41-ANZA\CWP\2020-2023\VOLTAGE DROP\2021-2024 CWP PRO-PRO.WM\
Title:
Case:

Units Displayed In Volts
-Base Voltage:120.0-

	Element Name	Parent Name	Cnf	Type/ Conductor	Pri kV	Base Volt	Element Drop	Accum Drop	Thru Amps	% Cap	Thru KW	KVAR	% PF	kW Loss	% Loss	mi From Src	Element Length (mi)	Element KW	Element KVAR	Element Cons On	Element Cons Thru	
P	PC-9644	PC-9643	C	1/0ACSR	7.32Y	121.9	0.00	4.06	-0.00	0	0	0	100	0.00	0.0	4.057	0.059	0	0	0	0	P
P	T2797	PC-7607	A	Transforme	0.12Y	122.6	0.34	3.43	0.53	25	3	2	83	0.00	0.0	2.477	0.000	0	0	0	0	P
P			B		0.12Y	123.5	0.34	2.47	0.53	25	3	2	80					0	0	0	0	P
P			C		0.12Y	123.0	0.34	2.98	0.53	25	3	2	80					0	0	0	0	P
P	CON-3611	T2797	A	Consumer	0.12Y	122.6	0.00	3.43	31.77	0	3	2	83	0.00	0.0	2.477	0.000	3	2	0	0	P
			B		0.12Y	123.5	0.00	2.47	31.73	0	3	2	80					3	2	0	0	
P			C		0.12Y	123.0	0.00	2.98	31.75	0	3	2	80					3	2	0	0	P
P	T549	PC-4695	A	Transforme	0.12Y	124.4	0.22	1.65	0.51	15	3	2	83	0.00	0.0	0.831	0.000	0	0	0	0	P
P			B		0.12Y	124.7	0.22	1.31	0.51	15	3	2	80					0	0	0	0	P
P			C		0.12Y	124.5	0.22	1.49	0.51	15	3	2	80					0	0	0	0	P
P	CON-540	T549	A	Consumer	0.12Y	124.4	0.00	1.65	30.69	0	3	2	83	0.00	0.0	0.831	0.000	3	2	0	0	P
			B		0.12Y	124.7	0.00	1.31	30.68	0	3	2	80					3	2	0	0	
P			C		0.12Y	124.5	0.00	1.49	30.68	0	3	2	80					3	2	0	0	P
P	PC-9425	PC-4699	A	1/0ACSR	7.49Y	124.8	0.00	1.16	1.34	1	8	6	80	0.00	0.0	0.649	0.064	0	0	0	0	P
P			B		7.50Y	125.1	0.00	0.92	1.34	1	8	6	80					0	0	0	0	P
P			C		7.50Y	125.0	0.00	1.05	1.34	1	8	6	80					0	0	0	0	P
P	PC-9426	PC-9425	A	1/0ACSR	7.49Y	124.8	0.00	1.16	1.34	1	8	6	80	0.00	0.0	0.721	0.072	0	0	0	0	P
P			B		7.50Y	125.1	0.00	0.92	1.34	1	8	6	79					0	0	0	0	P
P			C		7.50Y	124.9	0.00	1.05	1.34	1	8	6	79					0	0	0	0	P
P	PC-9424	PC-9426	A	1/0ACSR	7.49Y	124.8	0.00	1.16	1.34	1	8	6	80	0.00	0.0	0.768	0.046	0	0	0	0	P
P			B		7.50Y	125.1	0.00	0.92	1.34	1	8	6	79					0	0	0	0	P
P			C		7.50Y	124.9	0.00	1.05	1.34	1	8	6	79					0	0	0	0	P
P	T2795	PC-9424	A	Transforme	0.12Y	123.7	1.18	2.34	1.34	64	8	6	80	0.00	0.0	0.768	0.000	0	0	0	0	P
P			B		0.12Y	123.9	1.18	2.10	1.34	64	8	6	79					0	0	0	0	P
P																		0	0	0	0	P
P	CON-3608	T2795														0.768	0.000	8	6	0	0	P
P																		8	6	0	0	P
P																		8	6	0	0	P
P	T16	PC-4708														0.371	0.000	0	0	0	0	P
P																		0	0	0	0	P
P																		0	0	0	0	P
P	CON-3610	T16	A	Consumer	0.13Y	125.0	0.00	0.97	6.60	0	1	0	100	0.00	0.0	0.371	0.000	1	0	0	0	P
P			B		0.13Y	125.2	0.00	0.82	6.60	0	1	0	80					1	0	0	0	P
P			C		0.13Y	125.1	0.00	0.90	6.60	0	1	0	80					1	0	0	0	P
P	PC-3561	PC-3506	A	#1/0 ACSR	7.53Y	125.5	0.00	0.51	-0.00	0	0	0	100	0.00	0.0	0.019	0.008	0	0	0	0	P
P			B		7.53Y	125.5	0.00	0.51	-0.00	0	0	0	0					0	0	0	0	P
			C		7.53Y	125.5	0.00	0.51	-0.00	0	0	0	0					0	0	0	0	
	PC-4641	Lake Hemet LV	A	#1/0 ACSR	7.53Y	125.5	0.00	0.50	35.32	15	215	157	81	0.01	0.0	0.003	0.003	0	0	0	0	
P			B		7.53Y	125.5	0.00	0.50	22.74	10	135	105	79					0	0	0	0	P
P			C		7.53Y	125.5	0.00	0.50	31.44	14	186	147	78					0	0	0	0	P
---------- Feeder No. 2100 (2100) Beginning with Device R-7 ----------																						
	R-7	PC-4641	A	R-7	7.53Y	125.5	0.00	0.50	35.32	0	215	157	81	0.00	0.0	0.003	0.000	0	0	0	0	
			B		7.53Y	125.5	0.00	0.50	22.74	0	135	105	79					0	0	0	0	
			C		7.53Y	125.5	0.00	0.50	31.44	0	186	147	78					0	0	0	0	
	PC-3507	R-7	A	#1/0 ACSR	7.53Y	125.5	0.01	0.51	35.32	15	215	157	81	0.02	0.0	0.012	0.009	0	0	0	0	
P			B		7.53Y	125.5	0.00	0.50	22.74	10	135	105	79					0	0	0	0	P
P			C		7.53Y	125.5	0.01	0.51	31.44	14	186	147	78					0	0	0	0	P
	PC-3562	PC-3507	A	#1/0 ACSR	7.53Y	125.5	0.00	0.51	35.33	15	215	157	81	0.01	0.0	0.014	0.002	0	0	0	0	
P			B		7.53Y	125.5	0.00	0.50	22.74	10	135	105	79					0	0	0	0	P
P			C		7.53Y	125.5	0.00	0.51	31.44	14	186	147	78					0	0	0	0	P
	PC-3280	PC-3562	A	1/0ACSR	7.53Y	125.5	0.01	0.52	14.91	6	94	61	84	0.01	0.0	0.040	0.026	0	0	0	0	
			B		7.53Y	125.5	-0.00	0.50	2.30	1	15	9	86					0	0	0	0	
P			C		7.53Y	125.5	0.01	0.52	10.99	5	65	51	78					0	0	0	0	P
	PC-2712	RC-15	A	4ACSR	7.53Y	125.5	0.02	0.53	14.91	11	94	61	84	0.02	0.0	0.067	0.027	0	0	0	0	
			B		7.53Y	125.5	-0.00	0.50	2.30	2	15	9	85					0	0	0	0	
P			C		7.53Y	125.5	0.01	0.53	10.99	8	65	51	78					0	0	0	0	P
P	PC-1928	PC-4758	A	4ACSR	7.52Y	125.3	0.00	0.70	-0.00	0	0	0	100	0.00	0.0	0.387	0.057	0	0	0	0	P
P			B		7.53Y	125.5	0.00	0.49	-0.00	0	0	0	0					0	0	0	0	P
P			C		7.53Y	125.4	0.00	0.56	-0.00	0	0	0	0					0	0	0	0	P
P	PC-3080	PC-9336	A	2ACSR	7.51Y	125.3	0.00	0.74	0.89	0	5	4	78	0.00	0.0	1.141	0.023	0	0	0	0	P
P	T2775	PC-3080	A	Transforme	0.12Y	124.5	0.78	1.53	0.89	43	5	4	78	0.00	0.0	1.141	0.000	0	0	0	0	P

