To: **Board of Trustees and Attorney**

A regular meeting of the Board of Trustees has been scheduled for June 7, 2021 at 7:00 p.m.

Proposed Agenda:

1. Call to Order
2. Reading and Approval of Minutes
3. Presentation of Check Register
4. Presidents Report
5. Attorneys Report
6. Sunflower EPC Report
7. KEC Report
8. General Managers Report
9. Old Business - Policy 524 – Drug and Alcohol-Free Workplace
10. New Business
    a. Construction Work Plan – Mr. Doug Somerhalder, PE
    b. Nominating Committee Report
    c. COSS Consultant selection
    d. CFC Integrity Fund
    e. Temporary Office Closure request
    f. LSEC 3rd Quarter Calendar
11. Safety Report
12. Executive Session – if requested
13. Adjourn

Upcoming Events:

Sunflower Board	June 18	Hays, KS
Office Closed – July 4th Holiday	July 5	
LSEC Board Meeting	July 12	Dighton, KS
LSEC Annual Meeting	July 20	
Sunflower Board	July 21	

MINUTES OF THE REGULAR MAY 2021
MEETING OF THE BOARD OF TRUSTEES
OF THE LANE-SCOTT ELECTRIC COOPERATIVE, INC.

CALL TO ORDER

A regular meeting of the Board of Trustees of the Lane-Scott Electric Cooperative, Inc., was held on Monday, May 3, 2021, in the offices of the cooperative at 410 South High Street, Dighton, Kansas. President Richard Jennison called the meeting to order at 6:53 p.m. In addition to President Richard Jennison, the other trustees in attendance were: Rad Roehl, Harold Hoss, Randy Evans, Eric Doll, Richard Sorem, Paul Seib Jr. and Craig Ramsey. Also present Richard McLeon IV, Kathy Lewis, Randy Robbins, auditor and Joseph Gasper, Attorney. Chad Griffith was absent.

Kathy Lewis and Randy Robbins left the meeting after the Audit Report and Capital Credit Discussion.

AUDIT REPORT

Randy Robbins, Auditor with Bolinger, Segars, Gilbert & Moss L.L.P presented the 2020 audit report to the board. Highlights of his presentation include the following:

- The audit was conducted on-site this year rather than remotely as was done last year.
- The audit was performed on the year ending December 31, 2020. The audit was clean and is an unmodified report of the audit findings.
- The balance sheet shows a Utility Plant in Service of $61,045,936. Total Assets increased to $61,283,842 from $58,436,499 the previous year. Long Term Debt totals $35,717,333 and Total Equities and Liabilities are $61,283,842.
- The Statement of Income showed Total Operating Revenues of $16,154,126 down from $17,904,590. This decrease was due mostly to small and large commercial due to the Covid 19 pandemic. The Cost of Purchased Power was $9,219,252 down from $10,467,955 the previous year. Total Operating expenses were $14,927,396 for an Operating Loss of $110,740. Net Margins totaled $488,305 with $176,771 of patronage capital retired during the year.
- The Statement of Cash Flow showed a decrease of cash on hand of $293,387 for the year.

Secretary President

- The accounting records for Lane-Scott are maintained in accordance with RUS Uniform System of Accounts as prescribed for RUS borrowers.
- The major classes of plant are Transmission, Distribution and General Plant. Each of the major classes have different depreciation schedules with additional depreciation rates for sub classes.
- The investments in associated organizations total $12,137,651 with Sunflower being the largest.
- LSEC participated in the NRECA R&S prepayment plan in 2013. The contribution is being amortized over ten years.
- Assigned Patronage Capital totals $23,604,762 with Retired Patronage of $2,472,872 and Assignable Patronage of $766,535 for a total Patronage of $21,898,425.
- LSEC has lines of credit in the amount of $4,000,000 with CFC and $1,000,000 with CoBank. There is no outstanding balance on either line of credit at the end of 2020.
- A statement regarding the February, 2021 winter storm and associated impact was included in the report. A fixed rate loan in the amount of $3,000,000 was received from CoBank as well as a PPP loan in the amount of $619,088.
- There were no new standards for the year 2020 audit.
- The staff and management participated fully with the auditor in conducting the audit.
- There were five journal entry adjustments made, but none were of concern to the auditor.
- *A motion to enter executive session with the auditor was made, duly seconded and carried at 7:14 p.m. The board came back into regular session at 7:18 p.m.*

2020 CAPITAL CREDIT ALLOCATION

The board moved to the new business agenda item of 2020 capital credit allocation while the auditor was present for questions.

Manager McLeon reviewed board policy 113 regarding capital credits and specifically non-operating capital credits. The board policy allows the non-operating margins to be allocated as capital credits or retained. 2020 non-operating margins were $175,002, an Operating Loss of $79,601 and G&T Capital Credits of $392,903.

Staff recommends that the board approve: 1. No Allocation of 2020 Operating Margins, 2. An allocation of $392,903 in 2020 Generation and Transmission Capital Credits and 3. Retain the Non-operating Margins of $175,002. The board discussed the recommendation with the auditor.

Secretary President

A motion to have no allocation of the 2020 Operating Loss in the amount of $79,601 and to Allocate Generation and Transmission Capital Credits in the amount of $392,903 as capital credits and to retain the non-operating margins in the amount of $175,002 was made, duly seconded and carried.

A motion to approve the 2020 auditor report as prepared and presented by Bollinger, Segars, Gilbert & Moss, LLP was made, duly seconded and carried.

MINUTES OF PRIOR MEETING

President Jennison called for action on the minutes of the prior meeting held on April 5, 2021. *Hearing no corrections to the minutes, President Jennison declared the minutes stand approved as corrected.*

CASH DISBURSEMENTS

President Jennison called for questions regarding the check list for the month.

There were no questions regarding the checks.

PRESIDENT'S REPORT

President Jennison had no current items to report.

ATTORNEY'S REPORT

Attorney Gasper had no current items to report.

REPORT OF SUNFLOWER DELEGATE

A copy of the Sunflower report was included in the board packet and emailed to the trustees.

Paul Seib Jr., Lane-Scott's delegate to Sunflower, added to the written report:

- The Sunflower audit was a clean audit.

KEC REPORT

Trustee Hoss reported that there will be a KEC meeting on May 2 & 3.

MANAGER'S REPORT

Secretary President

Manager McLeon commented on the following matters:

- The credit card statements were presented to the Trustees for review.
- The financials are going to be a little off due to the winter storm. Some members are choosing to pay off the charge early rather than over 42 months so this is affecting revenue.
- Reliability numbers remain good even with the winter storm.
- The initial true-up was $3 million with Sunflower and the final is expected to be in June and could be up to $5 million either way. Several small oil producers have sent letters regarding the true-up and staff and management are addressing the concerns as they come in. There have not been any concerns from the large oil and gas companies.
- The audit adjustment shows that OTIER was .90 which did not meet the covenant requirements for RUS. Mike Lewis with CFC and Patty Klein with RUS have been notified of the OPTIER number.
- Retail operations is working on a business plan for the retail operations section.
- Operations continues to focus on maintenance but a few new connects have been built as well.
- CT:PT inspections are being conducted. Throw switches and line clearance inspections are also being conducted on the system. A question was raised regarding the cost of the inspections on the throw switches. Manager McLeon answered the cost of the inspection is paid by LSEC, but if a switch is bad, the repair cost will be the responsibility of the member.
- An analysis of the vehicle expenses was included in the packet. The vehicle expenses are below the five–year average.
- American Warrior is looking at a project to extract helium and to self-generate with the gas by-product. Discussions with Sunflower and American Warrior will continue regarding this project.
- The nominating committee will meet June 7th. Advertising for the positions will go out in May with a deadline to apply of May 28.
- There were 41 applicants for the six scholarships.
- The financials showed a gain of $38,739 in Total Margins and $6,791 in Operating Margins for March. The aggregate numbers are coming closer to pre-Covid numbers.
- Equity as % of assets is 34.23% and the current ratio is 2.09.
- OPCO paid off its past due balance of $3,512.69.
- Generac is about 30 weeks out for delivery of generators, and there continues to be sales of the generators.

RECEIPT OF MANAGER'S REPORT

The board received the Manager's report as indicated herein, and there were no follow-up questions.

Secretary President

SAFETY REPORT

A safety report was included in the board packet.

OLD BUSINESS

The new policy 524 will be based on the Sunflower policy

NEW BUSINESS

1. NCSC Voting Delegate

- The 2020 CFC and NCSC voting delegate was Richard McLeon and the alternate voting delegate was Richard Jennison. There was no objection to appointing the 2021 delegates the same as the 2020 delegates.

2. Resolution of Appreciation

A motion to approve the following Resolution of Appreciation for Mr. Larry Kraft was made, duly seconded and carried.

WHEREAS, Mr. Larry Kraft will retire as a Journeyman Lineman with the Lane-Scott Electric Cooperative, Incorporated on June 2, 2021 and

WHEREAS, he served the members of this Cooperative since re-starting his employment with the Lane-Scott Electric Cooperative, Incorporated on July 1, 2008.

NOTING, his concern for the well-being of the Cooperative, its employees, and its members made him an important part of the Cooperative, and

REALIZING, that he has assisted numerous members and communities through combined service of approximately 14 years come storm or shine, and

NOW, THEREFORE BE IT RESOLVED, that the Board of Trustees of the Lane-Scott Electric Cooperative Inc., expresses its sincere appreciation to Mr. Larry Kraft for his contributions to the growth, stability, and performance of the Cooperative: and

Secretary President

BE IT FURTHER RESOLVED that the Board of Trustees extends to Mr. Kraft its prayers for the blessings of peace, good health, and best wishes for the future.

3. General Manager Evaluation

- *A motion to enter executive session to discuss the General Manager evaluation was made, duly seconded and carried at 8:07 p.m. The board returned to regular session at 8:25 p.m.*
- *A motion to increase the salary of the General Manager by $5,000 per year to a total of $230,000 per year to take effect June 1, 2021 was made, duly seconded and carried.*

ADJOURNMENT

A motion to adjourn the meeting was made, seconded and carried at 8:27 p.m., on Monday, May 3, 2021.

Secretary President

Accounts Payable
Check Register

04/10/2021 To 05/10/2021

Bank Account: 2 - FIRST STATE BANK

Check / Tran	Date	Pmt Type	Vendor	Vendor Name	Reference	Amount
2387	04/12/2021	WIRE	18	CITY OF DIGHTON	Monthly Invoice	1,407.79
2388	04/12/2021	WIRE	124	GOLDEN BELT TELEPHONE	Monthly Invoice	189.73
2389	04/13/2021	WIRE	1160	S&T TELEPHONE COOP ASSN.	Monthly Invoice	866.20
2395	04/14/2021	WIRE	121	FED-EX	Monthly Invoice	16.70
2392	04/15/2021	WIRE	59	NRECA	401(k) Employer Expense	1,348.50
46901	04/15/2021	CHK	5	ROBERT C METZKER	Cap. Cr. Estate Retirement	143.08
46902	04/15/2021	CHK	5	THEA J RUMFORD	Cap. Cr. Estate Retirement	610.18
46903	04/15/2021	CHK	5	DON L BABCOCK	Cap. Cr. Estate Retirement	73.46
46904	04/15/2021	CHK	5	DANIEL BENTLEY	Cap. Cr. Estate Retirement	6.30
46905	04/15/2021	CHK	5	LORRI BRAVE	Cap. Cr. Estate Retirement	58.61
46906	04/15/2021	CHK	5	WILMA BROYLES	Cap. Cr. Estate Retirement	125.39
46907	04/15/2021	CHK	5	RITA BRETHOWR	Cap. Cr. Estate Retirement	66.66
46908	04/15/2021	CHK	5	KARILYN KAY CURTIS	Cap. Cr. Estate Retirement	201.59
46909	04/15/2021	CHK	5	ROXANNA FELBUSH	Cap. Cr. Estate Retirement	55.83
46910	04/15/2021	CHK	5	ANNA ARLENE GILBERT	Cap. Cr. Estate Retirement	542.82
46911	04/15/2021	CHK	5	BERNARD HAFLICH ESTATE	Cap. Cr. Estate Retirement	3,394.11
46912	04/15/2021	CHK	5	JOHN L HUSLIG	Cap. Cr. Estate Retirement	738.60
46913	04/15/2021	CHK	5	BEVERLY HALL	Cap. Cr. Estate Retirement	1,050.02
46914	04/15/2021	CHK	5	ELLEN KERSHNER	Cap. Cr. Estate Retirement	340.64
46915	04/15/2021	CHK	5	LARRY JEAN HORACEK	Cap. Cr. Estate Retirement	135.79
46916	04/15/2021	CHK	5	DANNY CHARLES HORACEK	Cap. Cr. Estate Retirement	135.78
46917	04/15/2021	CHK	5	DORTHEA M JAMES TRUST	Cap. Cr. Estate Retirement	400.98
46918	04/15/2021	CHK	5	BARBARA A JONES	Cap. Cr. Estate Retirement	17.31
46919	04/15/2021	CHK	5	MAURICE KELCH	Cap. Cr. Estate Retirement	55.84
46920	04/15/2021	CHK	5	VALENY EUGENE KELCH	Cap. Cr. Estate Retirement	55.84
46921	04/15/2021	CHK	5	THOMAS E MCCOY	Cap. Cr. Estate Retirement	204.71

Accounts Payable
Check Register

04/10/2021 To 05/10/2021

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Check / Tran	Date	Pmt Type	Vendor	Vendor Name	Reference	Amount
46922	04/15/2021	CHK	5	JEFF MCGRANAHAN	Cap. Cr. Estate Retirement	581.88
46923	04/15/2021	CHK	5	SHARON OURSLER	Cap. Cr. Estate Retirement	125.42
46924	04/15/2021	CHK	5	WANDA PINKSTON	Cap. Cr. Estate Retirement	1,948.83
46925	04/15/2021	CHK	5	TAMARA PICCONE	Cap. Cr. Estate Retirement	55.84
46926	04/15/2021	CHK	5	NORBERT J ROTHS ESTATE	Cap. Cr. Estate Retirement	381.40
46927	04/15/2021	CHK	5	BARBARA J SLAGLE	Cap. Cr. Estate Retirement	2,608.13
46928	04/15/2021	CHK	5	CLYDE W STIEBEN ESTATE	Cap. Cr. Estate Retirement	660.07
46929	04/15/2021	CHK	5	PATRICIA A BRYANT	Cap. Cr. Estate Retirement	88.98
46930	04/15/2021	CHK	5	DANA BENTLEY	Cap. Cr. Estate Retirement	12.44
46931	04/15/2021	CHK	5	MARILYN SOMMERS	Cap. Cr. Estate Retirement	66.65
46932	04/15/2021	CHK	5	JEANETTE K ALBERS	Cap. Cr. Estate Retirement	257.27
46933	04/15/2021	CHK	5	BREANNA THOMAS	Cap. Cr. Estate Retirement	58.62
46934	04/15/2021	CHK	5	DOROTHY M VANWINKLE	Cap. Cr. Estate Retirement	73.47
46935	04/15/2021	CHK	5	MELBA WITTHUHN	Cap. Cr. Estate Retirement	571.24
46936	04/15/2021	CHK	5	MARLIN L WITTMAN	Cap. Cr. Estate Retirement	53.79
46937	04/15/2021	CHK	5	DEE ANN WILKISON	Cap. Cr. Estate Retirement	6.31
46938	04/15/2021	CHK	5	SHIRLIE WALKER	Cap. Cr. Estate Retirement	135.79
46939	04/15/2021	CHK	5	RAY WIERMAN	Cap. Cr. Estate Retirement	66.66
46940	04/15/2021	CHK	5	ROSS S WILSON	Cap. Cr. Estate Retirement	26.16
46941	04/15/2021	CHK	5	CINDI D WILSON	Cap. Cr. Estate Retirement	26.17
46942	04/16/2021	CHK	1	NESS CITY ROTARY CLUB	Meeting Dues	133.50
46943	04/16/2021	CHK	1	UTICA MAYDAY COMMITTEE	Sponsorship	250.00
46944	04/16/2021	CHK	20	BASIN ELECTRIC POWER COOP	Disptach Fee for March	2,128.00
46945	04/16/2021	CHK	34	AMERICAN SAFETY UTILITY CORP	Tools	443.25
46946	04/16/2021	CHK	37	JETMORE REPUBLICAN	Advertising	32.00
46947	04/16/2021	CHK	105	CITY OF NESS CITY	Monthly Invoice	26.24

Accounts Payable
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04/10/2021 To 05/10/2021

Bank Account: 2 - FIRST STATE BANK

Check / Tran	Date	Pmt Type	Vendor	Vendor Name	Reference	Amount
46948	04/16/2021	CHK	107	CINTAS CORPORATION #449	Monthly Invoice-Dighton	245.59
46949	04/16/2021	CHK	172	TYNDALE COMPANY, INC.	Clothing Allowance-Bale McVicker	1,096.83
46950	04/16/2021	CHK	175	CBC LAWN CARE	Lawn Care	417.18
46951	04/16/2021	CHK	189	COBANK ACB	Overpayment on loan 00063705 T01	182,822.91
46952	04/16/2021	CHK	302	LANE COUNTY ECONOMIC DEVELOPM	Kick off to Summer	200.00
46953	04/16/2021	CHK	380	GRAINGER	Monthly Invoice	1,039.37
46954	04/16/2021	CHK	428	WILSON BOHANNAN PADLOCK COMPA	Padlocks	145.71
46955	04/16/2021	CHK	466	D&S MACHINE & WELDING INC	Nitrogen for Substation	46.83
46956	04/16/2021	CHK	903	NISC	Monthly Invoice	9,628.61
46957	04/16/2021	CHK	1139	LANE COUNTY HOSPITAL	Pre Employment-Blake McVicker	244.50
46958	04/16/2021	CHK	1248	COMPLIANCE ONE	Drug and alcohol Testing	330.75
2390	04/20/2021	WIRE	274	VERIZON WIRELESS	Monthly Invoice	679.67
2391	04/20/2021	WIRE	1229	SCHABEN SANITATION	Monthly Invoice	491.43
46975	04/23/2021	CHK	5	JIM COHOON	Previously Unclaimed Cap Cr	24.51VOID
46976	04/23/2021	CHK	5	WILMA CARR	Previously Unclaimed Cap Cr	30.23
46977	04/23/2021	CHK	5	PAUL S CAMPBELL	Previously Unclaimed Cap Cr	15.98
46978	04/23/2021	CHK	5	ROSE MARY MILNER	Previously Unclaimed Cap Cr	193.33
46979	04/23/2021	CHK	5	DEAN J FOUQUET	Previously Unclaimed Cap Cr	48.51
46980	04/23/2021	CHK	5	RICH FEHRENBACH	Previously unclaimed Cap Cr	131.52
46981	04/23/2021	CHK	5	TAMERA FOOS	Previously Unclaimed Cap Cr	12.00
46982	04/23/2021	CHK	5	JONATHAN FRENCH	Previously Unclaimed Cap Cr	19.75
46983	04/23/2021	CHK	5	JIM GOUGH	Previously Unclaimed Cap Cr	22.85
46984	04/23/2021	CHK	5	JERRY GREEN	Previously Unclaimed Cap Cr	98.95
46985	04/23/2021	CHK	5	DORIS KEETON	Previously Unclaimed Cap Cr	5.46
46986	04/23/2021	CHK	5	SAM HENDRICKSON	Previously Unretired Cap Cr	9.93
46987	04/23/2021	CHK	5	LYNN HARKNESS	Previously Unclaimed Cap Cr	11.70

Accounts Payable
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46988	04/23/2021	CHK	5	PHYLLIS J GRACE	Previously Unclaimed Cap Cr	48.63
46989	04/23/2021	CHK	5	RAYMOND INGUANZA	Previously Unclaimed Cap Cr	40.57
46990	04/23/2021	CHK	5	ELDON KUNTZELMAN	Previously Unclaimed Cap Cr	63.32
46991	04/23/2021	CHK	5	JEFF KOEHN	Previously Unclaimed Cap Cr	27.62
46992	04/23/2021	CHK	5	DANIEL MOLAND	Previously Unclaimed Cap Cr	52.88
46993	04/23/2021	CHK	5	BILL OTTLEY	Previously Unclaimed Cap Cr	57.31
46994	04/23/2021	CHK	5	LARRY OBLENNES	Previously Unclaimed Cap Cr	63.14
46995	04/23/2021	CHK	5	RUSSELL ORTON	Previously Unclaimed Cap Cr	68.22
46996	04/23/2021	CHK	5	SHERRON L REIN	Previously Unclaimed Cap Cr	40.66
46997	04/23/2021	CHK	5	ROYCE ROEMER	Previously Unclaimed Cap Cr	38.19
46998	04/23/2021	CHK	5	CARL STORER	Previosly Unclaimed Cap Cr	67.44
46999	04/23/2021	CHK	5	TOM SMITH	Previously Unclaimed Cap Cr	34.08
47000	04/23/2021	CHK	5	KATHY WESSEL	Previously Unclaimed Cap Cr	58.85
47001	04/23/2021	CHK	5	SHIRLEY J WISE	Previously Unclaimed Cap Cr	50.70
47002	04/23/2021	CHK	5	ANN O'NEILL	Previously Unclaimed Cap Cr	6.37
47003	04/23/2021	CHK	5	CINDY DAME	Previously Unclaimed Cap Cr	28.10
47004	04/23/2021	CHK	5	VALERIE ERICKSON	Previously Unclaimed Cap Cr	128.48
47005	04/23/2021	CHK	5	PAM FINLEY	Previously Unclaimed Cap Cr	35.00
47006	04/23/2021	CHK	5	RYAN MAUCH	Previously Unclaimed Cap Cr	128.48
47007	04/23/2021	CHK	5	ROBERT MILLER	Previously Unclaimed Cap Cr	35.00
47008	04/23/2021	CHK	5	MULL SANDY	Previously Unclaimed Cap Cr	35.00
47009	04/23/2021	CHK	5	RON MILLER	Previously Unclaimed Cap Cr	35.00
47010	04/23/2021	CHK	5	CATHY PEACOCK	Previously Unclaimed Cap Cr	35.02
47011	04/23/2021	CHK	5	RICKEY POPP	Previously Unclaimed Cap Cr	28.10
47012	04/23/2021	CHK	5	CAROL ROSE REVOCABLE TRUST	Previously Unclaimed Cap Cr	1,219.23
47013	04/23/2021	CHK	5	WEISENBERGER FARM	Previously Unclaimed Cap Cr	34.50

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04/10/2021 To 05/10/2021

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Check / Tran	Date	Pmt Type	Vendor	Vendor Name	Reference	Amount
2394	04/26/2021	WIRE	101	ATMOS ENERGY	Monthly Invoice	111.96
2396	04/26/2021	WIRE	263	KS DEPT OF REVENUE - SALES TAX	Sales Tax	17,031.79
2397	04/26/2021	WIRE	264	KS DEPT OF REVENUE - USE TAX	Use Tax	65.80
46959	04/26/2021	CHK	1	KANSAS SAFETY COORDINATORS ASS	Roundtable mtgs and dues	100.00
46960	04/26/2021	CHK	40	KANSAS ELECTRIC COOPERATIVES	Monthly Invoice	2,320.93
46961	04/26/2021	CHK	105	CITY OF NESS CITY	Franchise Fee	4,527.19
46962	04/26/2021	CHK	135	CITY OF BAZINE	Franchise Fee	1,299.50
46963	04/26/2021	CHK	160	SHULL OIL COMPANY	Monthly Fuel Invoice	5,656.23
46964	04/26/2021	CHK	226	KANSAS CORPORATION COMMISSION	Qtrly Assessment	217.66
46965	04/26/2021	CHK	253	FARM CREDIT LEASING SERVICES COR	Truck Lease Payments	9,548.69
46966	04/26/2021	CHK	294	AIRGAS USA LLC	NItrogen-Substation	52.55
46967	04/26/2021	CHK	298	OVERLEASE K-LAWN	Spraying at Substations	4,110.90
46968	04/26/2021	CHK	304	STECKLINE COMMUNICATIONS INC	Advertising	200.00
46969	04/26/2021	CHK	467	DIGHTON CHIROPRACTIC	Dr. Bennett	200.00
46970	04/26/2021	CHK	472	C.H. GUERSNEY & COMPANY	Rate Schedule Labor	3,977.50
46971	04/26/2021	CHK	903	NISC	Monthly Invoice	724.05
46972	04/26/2021	CHK	1225	CINTAS CORPORATION	Monthly Invoice - Dighton	250.43
46973	04/26/2021	CHK	1293	DAL HAWKINSON	Truck #200	43.46
46974	04/26/2021	CHK	1299	DEANNE SHULL	Aflac Reimbursement	57.60
2398	04/27/2021	WIRE	1290	WEX BANK	Monthly Invoice	446.47
47014	04/27/2021	CHK	5	RITA COHOON	Previously Unclaimed Cap Cr	24.51
2393	04/30/2021	WIRE	1239	CULLIGAN OF DODGE CITY	Monthly Invoice	233.82
2399	05/03/2021	WIRE	1187	MIDWEST ENERGY	Monthly Invoice	587.06
47015	05/03/2021	CHK	1	FIRST NATIONAL BANK	Larry Kraft-Retirement Gift	253.00
47016	05/03/2021	CHK	1	LANE COUNTY LIONS CLUB	Calendar-Advertising	30.00
47017	05/03/2021	CHK	1	NESS COUNTY CHAMBER OF COMMER	Larry Kraft-Retirement Gift	250.00