SAMPLE

KEY-> L = Low Voltage H = High Voltage C = Capacity Over Limit (%capacity or load amps) G = Generator Out of kvar Limits P = Power Factor Low

Unbalanced Voltage Drop Report
Source: Lake Hemet

Database: P:\CA 41-ANZA\CWP\2020-2023\VOLTAGE DROP\2021-2024 CWP PRO-PRO.WM\
Title:
Case:

Units Displayed In Volts
-Base Voltage:120.0-

Element Name	Parent Name	Cnf	Type/ Conductor	Pri kV	Base Volt	Element Drop	Accum Drop	Thru Amps	% Cap	Thru KW	KVAR	% PF	kW Loss	% Loss	mi From Src	Element Length (mi)	Element KW	Element KVAR	Element Cons On	Element Cons Thru	
P CON-3588	T2775	A	Consumer	0.12Y	124.5	0.00	1.53	53.47	0	5	4	78	0.00	0.0	1.141	0.000	5	4	0	0	P
P PC-3269	PC-9336	A	2CN	7.51Y	125.3	-0.00	0.74	-0.35	0	1	-3	-32	0.00	0.0	1.145	0.027	0	0	0	0	P
P PC-2334	PC-3269	A	Unknown 1/	7.51Y	125.3	-0.00	0.74	-0.34	0	1	-2	-45	0.00	0.0	1.200	0.056	0	0	0	0	P
P PC-2385	PC-2334	A	2CN	7.51Y	125.3	-0.00	0.74	-0.30	0	1	-2	-45	0.00	0.0	1.362	0.161	0	0	0	0	P
P PC-3265	PC-2385	A	2CN	7.51Y	125.3	0.00	0.74	-0.22	0	1	-2	-45	0.00	0.0	1.485	0.123	0	0	0	0	P
P PC-3266	PC-3265	A	2CN	7.51Y	125.3	0.00	0.74	-0.16	0	1	-1	-71	0.00	0.0	1.574	0.090	0	0	0	0	P
P PC-3267	PC-3266	A	2CN	7.51Y	125.3	0.00	0.74	-0.12	0	1	-1	-71	0.00	0.0	1.647	0.073	0	0	0	0	P
P T2774	PC-9331	A	Transforme	0.13Y	125.2	0.09	0.84	0.10	5	1	0	100	0.00	0.0	2.116	0.000	0	0	0	0	P
P CON-3587	T2774	A	Consumer	0.13Y	125.2	0.00	0.84	5.76	0	1	0	100	0.00	0.0	2.116	0.000	1	0	0	0	P
P PC-821	PC-1670	A	4ACSR	7.52Y	125.3	0.00	0.73	0.91	1	5	4	78	0.00	0.0	0.743	0.050	0	0	0	0	P
P T1359	PC-821	A	Transforme	0.12Y	124.5	0.80	1.53	0.91	44	5	4	78	0.00	0.0	0.743	0.000	0	0	0	0	P
P CON-1387	T1359	A	Consumer	0.12Y	124.5	0.00	1.53	54.57	0	5	4	78	0.00	0.0	0.743	0.000	5	4	0	0	P
P T2776	PC-9346	A	Transforme	0.12Y	124.8	0.49	1.21	0.56	27	3	3	71	0.00	0.0	0.500	0.000	0	0	0	0	P
P CON-3589	T2776	A	Consumer	0.12Y	124.8	0.00	1.21	33.31	0	3	2	83	0.00	0.0	0.500	0.000	3	2	0	0	P
P T479	PC-3070	A	Transforme	0.12Y	124.8	0.36	1.23	2.09	9	13	9	82	0.04	0.1	0.778	0.000	0	0	0	0	P
P		B		0.13Y	125.1	0.36	0.85	2.08	9	13	9	80					0	0	0	0	P
P		C		0.13Y	125.1	0.36	0.95	2.08	9	13	9	80					0	0	0	0	P
P CON-2029	T479														0.778	0.000	13	9	0	0	P
P																	13	9	0	0	P
P																	13	9	0	0	P
PC-3020	PC-9354														0.674	0.007	0	0	0	0	
P																	0	0	0	0	P
P																	0	0	0	0	P
P PC-3147	PC-9397														0.882	0.041	0	0	0	0	P
P T2785	PC-3147	A	Transforme	0.12Y	125.0	0.16	1.05	0.88	13	5	4	78	0.00	0.0	0.882	0.000	0	0	0	0	P
P CON-3596	T2785	A	Consumer	0.12Y	125.0	0.00	1.05	26.82	0	3	2	83	0.00	0.0	0.882	0.000	3	2	0	0	P
P CON-3597	T2785	A	Consumer	0.12Y	125.0	0.00	1.05	26.23	0	3	2	83	0.00	0.0	0.882	0.000	3	2	0	0	P
P T2783	PC-3149	A	Transforme	0.12Y	125.0	0.12	1.00	0.28	8	2	1	89	0.00	0.0	0.992	0.000	0	0	0	0	P
P CON-3598	T2783	A	Consumer	0.12Y	125.0	0.00	1.00	16.52	0	2	1	89	0.00	0.0	0.992	0.000	2	1	0	0	P
P T2787	PC-9399	A	Transforme	0.12Y	124.9	0.21	1.09	0.23	11	1	1	71	0.00	0.0	1.075	0.000	0	0	0	0	P
P CON-3601	T2787	A	Consumer	0.12Y	124.9	0.00	1.09	13.77	0	1	1	71	0.00	0.0	1.075	0.000	1	1	0	0	P
P T2784	PC-3150	A	Transforme	0.12Y	125.0	0.13	1.01	0.14	7	1	1	71	-0.00	0.0	0.992	0.000	0	0	0	0	P
P CON-3600	T2784	A	Consumer	0.12Y	125.0	0.00	1.01	8.47	0	1	1	71	0.00	0.0	0.992	0.000	1	1	0	0	P
PC-9400	PC-3020	A	2ACSR	7.51Y	125.1	0.01	0.88	2.56	1	18	6	95	0.00	0.0	0.735	0.061	0	0	0	0	
P		B		7.53Y	125.5	-0.00	0.49	-0.01	0	0	0	0					0	0	0	0	P
P		C		7.52Y	125.4	0.00	0.59	-0.01	0	0	0	0					0	0	0	0	P
PC-9401	PC-9400	A	2ACSR	7.51Y	125.1	0.00	0.88	2.56	1	18	6	95	0.00	0.0	0.774	0.039	0	0	0	0	
P		B		7.53Y	125.5	-0.00	0.49	-0.01	0	0	0	0					0	0	0	0	P
P		C		7.52Y	125.4	0.00	0.59	-0.01	0	0	0	0					0	0	0	0	P
PC-9402	PC-9401	A	2ACSR	7.51Y	125.1	0.01	0.89	2.56	1	18	6	95	0.00	0.0	0.852	0.078	0	0	0	0	
P		B		7.53Y	125.5	-0.00	0.49	-0.01	0	0	0	0					0	0	0	0	P
P		C		7.52Y	125.4	0.00	0.59	-0.01	0	0	0	0					0	0	0	0	P
PC-3087	PC-9402	A	2ACSR	7.51Y	125.1	0.01	0.89	2.34	1	17	5	96	0.00	0.0	0.923	0.071	0	0	0	0	
P		B		7.53Y	125.5	-0.00	0.49	-0.00	0	0	0	0					0	0	0	0	P
P		C		7.52Y	125.4	0.00	0.59	-0.00	0	0	0	0					0	0	0	0	P
P T2788	PC-9402	A	Transforme	0.12Y	124.9	0.21	1.09	0.23	11	1	1	71	0.00	0.0	0.852	0.000	0	0	0	0	P
P CON-3602	T2788	A	Consumer	0.12Y	124.9	0.00	1.09	13.81	0	1	1	71	0.00	0.0	0.852	0.000	1	1	0	0	P
P PC-9355	PC-9354	A	1/0ACSR	7.51Y	125.1	0.01	0.88	4.61	2	27	21	79	0.00	0.0	0.734	0.067	0	0	0	0	P
P		B		7.53Y	125.5	-0.00	0.49	-0.01	0	0	0	0					0	0	0	0	P
P		C		7.52Y	125.4	0.00	0.59	-0.01	0	0	0	0					0	0	0	0	P