Accounts Payable
Check Register

04/10/2021 To 05/10/2021

Bank Account: 2 - FIRST STATE BANK

Check / Tran	Date	Pmt Type	Vendor	Vendor Name	Reference	Amount
47018	05/03/2021	CHK	24	FINNEY COUNTY TREASURER	2nd half Property Taxes-Finney County	31,833.20
47019	05/03/2021	CHK	28	GOVE COUNTY TREASURER	2nd Half Property Taxes-Gove County	6,372.19
47020	05/03/2021	CHK	33	HODGEMAN COUNTY TREASURER	2nd half Property Taxes-Hodgeman County	20,365.59
47021	05/03/2021	CHK	46	LANE COUNTY TREASURER	2nd half Property Taxes-Lane County	166,850.79
47022	05/03/2021	CHK	50	LOGAN COUNTY TREASURER	2nd Half Property Taxes-Logan County	563.48
47023	05/03/2021	CHK	56	NESS COUNTY TREASURER	2nd Half Property Taxes-Ness County	165,531.47
47024	05/03/2021	CHK	59	NRECA	Subscription-Legal Reporting Service	185.00
47025	05/03/2021	CHK	68	SCOTT COUNTY TREASURER	2nd Half Property Taxes-Scott County	43,646.80
47026	05/03/2021	CHK	73	STANION WHOLESALE ELEC CO INC	Monthly Invoice	16,948.99
47027	05/03/2021	CHK	79	POSTMASTER	BRM permit #2000	344.43
47028	05/03/2021	CHK	107	CINTAS CORPORATION #449	Monthly Invoice-Ness City	71.56
47029	05/03/2021	CHK	164	FAIRBANK EQUIPMENT INC.	Monthly Invoice	186.20
47030	05/03/2021	CHK	167	RUSH COUNTY TREASURER	2nd Half Property Taxes-Rush County	10,567.16
47031	05/03/2021	CHK	172	TYNDALE COMPANY, INC.	Clothing Allowance-Dellon Shelton	402.39
47032	05/03/2021	CHK	317	JOHN DEERE FINANCIAL	Saw Chain and Oil	469.77
47033	05/03/2021	CHK	380	GRAINGER	Monthly Invoice	934.42
47034	05/03/2021	CHK	383	HUXFORD POLE AND TIMBER CO INC	Monthly Invoice	26,144.54
47035	05/03/2021	CHK	395	DOLLAR GENERAL - REGIONS 410526	Monthly Invoice-Supplies	131.15
47036	05/03/2021	CHK	506	K&J FOODS	Monthly Invoice-Supplies	245.76
47037	05/03/2021	CHK	1197	GARDEN CITY WHOLESALE SUPPLY	Monthly Invoice	7,815.93
47038	05/03/2021	CHK	1243	TRI-CENTRAL OFFICE SUP-HAYS	Monthly Invoice-Supplies	422.79
47039	05/03/2021	CHK	1285	TIFCO INDUSTRIES	Monthly Invoice	79.02
47040	05/03/2021	CHK	1299	DEANNE SHULL	Cookies for Board Mtg	72.00
2401	05/04/2021	WIRE	274	VERIZON WIRELESS	Monthly Invoice	370.24
2406	05/06/2021	WIRE	62	NRECA GROUP BENEFITS TRUST	NRECA Gr 1-May Group Insurance	2,836.08
2407	05/06/2021	WIRE	180	NRECA	NRECA Gr 1 Admin Fee-May Gr Ins Adm Fee	229.32

Accounts Payable
Check Register

04/10/2021 To 05/10/2021

Bank Account: 2 - FIRST STATE BANK

Check / Tran	Date	Pmt Type	Vendor	Vendor Name	Reference	Amount
2400	05/07/2021	WIRE	168	ONLINE INFORMATION SERVICES, INC	Utility Exchange Fee	38.85
2402	05/07/2021	WIRE	468	U.S. BANK	Monthly Invoice	8,453.09
2403	05/07/2021	WIRE	1267	AFLAC	Monthly Invoice	465.84
2405	05/07/2021	WIRE	1224	NRECA RETIREMENT & SECURITY	NRECA RS-Group Insurnace	50,068.52
2404	05/10/2021	WIRE	18	CITY OF DIGHTON	Monthly Invoice	1,329.16
47041	05/10/2021	CHK	1	DIGHTON ELEMENTARY SCHOOL	Food Drive Class Challenge-5th/6th Grade	100.00
47042	05/10/2021	CHK	1	WESTERN PLAINS SOUTH ELEMENTAR	Food Drive Class Challenge-K/1 Grade	100.00
47043	05/10/2021	CHK	1	WESTERN PLAINS USD 106	Food Drive Class Challenge-2nd&3rd Grade	100.00
47044	05/10/2021	CHK	14	OFFICE SOLUTIONS, INC	Monthly Invoice	59.68
47045	05/10/2021	CHK	15	ERIC DOLL	May Baord Meeting	389.20
47046	05/10/2021	CHK	30	HAROLD HOSS	May Board Meeting	383.60
47047	05/10/2021	CHK	45	BUMPER TO BUMPER OF DIGHTON	Monthly Invoice	213.71
47048	05/10/2021	CHK	55	NESS COUNTY NEWS	Advertising	110.00
47049	05/10/2021	CHK	60	PAUL SEIB JR	May Board Meeting	386.96
47050	05/10/2021	CHK	63	RICHARD JENNISON	May Board Meeting	364.56
47051	05/10/2021	CHK	96	STEPHENS LUMBER - DIGHTON	Monthly Invoice	202.67
47052	05/10/2021	CHK	104	HOME OIL CO	Monthly Fuel Invoice	556.13
47053	05/10/2021	CHK	105	CITY OF NESS CITY	Postage and Pay station April	615.85
47054	05/10/2021	CHK	172	TYNDALE COMPANY, INC.	Clothing Allowance-Bradstreet	137.93
47055	05/10/2021	CHK	179	RAD ROEHL	May Baord Meeting	360.08
47056	05/10/2021	CHK	184	JOHNSTONE SUPPLY	Monthly Invoice	2,158.85
47057	05/10/2021	CHK	187	S&W SUPPLY DIVISION	Monthly Invoice	44.54
47058	05/10/2021	CHK	194	POST ROCK	Advertising	300.00
47059	05/10/2021	CHK	238	ILLINOIS MUTUAL	Premiums	153.20
47060	05/10/2021	CHK	248	CENTRAL PUMP & SUPPLY	Monthly Invoice	72.12
47061	05/10/2021	CHK	272	LEWIS AUTOMOTIVE GROUP INC	Parts #144	265.35

Accounts Payable
Check Register

04/10/2021 To 05/10/2021

Bank Account: 2 - FIRST STATE BANK

Check / Tran	Date	Pmt Type	Vendor	Vendor Name	Reference	Amount
47062	05/10/2021	CHK	306	BORDER STATES INDUSTRIES INC	Monthly Invoice	2,185.49
47063	05/10/2021	CHK	329	SOUTHWIND BROADCASTING	Advertising	696.00
47064	05/10/2021	CHK	387	WESTERN FUEL & SUPPLY	Monthly Fuel Invoice	153.08
47065	05/10/2021	CHK	406	RICHARD MCLEON	Mtg Expense in Wichita	152.50
47066	05/10/2021	CHK	427	DIGHTON HERALD LLC	Advertising	40.00
47067	05/10/2021	CHK	450	RANDALL G EVANS	May Board Meeting	350.56
47068	05/10/2021	CHK	459	YESTERDAYS BODY SHOP	Truck 191	100.20
47069	05/10/2021	CHK	474	NKC TIRE	Tires for #193	2,121.86
47070	05/10/2021	CHK	475	HUTHCINSON COMMUNITY COLLEGE	Eli Rupp student ID#8030-09074	1,500.00
47071	05/10/2021	CHK	476	ETCHED IN STONE	Stone Sign	3,247.50
47072	05/10/2021	CHK	487	S&S TRAILER SALES INC	Tie downs for truck #143	29.82
47073	05/10/2021	CHK	903	NISC	Monthly Invoice	2,753.77
47074	05/10/2021	CHK	1016	KANSAS ONE-CALL SYSTEM INC	Locate Fees	86.40
47075	05/10/2021	CHK	1169	WASHER SPECIALTIES CO.	Monthly Invoice	161.26
47076	05/10/2021	CHK	1172	WESTERN SUPPLY COMPANY	Monthly Invoice	1,064.29
47077	05/10/2021	CHK	1248	COMPLIANCE ONE	Drug & Alcohol Testing	260.75
47078	05/10/2021	CHK	1251	TECHLINE, LTD	Monthly Invoice	1,189.93
47079	05/10/2021	CHK	1254	EAGLE RADIO	Advertising	440.00
47080	05/10/2021	CHK	1263	RICHARD SOREM	May Board Meeting	398.16
47081	05/10/2021	CHK	1287	COLLINS STEEL	Monthly Invoice	79.72
47082	05/10/2021	CHK	1300	CRAIG RAMSEY	May Board Meeting	378.00
47083	05/10/2021	CHK	1303	LANE COUNTY IMPLEMENT, INC	Monthly Invoice	397.11

Total Payments for Bank Account - 2 :	(203)	864,667.71
Total Voids for Bank Account - 2 :	(1)	24.51
Total for Bank Account - 2 :	(204)	864,692.22

Accounts Payable
Check Register

Grand Total for Payments :	(203)	864,667.71
Grand Total for Voids :	(1)	24.51
Grand Total :	(204)	864,692.22

Payroll/Labor
Check Register

Pay Date: 04/01/2021 To 04/30/2021

Empl	Name	Pay Date	Dir Dep/Check	Gross Pay	Other Pay	Hours	Advances	Deductions/ ER Taxes	Txbl Benefits/ ER PTO	Taxes/ ER Benefits	Net Pay	Type
5	KATHERINE E LEWIS	04/14/2021		5,072.81	0.00	88.00	0.00	597.01	41.46	1,520.77	2,955.03	
			5497					384.41	0.00	2,707.16	985.00	DD
											175.00	DD
											1,795.03	DD
17	DAVID L HOWARD	04/14/2021	5498	4,583.34	0.00	88.00	0.00	693.16	224.88	1,471.88	2,418.30	DD
								365.94	0.00	2,045.29		
21	CARRIE M BORELL	04/14/2021	5499	2,550.24	0.00	88.00	0.00	335.11	11.88	444.92	1,770.21	DD
								190.06	0.00	1,998.14		
22	REBECCA L CAMPBELL	04/14/2021		2,288.00	0.00	88.00	0.00	380.66	5.96	419.43	1,487.91	
			5500					175.15	0.00	1,891.33	450.00	DD
											1,037.91	DD
26	RICHARD A MCLEON	04/14/2021	5501	9,375.00	0.00	88.00	0.00	343.82	132.91	3,321.86	5,709.32	DD
								727.35	0.00	3,329.76		
34	KALO M MANN	04/14/2021	5502	3,538.32	0.00	92.00	0.00	552.35	98.03	804.68	2,181.29	DD
								274.14	0.00	1,860.72		
35	NATHAN A BURNS	04/14/2021	5503	3,173.28	0.00	88.00	0.00	349.79	18.95	835.47	1,988.02	DD
								242.32	0.00	1,596.41		
50	KASEY R JENKINSON	04/14/2021	5504	4,607.22	0.00	101.00	0.00	717.20	16.13	1,060.80	2,829.22	DD
								347.75	0.00	2,529.39		
55	BENJAMIN L MANN	04/14/2021	5505	4,342.56	0.00	98.00	0.00	649.81	15.88	1,009.98	2,682.77	DD
								331.54	0.00	1,873.51		
74	DAL S HAWKINSON	04/14/2021	5506	3,845.66	0.00	91.00	0.00	524.48	5.67	852.01	2,469.17	DD
								288.67	0.00	2,474.54		
84	MICHAEL S POLLOCK	04/14/2021		3,730.62	0.00	97.00	0.00	706.84	6.29	658.99	2,364.79	
			5507					279.92	0.00	2,338.55	100.00	DD
											25.00	DD
											25.00	DD
											25.00	DD
											2,189.79	DD
85	CHAD A RUPP	04/14/2021	5508	3,718.88	0.00	88.00	0.00	504.44	46.22	779.73	2,434.71	DD
								282.09	0.00	2,474.54		
89	CHRIS R TERHUNE	04/14/2021	5509	3,718.88	0.00	88.00	0.00	562.05	14.82	1,102.84	2,053.99	DD
								279.68	0.00	2,474.54		
91	LARRY D KRAFT	04/14/2021	5510	4,409.13	0.00	100.00	0.00	459.54	41.33	897.34	3,052.25	DD
								334.51	0.00	2,474.54		
93	MYRON E SEIB	04/14/2021	5511	4,340.50	0.00	98.00	0.00	643.43	26.89	834.40	2,862.67	DD
								328.16	0.00	2,474.54		
99	KEVIN A BRADSTREET	04/14/2021	5512	3,718.88	0.00	88.00	0.00	450.86	17.64	1,043.87	2,224.15	DD
								284.19	0.00	1,516.11		
108	MARK R MCCULLOCH	04/14/2021	5513	3,442.80	0.00	95.00	0.00	950.84	21.93	825.80	1,666.16	DD

Payroll/Labor
Check Register

Pay Date: 04/01/2021 To 04/30/2021

Empl	Name	Pay Date	Dir Dep/Check	Gross Pay	Other Pay	Hours	Advances	Deductions/ ER Taxes	Txbl Benefits/ ER PTO	Taxes/ ER Benefits	Net Pay	Type
								263.17	0.00	1,602.65		
117	LEIGHTON J AYERS	04/14/2021		4,162.61	0.00	96.00	0.00	366.93	12.05	930.06	2,865.62	
			5514					313.42	0.00	2,362.98	150.00	DD
											2,715.62	DD
129	STACEY L FOOS	04/14/2021	5515	86.74	0.00	5.50	0.00	0.00	0.00	6.63	80.11	DD
								7.67	0.00	0.00		
130	ANN MARIE JENNINGS	04/14/2021	5516	2,126.96	0.00	88.00	0.00	265.01	8.07	401.89	1,460.06	DD
								164.34	0.00	1,546.98		
131	DIANA KUHLMAN	04/14/2021	5517	2,099.68	0.00	88.00	0.00	367.64	10.75	337.19	1,394.85	DD
								169.77	0.00	1,230.64		
132	DELLON SHELTON	04/14/2021	5518	2,352.24	0.00	88.00	0.00	142.14	1.55	603.85	1,606.25	DD
								178.19	0.00	953.25		
134	SCOTT A BRIAND	04/14/2021	5519	1,672.00	0.00	88.00	0.00	80.21	3.00	242.20	1,349.59	DD
								131.78	0.00	980.89		
135	BLAKE MCVICKER	04/14/2021	5520	3,300.00	0.00	88.00	0.00	255.53	3.18	840.63	2,203.84	DD
								290.15	0.00	1,071.50		
5	KATHERINE E LEWIS	04/29/2021		5,072.81	0.00	88.00	0.00	597.01	41.46	1,520.77	2,955.03	
			5521					384.41	0.00	2,707.16	985.00	DD
											175.00	DD
											1,795.03	DD
17	DAVID L HOWARD	04/29/2021	5522	4,583.34	0.00	88.00	0.00	693.16	224.88	1,471.89	2,418.29	DD
								365.95	0.00	2,045.29		
21	CARRIE M BORELL	04/29/2021	5523	2,550.24	0.00	88.00	0.00	335.11	11.88	444.91	1,770.22	DD
								190.05	0.00	1,998.14		
22	REBECCA L CAMPBELL	04/29/2021		2,288.00	0.00	88.00	0.00	380.66	5.96	419.42	1,487.92	
			5524					165.98	0.00	1,891.33	450.00	DD
											1,037.92	DD
26	RICHARD A MCLEON	04/29/2021	5525	9,375.00	0.00	88.00	0.00	343.82	132.91	3,321.87	5,709.31	DD
								727.36	0.00	3,329.76		
34	KALO M MANN	04/29/2021	5526	3,615.24	0.00	94.00	0.00	552.35	98.03	824.20	2,238.69	DD
								280.04	0.00	1,860.72		
35	NATHAN A BURNS	04/29/2021	5527	3,173.28	0.00	88.00	0.00	349.79	18.95	835.48	1,988.01	DD
								242.33	0.00	1,596.41		
50	KASEY R JENKINSON	04/29/2021	5528	4,027.76	0.00	90.00	0.00	717.20	16.13	870.99	2,439.57	DD
								303.41	0.00	2,529.39		
55	BENJAMIN L MANN	04/29/2021	5529	4,061.68	0.00	92.50	0.00	649.81	15.88	910.69	2,501.18	DD
								310.06	0.00	1,873.51		
74	DAL S HAWKINSON	04/29/2021	5530	3,924.59	0.00	91.50	0.00	524.48	5.67	879.93	2,520.18	DD
								294.73	0.00	2,474.54		
84	MICHAEL S POLLOCK	04/29/2021		3,730.62	0.00	97.00	0.00	706.84	6.29	659.00	2,364.78	

Payroll/Labor
Check Register

Pay Date: 04/01/2021 To 04/30/2021

Empl	Name	Pay Date	Dir Dep/Check	Gross Pay	Other Pay	Hours	Advances	Deductions/ ER Taxes	Txbl Benefits/ ER PTO	Taxes/ ER Benefits	Net Pay	Type
			5531					279.93	0.00	2,338.55	100.00	DD
											25.00	DD
											25.00	DD
											25.00	DD
											2,189.78	DD
85	CHAD A RUPP	04/29/2021	5532	4,035.83	0.00	94.00	0.00	504.44	46.22	860.08	2,671.31	DD
								306.33	0.00	2,474.54		
89	CHRIS R TERHUNE	04/29/2021	5533	4,689.90	0.00	104.00	0.00	562.05	14.82	1,463.37	2,664.48	DD
								353.96	0.00	2,474.54		
91	LARRY D KRAFT	04/29/2021	5534	3,718.88	0.00	88.00	0.00	459.54	41.33	722.37	2,536.97	DD
								281.71	0.00	2,474.54		
93	MYRON E SEIB	04/29/2021	5535	3,718.88	0.00	88.00	0.00	643.43	26.89	676.83	2,398.62	DD
								280.61	0.00	2,474.54		
99	KEVIN A BRADSTREET	04/29/2021	5536	4,141.48	0.00	95.00	0.00	450.86	17.64	1,200.71	2,489.91	DD
								316.50	0.00	1,516.11		
108	MARK R MCCULLOCH	04/29/2021	5537	3,334.08	0.00	92.00	0.00	950.84	21.93	787.37	1,595.87	DD
								254.86	0.00	1,602.65		
117	LEIGHTON J AYERS	04/29/2021		4,132.14	0.00	96.00	0.00	366.93	12.05	922.32	2,842.89	
			5538					311.08	0.00	2,362.98	150.00	DD
											2,692.89	DD
129	STACEY L FOOS	04/29/2021	5539	137.99	0.00	8.75	0.00	0.00	0.00	10.96	127.03	DD
								12.22	0.00	0.00		
130	ANN MARIE JENNINGS	04/29/2021	5540	2,126.97	0.00	88.00	0.00	265.01	8.07	401.90	1,460.06	DD
								152.60	0.00	1,546.98		
131	DIANA KUHLMAN	04/29/2021	5541	2,099.68	0.00	88.00	0.00	367.64	10.75	337.18	1,394.86	DD
								158.42	0.00	1,230.64		
132	DELLON SHELTON	04/29/2021	5542	2,804.63	0.00	100.00	0.00	142.14	1.55	763.77	1,898.72	DD
								212.79	0.00	953.25		
134	SCOTT A BRIAND	04/29/2021	5543	1,672.00	0.00	88.00	0.00	80.21	3.00	242.20	1,349.59	DD
								131.77	0.00	980.89		
135	BLAKE MCVICKER	04/29/2021	5544	3,300.00	0.00	88.00	0.00	255.53	3.18	840.64	2,203.83	DD
								280.20	0.00	1,071.50		
			Grand Total:	$ 172,571.37	$ 0.00	4,216.25	$ 0.00	$ 21,797.70	$ 1,570.94	$ 42,636.07	$ 108,137.60	
								$ 13,231.67	$ 0.00	$ 91,615.92		

SUNFLOWER ELECTRIC POWER CORPORATION
A Touchstone Energy® Cooperative
. . . energy done right

SPECIAL SUNFLOWER ELECTRIC POWER CORPORATION BOARD MEETING – MAY 11, 2021

The Sunflower Board held a special meeting via MS Teams to discuss an alternative rate proposal for an economic development request in Victory's service territory. A short deadline for the rate proposal necessitated the special meeting.

Modeling of scenarios with a 95% Load Factor and different peak loads included various incentives.

Board action: The Sunflower Board approved the additional rate incentives for the possible new load as presented.

SUNFLOWER ELECTRIC POWER CORPORATION BOARD MEETING – MAY 19, 2021

CURRENT ACTIVITIES

The NRECA CEO Close-Up Conference conflicts with the regularly scheduled August Sunflower Board Meeting; thus, the Board discussed alternative dates.

Board action: The Sunflower Board approved moving the August 2021 Board meeting from Aug. 18 to Aug. 23.

CFC's Integrity Funds support cooperatives in resisting threats to their service territories; their right to offer non-electric energy services to consumers; and when facing regulatory, judicial or legislative challenges that threaten their existence under the cooperative business model. More than $29.9 million in grants have been awarded since 1986 to approximately 300 cooperatives. Cooperatives can support the fund by designating a portion of their CFC patronage or by making a contribution from their general fund. Cooperatives can also choose whether their contribution supports all challenges that threaten a cooperative's ability to exist under the cooperative business model or only for territorial integrity challenges.

Board action: The Sunflower Board approved contributing 5% of the current year's CFC patronage to the CFC Integrity Fund.

PRESIDENT'S REPORT

Generation
Tours of Holcomb Station were made available to annual meeting attendees. Members are also welcome to schedule tour of any Sunflower asset.

Transmission Policy and Planning
Sunflower staff further discussed FERC Order 2222 (2x4 Order), which addresses the use of Distributed Energy Resources (DERs) behind and in front of distribution meters. SPP members with fewer than 4 million MWhs in annual sales can opt out.

Sunflower will be working with the Members to decide what is in the best interest of its membership. To aid in the decision, Sunflower staff are working with Burns & McDonnell to develop a way to evaluate the value of participating (i.e., Value Stacking).

SPP is working with its members to develop policies to establish minimum size requirements for DER aggregations that do not exceed 100 kW; address locational requirements for DER aggregation; and address coordination between SPP, the DER Aggregator, the distribution utility, and the relevant electric retail regulatory authority.

SPP is expected to submit tariff revisions and explain how it has complied with the Order's requirements on or before April 28, 2022. Implementation of Order 2222 requirements is anticipated in the first quarter of 2024.

SPP is contacting distribution utilities to participate in the monthly discussions of FERC Order 2222. Sunflower Members are asked to let Dr. Al Tamimi know if they will have representation on the calls, which are scheduled from May 2021 through April 2022.

Staff updated the Board on the SPP Cost Allocation Waiver (HITT C2). Sunflower, along with the State of Kansas and other Kansas utilities, filed comments in support of SPP's Cost Allocation Waiver filing at FERC. Sunflower was able to show a 347% difference between installed wind capacity and peak demand in our zone. Two protests have been filed against SPP's filing at FERC. FERC is expected to rule on the Order in June.

Technology Services
Sunflower's transmission line inspections historically have been a manual process requiring technicians to leverage paper forms and manual processes to transfer information into spreadsheets. In January, Sunflower implemented Field Automation-Ruggedized Laptop Robotic Process Automation (RPA) using Dell ruggedized tablets and multiple Microsoft software products for use with transmission line inspections. Benefits include more accurate data capture, access to transmission line information in the field, eliminating redundant data entries, centrally synchronized and stored information, the ability to monitor trends, and others. Next steps include developing the use of the solution for substation inspections, wireless tower site inspections, and determining future field automation process improvements.

Corporate Services
The Board discussed two coal purchases for normal business use. This purchase is in compliance with Sunflower's Hedge Plan.

Board action: The Sunflower Board approved two coal purchases from Peabody Energy, one for Caballo 8,400 Btu Coal and one for NARM 8,800 Btu Coal.

Legal
Board action: The Sunflower Board approved a power supply contract among Sunflower, Prairie Land, and the City of Norton.

Financials
Overall Member loads were down 1.04% from budget for the month and 3.20% year to date. Large industrial loads were down 2.10% from budget for the month and 1.66% year to date. Year-to-date operating expenses were down 24.62% from budget for the month and down

8.07% year to date. The Cold Weather Event caused an increase in the ECA of $276.22/MWh over budget for the month of February and was the primary contributor to the increase in the year-to-date average member rate of $121.16/MWh. More information regarding costs of the Cold Weather Event is anticipated in July.

KANSAS ELECTRIC COOPERATIVES

KEC will be creating a Distributed Generation Taskforce to discuss regulatory, tariff, and legislative issues surrounding the topic.

The KEC summer board meeting is scheduled from July 31 thru Aug. 2 in Overland Park, Kan. Directors will have access to four CDC credits.

Co-ops Vote events are currently being scheduled.

Lee Tafenelli presented Clare Gustin with a certificate for Sunflower's 100% sponsorship participation in ACRE and KCRE.

SUNFLOWER ELECTRIC POWER CORPORATION, ANNUAL MEETING

The Sunflower Board held elections for company officials:

Wes Campbell, Wheatland, was elected as chairman; Kenny Wehkamp, Victory, was elected as vice chairman.

Directors elected include:

Martie Floyd, director, and Mike Brewer, alternate, representing Pioneer;
Jerry Gallagher, director, and Mike Rogers, alternate, representing Prairie Land;
Kenny Wehkamp, director, and Jim Imel, alternate, representing Victory;
Frank Joy director, and Susan Rohleder, alternate, representing Western; and
Wes Campbell director, and William Barnes, alternate, representing Wheatland.

Elected officers are Stuart Lowry, President and CEO; Kyle Nelson, Senior Vice President and COO, H. Davis Rooney, Vice President, CFO, and Treasurer; Brent Mitchell, Board Counsel and Secretary; Jeremy Anderson, Vice President and CIO; Jana Horsfall, Vice President, Corporate Services; Clare Gustin, Vice President, External Affairs and Member Services; Al Tamimi, Vice President Transmission Planning and Policy; and Corey Linville, Vice President, Power Supply and Delivery.

The Sunflower Executive Team presented information on their respective department's focus for 2021:

- Technology Services: Network Infrastructure Modernization Project
- Power Supply & Delivery: resource planning studies, Sunflower Renewable Energy Program, distributed energy resources
- Corporate Services: organizational change management, Great Bend facilities, supplier qualifier management; leadership pipeline, safety culture improvement
- External Affairs & Member Services: Sunflower Electric Economic Development Program
- Operations: Dodge City area system reliability initiatives, demarcation, generation asset life-cycle plan

- Transmission Policy & Planning: SPP byway cost allocation
- Financial Services: IRP, energy hedge, credit rating assessment, risk management, demarcation.

SUNFLOWER ELECTRIC HOLDINGS, INC., ANNUAL MEETING

The Sunflower Electric Holdings Board held elections for company officials.

Frank Joy, Western, was elected as chairman; Martie Floyd, Pioneer, was elected as vice chairman.

Directors elected include:

Paul Seib, director, and Richard McLeon, alternate, representing Lane-Scott;
Martie Floyd, director, and Steve Epperson, alternate, representing Pioneer; Kenny Wehkamp, director, and Jim Imel alternate, representing Victory; and Frank Joy, director, and Tom Ruth, alternate, representing Western.

Elected officers are Stuart Lowry, President and CEO; H. Davis Rooney, Vice President, CFO, and Treasurer; and Brent Mitchell, Board Counsel and Secretary.

KEC
KANSAS ELECTRIC COOPERATIVES, INC.
A Touchstone Energy® Cooperative
P.O. Box 4267, Topeka, KS 66604-0267 • 7332 SW 21st Street, Topeka, KS 66615 • 785-478-4554 • Fax: 785-478-4852 • www.kec.coop

KEC May Board Meeting Summary

May 6, 2021, held virtually and in Wichita, KS

In official action, the KEC Board of Trustees

1. Set the 2022 non-member on-site safety meeting price at $2,300, and the extra member meeting price at $1,700.
2. Approved the Cromwell Solar ads for publication in *Kansas Country Living*.
3. Rescinded the policy bulletins related to KEC staff employment as policy bulletins and incorporated them into the KEC Employee Handbook; changed parental leave provisions to allow use of accrued vacation or sick leave; included a third option for reporting harassment concerns to KEC's contracted HR consultant; and established a procedure for regular Policy & Bylaws Committee and Board review of the Employee Handbook.
4. Appointed Lee Tafanelli as the voting delegate and Kirk Thompson as the alternate for the 2021 CFC and Federated meetings, and appointed Lee Tafanelli as the voting delegate and Terry Hobbs as the alternate for the 2021 NRECA Region 7 meeting.

KEC Board Meeting Summary

Six of the KEC standing committees met virtually or as a hybrid meeting in the days prior to the board meeting. On Tuesday, May 4, the **Communications Committee** reviewed high-level results of the KEC Member Communications Survey that resulted in actionable items that included 1) to consolidate monthly communications including Rural Power, Safety Summary, and Capitol Connections, 2) to improve the Members Only site, 3) to reevaluate the KEC app, and 4) to create focus groups and establish ongoing surveys to continue improving communication between KEC and members. The **Cybersecurity Committee** heard a presentation from Tri-County Electric Cooperative regarding a recent cyber-attack. The committee also reviewed options for cybersecurity insurance and resources from Federated. On Wednesday, May 5, **Loss Control, Safety and Compliance Committee** set pricing for the extra member/non-member on-site safety meetings for 2022. The committee also discussed on-site regulatory compliance visits and RESAP observation summaries with the intent to improve the process to assist members in prioritizing and correcting repetitive items that are noted in these inspections. **Policies & Bylaws Committee** met to review HR-related policy bulletin provisions and voted to move them to the KEC Employee Handbook. The committee also established a review schedule for the Employee Handbook. There was a joint meeting between the **Regulatory Review and Tax Committee** and the **Legislative Committee**. The joint committee heard a review of the NRECA Legislative Conference activities, a legislative report, and updates on utility bills passed, the KDHE Air Quality Monitoring Fees, and the KCC order in the Westar (Evergy) rate case docket related to distributed generation (DG) rates.

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There were reports on the Ad Valorem property tax study and the KEC Advocacy Framework. The committees also heard an update on plans for 2021 Co-ops Vote events.

On Thursday, May 6, the **Executive Committee** met to review general association activities, discuss the upcoming KEC Summer Meeting, and other matters.

The KEC Board of Trustees heard department reports from KEC staff and committee reports from the following: Executive; Cybersecurity; Regulatory Review & Tax; Loss Control, Safety & Compliance; Communications; Legislative; and Policies & Bylaws. Pat Morse, NRECA Director, gave an NRECA report.

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2021 KEC Summer Meeting

July 31 - Aug. 2 – Marriott Hotel

10800 Metcalf Avenue, Overland Park, Kansas 66210 – 913-451-8000

NOTE: Co-op system managers will complete and return the registration form to KEC.

Important Deadlines

- **July 9, 2021** – Cut-off date for Marriott Hotel Reservations. Cancellation is 48 hours prior to 4 p.m. check-in.
- **July 14, 2021** – Registration deadline.
- **July 21, 2021** – Registration cancellation deadline.
- **July 26, 2021** – Return NRECA Voting Delegate and Alternate Voting Delegate Certification to Carol Dorr, KEC.

Marriott Reservations

- **Rate**: $104 single/double. Room rate includes basic guest room internet.
- **Room Block Start Date**: Friday, July 30, 2021 – **End Date**: Tuesday, August 2, 2021
- **Hotel Reservation Cut-Off Date**: Friday, July 9, 2021. Room blocks could sell out before the cut-off date, so it is best to book rooms as soon as possible.
- **Hotel Cancellation Policy**: If a guest can no longer make the trip, their reservation must be cancelled 48 hours prior to their designated check-in, by 4 p.m. Any reservation cancellation requests received within 48 hours of check-in will be assessed a Guest No Show charge, equal to one night's room and tax. This charge will be posted to the form of payment on file for the room.
- **Hotel Phone**: 800-228-9290 or 913-451-8000 – Mention you are part of Kansas Electric Cooperatives.
- **Multiple Reservations on one Credit Card**: If multiple reservations are being charged to the same credit card, you will need to contact Julie Wallace at the hotel so she can set you up through their secure network. **Email Julie** or call 913-338-8625. She will send you a personalized link to submit the names and credit card information.
- **Online Hotel Reservations:** **Make your reservations online.** You will need to enter your arrival and departure dates to begin the reservation process.

Marriott Parking Instructions

- **Overnight Guests:** Room key cards will be encoded to use upon entering and exiting for parking. At arrival, pull a voucher from the machine, park, then give the voucher to the front

desk at check-in. They will validate the voucher and also encode your hotel room key to include parking. You are welcome to use either the voucher or your key to exit.

- **Day/Evening Guests:** Pull a voucher from the machine upon entering. If you leave before 10 p.m., you can use the same voucher to exit. Guests leaving after 10 p.m. will need to have their vouchers validated at the front desk before leaving. Parking is always complimentary from 6 a.m. until 10 p.m. for all hotel guests, and event attendees.

KEC Summer Meeting Registration Information

Summer Meeting Registration for Managers, Trustees, and Employees
Registration Deadline: July 14, 2021
Registration Fee: $250

Registration Includes:	**Registration Does Not Include:**
• Meeting Attendance • Monday Luncheon	• Directors Courses • Monday Luncheon for spouse/guest

There is no meeting registration fee for the Spouse/Guest of a registered participant. However, Monday lunch does have a separate fee.
Monday Luncheon Fee for Spouse/Guest: Includes Meal and Luncheon Program $40.

KEC Summer Meeting Registration Form

Download the KEC Summer Meeting Registration form.

Name Badge: Register all attendees, include spouses/guests names so badges can be made in advance.

Registration Cancellations

Registration Cancellation Deadline: July 21, 2021
If circumstances change and you can no longer attend the KEC Summer Meeting, you may cancel your meeting registration by **emailing Carol Dorr** or by calling 785-228-4614. KEC's attendee cancellation policy is outlined below.

- Registrations may be refunded if KEC is notified of cancellation by July 21. Cancellations received after July 21 or nonattendance will not be refunded. Cancellations received after the cutoff date will be billed for the full registration amount due.
- Please remember that cancelling your registration does not automatically cancel your hotel and travel arrangements. Attendees are responsible for cancelling their own hotel reservations.

Directors Training

Saturday, July 31, 2021

9 a.m. – 4 p.m. – 2630.1 Strategic Planning with Scott Luecal
9 a.m. – 4 p.m. – 943.1 Conversation Skills Outside the Boardroom with Mike Marsch

Strategic Planning

NRECA Credentialed Cooperative Director (CCD) Course 2630.1
Instructor: Scott Luecal, NRECA
Time: 9 a.m. – 4 p.m.
Cost: $275 (lunch provided for course attendees)
Course Description: Boards have ultimate responsibility for ensuring and evaluating the long-term health of the organization. They help fulfill this duty through strategic thinking, identifying goals through strategic planning and authorizing the appropriate allocation of resources through the adoption of financial policies, budget review and approval, and monitoring management's progress toward strategic goals. This course teaches directors how to participate effectively in strategic thinking and planning processes.

Conversation Skills Outside the Boardroom
NRECA Board Leadership Course (BLC) Course 943.1
Instructor: Mike Marsch, NRECA
Time: 9 a.m. – 4 p.m.
Cost: $275 (lunch provided for course attendees)
Course Description: Many co-ops are getting member requests for information as the energy industry evolves toward a consumer-centric model. Co-ops are well positioned as their members' trusted energy advisor to provide education and information on the changing energy landscape. While directors are not the co-op's official spokespersons, they are sometimes asked questions by members when they are out in the community. This course provides directors with skills and guidance on how to handle such situations by either responding or referring questions to their co-op's CEO or designated spokesperson. Participants will observe and practice how (or how not) to communicate their co-op's policies, plans, and positions on such timely matters as rates, distributed energy resources, or the benefits of belonging to a consumer-centric cooperative utility.

Sunday, Aug. 1, 2021
9 a.m. – 4 p.m. – 953.1 Improving Board Decision-Making Quality with Mary McLaury
9 a.m. – 4 p.m. – 974.1 Rate Making Strategies and Policy Decisions for Electric Cooperative Boards with Scott Luecal

Improving Board Decision-Making Quality
NRECA Board Leadership Course (BLC) Course 953.1 - **NEW**
Instructor: Mary McLaury, NRECA
Time: 9 a.m. – 4 p.m.
Cost: $275 (lunch provided for course attendees)
Course Description: Boards exist to make decisions on behalf of the members. At a time when cooperative governance is under scrutiny, boards are looking for ways to demonstrate that their decisions are grounded in fair process and with appropriate objectivity and due diligence. Recognizing, and avoiding, the common pitfalls of decision-making can increase the likelihood of the board making a good decision while decreasing the risks of making bad ones. This course delves into the hurdles, traps and minefields that can negatively impact boardroom decision-making and provides strategies for how to counterbalance them.

Rate Making Strategies and Policy Decisions for Electric Cooperative Boards
NRECA Board Leadership Course (BLC) Course 974.1
Instructor: Scott Luecal, NRECA
Time: 9 a.m. – 4 p.m.
Cost: $275 (lunch provided for course attendees)
Course Description: The jointly developed (NRECA and CFC) publication titled, Retail Rate Guide (2017) is featured in this course. If you haven't taken this course in over three years, it's time to take it again. Directors discuss the complex issues that they must balance when they consider business plans, financial policies, alternative rate philosophies and strategies. This course discusses how current rates methodologies affect rising power costs and the current focus on energy efficiency and conservation. Attendees use case studies and problems to analyze and discuss issues such as equity goals, long-range revenue requirements, achieving fairness for multiple rate classes, and dealing with proposed rate increases.

Schedule for Monday, Aug. 2

KEC Summer Meeting
8 a.m. – 3 p.m. – Plans are being finalized for the Summer Meeting program. KEC will send the agenda at a later date.

Kansas NRECA Director Election
The Kansas NRECA Director Election will be held Monday, August 2, 2021, immediately following adjournment of Summer Meeting. NRECA will mail each member system manager a Certification of Voting Delegate and Alternate Voting Delegate form at least 40 days before the date of this NRECA Membership Meeting. **Return the completed form to Carol Dorr at the KEC office by Monday, July 26.**

KEC Board of Trustees Meeting
Immediately following adjournment of the NRECA Membership Meeting.

KEC Spouses Program
9 a.m. – 11:30 p.m. – Music Bingo
1:30 – 2:30 p.m. – Fellowship

If you have any questions concerning the KEC Summer Meeting, contact:

- **Shana Read** – 785-228-4620 (Program and Directors Courses)
- **Carol Dorr** – 785-228-4614 (Registration and Spouses Program)

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8. **General Manager's Report**

A. Rates and Reliability Dashboard

Rate Summary

	current month ($/kWh	*year to date ($/kWh)*
Residential	0.1381	0.1259
Residential - Seasonal	0.2443	0.2039
Irrigation	0.0805	0.0826
C&I 1000kVa or less	0.1134	0.1104
C&I over 1000 kVA	0.1212	0.1053
Public Street and Lighting	0.1241	0.1282
Other Sales to Public Authorities	0.1494	0.1356
Sales for Resale - Other	0.0670	0.1277
Total Sales price per kWh:	0.1175	0.1127

April 2021		
SAIDI	0.01	Interruption DURATION / average for every member (hrs)
SAIFI	2.43	Interruption FREQUENCY / Average # of Interruptions per customer
CAIDI	0.00	Customer Average Interruption Duration Index - IF you are out, how long to expect (hrs).
ASAI	100.0%	Service Availability

B. Administration

1) The Construction Work Plan has taken a lot of time, but I think that we have a very good plan for the new few years that supports system reliability as well as the Boards Strategic Plan.
2) Hazard Mitigation Plans. Kansas Homeland Security has worked with local entities to prepare local Hazard Mitigation Plans which they would like the LSEC Board to endorse. We are in Regions A, B, C, and D and have received an Adoption Resolution from Kansas Homeland Security. I am not bringing this Resolution to the Board because it states:
    a. the resolution states that we fully participated in the process, we were not aware of the planning process.
    b. Adopting the HMP the Board agrees to abide by the Plan.
    c. The four plans states that LSEC will invest an aggregate of $52,900,000 to enhance and upgrade all power lines within the county.
3) Safety – We have a RESAP Observation scheduled for July 23rd and Chris and I are looking into the OSHA SHARP certification.
4) The Credit Card records are available for the Boards review.

C. Information Technology / Cybersecurity highlights (Carrie)

1) Continuing progress on Server room and security system networking project
2) Researched server APC battery backup failure and unit replacement to meet voltage demand.

D. Operations Report - This report is not available this month.

E. Member Services highlights (Ann Marie)

1) Scholarships. There were 41 applicants for the six $1500.00 awards. The winners are:
    a. Eli Rupp, Dighton HS Senior – Entering into the HVAC program at Hutchinson.

b. Patrick O'Toole, Ness City HS Senior– Going to North Central Kansas Technical College in Hays to enter their HVAC program.
c. Kyle Doll, Finney County, 1st year @ KSU – Agriculture and technology.
d. Kaden Bradstreet, Dighton, 1st year @ FHSU – Business and marketing.
e. Alysson Foos, Ness City – 2nd year @ Tabor College – Social work.
f. Kiley Whipple, Kalvesta HS Senior – Going to FHSU - Agriculture and elementary education.

2) Food Drive: Western Plains Elementary in Ransom & Bazine collected 509 items for the Ness County food bank in Ransom. Dighton collected 3,465 items for the Lane County food bank. We had pizza parties for each winning class in Dighton, Ransom & Bazine and each received $100 to go towards school supplies. The Ransom winning class decided to donate their $100 back to the food bank.
3) June bill inserts – Capital Credit Allocation Statement included on June bills.

F. Finance overview (Kathy)
1) Financials – Form 7
a. As posted. This month the deferred storm expense added $297,393 to the Wholesale power cost. this produced:
i. A $244,017 loss in Operating Margins and a $235,247 loss in Total Margins.
ii. Year to Date we have negative Operating and Total Margins of ($511,297) and ($489,032).
b. Winter Storm Uri adjustment. Subtracting these produces:
i. Wholesale Power Cost of $775,001.29
ii. A $53,376 gain in Operating Margins and a $62,146 gain in Total Margins.
2) Billing Past Due (current – June 1, 2021)
a. 30 day – $2,732.94
b. 60 day – 723.22
c. 90 day – 4,159.77

G. Warehouse Report (Scott)
1) Inventory:
a. Line Materials - $193,224. Turn Ratio: 0.629
b. Resale Materials - $148,574. Turn Ratio: 0.529
c. Generac. Lead times for Generac are continuing to increase; driven in part by strong demand and the global chip shortage. Last update Generac gave us puts a generator ordered today roughly 36 weeks out. We received a transfer switch (ordered in January) for a customer in Grinnell and have one generator in the shop for the guys to install. A service plan for Generac generators is currently being created that will help both our members and others keep their warranties intact while bringing in more margins.
d. Border States. No new news.
2) Electrician Update. Much of the work in the processing barn at Lane County Feeders has been completed but the guys have 16 lights to repair at LCF as well as the usual maintenance/repair calls from there.

3) HVAC Update**.** Mark has three new A/C units to install by the end of the month, so we have hired part-time help to assist and spare his back. Installation of the tube heaters at LCF was completed. Service calls are in progress, rain and cooler days have slowed these down somewhat. Appliance calls seem to have picked up once again as well.

H. Non-Operating Margins (Kathy and Rebecca)

1) Our year-to-date Non-Operating margins [Form 7, Part A, Lines 22(b) + Line 25(b) + Line 27(b)] is a $22,265 gain.
2) Retail Services.
   a. Initial figures posted a $5,819.77 gain in April and a YTD loss of $52,525.41.
   b. Resale Hours (YTD). Billable hours represent 74.02% of total hours.
   c. Outstanding Balances. (as of May 20, 2021)
      i. 30-60 day -$ 804.57
      ii. 60-90 day - 2,895.07 (Marcellus House Moving - $2,895.07)
      iii. Over 90 day – 1,353.51 (Black Dog – 701.00, Milken Farms - $539.58)
3) Interest earned (YTD) – $53,144.
4) Other capital Credits and patronage Dividends (YTD) – $21,597

Respectfully submitted,

Richard McLeon, MBA
General Manager

9. Old Business

Board Policy 524

The Drug and Alcohol-Free Workplace Policy revision is under development.

LANE-SCOTT ELECTRIC COOPERATIVE, INC.
POLICY

Dated: _____ **Policy No.:** 524

Supersedes Date: July 12, 2010, February 25, 2002
May 22, 1995

SUBJECT: Drug and Alcohol-Free Workplace

ALCOHOL AND DRUG-FREE WORKPLACE STATEMENT:

Lane-Scott Electric Cooperative, Inc. is committed to providing a safe work environment and to fostering the well-being and health of its employees. This commitment is jeopardized when any ***Lane-Scott Electric Cooperative, Inc.*** employee misuses prescription or over-the-counter drugs, uses drugs not prescribed by a physician or marijuana any time or alcohol on the job, comes to work with these substances present in his/her body, or possesses, distributes, or sells drugs or alcohol in the workplace. The safety and health of employees, protection of the environment, quality of our products, and financial performance of our Company can be directly affected by the use of drugs not prescribed by a physician or marijuana and misuse of alcohol.

Lane-Scott Electric Cooperative, Inc. believes that it is very important to provide a safe workplace for all of its employees. In so doing, the Company is taking steps to address the problem of substance use that negatively affects every workplace, including ours. The intent of this policy is to offer a helping hand to those who need it, while sending a clear message that alcohol abuse and use of drugs not prescribed by a physician or marijuana are incompatible with employment at ***Lane-Scott Electric Cooperative, Inc.*** This policy applies to all employees of ***Lane-Scott Electric Cooperative, Inc.,*** including management. We cannot condone and will not tolerate behaviors on the part of employees that relate to prohibited substance use, such as:

- The use of drugs not prescribed, for you, by a physician or marijuana.
- The misuse of alcohol.
- The misuse of prescription or over-the-counter medications.
- The sale, purchase, transfer, manufacture, use or possession of any drugs not prescribed, for you, by a physician or marijuana.
- Arrival or return to work after having used any drug or alcohol or being under the influence of any drug (legal or illegal) or alcohol to the extent that job performance is affected.

Other consequences that apply to all employees who violate this policy are clearly

spelled out within this document. **PLEASE READ THIS POLICY CAREFULLY.**

This policy that describes the ***Drug-Free Workplace Program***. This policy covers the five key parts of the Company's ***Drug-Free Workplace Program***. The five parts consist of:

1. A written policy that clearly spells out the program and how everyone benefits.
2. Annual substance awareness education for all employees.
3. Training for supervisors regarding their responsibilities.
4. Drug and alcohol testing- the most effective way to change harmful substance use behaviors.
5. Employee assistance.

Employees will have the opportunity to receive information about substance use as a workplace problem, signs and symptoms, dangers of use, and how and where to get help for themselves and their families. A staff member will be appointed the Drug-Free Workplace Program Administrator (herein referred to as the Program Administrator).

The Program Administrator will be responsible for coordinating drug and alcohol testing, identifying resources that employees can turn to for help for themselves and/or their families, and arranging for qualified people to help with employee awareness education and with supervisor training.

Compliance with the Alcohol and Drug Free Workplace Policy is a condition of employment with the Company. Failure to cooperate fully, sign any required documents, submit to any inspection or test, or follow any prescribed course of substance or alcohol abuse treatment will result in termination of employment.

WARNING: ANY POSITIVE RESULT OR ANY REFUSAL TO TEST MAY AFFECT YOUR ELIGIBILITY FOR COMPENSATION AND BENEFITS UNDER THE WORKERS' COMPENSATION LAWS OF THIS STATE.

Nothing in this policy or in any oral representation by any Company representative related to any aspect of this policy is intended to alter the existing relationship between the Company and any employee and is not intended to create an express or implied contract of employment, or any promise of job security upon which an employee can rely.

Unless otherwise specified, all employment relations with the Company remain "at will."

This program is designed to protect employee's rights and to protect all who come in contact with this workplace from the behaviors of substance users. Some of the protections built into the program are:

1. Employee records such as testing results and referrals for help will be kept confidential. Information will be on a need-to-know basis. Any violation of confidentiality rights is subject to disciplinary action up to and including termination of employment.

2. We are committed to employees who come forward with a substance problem to get help. Each situation will be reviewed individually. Employee assistance

information is available for employees and their families, including a list of resources available through the Program Administrator and distributed to all employees.

3. Employees will receive substance awareness education from a qualified person to help identify problems and learn where to turn to for help. This will be done annually.

4. Illegal drugs found on Company property may be turned over to law enforcement authorities.

5. The company will administer the Alcohol and Drug-Free Workplace program within Federal and State regulations.

ADMINISTRATION OF ALCOHOL AND DRUG-FREE WORKPLACE PROGRAM

Supervisors and employees should contact the Program Administrator for guidance or assistance with the Alcohol and Drug-Free Workplace Program.

Testing Procedure:

Testing will be done through a qualified collection provider and through a federally certified laboratory that uses the highest level of care in ensuring that results are accurate. When properly conducted, this process is considered scientifically accurate in detecting that the substances that the Company is concerned about are present in the employee's "system" in sufficient quantity to lead to behaviors that may endanger the person or other employees.

The certified lab will work closely with our local collection provider to ensure fairness and accuracy. ***Lane-Scott Electric Cooperative, Inc.*** has retained the services of a Medical Review Officer (MRO), who is a qualified, trained physician responsible for checking whether there is a valid medical reason for the presence of a substance in the employee's system.

The MRO is experienced in dealing with substance use. When a positive test result is received, the MRO will contact the employee and, with the employee's permission, any appropriate health care provider to determine whether there is a valid reason for the presence of the drug in the individual's system.

The testing program consists of an initial screening test whenever a test is determined to be appropriate. If the initial results are positive, then a second test is used. Cut-off levels for each drug and for alcohol are established based on federal guidelines. There are many other protections for employees that are built in.

An employee's violation of this policy will not be reported to law enforcement unless required by a regulatory body or by criminal statute, such as related to drug trafficking. However, in protection of the workforce, law enforcement may be requested to come onto Company property in conjunction with a referral for criminal prosecution. The MRO shall comply with all reporting requirements to the FMCSA Drug and Alcohol Clearinghouse.

Employee Awareness and Training:

Employees will be given awareness training for the Alcohol and Drug-Free Workplace Policy. Every current employee will be required to attend a session in which this program is discussed. There will be an opportunity to ask questions. This written policy will be shared, and everyone will be expected to sign an acknowledgement of receipt. We will have a qualified person explain why and how substance use is a workplace problem, the effects, signs/symptoms of use, effects of commonly used drugs in the workplace, and how to get help. We will also cover how an employee can get a referral for employee assistance, the importance of determining how much of a substance problem the employee has, and what type of help is needed. There will be educational awareness annually for all employees. New employees will hear about the program during orientation and will receive substance education as soon as possible thereafter.

Employee Assistance Program:

The Company believes in offering useful information to assist employees with a substance problem. We are supportive of employees taking action on their own behalf to address a substance problem. The Company will make information regarding local substance abuse resources available to any employee in need of assistance. Please contact your supervisor or program coordinator for such information.

Be forewarned, however, that any employee found to be in violation of this policy will be terminated.

The implementation of discipline or of sanctions shall be at the sole discretion of the Company.

Employee testing:

Lane-Scott Electric Cooperative, Inc. has adopted testing practices to identify employees who use drugs not prescribed, for them, by a physician or marijuana, misuses prescription or over-the-counter medications or misuses alcohol either on or off the job. It shall be a condition of employment for all employees to submit to drug and alcohol testing under the circumstances in the following section. When a situation develops that requires or may require drug or alcohol testing for Reasonable Suspicion or an On-the-Job Incident, two supervisors (if there are two supervisors available) will approach the subject employee. The employee should be removed from the job and brought to a private area for the discussion.

Drug and Alcohol Testing:

Testing is intended to detect use, deter usage and allow appropriate corrective and/or disciplinary action. In addition to alcohol, the drugs that we are testing for are:

1. Amphetamines (speed, uppers)
2. Cocaine (including Crack)

3. Marijuana (legal or illegal)
4. Opiates (Codeine, Heroin, Morphine)
5. Phencyclidine (PCP, “angel dust”)

An employee attempting to adulterate a specimen or otherwise manipulate the testing process **will be terminated**, as will an employee who refuses to produce/provide a specimen or otherwise cooperate in the testing process.

Prescription medicine and over-the-counter drugs:

The Company does not prohibit employees from using prescription or over-the-counter drugs when used as prescribed, except marijuana, provided:

1. The prescription drugs are prescribed to the employees for medical reasons by a licensed medical practitioner, with dosage and frequency of use prescribed on the label or accompanying documentation, and

2. The employee’s use of the prescription or over-the-counter drugs does not affect the employee’s job performance or conduct; threaten the safety, productivity, public image or property of the Company or its employees; or result in criminal behavior.

No employee is to perform any function or duty on behalf of the Company if the drugs being taken under this provision adversely affect his or her ability to perform any such function or duty safely.