SAMPLE

KEY-> L = Low Voltage H = High Voltage C = Capacity Over Limit (%capacity or load amps) G = Generator Out of kvar Limits P = Power Factor Low

Unbalanced Voltage Drop Report
Source: Lake Hemet

Database: P:\CA 41-ANZA\CWP\2020-2023\VOLTAGE DROP\2021-2024 CWP PRO-PRO.WM\
Title:
Case:

Units Displayed In Volts
-Base Voltage:120.0-

Element Name	Parent Name	Cnf	Type/ Conductor	Pri kV	Base Volt	Element Drop	Accum Drop	Thru Amps	% Cap	Thru KW	KVAR	% PF	kW Loss	% Loss	mi From Src	Element Length (mi)	Element KW	Element KVAR	Element Cons On	Element Cons Thru	
P PC-9356	PC-9355	A	1/0ACSR	7.51Y	125.1	0.01	0.88	4.61	2	27	21	79	0.00	0.0	0.773	0.040	0	0	0	0	P
P		B		7.53Y	125.5	-0.00	0.49	-0.00	0	0	0	0					0	0	0	0	P
P		C		7.52Y	125.4	0.00	0.59	-0.00	0	0	0	0					0	0	0	0	P
P PC-9357	PC-9356	A	1/0ACSR	7.51Y	125.1	0.01	0.89	4.61	2	27	21	79	0.00	0.0	0.821	0.048	0	0	0	0	P
P		B		7.53Y	125.5	-0.00	0.49	-0.00	0	0	0	0					0	0	0	0	P
P		C		7.52Y	125.4	0.00	0.59	-0.00	0	0	0	0					0	0	0	0	P
P PC-3146	PC-9357	A	2ACSR	7.51Y	125.1	0.01	0.90	4.61	3	27	21	79	0.00	0.0	0.873	0.052	0	0	0	0	P
P PC-3021	PC-3146	A	2ACSR	7.51Y	125.1	0.01	0.90	2.74	2	16	13	78	0.00	0.0	0.929	0.055	0	0	0	0	P
P T2780	PC-3021	A	Transforme	0.12Y	122.7	2.41	3.32	2.74	131	16	13	78	0.00	0.0	0.929	0.000	0	0	0	0	P
P CON-3113	T2780	A	Consumer	0.12Y	122.7	0.00	3.32	149.53	0	15	11	81	0.00	0.0	0.929	0.000	14	11	0	0	P
P CON-3593	T2780	A	Consumer	0.12Y	122.7	0.00	3.32	14.71	0	1	1	71	0.00	0.0	0.929	0.000	1	1	0	0	P
P PC-9359	PC-3146	A	2ACSR	7.51Y	125.1	0.00	0.90	1.88	1	11	9	77	0.00	0.0	0.884	0.010	0	0	0	0	P
P PC-9358	PC-9359	A	2ACSR	7.51Y	125.1	0.00	0.90	1.88	1	11	9	77	0.00	0.0	0.904	0.020	0	0	0	0	P
P PC-2955	PC-9358	A	2ACSR	7.51Y	125.1	0.00	0.90	1.10	1	7	5	81	0.00	0.0	0.937	0.033	0	0	0	0	P
P T2782	PC-9362	A	Transforme	0.12Y	125.0	0.10	1.00	0.11	5	1	0	100	0.00	0.0	1.079	0.000	0	0	0	0	P
P CON-3595	T2782	A	Consumer	0.12Y	125.0	0.00	1.00	6.31	0	1	0	100	0.00	0.0	1.079	0.000	1	0	0	0	P
P T2781	PC-2955	A	Transforme	0.12Y	124.5	0.63	1.53	1.00	48	6	5	77	0.00	0.0	0.937	0.000	0	0	0	0	P
P CON-3594	T2781	A	Consumer	0.12Y	124.5	0.00	1.53	59.83	0	6	4	83	0.00	0.0	0.937	0.000	6	4	0	0	P
P T683	PC-9358														0.904	0.000	0	0	0	0	P
P CON-2021	T683														0.904	0.000	3	2	0	0	P
P CON-2022	T683														0.904	0.000	2	1	0	0	P
P T2778	PC-9354														0.666	0.000	0	0	0	0	P
																	0	0	0	0	
H																	0	0	0	0	H
CON-3592	T2778	A-B	Consumer	0.22D	124.9	0.00	1.07	10.62	0	3	2	83	0.00	0.0	0.666	0.000	1	1	0	0	
P		B-C		0.22D	125.5	0.00	0.53	10.59	0								1	1	0	0	P
H		C-A		0.22D	126.3	0.00	-0.25	10.63	0								1	1	0	0	H
P PC-3151	PC-2712	A	1/0ACSR	7.53Y	125.5	-0.00	0.53	-0.00	0	0	0	100	0.00	0.0	0.116	0.048	0	0	0	0	P
P		B		7.53Y	125.5	0.00	0.50	-0.00	0	0	0	0					0	0	0	0	P
P		C		7.53Y	125.5	0.01	0.54	8.97	4	52	43	78					0	0	0	0	P
C T2792	PC-3151	C	Transforme	0.12Y	121.6	3.83	4.37	8.97	258	52	43	77	0.00	0.0	0.116	0.000	0	0	0	0	C
P CON-3607	T2792	C	Consumer	0.12Y	121.6	0.00	4.37	538.11	0	52	39	80	0.00	0.0	0.116	0.000	52	39	0	0	P
P T2791	PC-2712	A	Transforme	0.12Y	124.2	1.23	1.76	1.40	67	8	6	80	0.00	0.0	0.067	0.000	0	0	0	0	P
P CON-3606	T2791	A	Consumer	0.12Y	124.2	0.00	1.76	51.02	0	5	4	78	0.00	0.0	0.067	0.000	5	4	0	0	P
P CON-535	T2791	A	Consumer	0.12Y	124.2	0.00	1.76	32.83	0	3	2	83	0.00	0.0	0.067	0.000	3	2	0	0	P
P PC-3630	PC-3562	A	1/0ACSR	7.53Y	125.5	0.02	0.53	20.45	9	121	96	78	0.06	0.0	0.066	0.052	0	0	0	0	P
P		B		7.53Y	125.5	0.02	0.53	20.45	9	121	96	78					0	0	0	0	P
P		C		7.53Y	125.5	0.02	0.53	20.45	9	121	96	78					0	0	0	0	P
P PC-873	PC-3630	A	2CN	7.53Y	125.5	0.00	0.53	20.45	12	121	96	78	0.00	0.0	0.067	0.001	0	0	0	0	P
P		B		7.53Y	125.5	0.00	0.53	20.45	12	121	96	78					0	0	0	0	P
P		C		7.53Y	125.5	0.00	0.53	20.45	12	121	96	78					0	0	0	0	P
P PC-872	PC-873	A	2CN	7.53Y	125.5	0.00	0.53	20.45	12	121	96	78	0.00	0.0	0.068	0.001	0	0	0	0	P
P		B		7.53Y	125.5	0.00	0.53	20.45	12	121	96	78					0	0	0	0	P
P		C		7.53Y	125.5	0.00	0.53	20.45	12	121	96	78					0	0	0	0	P
C T2793	PC-872	A	Transforme	0.12Y	122.9	2.60	3.13	20.45	196	121	96	78	0.00	0.0	0.068	0.000	0	0	0	0	C
C		B		0.12Y	122.9	2.60	3.13	20.45	196	121	96	78					0	0	0	0	C
C		C		0.12Y	122.9	2.60	3.13	20.45	196	121	96	78					0	0	0	0	C
P CON-3112	T2793	A	Consumer	0.12Y	122.9	0.00	3.13	1227.30	0	121	90	80	0.00	0.0	0.068	0.000	121	90	0	0	P
P		B		0.12Y	122.9	0.00	3.13	1227.24	0	121	90	80					121	90	0	0	P
P		C		0.12Y	122.9	0.00	3.13	1227.30	0	121	90	80					121	90	0	0	P
P PC-9710	PC-3507	A	#1/0 ACSR	7.53Y	125.5	0.00	0.51	-0.00	0	0	0	100	0.00	0.0	0.015	0.003	0	0	0	0	P
P		B		7.53Y	125.5	0.00	0.50	-0.00	0	0	0	0					0	0	0	0	P
		C		7.53Y	125.5	0.00	0.51	-0.00	0	0	0	0					0	0	0	0	