All safety sensitive employees must report, **in writing**, to the ***HR Director*** the use of prescribed or over-the-counter medication that contains a warning the same or similar to the following: “May impair mental and/or physical performance.” The Company may restrict the employee’s work assignments while he/she continues to use such medication.

Employees must keep all medication in its original container which identifies the drug.

Safety sensitive is any job or function identified by the Company, which by the nature of the work activity, could be dangerous and/or unsafe to the employee, co-workers, customers or the general public due to any momentary lapse in attention or judgment.

CIRCUMSTANCES FOR ALCOHOL AND DRUG TESTING:

WHEN TESTING WILL OCCUR

A. Post-offer/Pre-employment

As a condition of employment, all candidates being considered for employment with the Company must satisfactorily complete a post-offer/pre-employment drug screen prior to reporting to duty. Any offer of employment is contingent upon, among other things, satisfactory completion of this screening, and the determination by the Company that the applicant is capable of performing the responsibilities of the position that has been offered.

B. Reasonable Suspicion Testing

Reasonable suspicion testing will occur when Company management and/or supervision have reason to suspect that an employee may be in violation of this policy. The suspicion must be documented in writing within 24 hours of the event or prior to the release of the test findings. Reasonable suspicion testing may be based upon, among other things:

1. Observed behavior, such as direct observation of drug/alcohol use or possession and/or the physical symptoms of drug and/or alcohol use;

2. A pattern of abnormal conduct or erratic behavior;

3. Arrest or conviction for a drug-related offense, or the identification of an employee as the focus of a criminal investigation into illegal drug possession, use, or trafficking. The employee is responsible for notification to the Company, within five (5) working days, of any drug-related conviction;

4. Information provided either by a reliable and/or credible sources or independently corroborated, regarding an employee's substance use; or

5. Newly discovered evidence that the employee has tampered with a previous drug or alcohol test.

Reasonable suspicion testing does not require certainty, but mere "hunches" are not sufficient to justify testing. To prevent this, all supervisors will be trained in the recognition of drug and alcohol-related signs and symptoms. Testing may be for drugs or alcohol or both.

C. Post-Accident Testing

Post-accident testing will be conducted whenever an accident occurs as defined below. For the purposes of this policy, an accident is considered an unplanned, unexpected or unintended event that occurs on Company property, during the conduct of the Company's business, during working hours, or which involves Company-supplied equipment, motor vehicles or motor vehicles that are used in conducting Company business, or is within the scope of employment, and which results in any of the following:

1. A fatality of anyone involved in the accident;

2. Bodily injury to the employee and/or another person that requires off-site medical attention away from the Company's place of employment; and the driver is issued a citation.

3. Per the guidelines outlined in Part 49 of the Code of Federal Regulations (CFR) and Part 382, Controlled Substances and Alcohol Use and Testing, of the Federal Motor Carrier Safety Regulation (FMCSR).

When such an accident results in one of the situations above, any employee who may have contributed to the accident will be tested for drug and/or alcohol use ***provided*** the

company has reasonable cause to believe that the employees involved may have violated this policy by using a prohibited substance. “Reasonable cause” includes a pattern of behavior or circumstances that involves an accident which includes an error in reason, timing or judgment.

Timing: Drug and/or alcohol testing after an accident

Urine specimen collection (for a drug test) or breath/saliva (for an alcohol test) is to occur immediately after a need has been determined. At no time shall a drug specimen be collected after 32 hours from the time of an employment-related incident. Breath or saliva alcohol testing will be performed within two (2) hours of the incident whenever possible, but within eight (8) hours, or it won’t be performed. However, the reason for the delay will be documented. If the employee responsible for an employment-related accident is injured, it is a condition of employment that the employee herein expressly grants to the Company, its officers and management, the right to request that attending medical personnel obtain appropriate specimens (breath, blood and/or urine) for the purpose of conducting alcohol and/or drug testing. Further, all employees herein expressly grant to the Company, its officers and management, access to any and all other medical information that may be relevant in conducting a complete and thorough investigation of the employment-related accident, to include, but not be limited to, a full medical report from the examining physician(s) or other health care providers.

D. Random Drug and Alcohol Testing

Random testing will include all company employees and is conducted on an unannounced basis. An independent, non-Company testing organization will utilize objective computer software that ensures a truly random selection process in which all employees in the testing pool have an equal statistical likelihood of being selected for testing.

When the next random draw is conducted, all employees are again included in the pool with an equal chance of selection, regardless of whether an employee was previously selected.

Employees required to have a valid CDL license for their position will be tested in compliance with the guidelines outlined in Part 49 CFR and Part 382 FMCSR (See Appendix 3)**.**

The Company will provide employee identification numbers to be used in the random selection drawing. The contractor will, in turn, furnish the Company with a list of individuals to be tested at the beginning of each selection period. It shall be the responsibility of the Company to notify each employee who was selected with the date, time and location for that random test. Once the employee is notified of the selection to submit to random testing, it shall be the responsibility of the employee to appear for testing immediately and to provide a urine specimen for drug testing and or submit to breath-alcohol testing.

An employee’s failure to timely comply with the request for a specimen for random testing will be considered a refusal to submit to testing and may result in termination of employment.

EMPLOYEE CONSENT

All ***Lane-Scott Electric Cooperative, Inc.*** employees and applicants will be required to complete and sign the appropriate consent form before the actual testing takes place. The employee consent form applies to blood or breath specimens for alcohol and a urine specimen for drugs. Failure to comply with a drug or alcohol testing request will be considered a refusal, and will be regarded as insubordination and subject to discipline up to and including termination.

SUBSTANCES TO BE TESTED FOR AND THE METHODS OF TESTING

Urine testing for drugs (other than alcohol):

"*Systems presence testing*" is the procedure that is used to identify the presence of the following controlled substances that may be present: (A negative initial screening test is considered a negative test.) For each of the tested drugs amphetamines, cocaine, marijuana, opiates and PCP, there is an initial test used to screen the urine specimen. If the initial screen is positive [at or higher than a cut-off level in accordance with federal Department of Health & Human Services (DHHS)], a second or confirmatory test is done. This is a different test and is considered scientifically accurate. Detection thresholds (or cut-off levels) are standards that have been established by the DHHS for each of the above drugs after years of research. These levels will be used to interpret all drug screens/tests, whether for a pre-employment examination, reasonable suspicion test, post-accident test, random or follow up test.

The Company also expressly reserves the right to add or delete substances on the list above, especially if mandated by changes in existing Federal, State or local regulations or legislation.

Alcohol testing:

A testing contractor that uses only federally qualified equipment and personnel will conduct breath alcohol and/or saliva testing. Breath alcohol concentrations exceeding 0.04 will be considered a verified positive result. In the event of an accident where an employee has a “whole blood” alcohol drawn at a medical treatment facility, a result equal to or greater than 0.04 shall be considered to be a verified positive result. An Evidentiary Breath Test (EBT) is used to confirm any initial positive test result. Any employee testing at or above 0.04 will be removed from any safety-sensitive position and will be subject to the discipline specified below (See CONSEQUENCES).

SPECIMEN COLLECTION PROCEDURE

Trained collection personnel, who meet quality assurance and chain-of-custody requirements for urine collection and breath alcohol testing, shall conduct testing. Confidentiality is required from all service providers. Any individual subject to testing under this policy shall be permitted to provide urine specimens in private, but subject to strict scrutiny by collection personnel so as to avoid any adulteration or substitution of the specimen to be provided.

Breath alcohol testing will likewise be done in an area that affords the individual privacy. In all cases, there will only be one individual tested at a time. Failure to appear for testing when scheduled shall be considered refusal to participate in testing, and will result in termination. (For an applicant, failure to appear will result in withdrawal of any offer of employment).

All aspects of the testing procedure will be carried out in a confidential and private manner. After receiving notification to report for drug testing, the employee or applicant will go to the collection site and will:

1. Provide a photo ID;
2. Assist in completing a Drug Testing Chain of Custody and Control form;
3. Provide a urine specimen in privacy;
4. Be expected to observe the entire collection, processing and chain of custody procedure of the specimen;
5. Read, sign and date the chain of custody statement certifying the specimen is that individual's and it has not been changed or altered at the time of collection;
6. Note the temperature reading on the collection bottle and verify the temperature reading was correctly recorded on the form.

REVIEW OF TEST RESULTS

To ensure fairness the Company has hired a licensed physician to review positive drug test results. This physician is referred to as the Medical Review Officer or MRO. The MRO is a medical doctor or doctor of osteopathic medicine with a specialized knowledge of substance abuse disorders. The role of the MRO is to review in confidence with the donor any possible legitimate medical explanation for the result. Federal Guidelines on this procedure will be followed. In the absence of any medical justification for the presence of drugs in the body, that result will be verified as positive and the Company will be notified.

EMPLOYEES' RIGHTS RELATED TO AN INITIAL POSITIVE TEST RESULT

An employee who tests positive under this policy will be given an opportunity to explain, in confidence, the findings to the MRO prior to the issuance of a positive test result to the Company. Upon receipt of a confirmed positive finding, the MRO will attempt to contact the employee by telephone. If contact is made by the MRO, the employee will be informed of the positive finding and given an opportunity to rebut or explain the findings. The MRO can request information on recent medical history and on medications taken within the last thirty days by the employee. If the MRO finds support in the explanation offered by the employee, the employee may be asked to provide documentary evidence to support the employee's position (for example, the names of treating physicians, pharmacies where prescriptions have been filled, etc.). A failure on the part of the employee to provide such documentary evidence will result in the issuance of a positive report by the MRO with no attendant medical explanation.

If the employee fails to contact the MRO as instructed, the employee will be considered to have waived the right to do so and/or to have failed to cooperate in the test process. The MRO will issue an appropriate (positive/confirmed adulteration, etc.) report to the Company.

REPORTING OF RESULTS

All test results (positive, negative, adulterated) will be reported directly to the MRO by the laboratory prior to the results being issued to the Company. Each substance tested for will be listed along with the results of the testing. The Company willreceive a summary report, and this report will indicate that the employee passed or failed the test. All of these procedures are intended to be consistent with the most current guidelines for Medical Review Officers, published by the federal DHHS.

STORAGE OF TEST RESULTS AND RIGHT TO REVIEW TEST RESULTS

All records of drug/alcohol testing will be stored separately and apart from the employee's general personnel documents. Access is limited to designated Company officials on a "*need to know*" basis. The information contained in these files shall be utilized only to properly administer this policy and provided to certifying agencies for review as required by Law. Those designated Company officials that shall have access to these records are charged with the responsibility of maintaining the confidentiality of these records. Any breach of confidentiality with regard to these records may be an offense resulting in termination of employment. Any employees tested under this policy have the right to review and/or receive a copy of their respective test results. An employee may request from the Drug-Free Workplace Program Administrator, in writing, with a duly notarized Employee Request for Release of Drug Tests Results form, that a copy of the test be provided. The Company will use its best efforts to promptly comply with this request and will issue to the employee a copy of the results personally or by U.S. Certified Mail, Return Receipt Requested.

CONSEQUENCES

Any violation of this policy could result in discipline as follows:

ALCOHOL USE:

First positive result **at 0.04 or above:** ***Termination***

DRUG USE:

Any reported, confirmed positive result for the presence of any prohibited controlled substance will, **THE FIRST TIME**, result in **termination of employment**.

Refusal: Any refusal to submit to testing, failure to cooperate with the test process or any attempt to adulterate a sample may result in termination of employment and may affect eligibility for compensation and benefits under the state's workers' compensation laws.

TERMINATION NOTICES

In those cases where testing results in the termination of employment, all termination notices will list "misconduct" as the reason. Termination shall be deemed "for cause."

APPENDIX 1

Definitions:

The following definitions shall apply to the interpretation and enforcement of this policy. Where any conflict occurs between this policy and state law, state law shall govern.

Glossary of Acronyms

ADA Americans with Disabilities Act
AOD Alcohol and Other Drugs
BAC Blood Alcohol Content
CADCA Community Anti-Drug Coalition of America
CAP College of American Pathologists
CCDCIII Certified Chemical Dependency Counselor
CEAP Certified Employee Assistance Professional
DHHS U.S. Department of Health and Human Services
DOT U.S. Department of Transportation
EAP Employee Assistance Program
FMCSA Federal Motor Carrier Safety Administration
5-Panel A drug test covering five drugs (required by D0T/FMCSA)
GC Gas Chromatography (part of confirmatory drug test)
MCO Managed Care Organization
MRO Medical Review Officer
MS Mass Spectrometry (part of confirmatory drug test)
NCADI National Clearinghouse of Alcohol and Drug Information
NHTSA National Highway Traffic Safety Administration
NIDA National Institute on Drug Abuse (now SAMHSA)
OTC Over-The-Counter medications
SAMHSA Substance Abuse and Mental Health Services Administration
SAP Substance Abuse Professional
9-Panel A drug test covering nine drugs
TPA Third Party Administrator

APPENDIX 2

Drug and Alcohol Testing Terminology

Accident - An incident or injury which occurs on Company property, on Company business, or during working hours, or which involves Company-supplied motor vehicles/equipment or motor vehicle/equipment being used for Company purposes and which results in any of the following:

1. a fatality;
2. bodily injury requiring medical attention beyond first aid and administered within 32 hours of the incident;
3. vehicular and/or equipment damage in apparent excess of $750.00, or non-vehicular property damage in apparent excess of $500.00.

NOTE: A post-accident drug and/or alcohol test should be administered as soon as possible after necessary medical attention is administered; preferably within 4 hours for alcohol and 24 hours for drug.

Air blanks - A quality assurance test administered on an EBT to ensure that the machine is testing accurately.

Alcohol concentration - The amount of alcohol in an individual's breath, measured in grams per 210 liters of breath.

Alcohol test – A test used to detect the content level of alcohol in the blood (BAC). This may be performed by using federally authorized testing equipment such as breath or saliva test with an evidentiary breath testing device (EBT) applied for confirmation, or this level can be determined through a blood test.

Breath alcohol technician (BAT) - The only technician who can conduct a breath alcohol test for the Bureau's DFWP Program. To be classified a BAT, an individual is required to complete training and proficiency requirements outlined by the federal government.

Chain of custody - The protocol followed when submitting specimens for drug testing. It assures that there is no opportunity for contamination or switching of samples. Elements include signed and witnessed forms, sealed and initialed containers, and couriers requiring a receipt.

Collection site - A place where individuals provide specimens of their urine to be analyzed for the presence of drugs, or breath, saliva or (on rare occasion) blood to be analyzed for the presence of alcohol. This site may or may not be owned and/or operated by the laboratory that actually analyzes the specimen.

Collection site person - Only those individuals qualified in accordance with federal guidelines (49 CFR Part 40) shall be permitted to administer a drug test collection under this policy unless otherwise specified.

Company property or premises – including buildings, offices, warehouses, plants, facilities, land, equipment, vehicles which are owned/leased/used for Company business and parking lots owned/utilized by the Company or any customers or supplier of the Company. It also includes any other site at which the Company business is transacted whether on or away from the Company's property.

Confirmatory test - When testing for drugs, this is the second analytical procedure to confirm the presence of a specific drug/metabolite in a urine specimen. This procedure uses a more sophisticated technique (e.g., GC/MS, EBT) to ensure reliability and accuracy. With breath testing for alcohol, the confirmatory test is conducted on an EBT which has the capability to print out the results, date and time, a sequential test number, and the name and serial number of the testing device.

Cut-off level - A pre-determined amount of drug metabolite, measured in nanograms (ng) per milliliter (ml) of urine, which constitutes whether a tested specimen is negative or positive. For example, a test would be declared positive if the amount of drug/metabolite were equal to or above the cut-off level. Employers typically choose levels that have been adopted and tested by a recognized authority such as the Department of Health and Human Services (DHHS) or, for drugs other than the "DOT 5," are recommended by their DHHS-certified laboratory.

DHHS (also referred to as NIDA or SAMHSA) -certified laboratory - A drug testing facility, which is certified and closely monitored by the DHHS. To obtain and maintain certification, a laboratory must undergo extensive performance testing and on-site inspections.

Drug metabolite - The specific substance produced when the body breaks down a given drug as it passes through the body and is excreted in the urine.

Drug test - Both a screening test and a confirmation must be used to established a positive test result. The tests will analyze the following drugs in the body in quantities which are at or greater than the specified "cut-off" levels:

Drugs	**EMIT Screen (ng/ml)**	**GC/MS Confirmation (ng/ml)**
Amphetamines	1,000	500
Cannabinoids (THC)	50	15
Cocaine/Crack	300	150
Opiates	2,000	2,000
Phencyclidine (PCP)	25	25

Evidentiary breath testing devices (EBT) - Instruments used to measure the amount of alcohol in an individual's system. In DOT/FMCSA-mandated alcohol testing, these instruments are approved by the federal government and operated by trained and certified technicians. The DFWP Program is modeled on the federal programs in terms of procedures.

Enzyme multiplied immunoassay technique (EMIT) - A preliminary screening test performed on a urine specimen to identify the presence of a drug/metabolite in an individual's system. If this test is positive, while accurate, a second and more sophisticated analysis is conducted to confirm which drug/metabolites are present and in what quantity.

Gas Chromatography/Mass Spectrometry (GC/MS) - A state-of-the-art test used to confirm the presence and amount of an identified drug/metabolite in a urine specimen.

Laboratory - Facility where a urine specimen is analyzed for the presence of drugs/metabolites. The specimen is typically not collected at this facility, but rather at a designated collection site that then ensures timely transport of the specimen to the laboratory.

Medical Review Officer (MRO) - A licensed physician responsible for receiving laboratory results and determining if there is a medical explanation for the presence of drugs/metabolites in the donor's urine. This physician must be qualified in accordance with federal guidelines (49 CFR Part 40) and have knowledge of substance use disorders and appropriate medical training to interpret and evaluate an individual's confirmed positive test result, together with his/her medical history and any other relevant medical information.

On the job – during working hours, while performing work duties, while acting within the scope of employment, and/or while on, in or using Company premises or property. Subject to the alcohol exception this also includes breaks, meal periods, and time between split shifts regardless of whether the employee is actually on Company premises.

Prohibited or illegal drugs – chemical substances which:

a. are not legally obtainable
b. are legally obtainable but have been obtained or are used illegally; or
c. are legally obtained and used as prescribed, but prohibited; or
d. are not for the purpose for which they are prescribed or manufactured; and
e. may include, but not limited to the following:

    Marijuana, cocaine, opiates (morphine, heroin, codeine), alcohol used for minors, amphetamines, benzodiazepines, barbiturates, and phencyclidine (PCP).

Reasonable suspicion – A belief that illegal drug and/or alcohol involvement and/or use is influencing employee's behavior, appearance, job performance, or fitness for duty, and/or that employee is under the influence of or is possessing, selling, purchasing, receiving, manufacturing or distributing illegal drugs or alcohol while on the job or while on Company premises.

a. Observed behavior, such as direct observation of drug/alcohol use or Possession and/or the physical symptoms of drug and/or alcohol use;
b. A pattern of abnormal conduct or erratic behavior;
c. Arrest or conviction for a drug-related offense, or the identification of an employee as the focus of a criminal investigation into illegal drug

possession, use, or trafficking.
The employee is responsible for notification to the Company, within five (5) working days, of any drug-related conviction;

d. Information provided either by reliable and credible sources or independently corroborated regarding an employee's substance use; or
e. Newly discovered evidence that the employee has tampered with a previous drug or alcohol test.

Reasonable suspicion testing does not require certainty, but mere "hunches" are not sufficient to justify testing. To prevent this, all supervisors will be trained in the recognition of drug and alcohol-related signs and symptoms. Testing may be for drugs or alcohol or both.

Re-test - A second-opinion analysis of a urine specimen originally deemed positive for drugs/metabolites. This test is usually requested by the donor and performed at a laboratory meeting the same standards as the lab conducting the first analysis.

Safety sensitive – Any job or function, identified by the Company, which by the nature of the work activity, could be dangerous and/or unsafe to the employee, co-workers, customers or the general public due to any momentary lapse in attention or judgment.

Screening Test Technician (STT) - A technician who is qualified under federal guidelines (49 CFR Part 40 as may be amended) to use the saliva testing mechanism to screen for alcohol.

Substance Abuse Professional (SAP) - A professional who is qualified under federal guidelines (49 CFR Part 40) to perform alcohol/drug assessments. Such qualified professionals include licensed physicians, licensed/certified psychologists, social workers, employee assistance professionals and certified addiction counselors with knowledge of and clinical experience in the diagnosis and treatment of alcohol/drug- related disorders.

APPENDIX 3

Drug and Alcohol Testing Procedures For Commercial Drivers

The following provisions shall be applied to any employee that is required to hold a commercial drivers license (CDL) to perform assigned tasks. Where appropriate, those employees holding a CDL may also be tested under the general company testing provisions, such as in post injury situations where there is no DOT-reportable accident but there is an injury requiring medical attention away from the site of the injury, provided it has been determined that reasonable suspicion of prohibited substance use exists.

Management Guide for:
Commercial Driver Drug and Alcohol Testing Provisions:

Applies to: Any employee required to hold a commercial drivers license to perform assigned tasks and/or who operates any vehicle in excess of 26,001 pounds gross vehicular weight.

Definitions: See the general company policy. If there is a conflict between the general company policy and this ADDENDIX this APPENDIX shall apply. The following definitions shall govern any interpretation involving a commercial driver:

"Actual knowledge" applies only to federally regulated workers and means actual knowledge by an employer that a has used alcohol or controlled substances based on the employer's direct observation of the employee, information provided by the driver's previous employer(s), a traffic citation for driving a CMV while under the influence of alcohol or controlled substances or an employee's admission of alcohol or controlled substance use, except as provided elsewhere in this policy. Direct observation as used in this definition means observation of alcohol or controlled substance use and does not include observation of employee behavior or physical characteristics sufficient to warrant reasonable suspicion testing under this policy.

***"Adulterated specimen"* means a specimen that contains a substance that is not expected to be present in human urine, or contains a substance expected to be present but is at a concentration so high that it is not consistent with human urine.**

"Air blank" means, in evidential breath testing devices (EBTs) using gas chromatography technology, a reading of the device's internal standard. In all other EBTs, a reading of ambient air containing no alcohol.

"Alcohol" means the intoxicating agent in beverage alcohol, ethyl alcohol, or other low molecular weight alcohols including methyl and isopropyl alcohol.

"Alcohol concentration" *(or content) means the alcohol in a volume of breath expressed in terms of grams of alcohol per 210 liters of breath as indicated by an evidential breath test under this policy.*

"Alcohol confirmation test" *means a subsequent test using an EBT, following a screening test with a result of 0.02 or greater that provides quantitative data about the alcohol concentration.*

"Alcohol screening device (ASD)" *means a breath or saliva device, other than an EBT, that is approved by the National Highway Traffic Safety Administration (NHTSA) and placed on a conforming products list (CPL) for such devices.*

"Alcohol screening test" *means an analytic procedure to determine whether an employee may have a prohibited concentration of alcohol in a breath or saliva specimen.*

"Alcohol testing site" *means a place selected by the employer where employees present themselves for the purpose of providing breath or saliva for an alcohol test.*

"Alcohol use" *means the drinking or swallowing of any beverage, liquid mixture or preparation (including any medication), containing alcohol.*

"Blind specimen or blind performance test specimen" *means a specimen submitted to a laboratory for quality control testing purposes, with a fictitious identifier, so that the laboratory cannot distinguish it from an employee specimen.*

"Breath Alcohol Technician (BAT)" *means a person who instructs and assists employees in the alcohol testing process and operates an evidential breath testing device.*

"Cancelled test" *means a drug or alcohol test that has a problem identified that cannot be or has not been corrected, or which this policy otherwise requires to be cancelled. A cancelled test is neither a positive nor a negative test.*

"Chain of custody" *means the procedure used to document the handling of the urine specimen from the time the employee gives the specimen to the collector until the specimen is destroyed. This procedure uses the Federal Drug Testing Custody and Control Form (CCF).*

"Collection container" *means a container into which the employee urinates to provide the specimen for a drug test. Collection site. A place selected by the employer where employees present themselves for the purpose of providing a urine specimen for a drug test.*

"Collector" *A person who instructs and assists employees at a collection site, who receives and makes an initial inspection of the specimen provided by those employees, and who initiates and completes the CCF.*

"Commerce" *means: (1) Any trade, traffic or transportation within the jurisdiction of the United States between a place in a State and a place outside of such State,*

including a place outside of the United States; and (2) Trade, traffic, and transportation in the United States which affects any trade, traffic, and transportation described in paragraph (1) of this definition.

"Commercial motor vehicle" means a motor vehicle or combination of motor vehicles used in commerce to transport passengers or property if the vehicle-- (1) Has a gross combination weight rating of 11,794 or more kilograms (26,001 or more pounds) inclusive of a towed unit with a gross vehicle weight rating of more than 4,536 kilograms (10,000 pounds); or (2) Has a gross vehicle weight rating of 11,794 or more kilograms (26,001 or more pounds); or (3) Is designed to transport 16 or more passengers, including the driver; or (4) Is of any size and is used in the transportation of materials found to be hazardous for the purposes of the Hazardous Materials Transportation Act (49 U.S.C. 5103(b)) and which require the motor vehicle to be placarded under the Hazardous Materials Regulations (49 CFR part 172, subpart F).

"Confirmation (or confirmatory) drug test" means a second analytical procedure performed on a urine specimen to identify and quantify the presence of a specific drug or drug metabolite.

"Confirmation (or confirmatory) validity test" means a second test performed on a urine specimen to further support a validity test result.

"Confirmed drug test" means a confirmation test result received by an MRO from a laboratory.

"Consortium/Third party administrator (C/TPA)" means a service agent that provides or coordinates one or more drug and/or alcohol testing services to DOT- regulated employers. C/TPAs typically provide or coordinate the provision of a number of such services and perform administrative tasks concerning the operation of the employers' drug and alcohol testing programs. This term includes, but is not limited to, groups of employers who join together to administer, as a single entity, the DOT drug and alcohol testing programs of its members (e.g., having a combined random testing pool). C/TPAs are not "employers" for purposes of this policy.

"Controlled substances" mean those substances to be tested including the following: (a) Marijuana metabolites. (b) Cocaine metabolites. (c) Amphetamines. (d) Opiate metabolites. (e) Phencyclidine (PCP).

"Designated employer representative (DER)" shall be the **Technical Operations Manager (or his/her designee)** ***who shall receive communications and test results from service agents and who is authorized to take immediate actions to remove employees from safety-sensitive duties and to make required decisions in the testing and evaluation processes.***

"Dilute specimen" means a specimen with creatinine and specific gravity values that are lower than expected for human urine.

"Disabling damage" means damage which precludes departure of a motor vehicle from the scene of the accident in its usual manner in daylight after simple repairs.

(1) Inclusions. Damage to motor vehicles that could have been driven, but would have been further damaged if so driven. (2) Exclusions. (i) Damage which can be remedied temporarily at the scene of the accident without special tools or parts. (ii) Tire disablement without other damage even if no spare tire is available. (iii) Headlight or taillight damage. (iv) Damage to turn signals, horn, or windshield wipers which make them inoperative.

***"DOT Agency"** means an agency (or ``operating administration'') of the United States Department of Transportation administering regulations requiring alcohol and/or drug testing (14 CFR parts 61, 63, 65, 121, and 135; 49 CFR parts 199, 219, 382, and 655), in accordance with 49 CFR part 40*

***"Driver"** means any person who operates a commercial motor vehicle. This includes, but is not limited to: Full time, regularly employed drivers; casual, intermittent or occasional drivers; leased drivers and independent owner-operator contractors.*

***"Drugs"** mean the substances for which tests are required under this policy and include marijuana, cocaine, amphetamines, phencyclidine (PCP), and opiates.*

***"Evidential Breath Testing Device"** (EBT). A device approved by NHTSA for the evidential testing of breath at the .02 and .04 alcohol concentrations, placed on NHTSA's Conforming Products List (CPL) for ``Evidential Breath Measurement Devices'' and identified on the CPL as conforming with the model specifications available from NHTSA's Traffic Safety Program.*

***"HHS"** means the Department of Health and Human Services or any designee of the Secretary, Department of Health and Human Services.*

***"Initial drug test"** means the test used to differentiate a negative specimen from one that requires further testing for drugs or drug metabolites.*

***"Initial validity test"** means the first test used to determine if a specimen is adulterated, diluted, or substituted.*

***"Invalid drug test"** means the result of a drug test for a urine specimen that contains an unidentified adulterant or an unidentified interfering substance, has abnormal physical characteristics, or has an endogenous substance at an abnormal concentration that prevents the laboratory from completing or obtaining a valid drug test result.*

***"Laboratory"** means any U.S. laboratory certified by HHS under the National Laboratory Certification Program as meeting the minimum standards of Subpart C of the HHS Mandatory Guidelines for Federal Workplace Drug Testing Programs*

***"Licensed medical practitioner"** means a person who is licensed, certified, and/or registered, in accordance with applicable Federal, State, local, or foreign laws and regulations, to prescribe controlled substances and other drugs.*

***"Medical Review Officer (MRO)"** means a person who is a licensed physician and who is responsible for receiving and reviewing laboratory results generated by an*

employer's drug testing program and evaluating medical explanations for certain drug test results.

"Performing (a safety-sensitive function) means" *a driver of any vehicle or operator of any equipment and applies to any employee considered to be performing a safety-sensitive function during any period in which he or she is actually performing, ready to perform, or immediately available to perform any safety-sensitive functions.*

"Positive rate" *applies only to federally regulated workers and means the number of positive results for random controlled substances tests conducted under this policy plus the number of refusals of random controlled substances tests required by this policy, divided by the total of random controlled substances tests conducted under this policy plus the number of refusals of random tests required by this policy.*

"Primary specimen" *in drug testing, means the urine specimen bottle that is opened and tested by a first laboratory to determine whether the employee has a drug or drug metabolite in his or her system; and for the purpose of validity testing. The primary specimen is distinguished from the split specimen, defined in this section.*

"Refuse to submit" *(to an alcohol or controlled substances test) means that an employee:*

(1) Fails(ed) to appear for any test (except a pre-employment test) within a reasonable time, as determined by the employer, consistent with applicable DOT agency regulations, after being directed to do so by the employer. This includes the failure of an employee (including an owner-operator) to appear for a test when called by a C/TPA;
(2) Fails(ed) to remain at the testing site until the testing process is complete. Provided, that an employee who leaves the testing site before the testing process commences a pre- employment test is not deemed to have refused to test;
(3) Fails(ed) to provide a urine specimen for any drug test required by this policy or DOT agency regulations. Provided, that an employee who does not provide a urine specimen because he or she has left the testing site before the testing process commences for a pre-employment test is not deemed to have refused to test;
(4) In the case of a directly observed or monitored collection in a drug test, fails to permit the observation or monitoring of the employee's provision of a specimen;
(5) Fails(ed) to provide a sufficient amount of urine when directed, and it has been determined, through a required medical evaluation, that there was no adequate medical explanation for the failure;
(6) Fails(ed) or declines to take a second test the employer or collector has directed the employee to take;
(7) Fails(ed) to undergo a medical examination or evaluation, as directed by the MRO as part of the verification process, or as directed by the DER. In the case of a pre-employment drug test, the employee is deemed to have refused to test on this basis only if the pre-employment test is conducted following a contingent offer of employment;
(8) Fails(ed) to cooperate with any part of the testing process (e.g., refuse to

empty pockets when so directed by the collector, behave in a confrontational way that disrupts the collection process, or failing to complete all documents); or
(9) Is reported by the MRO as having a verified adulterated or substituted test result.

***"Safety/Environmentally-sensitive function" ("S/ES")** means all time from the time an employee begins to work or is required to be in readiness to work until the time he/she is relieved from work and all responsibility for performing work. S/ES functions shall include:*
(1) All time at an employer plant, terminal, facility, or other property, or on any public property, unless the employee has been relieved from duty by the employer;
(2) All time inspecting equipment as required by company procedure or federal rule or otherwise inspecting, servicing, or conditioning any commercial motor vehicle at any time;
(3) All time spent at the controls of any vehicle/equipment in operation;
(4) All time, other than driving time, in or upon any commercial motor vehicle except time spent resting in a sleeper berth;
(5) All time loading or unloading a vehicle, supervising, or assisting in the loading or unloading, attending a vehicle being loaded or unloaded, remaining in readiness to operate the vehicle, or in giving or receiving receipts for shipments loaded or unloaded; and
(6) All time repairing, obtaining assistance, or remaining in attendance upon a disabled vehicle.

***"Screening Test" (or initial test)** means: (1) In drug testing, a test to eliminate "negative"' urine specimens from further analysis or to identify a specimen that requires additional testing for the presence of drugs. (2) In alcohol testing, an analytical procedure to determine whether an employee may have a prohibited concentration of alcohol in a breath or saliva specimen.*

***"Screening Test Technician" (STT).** A person who instructs and assists employees in the alcohol testing process and operates an ASD.*

***"Secretary"** means the Secretary of Transportation or the Secretary's designee.*

***"Service agent"** means any person or entity, other than an employee of the employer, who provides services specified under this. This includes, but is not limited to, collectors, BATs and STTs, laboratories, MROs, substance abuse professionals, and C/ TPAs. To act as service agents, persons and organizations must meet the qualifications set forth in applicable law. Service agents are not employers for purposes of this policy.*

***"Shipping container"** means a container that is used for transporting and protecting urine specimen bottles and associated documents from the collection site to the laboratory.*

***"Specimen bottle"** means the bottle that, after being sealed and labeled according to the procedures in this policy, is used to hold the urine specimen during transportation to the laboratory.*

"Split specimen" in drug testing, means a part of the urine specimen that is sent to a first laboratory and retained unopened, and which is transported to a second laboratory in the event that the employee requests that it be tested following a verified positive test of the primary specimen or a verified adulterated or substituted test result.

"Stand-down" means the practice of temporarily removing an employee from the performance of safety-sensitive functions based only on a report from a laboratory to the MRO of a confirmed positive test for a drug or drug metabolite, an adulterated test, or a substituted test, before the MRO has completed verification of the test result.

"Substance Abuse Professional (SAP)" A person who evaluates employees who have violated this policy and makes recommendations concerning education, treatment, follow-up testing, and aftercare.

"Substituted specimen" A specimen with creatinine and specific gravity values that are so diminished that they are not consistent with human urine. Verified test. A drug test result or validity testing result from an HHS-certified laboratory that has undergone review and final determination by the MRO.

"Violation rate" applies only to federally regulated workers and means the number of drivers found during random tests given under this policy to have an alcohol concentration of 0.04 or greater, plus the number of drivers who refuse a random test required by this policy, divided by the total reported number of drivers in the industry given random alcohol tests under this policy plus the total reported number of drivers in the industry who refuse a random test required by this policy

Test Events:

Pre-employment tests: No individual shall be allowed to serve in a safety-sensitive capacity until a verified negative test result. Before any individual performs any safety-sensitive duties the first time after being hired by the Company you must obtain that individual's written consent to contact any commercial employer where that individual worked during the previous two (2) years to obtain the following information:

(1) Alcohol tests with a result of 0.04 or higher alcohol concentration;
(2) Verified positive drug tests;
(3) Refusals to be tested (including verified adulterated or substituted drug test results);
(4) Other violations of DOT agency drug and alcohol testing regulations; and
(5) With respect to any employee who violated a DOT drug and alcohol regulation, documentation of the employee's successful completion of DOT return-to-duty requirements (including follow-up tests). If the previous employer does not have information about the return-do-duty process (e.g., an employer who did not hire an employee who tested positive on a pre-employment test), you must seek to obtain this information from the employee.

If feasible, we must obtain and review this information before the employee first performs safety-sensitive functions. If this is not feasible, we must obtain and review the information as soon as possible. However, we must not permit the employee to perform safety-sensitive functions ***after 30 days*** from the date on which the employee first

performed safety-sensitive functions, unless we have obtained or made and documented a good faith effort to obtain this information.

If we obtain information that the employee has violated a DOT agency drug and alcohol regulation, we must not use the employee to perform safety-sensitive functions unless we also obtain information that the employee has subsequently complied with the return-to-duty requirements of this policy.

We must provide to each of the employers from whom you request information under paragraph (b) of this section written consent for the release of the information cited in paragraph (a) of this section.

The release of information under this section must be in any written form (e.g., fax, e-mail, and letter) that ensures confidentiality. As the previous employer, we must maintain a written record of the information released, including the date, the party to whom it was released, and a summary of the information provided.

When information is requested from us we must, after reviewing the employee's specific, written consent, immediately release the requested information to the employer making the inquiry.

As the employer requesting the information required under this section, we must maintain a written, confidential record of the information you obtain or of the good faith efforts you made to obtain the information. We must retain this information for three (3) years from the date of the employee's first performance of safety-sensitive duties for us.

As the employer, we must also ask the employee whether he or she has tested positive, or refused to test, on any pre-employment drug or alcohol test administered by an employer to which the employee applied for, but did not obtain, safety-sensitive transportation work covered by DOT agency drug and alcohol testing rules during the past two years. If the employee admits that he or she had a positive test or a refusal to test, we must not use the employee to perform safety-sensitive functions for us, until and unless the employee documents successful completion of the return-to-duty.

Post-accident tests: Any employee performing safety-sensitive commercial driver tasks who is involved in the following incidents shall undergo drug and alcohol testing:

(a) As soon as practicable following an accident involving a commercial motor vehicle operating on a public road in commerce, tests for the use of alcohol and drugs shall be required for:

(1) Any driver who was performing safety-sensitive functions with respect to the vehicle, if the accident involved the loss of human life; or

(2) Any driver who receives a citation within 8 hours of the occurrence under State or local law for a moving traffic violation arising from the accident, if the accident involved:

(i) Bodily injury to any person who, as a result of the injury, immediately receives medical treatment away from the scene of the accident; or

(ii) (ii) One or more motor vehicles incurring disabling damage as a result of the accident, requiring the motor vehicle to be transported away from the scene by a tow truck or other motor vehicle.

All required post-accident alcohol tests should be performed within two (2) hours following the accident and in all cases must be performed within eight (8) hours. If the test cannot be performed within 2 hours a note shall be maintained explaining why it could not be conducted. If the test cannot be performed within 8 hours there shall be no further attempt to conduct the test and a note shall be maintained in the driver's file.

If a test required by this section is not administered within 32 hours following the accident, the employer shall cease attempts to administer a controlled substances test, and prepare and maintain on file a record stating the reasons the test was not promptly administered. Records shall be submitted to any government agency upon request. A driver who is subject to post-accident testing shall remain readily available for such testing or may be deemed by the employer to have refused to submit to testing. Nothing in this section shall be construed to require the delay of necessary medical attention for injured people following an accident or to prohibit a driver from leaving the scene of an accident for the period necessary to obtain assistance in responding to the accident, or to obtain necessary emergency medical care. The Company shall provide drivers with necessary post-accident information, procedures and instructions, prior to the driver operating a commercial motor vehicle, so that drivers will be able to comply with the requirements of this section.

Confidentiality of records:

In accordance with general company policy, all records related to drug and alcohol testing shall be maintained in a confidential manner and only disclosed with the written consent of the driver or in accordance with law.

ATTESTED_____

Secretary

Drug and Alcohol Free Workplace Policy Acknowledgement

By my signature below, I acknowledge that I have received a copy of and understand the ***Lane-Scott Electric Cooperative, Inc.*** Alcohol and Drug Free Workplace Policy. I have been given the opportunity to ask questions about all aspects of this policy and I agree to adhere to the policy requirements:

My signature below acknowledges my agreement to abide by the provisions of this policy and I recognize that any violation could lead to termination of my employment.

_____ _____

Printed Name Date

_____

Signature

10. a. 2021 Construction Work Plan

Mr. Doug Somerhalder, P.E., Vice-President and Manager of Power Engineering with Guernsey has prepared our 2022-2024 Construction Work Plan and will be here to present it to the Board and answer questions.

The CWP was prepared with input and data from the LSEC Operations crew, Engineering staff, and the General Manager. This CWP has an estimated cost of $5,611,270 and focuses on communications, line maintenance, and Headquarters' improvements. Items of note are:

1. 500: Substation changes. This $210,910 item adds "low side" metering to the three Dighton substations and accomplishes two things:
    a. We will generate billings from our meters on the distribution side of the substation. This will avoid passing Sunflower billing errors to the City of Dighton.
    b. It allows us to develop a "Delivery Charge" should the City of Dighton change Wholesale energy providers.
2. 600 and 1100. Pole Replacements account for about 40% of the CWP at $2,324,400. Increasing our pole inspection program to get back on a 10-year cycle will increase our pole replacement costs. Much of the Aquila system has not been inspected since LSEC acquired it and it represents over ½ of our members and revenues.
3. 600. Two-way radio Communication systems add another $750,000 to the CWP. This upgrades our radios from analog to digital and adds four (4) prospective towers. We are working with Sunflower and Mobile Radio out of Great Bend, KS.
4. 1300: HQ and Facilities. Two items come to $280,500:
    a. Server Room. NRECA, NISC, and other industry specifications indicate that we need to add secure server racks and climate control to maintain a functional Server Room. To do this, we propose moving the servers to the current Operations Room, dividing the room in half by the construction of a wall and doorway. The rear half of the current room will house the servers, communications, metering, and all cybersecurity items. Carrie will office in the from half of the current office. Operations will then move into the current Server Room.
    b. North Yard improvements. The North Yard is currently a vacant lot. We propose leveling the lot, bringing in an estimated 66 loads (988 yards) of rock and pouring 265 yards of concrete for transformers and other equipment.

We will begin projects immediately and believe that we can largely fund this CWP without financing but have CFC lined-up for a Power Vision Loan if we get nervous.

Staff Requests that the Board approve the 2021-2024 Construction Work Plan.

Kansas – 0042

LANE-SCOTT ELECTRIC COOPERATIVE, INC.
Dighton, Kansas

Mr. Richard McLeon, General Manager

2022-2024

CONSTRUCTION WORK PLAN

Project No. KS00042030

June 2021

Kansas – 0042

LANE-SCOTT ELECTRIC COOPERATIVE, INC.
Dighton, Kansas

Mr. Richard McLeon, General Manager

2022-2024

CONSTRUCTION WORK PLAN

June 2021

C. H. GUERNSEY & COMPANY
Engineers • Architects • Consultants
Oklahoma City, Oklahoma

guernsey
ENGINEERS
ARCHITECTS
CONSULTANTS

June 3, 2021

Mr. Richard McLeon, General Manager
Lane-Scott Electric Cooperative, Inc.
Post Office Box 758
410 S. High St.
Dighton, Kansas 67839

Dear Mr. McLeon:

Enclosed are two hard copies and two electronic copies of the 2022-2024 Construction Work Plan we have prepared for Lane-Scott Electric Cooperative.

We wish to express our appreciation for the assistance you and your staff have given us in the preparation of this work plan. We will be glad to discuss any questions you may have concerning the study.

Sincerely,
C. H. GUERNSEY & COMPANY

Douglas G. Somerhalder, PE
Manager, Power Engineering

Enclosure

5555 North Grand Boulevard
Oklahoma City, OK 73112-5507
405.416.8100
guernsey.us

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VOLTAGE DROP AND LINE LOSS STUDIES
Sample (Included in Report)
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Circuit Diagram, Existing System, 2020 and 2024 Loads
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SUMMARY OF THE REPORT

SUMMARY OF THE REPORT

The primary purpose of this work plan is to provide the Lane-Scott Electric Cooperative, Inc. (LSEC) with an analysis of the existing system capacity and operating conditions and to recommend the necessary system improvements and additions to enable LSEC to provide adequate and dependable service to its members through 2024. This plan will also provide the necessary engineering support for requests to borrow capital from the Rural Utilities Services (RUS).

This report contains a description and estimated costs of the facilities necessary to:

1. Connect 90 new services to the system
2. Replace 762 deteriorated poles
3. Construct one new Auto-Transformer station
4. Upgrade three City of Dighton substations
5. Install 3 regulators
6. Install one capacitor bank
7. Install three-phase electronic reclosers to improve system operations
8. Replace 10 miles of Copperweld conductor
9. Install miscellaneous distribution equipment to improve system operations
10. Replace 162 transmission poles.

The cost data used in this report were provided by LSEC (Appendix B) or were taken from recent construction contracts of similar RUS-financed projects. An inflation factor of 5.0% per year was used to account for anticipated increases in labor and material prices. The costs used in this plan include labor, materials, overheads, and engineering, except where specifically noted otherwise. A summary of the cost estimates can be found on pages S-9. Detailed cost estimates are included in Section II of this report.

It is estimated that the system improvements recommended in this work plan will result in an annual savings of $21,990 in kWh sales. It is also expected that the upgraded distribution lines and other system improvements will improve voltage levels, system reliability, and operating efficiency.

CERTIFICATION BY THE ENGINEER

Upon completion of the construction of the facilities proposed in this work plan, the Lane-Scott Electric Cooperative, Inc., (KS0042) will provide adequate and dependable service to 5,772 residential and small commercial consumers using an average of 1304 kWh per month per consumer, and to 190 special loads (large commercial accounts) which are provided for on an individual basis. It is estimated that there will be 250 idle services.

The consumer projections and the annual kWh requirements used in this Work Plan are based on the projections shown in the 2020 Load Forecast Study (LFS) prepared by Lane-Scott Electric Cooperative and approved by the Board and Management of Lane-Scott Electric Cooperative, Inc. The projected system non-coincidental peak demand of 35,115 kW was used in the system modeling.

The most current Long Range Plan for LSEC was completed in 2002 by Peak Power Engineering. This was prior to LSEC acquiring what is now called the East portion of the system and includes the Alexander 115 substation, serving Bazine and McCracken as well as the Ness City 115 substations, serving Ness City and Ransom. The Long Range Plan projections for 2022 have already been surpassed by the cooperative and this study should be used as a reference only.

The technical material and data contained in this Work Plan were prepared by or under the direct supervision of the undersigned, a licensed Professional Engineer.

C. H. GUERNSEY & COMPANY

By:_____
Douglas G. Somerhalder, P.E.

Date:_____

SUMMARY OF PLANT INVESTMENTS

Table I is a summary of plant investments for each of the next ten years. The first three years correspond to the 2022-2024 Work Plan period. The investment in new consumer connections was held constant except for inflation. This reflects the current pattern of 30 new connections per year.

System improvements after 2024 were held constant (except for inflation) to reflect the ongoing upgrading of older lines. Costs were inflated 5.0% annually to reflect expected increases in material and labor costs. Pole and conductor replacements are expected to remain constant over the next ten years except for inflation.

Table 1
Ten Year Summary of Plant Investment

Year	New Consumers	System Improvements	Pole & Conductor Replacements	Total
2022	$ 466,786.67	$ 760,176.67	$ 784,800.00	**$ 2,011,763.33**
2023	$ 466,786.67	$ 592,166.67	$ 784,800.00	**$ 1,843,753.33**
2024	$ 466,786.67	$ 504,166.67	$ 784,800.00	**$ 1,755,753.33**
2025	$ 490,126.00	$ 529,375.00	$ 824,040.00	**$ 1,843,541.00**
2026	$ 514,632.30	$ 555,843.75	$ 865,242.00	**$ 1,935,718.05**
2027	$ 540,363.92	$ 583,635.94	$ 908,504.10	**$ 2,032,503.95**
2028	$ 567,382.11	$ 612,817.73	$ 953,929.31	**$ 2,134,129.15**
2029	$ 595,751.22	$ 643,458.62	$ 1,001,625.77	**$ 2,240,835.61**
2030	$ 625,538.78	$ 675,631.55	$ 1,051,707.06	**$ 2,352,877.39**
2031	$ 656,815.72	$ 709,413.13	$ 1,104,292.41	**$ 2,470,521.26**

A copy of Trendbucks is included on Page S-11.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it d valid OMB control number. The valid OMB control number for this information collection is 0572-0032. The time required to complete this information collection is estimate 10 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and revie collection of information.

This data will be used by RUS to review your financial situation. Your response is required (7 USC 901et seq.) and is not confidential.

USDA-RUS	*Form Approved* *OMB No. 0572-0032*
COST ESTIMATES AND LOAN BUDGET FOR ELECTRIC BORROWERS	BORROWER AND LOAN DESIGNATION KS0042
To: U.S. Dept. of Agriculture, RUS, Washington, D.C. 20250	CUT OFF DATE: (Month, Year)
INSTRUCTIONS *See tabs "Pg1 Instr" through "Pg4 Instr"*	**LOAN PERIOD** 3 **YEARS** **CWP PERIOD** 3 (W/ AMENDMENTS) EXAMPLE: 2010-2011

SECTION A. COST ESTIMATES

						BORROWER'S COST ESTIMATES	RUS USE ONLY
1.	DISTRIBUTION						
100	a. New Line: (Excluding Tie-Lines)						
	Construction	Consumers			Miles		
101	Underground	9			0.53	$126,000	
102	Overhead	81			9.69	735,000	
	Total Consumers...	90	Total Miles		10.22		
			Less Contributions			0	
	Subtotal Code 100					$861,000	
200	b. New Tie-Lines						
	Line Designation				Miles		
	Subtotal Code 200 from page 1A				0.00	0	
	Subtotal Code 200 (Includes subtotals from pages 1A)				0.00	$0	
300	c. Conversion and Line Changes						
	Line Designation				Miles		
	300-01 Utica Autotransformer Station					$15,000	
	Subtotal Code 300 from page 1A				0.00	0	
	Subtotal Code 300 from page 1B				0.00	0	
	Subtotal Code 300 (Includes subtotals from pages 1A &B)				0.00	$15,000	
400	d. New Substations, Switching Stations, Metering Points, etc.						
	Station Designation		kVA		kV to kV		
						0	
						0	
						0	
						0	
	Subtotal Code 400					$0	

COST ESTIMATE AND LOAN BUDGET FOR ELECTRIC BORROWERS	BORROWER AND LOAN DESIGNATION	KS0042	
SECTION A. COST ESTIMATES *(cont.)*		**BORROWER'S COST ESTIMATES**	**RUS USE ONLY**
500 e. Substation, Switching Station, Metering Point Changes			
Station Designation	Description of Changes		
500-01	City of Dighton South Sub Upgrades	$68,970	
500-02	City of Dighton West Sub Upgrades	74,970	
500-03	City of Dighton North Sub Upgrades	66,970	
		0	
		0	
		0	
		0	
		0	
		0	
Subtotal Code 500 From Page 2A		0	
Subtotal Code 500 (includes subtotals for Page 2A)		$210,910	
600 f. Miscellaneous Distribution Equipment			
601 Transformers and Meters			
Construction	Overhead / Underground		
Transformers	102 $319,800 / 0 $0	$319,800	
Meters		0	
Meters - AMR/AMI	360 $180,000	180,000	
Subtotal code 601 (included in total of all 600 codes below)		$499,800	
602 Increase Service Capacity			
603 Sectionalizing Equipment	24 Electronic Reclosers, 114 Arrestors, 128 Fused Cutouts, Switch	103,560	
604 Regulators	3	24,600	
605 Capacitors	1 unit	13,000	
606 Pole Replacements	762	1,676,400	
607 Miscellaneous Replacements		30,000	
608 Conductor Replacements	10 mi. Copperweld	480,000	
609 Miscellaneous Plant Additions		0	
610 Road Moves		0	
611 Line Relocations		0	
612 Step Up/Down Transformers		0	
613 System Monitoring Meters (Min/Max)		0	
615 Two Way Radio Communication System		750,000	
		0	
Subtotal Code 600 Form Page 2A		0	
*Subtotal **ALL** 600 codes*		$3,577,360	
700 g. Other Distribution Items			
701 Broadband over Power line (BPL)	a	$0	
702 Security Lights	74 lights	18,500	
703 Reimbursement of General Funds (Transferred from Distribution Reimbursement-Attachment 1)	Consumers 0 Miles 0.00	0	
704 Load Management		0	
705 Automated Meter Reading Equip. (AMR/AMI Except Meters and Retrofits)			
		0	
Subtotal Code 700 Form Page 2A		0	
Subtotal Code 700		$18,500	
TOTAL DISTRIBUTION.		**$4,682,770**	
2. Transmission			
800 a. New Line			
Line Designation / Voltage / Wire Size / Miles			
		$0	
		0	
		0	
		0	
		0	
		0	
		0	
		0	
		0	
Subtotal Code 800 From Page 2B	0.00	0	
Subtotal Code 800	0.00	$0	

COST ESTIMATE AND LOAN BUDGET FOR ELECTRIC BORROWERS	BORROWER AND LOAN DESIGNATION KS0042	
SECTION A. COST ESTIMATES *(cont.)*	BORROWER'S COST ESTIMATES	RUS USE ONLY
900 b. New Substation, Switching Station, etc. Station Designation / kVA / kV TO kV		
	$0	
	0	
	0	
	0	
	0	
	0	
	0	
	0	
Subtotal Code 900 From Page 3A	0	
Subtotal Code 900 (includes transfers from page 3A)	$0	
1000 c. Line and Station Changes Line/Station Designation / Description of Changes		
	$0	
	0	
	0	
	0	
	0	
	0	
	0	
	0	
	0	
Subtotal Code 1000 From page 3B	0	
Subtotal Code 1000 (includes transfers from page 3B	$0	
1100 d. Other Transmission Items		
1101 R/W Procurement	$0	
1102 Pole Replacements		
1103 Reimbursement of General Funds(Transferred from Transmission Reimbursement-Attachment 2) Miles 0.00	0	
1104 162 Pole Replacements	648,000	
	0	
Subtotal Code 1100	$648,000	
TOTAL TRANSMISSION	**$648,000**	
3. GENERATION (including Step-up Station at Plant)		
1200		
1201 a. Fuel ____ Nameplate Rating ____ kW	$0	
b.	0	
TOTAL GENERATION	**$0**	
4. HEADQUARTERS FACILITIES		
1300		
1300-01 a. New or additional Facilities Server Room I *(Attach RUS Form*	$100,000	
1300-02 b. North Yard Improvements (Dirt Work, Rock, and Concrete)	180,500	
TOTAL HEADQUARTERS FACILITIES	**$280,500**	

COST ESTIMATE AND LOAN BUDGET FOR ELECTRIC BORROWERS	BORROWER AND LOAN DESIGNATION	KS0042

SECTION A. COST ESTIMATES (cont.)	BORROWER'S COST ESTIMATES	RUS USE ONLY
5. ACQUISITIONS		
1400		
1401 a. _____ Consumers _____ Miles	$0	
b. _____	0	
TOTAL ACQUISITIONS	**$0**	
6. ALL OTHER		
1500		
1501 GIS Computer Hardware	$0	
1502 GIS Computer Software	0	
1503 Initial Data Collection Field Inventory Costs	0	
1504 Engineering Fees for Sectionalizing Study		
_____	0	
Subtotal Code 1500 All Other from Page 4A	$0	
Subtotal Code 1500 All Other	$0	
TOTAL ALL OTHER	**$0**	

SECTION B. SUMMARY OF AMOUNTS AND SOURCES OF FINANCING

1. GRAND TOTAL - ALL COSTS				$5,611,270	
2. FUNDS AND MATERIALS AVAILABLE FOR FACILITIES					
a. Loan Funds . . From Budget Purpose(s)			$0		
b. Materials and Special Equipment			0		
c. General Funds	Purpose 1	$0			
	Purpose 2	$0			
	Purpose 3	$0			
	Purpose 4	$0			
	Purpose 5	$0			
	Purpose 6	$0			
Total General Funds Applied			$0		
d. Total Available Funds and Materials				$0	
3. NEW FINANCING REQUESTED FOR FACILITIES				$5,611,270	
4. RUS LOAN REQUESTED FOR FACILITIES			100%	$5,611,000	
_____ *Name of Supplemental Lender*					
5. SUPPLEMENTAL LOAN REQUESTED FOR FACILITIES			0%	$270	
6. 100% SUPPLEMENTAL LOANS (LIEN ACCOMODATION)				$0	

SECTION C. CERTIFICATION

We, the undersigned, certify that:

1. Upon completion of the electrical facilities contained herein and any others uncompleted at this time but for which financing is available, the system will be capable of adequately and dependably serving the projected load for the loan period as contained in our current RUS approved Load Forecast Study and Construction Work Plan.