SAMPLE

KEY-> L = Low Voltage H = High Voltage C = Capacity Over Limit (%capacity or load amps) G = Generator Out of kvar Limits P = Power Factor Low

Unbalanced Voltage Drop Report
Source: Lake Hemet

Database: P:\CA 41-ANZA\CWP\2020-2023\VOLTAGE DROP\2021-2024 CWP PRO-PRO.WM\
Title:
Case:

	Load	Adjustment	Capacitance	Charging	Gen&Motors	Loops&Metas	Losses	No Load Losses	Total
KW	1676	5	0	0	0	0	41	0.00	1722
KVAR	867	3	-153	-120	0	0	129		726

	Lowest Voltage	Highest Accumulated Voltage Drop	Highest Element Voltage Drop
A-Phase	-> 118.18 volts on T3359	7.82 volts on T3359	2.60 volts on T2793
B-Phase	-> 121.13 volts on T99	4.87 volts on T99	2.60 volts on T2793
C-Phase	-> 118.76 volts on T632	7.24 volts on T632	3.83 volts on T2792

SAMPLE

Unbalanced Voltage Drop Report
Source: Tony Lappos

Database: P:\CA 41-ANZA\CWP\2020-2023\VOLTAGE DROP\2021-2024 CWP PRO-PRO.WM\
Title:
Case:

Units Displayed In Volts
-Base Voltage:120.0-

	Element Name	Parent Name	Cnf	Type/ Conductor	Pri kV	Base Volt	Element Drop	Accum Drop	Thru Amps	% Cap	Thru KW	KVAR	% PF	kW Loss	% Loss	mi From Src	Element Length (mi)	Element KW	Element KVAR	Element Cons On	Element Cons Thru	
	Tony Lappos		A	Tony Lappo	20.91Y	126.0	0.00	0.00	121.18	0	2534	-20	-100	0.00	0.0			0	0	0	0	
			B		20.91Y	126.0	0.00	0.00	119.67	0	2498	161	100					0	0	0	0	
			C		20.91Y	126.0	0.00	0.00	112.79	0	2359	39	100					0	0	0	0	
H	Tony Lappos XFMR	Tony Lappos	A	Transforme	7.57Y	126.2	-0.19	-0.19	121.18	36	2534	-20	-100	0.00	0.0			0	0	0	0	H
			B		7.55Y	125.8	0.15	0.15	119.67	36	2498	161	100					0	0	0	0	
			C		7.55Y	125.9	0.10	0.10	112.79	34	2359	39	100					0	0	0	0	
---------- Feeder No. 1400 (1400) Beginning with Device R-6 ----------																						
	R-6	PC-1414	A	R-6	7.53Y	125.5	0.00	0.50	40.48	0	298	-65	-98	0.00	0.0	0.009		0	0	0	0	
			B		7.53Y	125.5	0.00	0.50	26.12	0	166	-105	-85					0	0	0	0	
			C		7.53Y	125.5	0.00	0.50	30.65	0	201	-114	-87					0	0	0	0	
P	PC-3129	PC-5189	A	1/0ACSR	7.53Y	125.5	0.00	0.50	-0.00	0	0	0	100	0.00	0.0	0.052	0.032	0	0	0	0	P
			B		7.53Y	125.5	0.00	0.50	-0.00	0	0	0	0					0	0	0	0	
P			C		7.53Y	125.5	0.00	0.50	-0.00	0	0	0	0					0	0	0	0	P
P	CP-32	PC-9714	A	Cap (600)	7.53Y	125.5	0.00	0.53	-29.04	0	0	-219	0	0.00	0.0	0.286	0.000	0	0	0	0	P
			B		7.53Y	125.6	0.00	0.45	-29.06	0	0	-219	0					0	0	0	0	
			C		7.53Y	125.5	0.00	0.50	-29.05	0	0	-219	0					0	0	0	0	
P	PC-2431	PC-3400	A	4ACSR	7.52Y	125.3	0.00	0.68	1.30	1	8	6	80	0.00	0.0	0.746	0.073	0	0	0	0	P
P	T2536	PC-2431	A	Transforme	0.12Y	124.2	1.09	1.78	1.30	94	8	6	80	0.00	0.0	0.746	0.000	0	0	0	0	P
P	CON-3273	T2536	A	Consumer	0.12Y	124.2	0.00	1.78	77.95	0	8	6	80	0.00	0.0	0.746	0.000	8	6	0	0	P
	PC-1661	PC-2432	A	4ACSR	7.52Y	125.3	0.00	0.70	-0.00	0	0	0	100	0.00	0.0	0.730	0.003	0	0	0	0	
			B		7.53Y	125.5	0.00	0.48	-0.00	0	0	0	0					0	0	0	0	
P			C		7.52Y	125.4	0.00	0.63	-0.00	0	0	0	0					0	0	0	0	P
P	PC-9108	PC-9107																				P
P																						P
P	T86	PC-9108																				P
P																						P
P	CON-4605	T86														1.261	0.000	2	1	0	0	P
			B		0.12Y	124.5	0.00	1.52	18.31	0	2	1	80					2	1	0	0	
			C		0.12Y	124.2	0.00	1.75	18.32	0	2	1	80					2	1	0	0	
P	PC-2155	PC-889	B	2ACSR	7.53Y	125.5	0.00	0.54	0.00	0	0	0	100	0.00	0.0	1.481	0.042	0	0	0	0	P
P	PC-5004	PC-3068	A	2CN	7.50Y	125.0	0.00	0.99	0.27	0	2	1	89	0.00	0.0	1.594	0.001	0	0	0	0	P
P			B		7.53Y	125.4	0.00	0.55	0.32	0	2	1	80					0	0	0	0	P
P			C		7.51Y	125.1	0.00	0.87	0.27	0	2	1	80					0	0	0	0	P
P	PC-5005	PC-5004	A	2CN	7.50Y	125.0	0.00	0.99	0.27	0	2	1	89	0.00	0.0	1.594	0.000	0	0	0	0	P
P			B		7.53Y	125.4	0.00	0.55	0.32	0	2	1	80					0	0	0	0	P
P			C		7.51Y	125.1	0.00	0.87	0.27	0	2	1	80					0	0	0	0	P
P	T2883	PC-5005	A	Transforme	0.12Y	124.8	0.25	1.24	0.27	13	2	1	89	0.00	0.0	1.594	0.000	0	0	0	0	P
P			B		0.13Y	125.2	0.28	0.83	0.32	15	2	1	80					0	0	0	0	P
P			C		0.12Y	124.9	0.25	1.11	0.27	13	2	1	80					0	0	0	0	P
P	CON-3467	T2883	A	Consumer	0.12Y	124.8	0.00	1.24	16.49	0	2	1	89	0.00	0.0	1.594	0.000	2	1	0	0	P
			B		0.13Y	125.2	0.00	0.83	16.48	0	2	1	80					2	1	0	0	
			C		0.12Y	124.9	0.00	1.11	16.49	0	2	1	80					2	1	0	0	
P	T2882	PC-3067	B	Transforme	0.13Y	125.3	0.15	0.70	0.16	8	1	1	71	0.00	0.0	1.556	0.000	0	0	0	0	P
	PC-130	PC-893	B	4ACSR	7.53Y	125.4	0.00	0.56	0.12	0	1	1	71	0.00	0.0	1.672	0.031	0	0	0	0	
P			C		7.51Y	125.1	0.00	0.88	0.62	0	4	3	80					0	0	0	0	P
P	T2893	PC-131	B	Transforme	0.13Y	125.4	0.06	0.61	0.12	4	1	1	71	0.00	0.0	1.693	0.000	0	0	0	0	P
P			C		0.13Y	125.1	0.06	0.94	0.12	4	1	1	80					0	0	0	0	P
P	T2892	PC-130	C	Transforme	0.12Y	124.7	0.44	1.32	0.49	24	3	2	83	0.00	0.0	1.672	0.000	0	0	0	0	P
P	PC-2615	PC-777	A	Unknown 1/	7.48Y	124.7	0.00	1.27	3.79	2	22	18	77	0.00	0.0	2.190	0.015	0	0	0	0	P
P			B		7.53Y	125.4	0.00	0.57	3.79	2	22	18	78					0	0	0	0	P
P			C		7.50Y	125.0	0.00	1.00	3.79	2	22	18	78					0	0	0	0	P
C	T834	PC-2615	A	Transforme	0.12Y	121.4	3.36	4.63	3.80	182	22	18	77	0.00	0.0	2.190	0.000	0	0	0	0	C
C			B		0.12Y	122.1	3.36	3.93	3.79	182	22	18	78					0	0	0	0	C
C			C		0.12Y	121.6	3.36	4.37	3.80	182	22	18	78					0	0	0	0	C
P	CON-3399	T834	A	Consumer	0.12Y	121.4	0.00	4.63	5.53	0	1	0	100	0.00	0.0	2.190	0.000	1	0	0	0	P
			B		0.12Y	122.1	0.00	3.93	5.53	0	1	0	80					1	0	0	0	
			C		0.12Y	121.6	0.00	4.37	5.53	0	1	0	80					1	0	0	0	

SAMPLE

KEY-> L = Low Voltage H = High Voltage C = Capacity Over Limit (%capacity or load amps) G = Generator Out of kvar Limits P = Power Factor Low

Appendix C

Economic Analyses

Anza Electric

ECONOMIC CONDUCTOR ANALYSIS

New 3-Phase 12.47/7.2 kV Construction

Lifetime of New Line (Years)	42
kW Load Increment kW:	100
Distance of Line (miles)	1.000
Interest Rate (Decimal)	4.00%
Annual Tax Rate (Decimal)	1.00%
Annual Depreciation Rate (Decimal)	3.73%
Annual Fixed Charge Rate (Total)	8.73%
Line Load Factor (Decimal)	0.5600
System Power Factor (Decimal)	95.00%
Line to Ground Voltage (kV)	7.20
Demand Charge ($/kW/Month)	
Energy Charge ($/kWh)	$0.07800
Demand Adjustment Factor (Decimal)	
Line Loss Factor (Decimal)	0.3530

Construction Costs and Conductor Properties

Wire Size	Dollars per Mile	Resistance Ohms/Mile	Ampacity
#4	$50,000	2.2400	140
#1/0	$60,000	0.8880	230
#4/0	$75,000	0.4450	340
477 MCM	$90,000	0.1960	670
795 MCM	$110,000	0.1170	900

$241.21 annual cost per kW of loss

Total Expenses per mile of line = $0

Wire Size	Ann. Loan Payment	Annual Expense
#4	$2,489	$3,649
#1/0	$2,987	$4,379
#4/0	$3,733	$5,473
477 MCM	$4,480	$6,568
795 MCM	$5,475	$8,028

Three Phase Line
Annual Cost Comparison

kw	CONDUCTORS									
	#4		#1/0		#4/0		477 MCM		795 MCM	
kW Load	% Ld	ACSR	% Ld	ACSR	% Ld	ACSR	% Ld	ACSR	% Ld	ACSR
100	3%	$3,687	2%	$4,394	1%	$5,481	1%	$6,571	1%	$8,030
200	7%	$3,803	4%	$4,440	3%	$5,504	1%	$6,582	1%	$8,036
300	10%	$3,995	6%	$4,516	4%	$5,542	2%	$6,598	2%	$8,046
400	13%	$4,265	8%	$4,623	5%	$5,596	3%	$6,622	2%	$8,060
500	17%	$4,611	10%	$4,760	7%	$5,665	4%	$6,652	3%	$8,078
600	20%	$5,035	12%	$4,928	8%	$5,749	4%	$6,689	3%	$8,100
700	23%	$5,535	14%	$5,127	10%	$5,848	5%	$6,733	4%	$8,126
800	26%	$6,113	16%	$5,355	11%	$5,963	6%	$6,784	4%	$8,156
900	30%	$6,767	18%	$5,615	12%	$6,093	7%	$6,841	5%	$8,191
1,000	33%	$7,499	20%	$5,905	14%	$6,238	7%	$6,905	5%	$8,229
1,100	36%	$8,307	22%	$6,225	15%	$6,399	8%	$6,976	6%	$8,271
1,200	40%	$9,192	24%	$6,576	16%	$6,575	9%	$7,053	6%	$8,317
1,300	43%	$10,155	26%	$6,958	18%	$6,766	9%	$7,137	7%	$8,367
1,400	46%	$11,194	28%	$7,370	19%	$6,972	10%	$7,228	7%	$8,422
1,500	50%	$12,311	30%	$7,812	20%	$7,194	11%	$7,326	8%	$8,480
1,600	53%	$13,504	32%	$8,286	22%	$7,431	12%	$7,430	8%	$8,542
1,700	56%	$14,774	34%	$8,789	23%	$7,684	12%	$7,542	9%	$8,609
1,800	60%	$16,122	36%	$9,323	25%	$7,951	13%	$7,659	9%	$8,679
1,900	63%	$17,546	38%	$9,888	26%	$8,234	14%	$7,784	10%	$8,754
2,000	66%	$19,047	40%	$10,483	27%	$8,532	15%	$7,915	10%	$8,832
2,100	69%	$20,626	42%	$11,109	29%	$8,846	15%	$8,054	11%	$8,914
2,200	73%	$22,281	44%	$11,765	30%	$9,175	16%	$8,198	11%	$9,001
2,300	76%	$24,013	46%	$12,452	31%	$9,519	17%	$8,350	12%	$9,091
2,400	79%	$25,823	48%	$13,169	33%	$9,878	17%	$8,508	12%	$9,186
2,500	83%	$27,709	50%	$13,917	34%	$10,253	18%	$8,673	13%	$9,284
2,600	86%	$29,672	52%	$14,695	35%	$10,643	19%	$8,845	13%	$9,387
2,700	89%	$31,713	54%	$15,504	37%	$11,049	20%	$9,024	14%	$9,494
2,800	93%	$33,830	56%	$16,343	38%	$11,469	20%	$9,209	14%	$9,604
2,900			58%	$17,213	39%	$11,905	21%	$9,401	15%	$9,719
3,000			60%	$18,114	41%	$12,356	22%	$9,600	15%	$9,837
3,100			62%	$19,045	42%	$12,823	23%	$9,805	16%	$9,960
3,200			64%	$20,006	44%	$13,305	23%	$10,017	16%	$10,087
3,300			66%	$20,998	45%	$13,802	24%	$10,236	17%	$10,217
3,400			68%	$22,020	46%	$14,314	25%	$10,462	17%	$10,352
3,500			70%	$23,073	48%	$14,842	25%	$10,694	18%	$10,491
3,600			72%	$24,157	49%	$15,385	26%	$10,934	19%	$10,634
3,700			74%	$25,271	50%	$15,943	27%	$11,179	19%	$10,780
3,800			76%	$26,416	52%	$16,517	28%	$11,432	20%	$10,931
3,900			79%	$27,591	53%	$17,106	28%	$11,691	20%	$11,086
4,000			81%	$28,796	54%	$17,710	29%	$11,958	21%	$11,245
4,100			83%	$30,032	56%	$18,329	30%	$12,230	21%	$11,408
4,200			85%	$31,299	57%	$18,964	31%	$12,510	22%	$11,575
4,300			87%	$32,596	59%	$19,614	31%	$12,796	22%	$11,746
4,400			89%	$33,924	60%	$20,279	32%	$13,089	23%	$11,920
4,500			91%	$35,282	61%	$20,960	33%	$13,389	23%	$12,099

Anza Electric

ECONOMIC CONDUCTOR REPLACEMENT ANALYSIS with 100% above normal costs

Lifetime of New Line (Years)	42
kW Load Increment kW:	100
Distance of Line (miles)	1.000
Interest Rate (Decimal)	4.00%
Annual Tax Rate (Decimal)	1.00%
Annual Depreciation Rate (Decimal)	3.73%
Annual Fixed Charge Rate (Total)	8.73%
Line Load Factor (Decimal)	0.5600
System Power Factor (Decimal)	95.00%
Line to Ground Voltage (kV)	7.20
Demand Charge ($/kW/Month)	-
Energy Charge ($/kWh)	$0.07800
Demand Adjustment Factor (Decimal)	0.0000
Line Loss Factor (Decimal)	0.3530

Construction Costs and Conductor Properties

Wire Size	Dollars per Mile	Resistance Ohms/Mile	Ampacity
#4		2.2400	140
#1.0	$60,000	0.8880	230
#4/0	$75,000	0.4450	340
477 MCM	$90,000	0.1960	670
795 MCM	$110,000	0.1170	900

$241.21 annual cost per kW of loss

Total Expenses per mile of line = $0

Wire Size	Ann. Loan Payment	Annual Expense
#4	$0	$0
#1.0	$2,987	$4,379
#4/0	$3,733	$5,473
477 MCM	$4,480	$6,568
795 MCM	$5,475	$8,028

REPLACEMENT OF #4 ACSR

kw Load	% Ld	Conductors #4	#1.0	#4/0	477 MCM	795 MCM
500	17%	$962	$4,760	$5,665	$6,652	$8,078
600	21%	$1,386	$4,928	$5,749	$6,689	$8,100
700	24%	$1,886	$5,127	$5,848	$6,733	$8,126
800	28%	$2,464	$5,355	$5,963	$6,784	$8,156
900	31%	$3,118	$5,615	$6,093	$6,841	$8,191
1,000	35%	$3,850	$5,905	$6,238	$6,905	$8,229
1,100	38%	$4,658	$6,225	$6,399	$6,976	$8,271
1,200	42%	$5,543	$6,576	$6,575	$7,053	$8,317
1,300	45%	$6,506	$6,958	$6,766	$7,137	$8,367
1,400	49%	$7,545	$7,370	$6,972	$7,228	$8,422
1,500	52%	$8,662	$7,812	$7,194	$7,326	$8,480
1,600	56%	$9,855	$8,286	$7,431	$7,430	$8,542
1,700	59%	$11,125	$8,789	$7,684	$7,542	$8,609
1,800	63%	$12,473	$9,323	$7,951	$7,659	$8,679
1,900	66%	$13,897	$9,888	$8,234	$7,784	$8,754
2,000	70%	$15,398	$10,483	$8,532	$7,915	$8,832
2,100	73%	$16,977	$11,109	$8,846	$8,054	$8,914
2,200	77%	$18,632	$11,765	$9,175	$8,198	$9,001
2,300	80%	$20,364	$12,452	$9,519	$8,350	$9,091
2,400	84%	$22,174	$13,169	$9,878	$8,508	$9,186
2,500	87%	$24,060	$13,917	$10,253	$8,673	$9,284
2,600	91%	$26,023	$14,695	$10,643	$8,845	$9,387
2,700	94%	$28,064	$15,504	$11,049	$9,024	$9,494
2,800	97%	$30,181	$16,343	$11,469	$9,209	$9,604
2,900			$17,213	$11,905	$9,401	$9,719
3,000			$18,114	$12,356	$9,600	$9,837
3,100			$19,045	$12,823	$9,805	$9,960
3,200			$20,006	$13,305	$10,017	$10,087
3,300			$20,998	$13,802	$10,236	$10,217
3,400			$22,020	$14,314	$10,462	$10,352
3,500			$23,073	$14,842	$10,694	$10,491
3,600			$24,157	$15,385	$10,934	$10,634
3,700			$25,271	$15,943	$11,179	$10,780
3,800			$26,416	$16,517	$11,432	$10,931
3,900			$27,591	$17,106	$11,691	$11,086
4,000			$28,796	$17,710	$11,958	$11,245
4,100			$30,032	$18,329	$12,230	$11,408
4,200			$31,299	$18,964	$12,510	$11,575
4,300			$32,596	$19,614	$12,796	$11,746
4,400			$33,924	$20,279	$13,089	$11,920
4,500			$35,282	$20,960	$13,389	$12,099
4,600			$36,671	$21,656	$13,696	$12,282
4,700			$38,090	$22,367	$14,009	$12,469
4,800				$23,094	$14,329	$12,660
4,900				$23,835	$14,656	$12,855