2. Negotiations have been or will be initiated with our power supplier, where necessary, to obtain new delivery points and/or additional capacity at existing ones to adequately supply the projected load upon which this loan application is based.

3. The data contained herein and all supporting documents have, to the best of my knowledge, been prepared correctly and in accordance with all appropriate sections of 7 CFR 1710

_____ _____
Date

_____ _____
Date

Rita Blanca Electric Cooperative
Corporate Name of Borrower

GFR Initials _____

USEFUL LIFE CERTIFICATION

KS0042
Borrower and Loan Designation

STATEMENT

Statement certifying that at least 90% of the Loan funds are for facilities with a useful life of 33 years or longer as required by 7 CFR 1710.115.

To facilitate the determination of the final maturity for this RUS Loan,
Lane-Scott Electric Cooperative
does hereby certify that:

[X] At least 90% of the Loan funds requested as part of this loan application and included on the RUS Form 740c (Cost Estimates and Loan Budget for Electric Borrowers) are for facilities with an anticipated useful life of 33 years or longer.

[ ] Less than 90% of the Loan funds requested as part of this loan application and included on the RUS Form 740c (Cost Estimates and Loan Budget for Electric Borrowers) are for facilities with an anticipated useful life of 33 years or longer. A schedule has been attached to this statement listing the facilities with an anticipated useful life of less than 33 years, the anticipated useful life of those facilities and the associated cost estimates (see attached).

Date

Signature:
Title:

Table 2 Loan Application Data Sheet - Cost Summary								
Code Group	**Project Code**	**Description**	**Quantity**	**Units**	**2022**	**2023**	**2024**	**Totals**
100: New Consumers	101	Underground	9	Consumers	$ 42,000.00	$ 42,000.00	$ 42,000.00	$ 126,000.00
	102	Overhead	81	Consumers	$ 245,000.00	$ 245,000.00	$ 245,000.00	$ 735,000.00
							Subtotal	**$ 861,000.00**
300: Conversion & Line Changes	300-01	Utica Autotransformer Station			$ 15,000.00	$ -	$ -	$ 15,000.00
							Subtotal	**$ 15,000.00**
500: Substation Changes	500-01	City of Dighton South Sub Upgrades			$ 68,970.00	$ -	$ -	$ 68,970.00
	500-02	City of Dighton West Sub Upgrades			$ 74,970.00	$ -	$ -	$ 74,970.00
	500-03	City of Dighton North Sub Upgrades			$ 66,970.00	$ -	$ -	$ 66,970.00
							Subtotal	**$ 210,910.00**
600: Distribution Equipment		**Transformers and Meters**						
	601	Transformers	102	Units	$ 106,600.00	$ 106,600.00	$ 106,600.00	$ 319,800.00
		Meters	360	Units	$ 60,000.00	$ 60,000.00	$ 60,000.00	$ 180,000.00
		Sectionalizing Equipment						
	603	Electronic Reclosers	23	Units	$ 19,166.67	$ 19,166.67	$ 19,166.67	$ 57,500.00
		3 Phase Electronic Recloser for Wheatland IC	1	Unit	$ -	$ -	$ 20,000.00	$ 20,000.00
		Arrestors	114	Items	$ 1,900.00	$ 1,900.00	$ 1,900.00	$ 5,700.00
		3 Phase Air Break Switch - Healy	1	Unit	$ -	$ -	$ 5,000.00	$ 5,000.00
		Fuse Cutouts	128	Items	$ 5,120.00	$ 5,120.00	$ 5,120.00	$ 15,360.00
	604	Regulators	3	Items	$ 24,600.00	$ -	$ -	$ 24,600.00
	605	Capacitor (300 kVAr - Dighton Low)	1	Items	$ -	$ 13,000.00	$ -	$ 13,000.00
	606	Pole Replacements	762	Poles	$ 558,800.00	$ 558,800.00	$ 558,800.00	$ 1,676,400.00
	607	Misc. Hardware replacements (Guys/Anchors/Crossarms/etc..)			$ 10,000.00	$ 10,000.00	$ 10,000.00	$ 30,000.00
	608	Conductor Replacements - Copperweld	10	mi.	$ 160,000.00	$ 160,000.00	$ 160,000.00	$ 480,000.00
	615	Two Way Radio Communication System			$ 150,000.00	$ 300,000.00	$ 300,000.00	$ 750,000.00
							Subtotal	**$ 3,577,360.00**
700: Misc. Distribution	702	Security Lights	74	Items	$ 6,166.67	$ 6,166.67	$ 6,166.67	$ 18,500.00
							Subtotal	**$ 18,500.00**
1100: Transmission Items	1104	Transmission pole replacements	162	Poles	$ 216,000.00	$ 216,000.00	$ 216,000.00	$ 648,000.00
							Subtotal	**$ 648,000.00**
1300: Headquarters & Facilities	1300-01	Server Room Internal Construction			$ -	$ 100,000.00	$ -	$ 100,000.00
	1300-02	North Yard Improvements (Dirt Work, Rock, and Concrete)			$ 180,500.00	$ -	$ -	$ 180,500.00
							Subtotal	**$ 280,500.00**
				Totals:	**$ 2,011,763.33**	**$ 1,843,753.33**	**$ 1,755,753.33**	**$ 5,611,270.00**

Table 3			
Disposition of 2017 Construction Work Plan Projects			
Project Number	**Substation**	**Description**	**Status**
200-04	Dighton High	1.5 mi. 3φ #2 ACSR	Completed
200-05	Dighton High	2.5 mi. 1φ #2 ACSR	Cancelled
200-06	Beeler	.2 mi. 3φ #2 ACSR	Cancelled
200-07	Beeler	1.0 mi. 3φ #2 ACSR	Completed
200-08	Beeler	6.0 mi. 3φ #2 ACSR	Cancelled
200-09	Twin Springs	1.0 mi. 3φ 4/0 ACSR	Completed
200-10	Lane-Scott	10.0 mi. 1φ/3φ #2 ACSR	Cancelled
300-07	Dighton Low	3.0 mi. 3φ 336 ACSR	Completed
300-10	Manning	1.7 mi. 3φ #2 ACSR	Completed
300-11	Beeler	2.5 mi. 3φ #2 ACSR	Completed
300-12	Twin Springs	8.0 mi. 3φ 4/0 ACSR	Completed
400-03	Twin Springs	New Twin Springs Substation	Completed
500-01	Alexander	Transformer Replace/Relocate	Completed

AA1:K40ll Cells colored Yellow require user input

Trendbucks

A Simple Analysis of Distribution and
and Transmission Investments
for
KS0042

01-Jun-21

Analysis and Data Input

Year	Distribution Additions from Line 15 Page 3 of the Form 7	Transmission Additions from Line 34 Page 3 of the Form 7	Total Investments Transmission Plus Distribution With No *Escalator*
2020	$4,301,842	$0	$4,301,842
2019	$2,004,915	$0	$2,004,915
2018	$3,108,423	$0	$3,108,423
2017	$1,323,373	$0	$1,323,373

Results

Historical investment average multiplied by the number of years

Two Year	Three Year	Four Year
$5,369,277	**$8,053,915**	**$10,738,553**

Escalation factor applied to historical data to determine values for future years (see below).

Two Year	Three Year	Four Year
$5,778,684	**$8,886,488**	**$12,149,683**

2020 = Please enter the year (4 digits please) of the last year-end operating report.
Adjusting this date will cause the spreadsheet to use the correct historical years.

5.00% = Escalation Factor

If work plan totals exceed the values in the last row, further justification needs to be attached to this sheet.

SECTION I

HISTORICAL DATA AND EXISTING SYSTEM ANALYSES

SECTION I - HISTORICAL AND EXISTING SYSTEM ANALYSES

This section comprises a summary of historical load data and a brief analysis of the capacity and performance of the existing distribution facilities under 2020 peak loading conditions.

SERVICE AREA

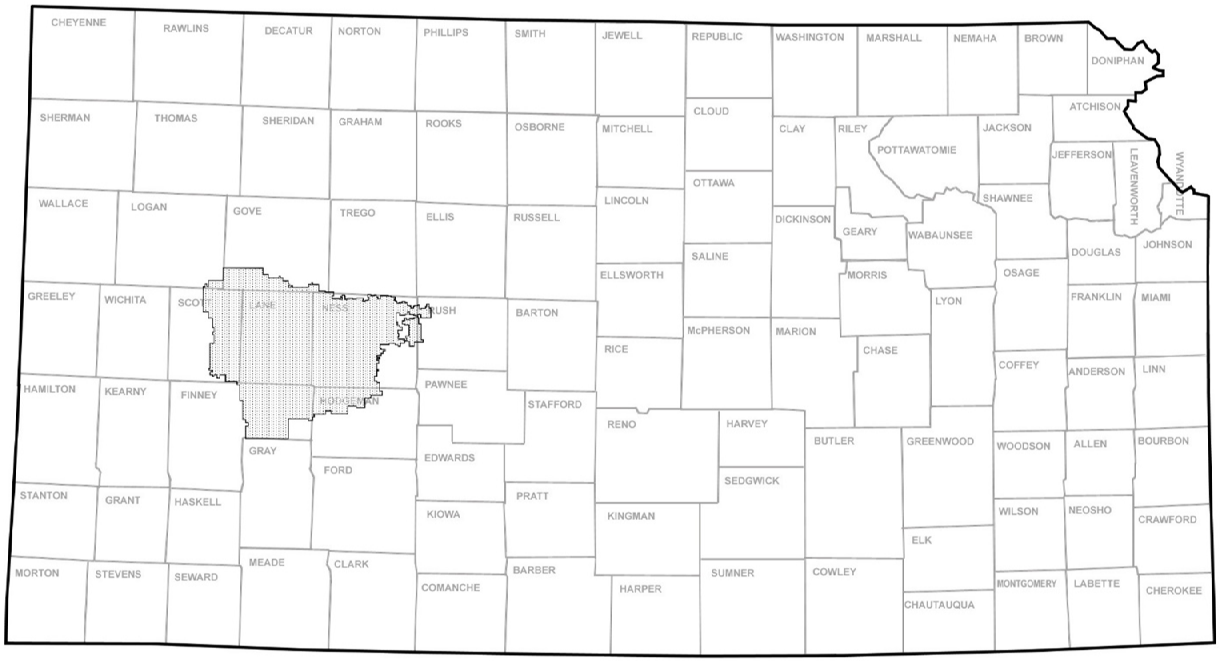
The Lane-Scott Electric Cooperative, Inc., (LSEC) owns and operates an electrical distribution system with headquarters located in Dighton, Kansas. The Lane-Scott Electric Cooperative purchases all its wholesale power from Sunflower Electric Power Corporation (Sunflower), of which LSEC is a member. Sunflower owns and operates all the transmission facilities. The LSEC service area surrounds all, or part of the towns of Healy, Utica, Arnold, Ransom, Bazine, Beeler, Ness City, Brownell, Arnold, Grigston, Manning, Alamota, Shields, Amy, Alexander, and McCracken.
(See Service Area Map on page I-2.).

Total energy sales for 2020 were distributed as follows:

1. residential – 58%,
2. irrigation - 6%,
3. small commercial – 32%,
4. large commercial – 3%

The largest impact was Residential and commercial sales at a combined 93% of the total energy sales. Small commercial sales account for 32% of the total sales in 2020.

State of Kansas



Lane-Scott Electric Cooperative Service Area Map

HISTORICAL DATA

Historical data for the Lane-Scott Electric Cooperative system are shown on the graphs at the end of this section. Projections shown on the graphs are taken from the 2020 Load Forecast Study (LFS) prepared by Clearspring Energy Advisors and reflect data which starts in 2009.

As shown in Graph 1, the number of consumers served by LSEC has generally declined since 2016. In 2020 residential consumers accounted for 38.5% of total consumers. The LFS predicts that this slight downward trend is expected to continue through the Work Plan period. By the end of 2024 it is expected that LSEC will provide service to 5,795 consumers.

Since 2017, Graph 2 shows that the average monthly usage for general (i.e., residential, small commercial, and seasonal consumers) has stayed relatively constant since 2014, only differing by about 60 kWh in that time. In 2020 the average monthly usage was 1,394 kWh per consumer per month. According to the LFS It is expected that the average usage per consumer (through the work plan period) will increase in 2021 and hold pretty steady at that rate through 2024 where it is projected to be 1,877 kWh.

Residential consumers account for 38.5% of total energy sales, with large and small commercial consumers accounting for 35.0% of all sales. These differing sales as well as annual requirements are shown on Graph No. 3 as well as total sales. The area between the purchase requirements and the total sales can be visualized as the losses in the system. This is shown in Graph No. 3.

The system peak demand (Graph No. 4) reflects system peak kW demand and the effects of weather conditions. Over the past six years the NPC has fluctuated about the 30,000 kW mark, with 2019 going as high as 31,828 kW and 2016 being as low as 27,714. According to the LFS the system is expected to level off and stay around the 28.7 MW range reaching 28,757 kW in 2024.

System losses (Graph No. 5) have hovered at between 6% and 7% since 2014, falling in 2020 to 3.5%. The Lane-Scott LFS did not provide an estimation of losses while the estimation of losses from the Clearspring Energy Advisors LFS showed losses increasing. These increased losses are reflected in Graph 5. Losses as a percentage of system purchases tend to follow sales in an inverse manner. When energy sales increase, losses in percent decrease. Per the 2020 LFS losses are projected to be at 9.97% of energy purchases by the end of this work plan period in 2024. System losses are discussed in more detail in Section III.

The annual load factor decreased from 61.46% in 2014 to 55.82% in 2017. From 2017 to 2020 the load factor increased to 61.08%. Based on projected system demand and total energy requirements, the system load factor is expected to increase slightly to 62.11% through 2024, (see Graph No. 6).

The investment per kilowatt-hour sold, shown in Graph No. 7. A steady increase in plant investment from $45.6 million in 2014 to 68.3 million through 2024. Revenue per kWh has

maintained a steady trend from 2014 through 2020, only changing by a small amount from $18 million in 2014 to $16.4 million in 2020. Revenue is projected to slightly increase the next four years from $16.4million to $17.6 million in 2024.

Distribution operations and maintenance costs, as a percent of total plant investment, are shown in Graph No. 8. These costs oscillated with an upward trend from 3.18% in 2014 to 4.14% in 2020. Since 2014 the O&M costs have averaged 3.7%. With the completion of the recommended distribution projects in this Construction Work Plan, it is expected that O&M costs over the long run will increase steadily to 5.16% as pole and conductor replacements continue.

SERVICE RELIABILITY

Service reliability is one of the most important measures of the quality of service to consumers. The general public is growing accustomed to expecting nearly uninterrupted service. Numerous or extended power outages have a seriously detrimental effect on public relations and consumer confidence in the performance of the Cooperative. Complying with the increasing demand for greater service continuity requires diligence in performing daily operation and maintenance activities, routine inspection of main circuit lines, careful attention to system planning, and a properly designed and maintained protective coordination scheme.

The average annual outage time per consumer for the last five years is shown in Table 4. This is broken down into four general categories: power supply, major storm, and other causes. The "other" category includes lightning, pole failures, transformer outages, etc.

The Rural Utility Services, in its Bulletin 1730A-119, has established that RUS Borrowers that borrow funds from RUS are required to report the system average annual interruption in minutes per consumer. The “System Average Interruption Duration Index”, SAIDI, is the “Sum of Customer Interruption Durations” divided by the “Total Number of Customers Served”. The RUS recommendation for outages is less than 200 minutes in the “All Other” category. These values are seen in Table 4.

Table 4
Summary of Service Interruptions - SAIDI (Minutes)

Year	Power Supply	Major Event	Planned	All Other	Total
2016	0	0	0.6	230.4	231
2017	33.6	0	43.2	328.2	405
2018	0	0	0	167.4	167.4
2019	96	0	0	162	258
2020	12	0	0	135	147
Average	28.32	0	8.76	204.6	241.68

The Cooperative failed to maintain a satisfactory SAIDI rating for 2016 and 2017, however for the three years since, under 200 minutes in the “All Other” category has been maintained. Improved maintenance practices are expected to continue improving the quality of service over the next five years. A continuing program of pole replacement, conductor replacement and improvements to the LSEC sectionalizing scheme, as well as the completion of the system improvements recommended in this Work Plan will help reduce outages in this broad category.

POWER SUPPLY

The Lane-Scott Electric Cooperative, Inc. purchases all its wholesale power from the Sunflower Electric Power Cooperative (Sunflower), of which LSEC is a member. Sunflower owns and operates all the transmission facilities which supply power to the LSEC distribution system.

EXISTING SYSTEM ANALYSIS

For the purposes of this study, LSEC’s existing system is the system as it existed on December 31, 2020. The CKEC distribution system is comprised of 1,989 miles of energized distribution lines facilities, 1,982 miles of overhead and 7 miles of underground. The distribution system operates with fifteen substations; two substations operate at 34.5 kV; three substations operate at 24.9 kV; four substations operate at 13.8 kV; three substations operate at 13.2 kV; and three operate at 2.4 kV. Of the fifteen substations, seven of them are smaller substations that operate within and downline of larger substation areas. We do not have specific loading for these substations, but instead have the information for the larger substation areas they are a part of. For this reason, the tables dealing with substations found later in this document deal with only the eight larger substations. The present system maximum capacity is 151,000 kVA. The 2019 non-coincident peak of 36,418 kVA was 24% of the total system forced air capacity.

The actual 2019 system peak loads for each substation area were used to determine the load flow for the existing system. The results of the analysis are shown in the “Voltage Drop and Load-Flow Studies” section of this report. Voltage drops are shown on the Existing System, 2019 and 2024 Loads circuit diagrams included with the load-flow studies.

During the 2019 peak loading conditions, voltages less than the minimum acceptable level of 118 Volts established for this Work Plan period occurred on the circuits at Dighton Low, Manning, and Twin Springs Low. These substations as shown in the table below.

No actual field checks of voltage levels have been made. Some low voltage problems are suspected but have not been verified. It is recommended that LSEC develop a plan for systematically monitoring voltage levels in the substation areas designated in the table. Annual load-flow studies and voltage checks will help LSEC maintain adequate service.

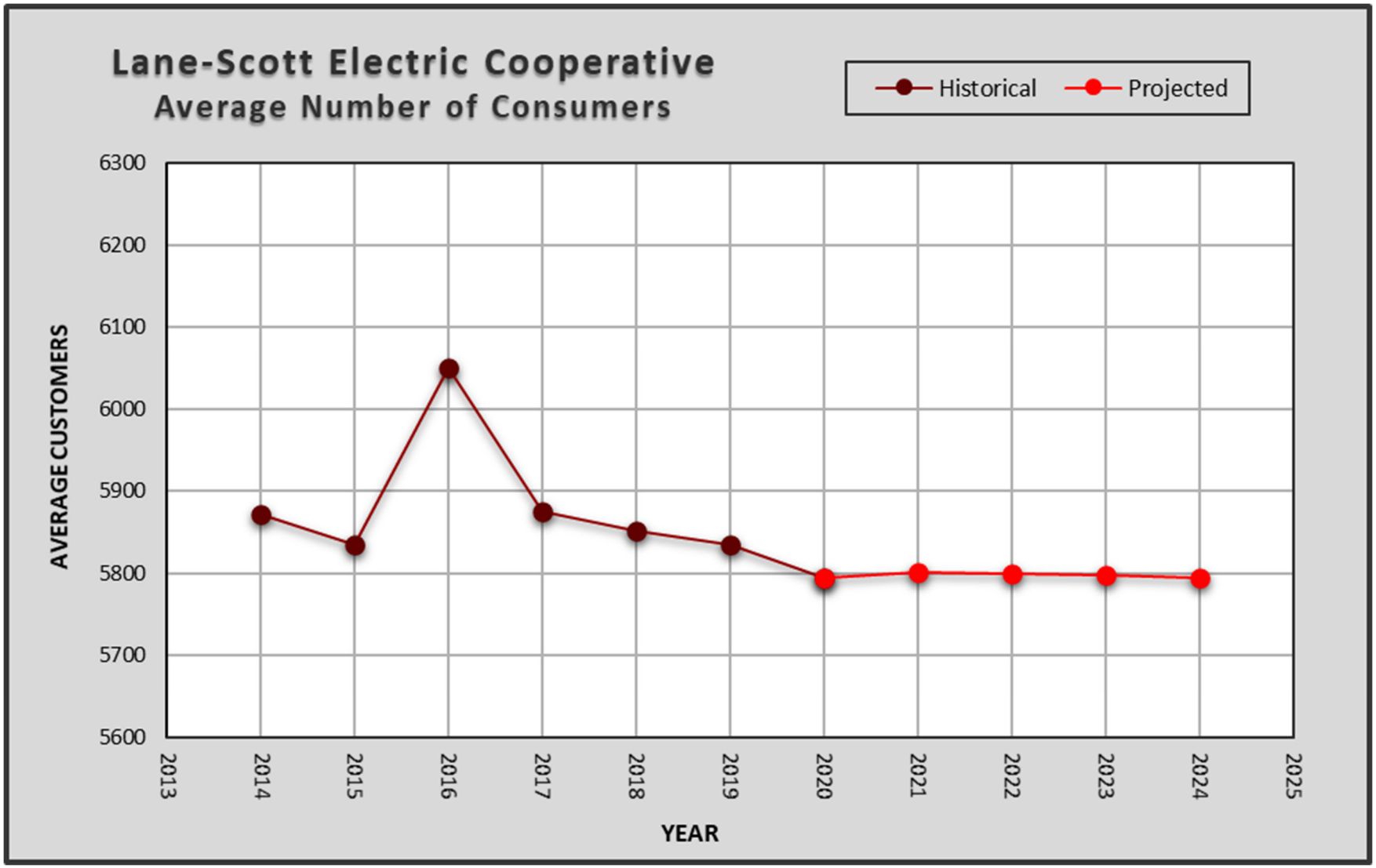
Low Voltage Study Existing System						
Substation	Circuit	Span	Feet From Source	Miles From Source	2019 Regulated Low Voltage	2019 Non-Regulated Low Voltage
Dighton Low	S1C2	span_167	48574	9.20	117.900	117.606
Manning	S4C1	span_35972	105174	19.92	117.034	112.497
Twin Springs Low	S7C1	span_2005	138500	26.23	113.929	113.929