Anza Electric

ECONOMIC CONDUCTOR REPLACEMENT ANALYSIS with 100% above normal costs

Lifetime of New Line (Years)	42
kW Load Increment kW:	100
Distance of Line (miles)	1.000
Interest Rate (Decimal)	4.00%
Annual Tax Rate (Decimal)	1.00%
Annual Depreciation Rate (Decimal)	3.73%
Annual Fixed Charge Rate (Total)	8.73%
Line Load Factor (Decimal)	0.5600
System Power Factor (Decimal)	95.00%
Line to Ground Voltage (kV)	7.20
* Demand Charge ($/kW/Month)	-
Energy Charge ($/kWh)	$0.07800
Demand Adjustment Factor (Decimal)	0.0000
Line Loss Factor (Decimal)	0.3530

Construction Costs and Conductor Properties

Wire Size	Dollars per Mile	Resistance Ohms/Mile	Ampacity
#2		1.4100	180
#1/0	$60,000	0.8880	230
4/0	$75,000	0.4450	340
477 MCM	$90,000	0.1960	670
795 MCM	$110,000	0.1170	900

$241.21 annual cost per kW of loss

Total Expenses per mile of line = $0

Wire Size	Ann. Loan Payment	Annual Expense
#2	$0	$0
#1/0	$2,987	$4,379
4/0	$3,733	$5,473
477 MCM	$4,480	$6,568
795 MCM	$5,475	$8,028

REPLACEMENT OF #2 ACSR

kw Load	% Ld	Conductors #2	#1/0	4/0	477 MCM	795 MCM
500	14%	$606	$4,760	$5,665	$6,652	$8,078
600	16%	$872	$4,928	$5,749	$6,689	$8,100
700	19%	$1,187	$5,127	$5,848	$6,733	$8,126
800	22%	$1,551	$5,355	$5,963	$6,784	$8,156
900	24%	$1,963	$5,615	$6,093	$6,841	$8,191
1,000	27%	$2,423	$5,905	$6,238	$6,905	$8,229
1,100	30%	$2,932	$6,225	$6,399	$6,976	$8,271
1,200	32%	$3,489	$6,576	$6,575	$7,053	$8,317
1,300	35%	$4,095	$6,958	$6,766	$7,137	$8,367
1,400	38%	$4,749	$7,370	$6,972	$7,228	$8,422
1,500	41%	$5,452	$7,812	$7,194	$7,326	$8,480
1,600	43%	$6,203	$8,286	$7,431	$7,430	$8,542
1,700	46%	$7,003	$8,789	$7,684	$7,542	$8,609
1,800	49%	$7,851	$9,323	$7,951	$7,659	$8,679
1,900	51%	$8,748	$9,888	$8,234	$7,784	$8,754
2,000	54%	$9,693	$10,483	$8,532	$7,915	$8,832
2,100	57%	$10,686	$11,109	$8,846	$8,054	$8,914
2,200	60%	$11,728	$11,765	$9,175	$8,198	$9,001
2,300	62%	$12,819	$12,452	$9,519	$8,350	$9,091
2,400	65%	$13,958	$13,169	$9,878	$8,508	$9,186
2,500	68%	$15,145	$13,917	$10,253	$8,673	$9,284
2,600	70%	$16,381	$14,695	$10,643	$8,845	$9,387
2,700	73%	$17,665	$15,504	$11,049	$9,024	$9,494
2,800	76%	$18,998	$16,343	$11,469	$9,209	$9,604
2,900	79%	$20,379	$17,213	$11,905	$9,401	$9,719
3,000	81%	$21,809	$18,114	$12,356	$9,600	$9,837
3,100	84%	$23,287	$19,045	$12,823	$9,805	$9,960
3,200	87%	$24,814	$20,006	$13,305	$10,017	$10,087
3,300	89%	$26,389	$20,998	$13,802	$10,236	$10,217
3,400	92%	$28,012	$22,020	$14,314	$10,462	$10,352
3,500	95%	$29,684	$23,073	$14,842	$10,694	$10,491
3,600	97%	$31,405	$24,157	$15,385	$10,934	$10,634
3,700			$25,271	$15,943	$11,179	$10,780
3,800			$26,416	$16,517	$11,432	$10,931
3,900			$27,591	$17,106	$11,691	$11,086
4,000			$28,796	$17,710	$11,958	$11,245
4,100			$30,032	$18,329	$12,230	$11,408
4,200			$31,299	$18,964	$12,510	$11,575
4,300			$32,596	$19,614	$12,796	$11,746
4,400			$33,924	$20,279	$13,089	$11,920
4,500			$35,282	$20,960	$13,389	$12,099
4,600			$36,671	$21,656	$13,696	$12,282
4,700			$38,090	$22,367	$14,009	$12,469
4,800				$23,094	$14,329	$12,660
4,900				$23,835	$14,656	$12,855

Anza Electric

ECONOMIC CONDUCTOR REPLACEMENT ANALYSIS with 100% above normal costs

Lifetime of New Line (Years)	42
kW Load Increment kW:	100
Distance of Line (miles)	1.000
Interest Rate (Decimal)	4.00%
Annual Tax Rate (Decimal)	1.00%
Annual Depreciation Rate (Decimal)	3.73%
Annual Fixed Charge Rate (Total)	8.73%
Line Load Factor (Decimal)	0.5600
System Power Factor (Decimal)	95.00%
Line to Ground Voltage (kV)	7.20
* Demand Charge ($/kW/Month)	-
Energy Charge ($/kWh)	$0.07800
Demand Adjustment Factor (Decimal)	0.0000
Line Loss Factor (Decimal)	0.3530

Construction Costs and Conductor Properties

Wire Size	Dollars per Mile	Resistance Ohms/Mile	Ampacity
1/0		0.8880	230
4/0	$75,000	0.4450	340
477 MCM	$90,000	0.1960	670
795 MCM	$110,000	0.1170	900

$241.21 annual cost per kW of loss

Total Expenses per mile of line = $0

Wire Size	Ann. Loan Payment	Annual Expense
1/0	$0	$0
4/0	$3,733	$5,473
477 MCM	$4,480	$6,568
795 MCM	$5,475	$8,028