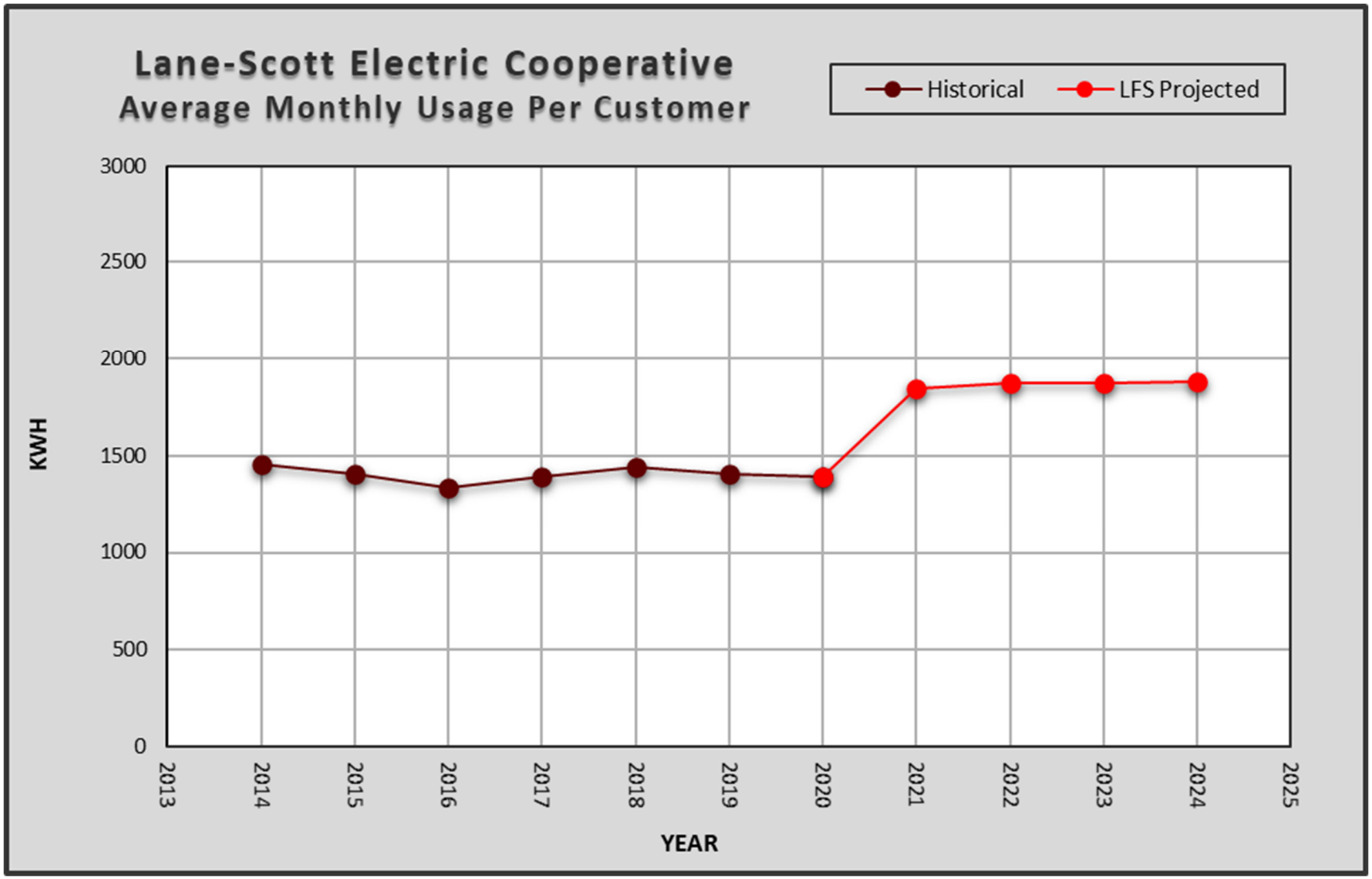
LONG-RANGE PLAN

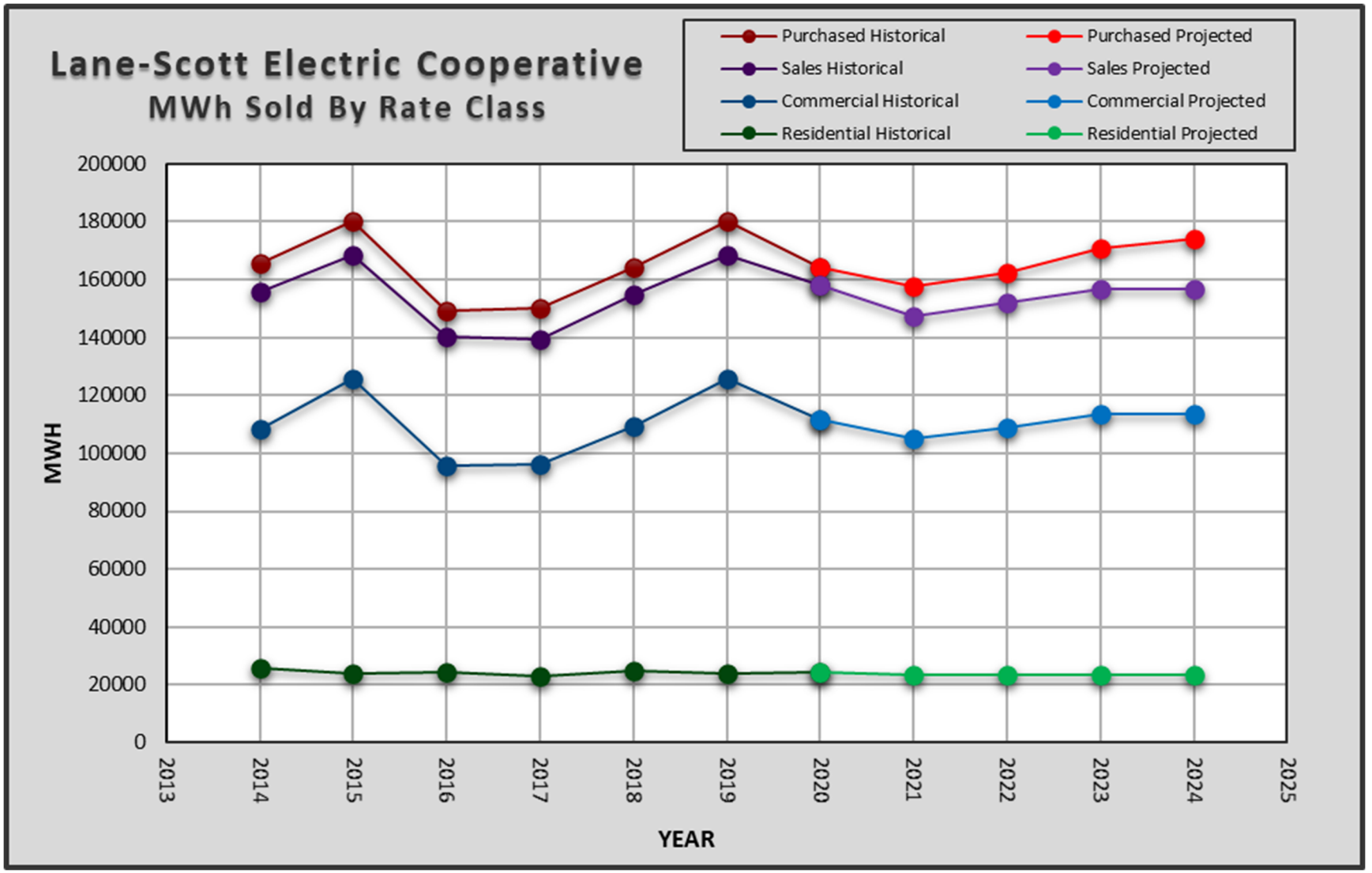
The projected long-range load of 29.2 MW (from the Load Forecast Study) is 1.4% more than the projected 2024 peak of 28.8 MW. The most current Long Range Plan for LSEC was completed in 2002 by Peak Power Engineering. This was prior to LSEC acquiring what is now called the East portion of the system and includes the Alexander 115 substation, serving Bazine and McCracken as well as the Ness City 115 substation, serving Ness City and Ransom. The Long Range Plan projections for 2022 have already been surpassed by the cooperative and this study should be used as a reference only.

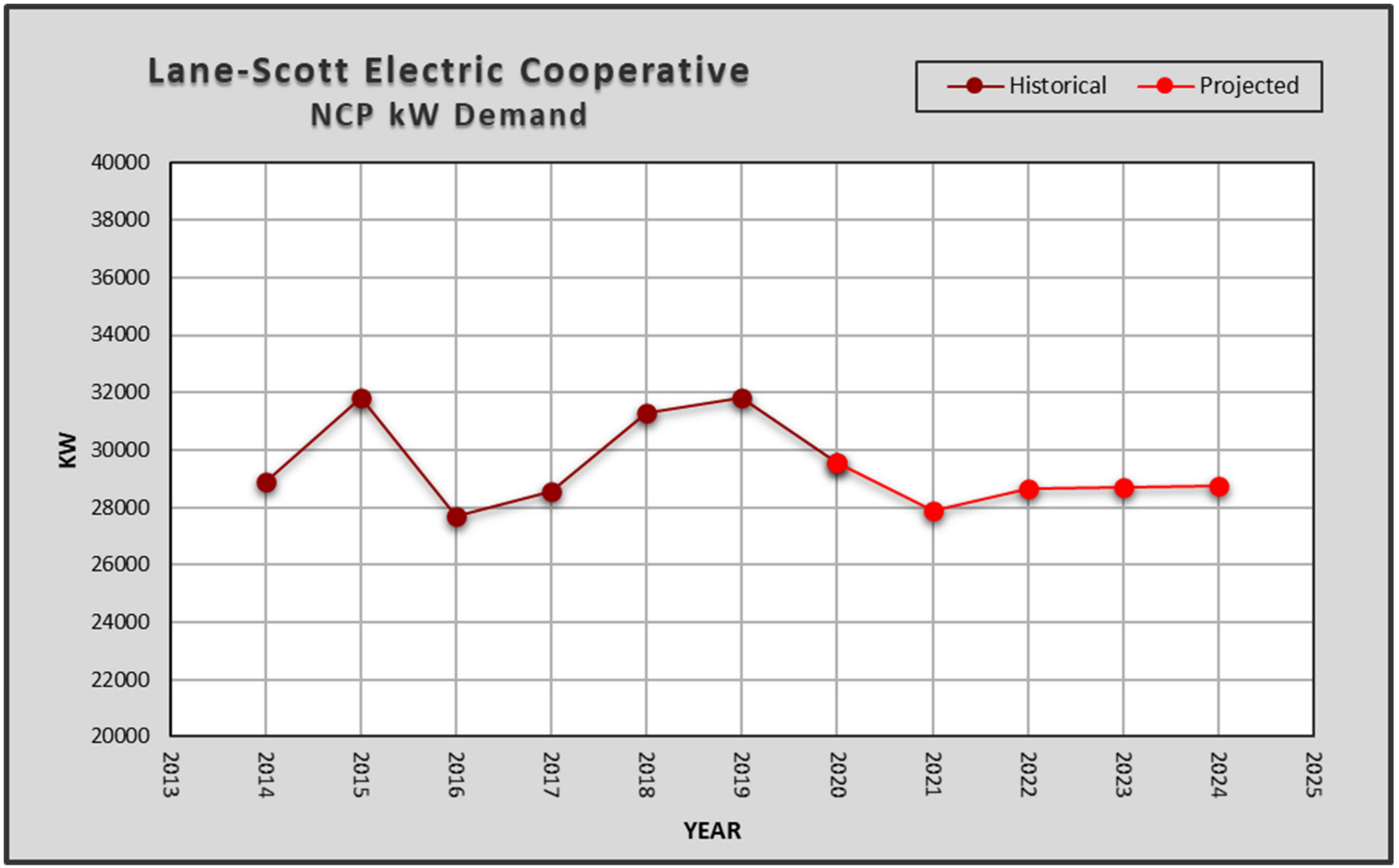
Table 5 compares the Year 2020, Year 2024 and Long-Range systems.

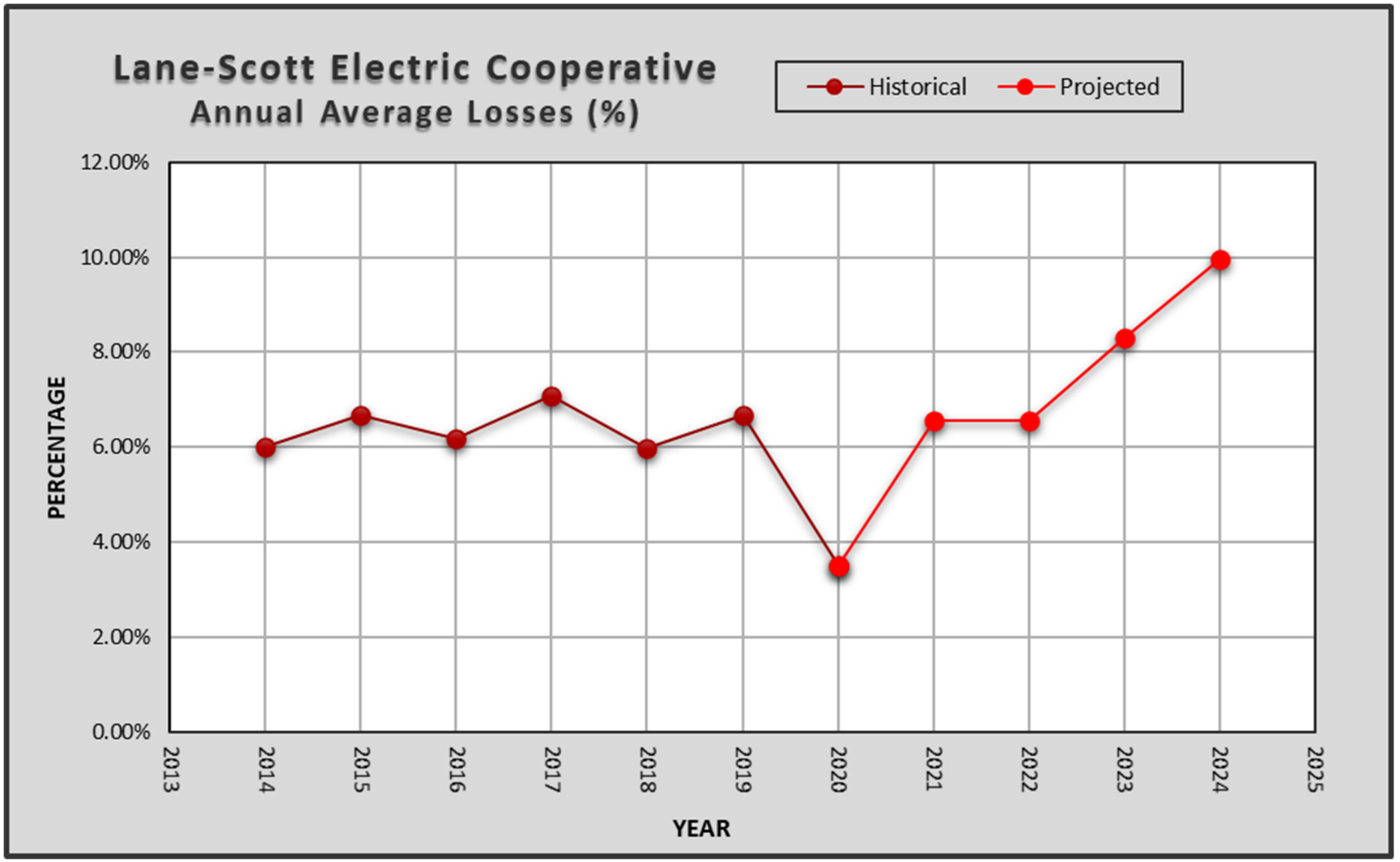
Table 5			
Comparative System Data			
Metric	Recent Data - 2020	End of CWP - 2024	Long Range
Consumers	5795	5984	6221
Distribution Line OH (Mi.)	2035.37	2035.37	-
Distribution Line UG (Mi.)	7.66	7.66	-
Substation Capacity (MVA)	151	151	151
System Peak (MW)	29.6	28.8	29.2
Energy Sold (MWh)	158,238	162,645	156,129
Energy Purchases (MWh)	164,012	178,861	167,036
Energy Losses (%)	3.52%	9.97%	6.99%
System Load Factor (%)	63%	71%	65%
Plant in Service ($1,000)	$ 58,108	$ 62,565	-
Investment/Consumer	$ 10,027	$ 10,455	-
Investment/kWh Sold	$ 0.37	$ 0.38	-

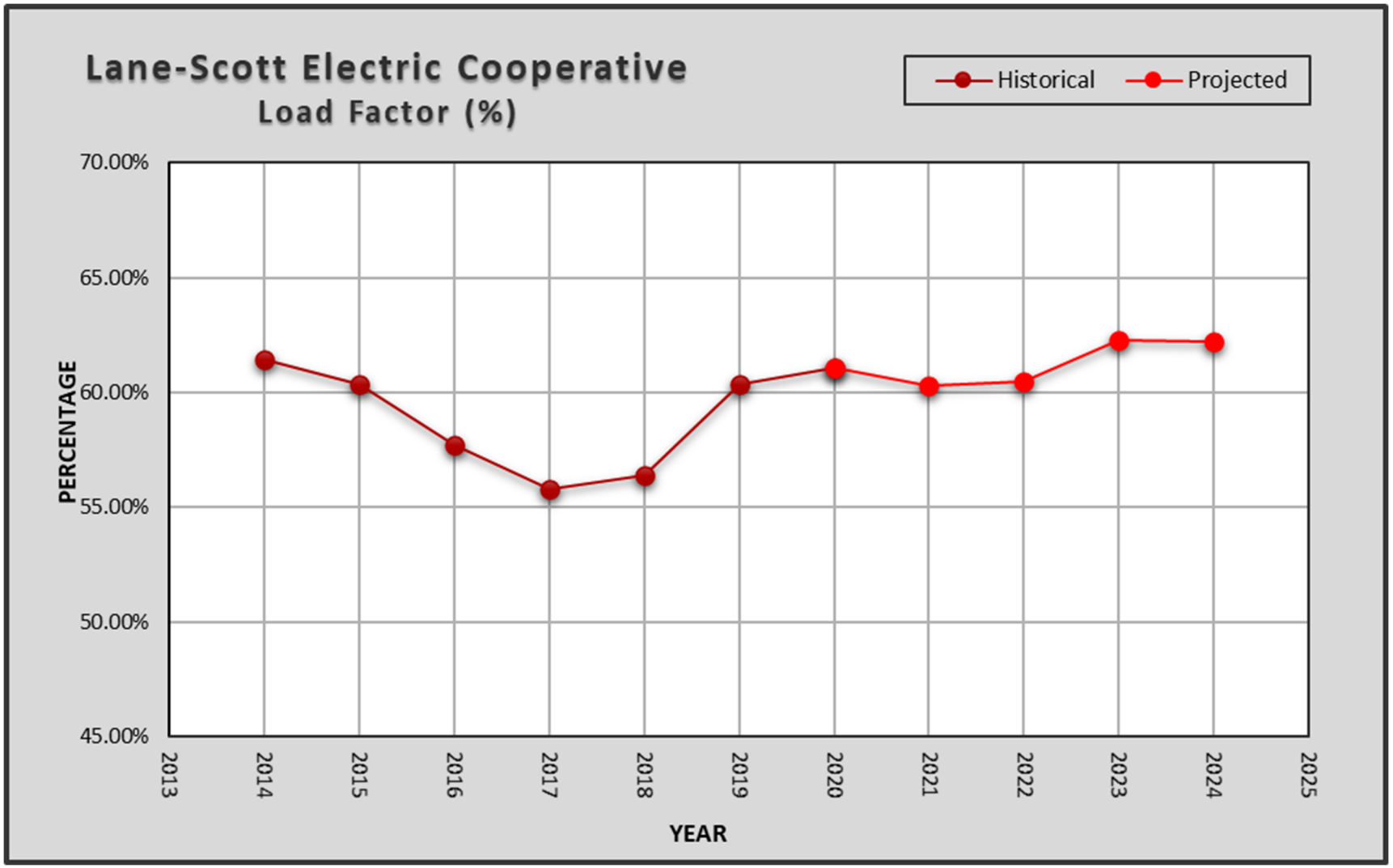

Lane-Scott Electric Cooperative
Average Number of Consumers
Historical
Projected
AVERAGE CUSTOMERS
6300
6200
6100
6000
5900
5800
5700
5600
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
YEAR

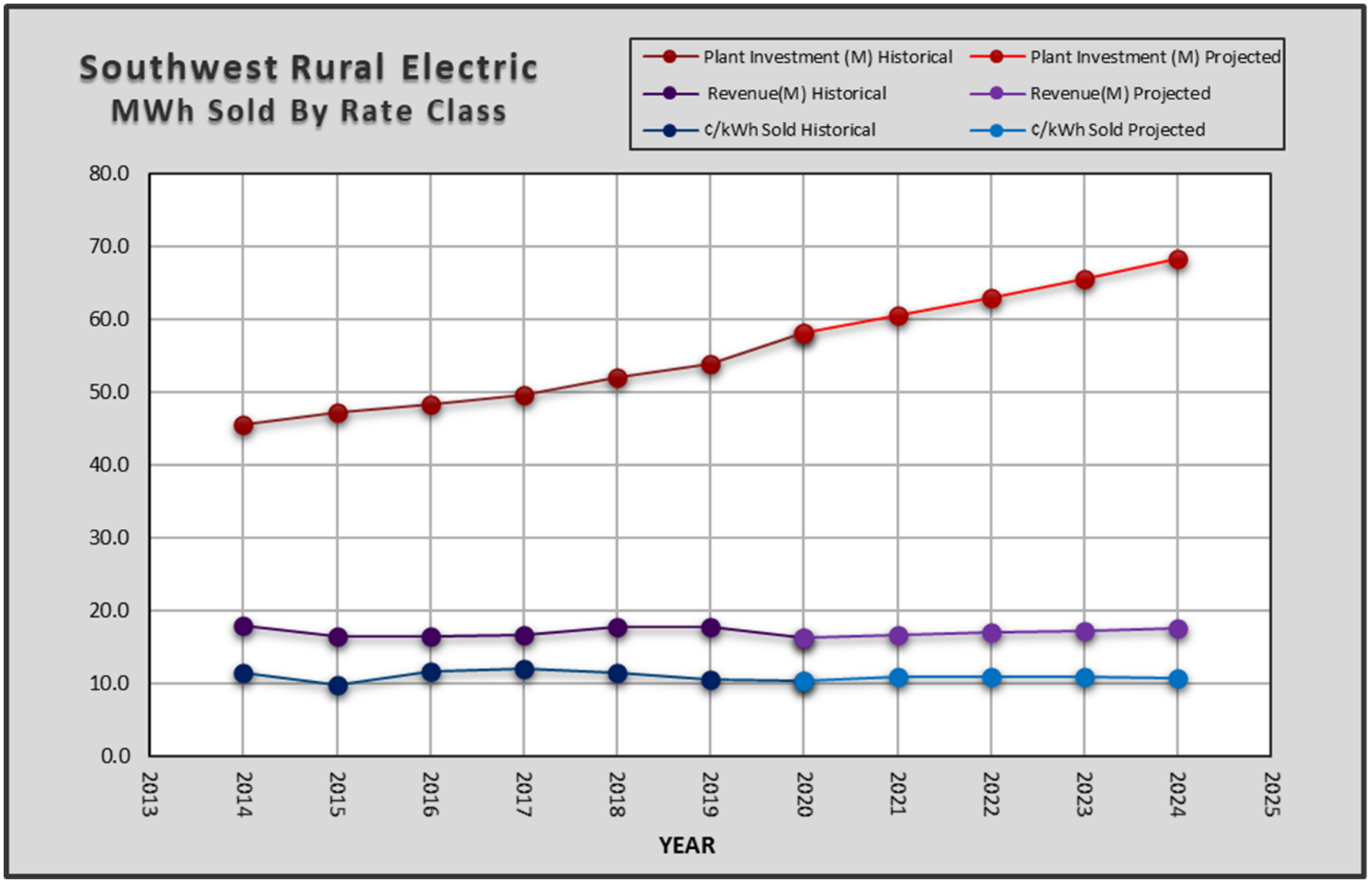

Lane-Scott Electric Cooperative
Average Monthly Usage Per Customer
Historical
LFS Projected
KWH
3000
2500
2000
1500
1000
500
0
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
YEAR

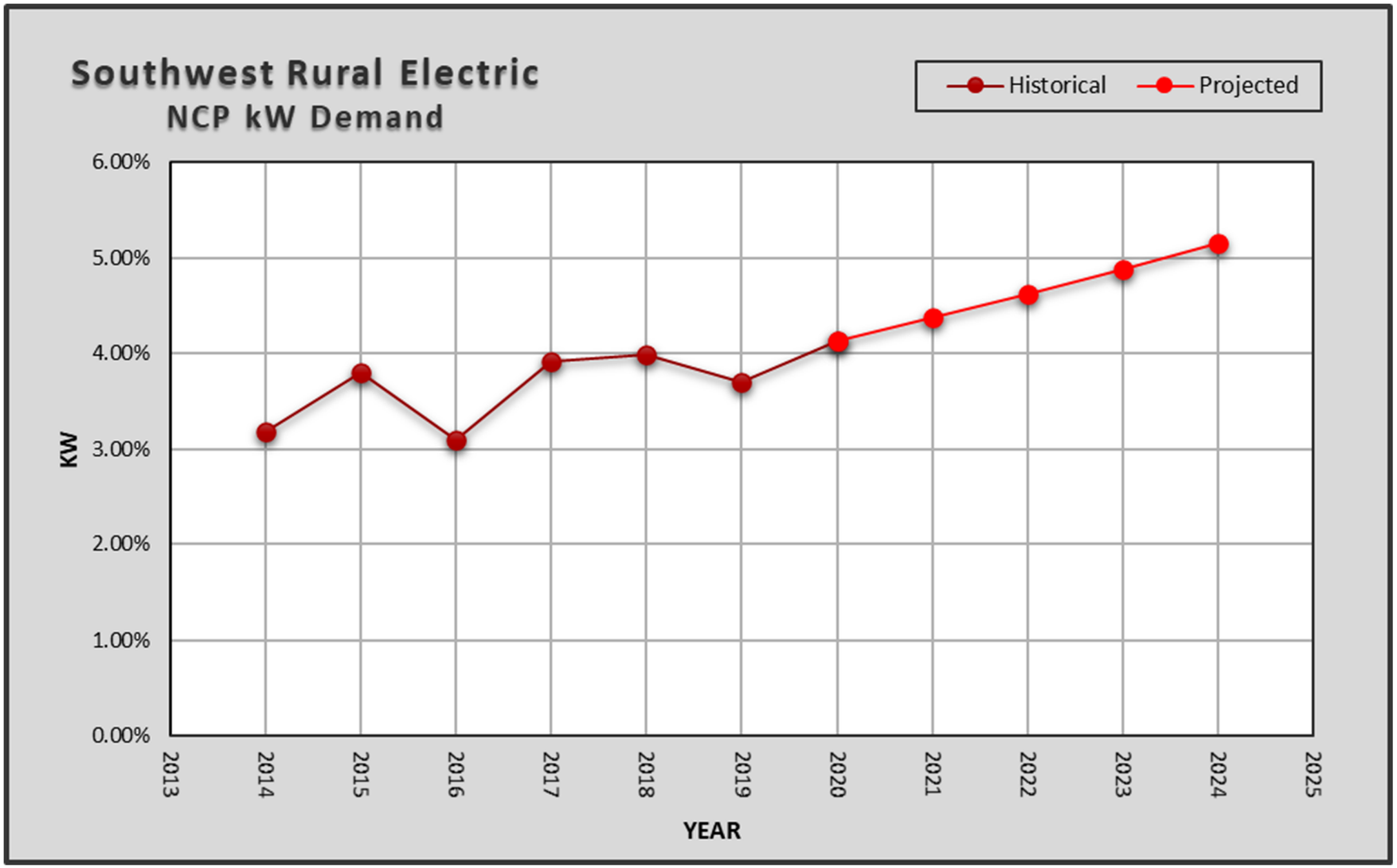

Lane-Scott Electric Cooperative
MWh Sold By Rate Class
Purchased Historical
Purchased Projected
Sales Historical
Sales Projected
Commercial Historical
Commercial Projected
Residential Historical
Residential Projected
200000
180000
160000
140000
120000
100000
80000
60000
40000
20000
0
MWH
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
YEAR


Lane-Scott Electric Cooperative
NCP kW Demand
Historical
Projected
KW
40000
38000
36000
34000
32000
30000
28000
26000
24000
22000
20000
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
YEAR


Lane-Scott Electric Cooperative
Annual Average Losses (%)
Historical
Projected
12.00%
10.00%
8.00%
6.00%
4.00%
2.00%
0.00%
PERCENTAGE
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
YEAR


Lane-Scott Electric Cooperative
Load Factor (%)
Historical
Projected
70.00%
65.00%
60.00%
55.00%
50.00%
45.00%
PERCENTAGE
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
YEAR


Southwest Rural Electric
MWh Sold By Rate Class
Plant Investment (M) Historical
Plant Investment (M) Projected
Revenue(M) Historical
Revenue(M) Projected
¢/kWh Sold Historical
¢/kWh Sold Projected
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
YEAR


Southwest Rural Electric
NCP kW Demand
Historical
Projected
6.00%
5.00%
4.00%
3.00%
2.00%
1.00%
0.00%
KW
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
YEAR

SECTION II – CONSTRUCTION WORK PLAN

Load Design Basis

The design criteria for the 2022-2024 Work Plan are based on the 2020 Load Forecast Study (LFS) prepared by Clearspring Energy Advisors. It is estimated that service will be extended to 189 new consumers in the 2022-2024 period. It is expected that there will be 5,984 revenue-producing consumers by December 31, 2024.