REPLACEMENT OF #1/0 ACSR

kw Load	% Ld	Conductors 1/0	4/0	477 MCM	795 MCM
500	11%	$382	$5,665	$6,652	$8,078
600	13%	$549	$5,749	$6,689	$8,100
700	15%	$748	$5,848	$6,733	$8,126
800	17%	$977	$5,963	$6,784	$8,156
900	19%	$1,236	$6,093	$6,841	$8,191
1,000	21%	$1,526	$6,238	$6,905	$8,229
1,100	23%	$1,847	$6,399	$6,976	$8,271
1,200	25%	$2,198	$6,575	$7,053	$8,317
1,300	28%	$2,579	$6,766	$7,137	$8,367
1,400	30%	$2,991	$6,972	$7,228	$8,422
1,500	32%	$3,434	$7,194	$7,326	$8,480
1,600	34%	$3,907	$7,431	$7,430	$8,542
1,700	36%	$4,410	$7,684	$7,542	$8,609
1,800	38%	$4,945	$7,951	$7,659	$8,679
1,900	40%	$5,509	$8,234	$7,784	$8,754
2,000	42%	$6,104	$8,532	$7,915	$8,832
2,100	44%	$6,730	$8,846	$8,054	$8,914
2,200	47%	$7,386	$9,175	$8,198	$9,001
2,300	49%	$8,073	$9,519	$8,350	$9,091
2,400	51%	$8,790	$9,878	$8,508	$9,186
2,500	53%	$9,538	$10,253	$8,673	$9,284
2,600	55%	$10,316	$10,643	$8,845	$9,387
2,700	57%	$11,125	$11,049	$9,024	$9,494
2,800	59%	$11,965	$11,469	$9,209	$9,604
2,900	61%	$12,834	$11,905	$9,401	$9,719
3,000	64%	$13,735	$12,356	$9,600	$9,837
3,100	66%	$14,666	$12,823	$9,805	$9,960
3,200	68%	$15,627	$13,305	$10,017	$10,087
3,300	70%	$16,619	$13,802	$10,236	$10,217
3,400	72%	$17,642	$14,314	$10,462	$10,352
3,500	74%	$18,695	$14,842	$10,694	$10,491
3,600	76%	$19,778	$15,385	$10,934	$10,634
3,700	78%	$20,892	$15,943	$11,179	$10,780
3,800	81%	$22,037	$16,517	$11,432	$10,931
3,900	83%	$23,212	$17,106	$11,691	$11,086
4,000	85%	$24,418	$17,710	$11,958	$11,245
4,100	87%	$25,654	$18,329	$12,230	$11,408
4,200	89%	$26,920	$18,964	$12,510	$11,575
4,300	91%	$28,218	$19,614	$12,796	$11,746
4,400	93%	$29,545	$20,279	$13,089	$11,920
4,500	95%	$30,903	$20,960	$13,389	$12,099
4,600	97%	$32,292	$21,656	$13,696	$12,282
4,700	100%	$33,712	$22,367	$14,009	$12,469
4,800			$23,094	$14,329	$12,660
4,900			$23,835	$14,656	$12,855

Anza Electric

ECONOMIC CONDUCTOR REPLACEMENT ANALYSIS with 100% above normal costs

3-Phase 14.4/24.94 kV Distribution Construction

Lifetime of New Line (Years)	42
kW Load Increment kW:	100
Distance of Line (miles)	1.000
Interest Rate (Decimal)	4.00%
Annual Tax Rate (Decimal)	1.00%
Annual Depreciation Rate (Decimal)	3.73%
Annual Fixed Charge Rate (Total)	8.73%
Line Load Factor (Decimal)	0.5600
System Power Factor (Decimal)	95.00%
Line to Ground Voltage (kV)	7.20
* Demand Charge ($/kW/Month)	-
Energy Charge ($/kWh)	$0.07800
Demand Adjustment Factor (Decimal)	0.0000
Line Loss Factor (Decimal)	0.3530

Construction Costs and Conductor Properties

Wire Size	Dollars per Mile	Resistance Ohms/Mile	Ampacity
4/0		0.4450	340
477 MCM	$90,000	0.1960	670
795 MCM	$110,000	0.1170	900

$241.21 annual cost per kW of loss

Total Expenses per mile of line = $0

Wire Size	Ann. Loan Payment	Annual Expense
4/0	$0	$0
477 MCM	$4,480	$6,568
795 MCM	$5,475	$8,028

REPLACEMENT OF #4/0 ACSR

kw Load	% Ld	Conductors 4/0	477 MCM	795 MCM
1,000	14.3%	$765	$6,905	$8,229
1,100	15.8%	$925	$6,976	$8,271
1,200	17.2%	$1,101	$7,053	$8,317
1,300	18.6%	$1,292	$7,137	$8,367
1,400	20.1%	$1,499	$7,228	$8,422
1,500	21.5%	$1,721	$7,326	$8,480
1,600	22.9%	$1,958	$7,430	$8,542
1,700	24.4%	$2,210	$7,542	$8,609
1,800	25.8%	$2,478	$7,659	$8,679
1,900	27.2%	$2,761	$7,784	$8,754
2,000	28.7%	$3,059	$7,915	$8,832
2,100	30.1%	$3,373	$8,054	$8,914
2,200	31.5%	$3,701	$8,198	$9,001
2,300	33.0%	$4,046	$8,350	$9,091
2,400	34.4%	$4,405	$8,508	$9,186
2,500	35.8%	$4,780	$8,673	$9,284
2,600	37.3%	$5,170	$8,845	$9,387
2,700	38.7%	$5,575	$9,024	$9,494
2,800	40.1%	$5,996	$9,209	$9,604
2,900	41.6%	$6,432	$9,401	$9,719
3,000	43.0%	$6,883	$9,600	$9,837
3,100	44.4%	$7,349	$9,805	$9,960
3,200	45.9%	$7,831	$10,017	$10,087
3,300	47.3%	$8,328	$10,236	$10,217
3,400	48.7%	$8,841	$10,462	$10,352
3,500	50.2%	$9,368	$10,694	$10,491
3,600	51.6%	$9,911	$10,934	$10,634
3,700	53.0%	$10,470	$11,179	$10,780
3,800	54.5%	$11,043	$11,432	$10,931
3,900	55.9%	$11,632	$11,691	$11,086
4,000	57.3%	$12,236	$11,958	$11,245
4,100	58.8%	$12,856	$12,230	$11,408
4,200	60.2%	$13,491	$12,510	$11,575
4,300	61.6%	$14,141	$12,796	$11,746
4,400	63.1%	$14,806	$13,089	$11,920
4,500	64.5%	$15,487	$13,389	$12,099
4,600	65.9%	$16,182	$13,696	$12,282
4,700	67.4%	$16,894	$14,009	$12,469
4,800	68.8%	$17,620	$14,329	$12,660
4,900	70.2%	$18,362	$14,656	$12,855
5,000	71.7%	$19,119	$14,989	$13,055
5,100	73.1%	$19,892	$15,329	$13,258
5,200	74.5%	$20,679	$15,676	$13,465
5,300	76.0%	$21,482	$16,030	$13,676
5,400	77.4%	$22,301	$16,390	$13,891

Appendix D

Circuit Diagram

Existing System with Projected Load

Voltage Problem Areas

Appendix E

Circuit Diagram
Projected System with Projected Load
and Recommended Improvements

Board Resolution

ANZA ELECTRIC COOPERATIVE, INC.
CALIFORNIA 41, ANZA
BOARD RESOLUTION

The following resolution was adopted at a regular meeting of the Board of Directors of Anza Electric Cooperative, Inc., held at Anza, California on October 24, 2024.

WHEREAS, Anza Electric Cooperative, Inc. (AEC) exists to provide reliable utility services for its members at the lowest possible cost and,

WHEREAS, AEC's mission is to operate in a safe and affordable manner, consistent with the Cooperative Principles, and,

WHEREAS, The current Four Year Work Plan expires in 2024, and management has analyzed the needs of the Cooperative and recommended and extension of the existing plan.

NOW, THEREFORE BE IT RESOLVED that the Board of Directors hereby approves the Executive/Staff Summary describing the Plan extension and attached herein, and duly authorizes the General Manager to execute all documents associated with this transaction.

I, Ryall Stewart, do hereby certify that I am President of Anza Electric Cooperative, Inc., and the foregoing is a true and correct copy of a Resolution adopted by the Board of Directors at a regular meeting held on October 24, 2024, at which a quorum was present.

_____
Ryall Stewart, President

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