The 2024 design load was determined as shown in Table VI, using the LFS projections.

Table 6
End of CWP Average Monthly Usage - 2024

Consumer Type	Number of Consumers	Consumer Usage (kWh/Cons./Mo.)	Total Usage (kWh/Mo.)
Residential (Including Seasonal)	3,305	1,050	3,470,625
Small Commercial (Under 1,000 kW)	2,069	3,516	7,274,417
Irrigation	339	2,168	735,083
Total Consumers	5,713		11,480,125
Average kWh/Mo./Cons.		2,009	

The electric system must have adequate capacity to serve the peak load. Peaking factors based on usages in the month in which the system peak occurred were calculated for each of the last two years. The average peaking factor of 1.79 was used to determine the 2024 peak design usage of 1,879 kWh/consumer (kWh/cons *avg peaking factor). Peaking factor calculations are shown in Table VII.

Table 7
Peaking Factor Calculations

2019	kWh	Consumers	kWh/cons.
Average Month	7,932,305	5,835	1,359
Peak Month	15,130,671	5,835	2,593
Peaking Factor: 1.91			
2020	**kWh**	**Consumers**	**kWh/cons.**
Average Month	7,813,377	5,795	1,348
Peak Month	13,055,179	5,795	2,253
Peaking Factor: 1.67			
Average Peaking Factor: 1.79			

100. NEW CONSUMER CONNECTIONS

In the 2019 - 2020 period, 57 new consumers requiring line extensions were added to the LSEC system:

Table 8.1
Historical Line Extensions For New Consumers 2019-2020

Type of Consumers	Number of Consumers	Primary Miles	Cost Per Consumer
101 - Underground			
Single Phase	0	0	$ -
Three Phase	5	0.35	$ 13,302.33
Total	5	0.35	
102 - Overhead			
Single Phase	27	2.37	$ 4,150.90
Three Phase	25	4.09	$ 12,237.09
Total	52	6.46	

The costs are exclusive of special equipment such as transformers and meters; but include contribution-in-aid to construction. Table 8.2 lists the estimated costs for new consumer connections over each year in the three-year period covered by this Work Plan.

Table 8.2			
Projected Line Extensions For New Consumers			
2021			
Type of Consumers	**Number of Consumers**	**Primary Miles**	**Cost Per Consumer**
101 - Underground			
Single Phase	0	0	$ -
Three Phase	3	0.175	$ 14,000.00
Total	3	0.175	
102 - Overhead			
Single Phase	14	1.185	$ 4,500.00
Three Phase	13	2.045	$ 14,000.00
Total	27	3.23	
2022			
Type of Consumers	**Number of Consumers**	**Primary Miles**	**Cost Per Consumer**
101 - Underground			
Single Phase	0	0	$ -
Three Phase	3	0.175	$ 14,000.00
Total	3	0.175	
102 - Overhead			
Single Phase	14	1.185	$ 4,500.00
Three Phase	13	2.045	$ 14,000.00
Total	27	3.23	
2023			
Type of Consumers	**Number of Consumers**	**Primary Miles**	**Cost Per Consumer**
101 - Underground			
Single Phase	0	0	$ -
Three Phase	3	0.175	$ 14,000.00
Total	3	0.175	
102 - Overhead			
Single Phase	14	1.185	$ 4,500.00
Three Phase	13	2.045	$ 14,000.00
Total	27	3.23	

Table 8.3 summarizes the line extensions for new customers over the work plan period:

Table 8.3			
Three Year Summary of Line Extensions 2021-2024			
Type of Consumers	**Number of Consumers**	**Primary Miles**	**Cost Per Consumer**
101 - Underground Total	9	0.525	
102 - Overhead Total	81	9.69	
4 Year Totals	90	10.215	
101 - Underground			
Single Phase	0	0	$ -
Three Phase	9	0.525	$ 14,000.00
Total	9	0.525	$ 14,000.00
102 - Overhead			
Single Phase	42	3.555	$ 4,500.00
Three Phase	39	6.135	$ 14,000.00
Total	81	9.69	$ 18,500.00

Table 9 on the following page compares costs listed in the 2018-2021 Work Plan Amendment to the 2013-2016 Construction Work Plan with available work order costs for the 24-month period ending December 31, 2020, and with the estimated costs for this Three-Year Work Plan.

Table 9 Historical Cost Comparisons - Member Extensions & Distribution Maintenance													
RUS Code	Item	2018-2021 Work Plan Amendment				2019-2020 Historical Data				2022-2024 Work Plan			
		Cons.	QTY	Cost/Cons	Extended Cost	Cons.	QTY	Cost/Cons	Extended Cost	Cons.	QTY	Cost/Cons	Extended Cost
	Overhead Line												
	Single Phase					12	2.37 mi.	$ 9,339.52	$ 112,074.29	42	3.56 mi	$ 4,500.00	$ 189,000.00
	Three Phase					11	4.09 mi.	$ 27,811.58	$ 305,927.36	39	6.14 mi	$ 14,000.00	$ 546,000.00
	Underground Line												
100	Single Phase					0	0 mi.	$ -	$ -	0	0.00 mi	$ -	$ -
	Three Phase					2	0.35 mi.	$ 33,255.82	$ 66,511.63	9	0.53 mi	$ 14,000.00	$ 126,000.00
	Total Consumers	351	52.8 mi.	$ 7,718.01	$ 2,709,020.00	25	6.81 mi.		$ 484,513.28	90	10.22 mi.		$ 861,000.00
	Less Contributions												
	Subtotal				**$ 2,709,020.00**				**$ 484,513.28**				**$ 861,000.00**
	Transformers												
	OH Transformers		364	$ 1,070.51	$ 389,664.00		58	$ 1,772.70	$ 102,816.38		90	$ 1,946.67	$ 175,200.00
	UG Transformers		268	$ 911.76	$ 244,352.00		7	$ 10,939.72	$ 76,578.06		12	$ 12,050.00	$ 144,600.00
601	Meters												
	Single Phase Meters												
	Three Phase Meters												
	AMI Meters		264	$ 348.00	$ 91,872.00		240	$ 433.77	$ 104,103.74		360	$ 500.00	$ 180,000.00
602	Increased Service Capacity						0		$ -				
	Sectionalizing Equipment												
	Three Phase Electronic Reclosers		18	$ 9,562.67	$ 172,128.00						24	$ 3,229.17	$ 77,500.00
	Air Break Switch										1		$ 5,000.00
603	Single Phase OCRs		3	$ 9,562.67	$ 28,688.00		15	$ 2,250.52	$ 33,757.85				
	Fused Cutouts						85	$ 108.97	$ 9,262.69		128	$ 120.00	$ 15,360.00
	Lightening Arrester Banks						76	$ 46.92	$ 3,566.04		114	$ 50.00	$ 5,700.00
	PT's & CT's												
604	Regulators		3	$ 38,252.00	$ 114,756.00		1	$ 8,000.15	$ 8,000.15		3	$ 8,200.00	$ 24,600.00
605	Capacitors				$ 5,000.00						1	$ 13,000.00	$ 13,000.00
606	Dist. Pole Replacements				$ 2,611,784.00		508	$ 2,063.72	$ 1,048,370.13		762	$ 2,200.00	$ 1,676,400.00
607	Miscellaneous Hardware Replacements												$ 30,000.00
608	Conductor Replacements										10 mi	$ 48,000.00	$ 480,000.00
612	Autotransformers		6	$ 33,660.00	$ 201,960.00								
615	Two Way Radio Communications												$ 750,000.00
	Subtotal				**$ 3,860,204.00**				**$ 1,386,455.04**				**$ 3,577,360.00**
702	Security Lights						49	$ 200.00	$ 9,800.00		74	$ 250.00	$ 18,500.00
710	SCADA system				$ 149,178.00								
	Subtotal				**$ 149,178.00**				**$ 9,800.00**				**$ 18,500.00**
	Total (Excluding System Improvements)				**$ 6,718,402.00**				**$ 1,880,768.32**				**$ 4,456,860.00**

DISTRIBUTION LINE DESIGN CRITERIA

All construction proposed in this work plan is required to meet the following standards of adequacy for voltages, thermal loading, safety, and reliability.

1. The maximum voltage drop on primary distribution lines shall not exceed 8.0 volts on a 120-volt base.
2. Primary conductors shall not be loaded to more than 80% of thermal rating at 28 degrees C ambient; major tie lines shall not be loaded to more than 50% of thermal capacity.
3. Poles and/or cross arms are to be replaced if found to be physically deteriorated by visual inspection or testing.
4. Conductors are to be replaced if found to contain an average of two splices per span in one-mile increments or if conductor is in poor condition or has excessive sag which cannot be corrected by re-sagging.
5. Primary distribution lines shall be rebuilt and/or relocated if they are found to be unsafe or in violation of the National Electric Safety Code (NESC) in effect at the time of original construction.
6. New or replacement primary conductor sizes are to be determined in accordance with the results of the conductor economics study included in Appended A.
7. All new primary construction is to be overhead.
8. All new construction shall be in accordance with the NESC and RUS standard construction specifications using RUS-approved materials.

In addition to the above, the following equipment shall not be loaded by more than the percentage of nameplate rating shown below:

- power transformers 105%
- voltage regulators 100%
- oil circuit reclosers 70%
- line fuses 100%

Distribution transformers may be loaded to 120% of nameplate for not more than two hours during summer peaks or 200% for two hours during winter peaks.

Finally, system improvements are to be considered in specific areas where members have experienced more than two outage-hours per year for each of the past three years, excluding outages caused by major storms, the power supplier, or pre-arranged outages for construction or maintenance operations.

200 - 300. DISTRIBUTION SYSTEM IMPROVEMENTS

To determine the system improvements necessary to adequately meet the requirements of the LSEC system under loading conditions in the year 2024, it was first necessary to model the existing system with the projected non-coincidental peak demand of 35.1 MW applied.
Under projected 2024 loading, voltages less than the minimum acceptable level of 118 Volts are expected to occur on these feeders:

Low Voltage Study Existing System 2024 Loads						
Substation	Circuit	Span	Feet From Source	Miles From Source	2024 Regulated Low Voltage	2024 Non-Regulated Low Voltage
Dighton Low	S1C2	span_167	48574	9.20	110.440	109.938
Manning	S4C1	span_35972	105174	19.92	116.311	111.714
Twin Springs Low	S7C1	span_2005	138500	26.23	113.755	113.755

In most cases, excessive voltage drops occur on long single-phase lines; in many cases the voltage drop results from unbalanced line loading as well as small conductors or extremely long feeders. Distribution line losses resulting from loads at the 35.1 MW level, and before system improvements are made, will be approximately 856 kW.

In designing the distribution system to meet load requirements in the year 2024, major improvements were recommended only if adequate and reliable service could not be achieved with a less costly alternative. Maximum use was made of voltage regulators, provided that the added system losses did not offset the savings afforded by postponing major construction.

The recommended system design is shown on the *"Recommended 2024 System"* circuit diagram. Load-flow analyses for the recommended system show that losses will be reduced by approximately 411,027 kWh; this represents an annual savings of nearly $21,990 based on current wholesale power costs. Losses are discussed in more detail in Section III.

The following is a brief discussion, by substation area, of the recommended system improvements.

Alexander Substation Area

The Alexander Substation has a 115/34.5 kV, 20 MVA transformer and serves 768 customers in the northeast section of the service area. It ties with the Ness substation to the northwest and the Beeler substation to the west. This substation is expected to experience an annual growth rate of 1.5% during this study period. This calculates to a load level of 3,093 kVA and a power factor of 95% by the year 2024 and 16% of the 20 MVA forced air capacity for the station. There are no recommendations for station capacity changes during the period. This substation feeds to two smaller transformer stations: Bazine, a 34.5/13.8 kV, 2240 kVA transformer which serves 400 of the 768 consumers and McCracken, a 34.5/13.8 kV, 3750 kVA transformer which serves the remaining 368 consumers.

Bazine – North & East Rurals

This circuit serves 162 consumers in the southern and western section of the substation area and has a projected peak load of 576 kW in 2024. Under these conditions this circuit will have 30, 25 and 30 amps on phases A, B and C at the substation. There are no projected capacity or voltage issues on this feeder and no recommendations for improvements during the study period.

Bazine – East City

This circuit serves 238 consumers west of the substation and has a projected peak load of 1071 kW in 2024. Under these conditions this circuit will have 30, 25 and 30 amps on phases A, B and C at the substation. There are no projected capacity or voltage issues on this feeder and no recommendations for improvements during the study period.

McCracken – Brownell & Rurals

This circuit serves 185 consumers in the northern section of the substation area and has a projected peak load of 860 kW in 2024. Under these conditions this circuit will have 25, 25 and 22 amps on phases A, B and C at the substation. There are no projected capacity or voltage issues on this feeder and no recommendations for improvements during the study period.

McCracken – Alex & Rurals

This circuit serves 44 consumers west of the substation and has a projected peak load of 167 kW in 2024. Under these conditions this circuit will have 25, 25 and 22 amps on phases A, B and C at the substation. There are no projected capacity or voltage issues on this feeder and no recommendations for improvements during the study period.

McCracken – City

This circuit serves 139 consumers west of the substation and has a projected peak load of 375 kW in 2024. Under these conditions this circuit will have 25, 25 and 22 amps on phases A, B and C at the substation. There are no projected capacity or voltage issues on this feeder and no recommendations for improvements during the study period.

Beeler Substation Area

The Beeler Substation serves the eastern section of the service area and has a 115/24.9 kV, 28 MVA transformer; it is expected to experience an annual growth rate of 0.5% during this study period. This substation connects to the Alexander and Ness substations to the northeast, Dighton High to the west, and Twin Springs high to the southwest. This results in a load level of 6,923 kVA by the year 2024 and 25% of the 28 MVA forced air capacity for the station.

Circuit S3C1

This circuit serves 24 consumers in the western sections of the substation area and has a projected peak load of 101 kW in 2024. Under these conditions circuit will have 2, 3 and 2 amps on phases A, B and C and a power factor of 86% at the substation. There are voltage or capacity issues during the study period and not recommendations for improvement.

Circuit S3C2

This circuit serves 433 consumers in the south of the substation and has a projected peak load of 2956 kW in 2024. Under these conditions circuit will have 74, 64 and 68 amps on phases A, B and C and a power factor of 86% at the substation. There are no projected voltage or capacity problems and no recommendations for improvements during the study period.

Circuit S3C3

This circuit serves 591 consumers in the south of the substation and has a projected peak load of 2310 kW in 2024. Under these conditions circuit will have 49, 49 and 59 amps on phases A, B and C and a power factor of 86% at the substation. A new transformer station to be built for the town of Utica will aid reliability in the area. LSEC already has the transformers in stock and will be building the station as project 300-01. The circuit will be opened in two places. The circuit will be opened at span_30691 and connect back through the Utica auto-transformer station. The circuit will also be opened at span_15561 and connect that portion back through Ransom.

300-01: Utica autotransformer station

Circuit S3C4

This circuit serves 375 consumers in the northern and south western sections of the substation area and has a projected peak load of 1318 kW in 2024. Under these conditions circuit will have 39, 24 and 30 amps on phases A, B and C and a power factor of 86% at the substation.

Dighton High Substation Area

The Dighton High Substation has a 115/24.9 kV, 28 MVA transformer and is expected to experience an annual growth rate of 1% during this study period. This results in a load level of 7,334 kVA by the year 2024 and 26% of the 28 MVA forced air capacity for the station. There are no recommended capacity changes during the study period.

Circuit S2C1

This circuit serves 269 consumers in the north and east sections of the substation area as well as serving a smaller substation called South City that serves 393 additional consumers. Project 500-01

calls for upgrading parts of this station to better serve the consumers. The circuit has a projected peak load of 2,735 kW in 2024. Under these conditions circuit will have 67, 58 and 69 amps on phases A, B and C and a power factor of 88% at the substation. There are no projected voltage or capacity issues and no recommendations for improvement during the study period.

Project 500-01: Upgrade South City Station

Circuit S2C2

This circuit serves 243 consumers in the south section of the substation area and has a projected peak load of 633 kW in 2024. Under these conditions circuit will have 21, 10 and 11 amps on phases A, B and C and a power factor of 87% at the substation. There are no projected voltage or capacity issues and no recommendations for improvement during the study period.

Circuit S2C3

This circuit serves 2 consumers in the west section of the substation area and has a projected peak load of 3,278 kW in 2024. Under these conditions circuit will have 85, 85 and 85 amps on phases A, B and C and a power factor of 85% at the substation. There are no projected voltage or capacity issues and no recommendations for improvement during the study period.

Circuit S2C4

This circuit is currently not serving any consumers and has no load.

Dighton Low Substation Area

The Dighton Low Substation has a 115/13.2 kV, 22.4 MVA transformer and is expected to experience an annual growth rate of 0.5% during this study period. This results in a load level of 5,818 kVA by the year 2024 and 26% of the 22.4 MVA forced air capacity for the station. There are no recommended capacity changes during the study period.

Circuit S1C1

This circuit serves 132 consumers in the south sections of the substation area. The circuit has a projected peak load of 391 kW in 2024. Under these conditions circuit will have 12, 21 and 24 amps on phases A, B and C and a power factor of 88% at the substation. There are no projected voltage or capacity issues and no recommendations for improvement during the study period.

Circuit S1C2

This circuit serves 287 consumers in the east-central section of the substation area. The circuit has a projected peak load of 1,064 kW in 2024. Under these conditions circuit will have 51, 51 and 51

amps on phases A, B and C and a power factor of 87% at the substation. It is recommended that some load from S1C2, including capacitor C120100, be moved to Circuit S1C4 by opening the circuit at span_3653 and closing switch swit_49 to connect back to Circuit S1C4. There are no projected voltage or capacity issues and no recommendations for improvement during the study period.

Circuit S1C3

This circuit serves 41 consumers in the north and east sections of the substation area as well as serving two smaller substations: North City, serving an additional 213 consumers and West City serving an additional 203 consumers for a total of 457 consumers in all. Project 500-02 and 500-03 calls for upgrading parts of the West City and North City substations, respectively, to better serve the consumers. The circuit has a projected peak load of 1,828 kW in 2024. Under these conditions circuit will have 91, 96 and 95 amps on phases A, B and C and a power factor of 90% at the substation.

Project 500-02: Upgrade West City Station
Project 500-03: Upgrade North City Station

Circuit S1C4

This circuit serves 175 consumers in the north and west sections of the substation area. The circuit has a projected peak load of 1,669 kW in 2024. Under these conditions circuit will have 83, 91 and 78 amps on phases A, B and C and a power factor of 88% at the substation. It is recommended that some load from S1C2, including capacitor C120100, be moved to Circuit S1C4 by opening the circuit at span_3653 and closing switch swit_49 to connect back to Circuit S1C4. To keep the power quality of this circuit at an acceptable level it is being recommended that the capacitor C120100 be replaced with a 300 kVAR capacitor bank. There are no projected voltage or capacity issues and no recommendations for improvement during the study period.

Capacitor installation: Replace capacitor C120100 with 300kVAr capacitor

Manning Substation Area

The Manning Substation has a 115/13.2 kV, 10 MVA transformer and is expected to experience an annual growth rate of 1% during this study period. This results in a load level of 7,560 kVA by the year 2024 and 76% of the 10 MVA forced air capacity for the station. There are no recommended capacity changes during the study period.

Circuit S4C1

This circuit serves 192 consumers in the south sections of the substation area. The circuit has a projected peak load of 1,086 kW in 2024. Under these conditions circuit will have 41, 61 and 45 amps on phases A, B and C and a power factor of 95% at the substation. Because of voltage problems on the periphery of the circuit it is being recommended that the circuit be opened at span_1022 and the

disconnected portion of the circuit to be reconnected to the Wheatland Interconnect by closing switch swit_75-B on the circuit. This will also improve the circuit enough that the regulator currently on S4C1, volt_79, will no longer be required and can be returned to stock.

Circuit S4C2

This circuit serves 186 consumers in the west and north sections of the substation area. The circuit has a projected peak load of 1,382 kW in 2024. Under these conditions circuit will have 71, 64 and 67 amps on phases A, B and C and a power factor of 95% at the substation. There are no projected voltage or capacity issues and no recommendations for improvement during the study period.

Circuit S4C3

This circuit serves 126 consumers in the west and north sections of the substation area. The circuit has a projected peak load of 540 kW in 2024. Under these conditions circuit will have 18, 38 and 25 amps on phases A, B and C and a power factor of 95% at the substation. There are no projected voltage or capacity issues and no recommendations for improvement during the study period.

Circuit S4C4

This circuit serves 121 consumers in the east and south sections of the substation area. The circuit has a projected peak load of 822 kW in 2024. Under these conditions circuit will have 40, 37 and 50 amps on phases A, B and C and a power factor of 95% at the substation. There are no projected voltage or capacity issues and no recommendations for improvement during the study period.

Circuit S4C5

This circuit serves 274 consumers in the west and north sections of the substation area. The circuit has a projected peak load of 1,253 kW in 2024. Under these conditions circuit will have 52, 68 and 53 amps on phases A, B and C and a power factor of 95% at the substation. To continue maintenance of the system it is being recommended that the air-break switch on Highway 4 west of Healy be replaced. There are no projected voltage or capacity issues and no recommendations for improvement during the study period.

Circuit S4C6

This circuit serves 5 consumers in the west-central section of the substation area. The circuit has a projected peak load of 1876 kW in 2024. Under these conditions circuit will have 89, 90 and 89 amps on phases A, B and C and a power factor of 95% at the substation. There are no projected voltage or capacity issues and no recommendations for improvement during the study period.

Ness Substation Area

The Ness Substation has a 115/34.5 kV, 20 MVA transformer and serves 1426 customers in the northeast section of the service area. This substation is expected to experience an annual growth rate of 0.5% during this study period. This calculates to a load level of 5,671 kVA and a power factor of 99% by the year 2024 and 28% of the 20 MVA forced air capacity for the station. There are no recommendations for station capacity changes during the period. This substation feeds to two smaller transformer stations: Ness City, a 34.5/13.8 kV, 10.5 MVA transformer which serves 1166 of the 1426 consumers and McCracken, a 34.5/13.8 kV, 2800 kVA transformer which serves the remaining 260 consumers.

Ness City – North Commercial

This circuit serves 314 consumers in the northern section of the substation area and has a projected peak load of 972 kW in 2024. Under these conditions this circuit will have 46, 102 and 80 amps on phases A, B and C at the substation.

Ness City – North-West Commercial

This circuit serves 266 consumers in the north-west section of the substation area and has a projected peak load of 1188 kW in 2024. Under these conditions this circuit will have 46, 102 and 80 amps on phases A, B and C at the substation.

Ness City – South Commercial

This circuit serves 466 consumers in the southern section of the substation area and has a projected peak load of 2125 kW in 2024. Under these conditions this circuit will have 46, 102 and 80 amps on phases A, B and C at the substation.

Ness City – South-West Commercial

This circuit serves 120 consumers in the south-west section of the substation area and has a projected peak load of 385 kW in 2024. Under these conditions this circuit will have 46, 102 and 80 amps on phases A, B and C at the substation.

Ransom – Ransom City

This circuit serves 244 consumers in the northern section of the substation area and has a projected peak load of 890 kW in 2024. Under these conditions this circuit will have 18, 13 and 19 amps on phases A, B and C at the substation.

Ransom – Snodgrass Rural

This circuit serves 16 consumers in the northern section of the substation area and has a projected peak load of 22 kW in 2024. Under these conditions this circuit will have 18, 13 and 19 amps on phases A, B and C at the substation.

Ransom – Utica & Rurals

This circuit is currently not serving any consumers and has no load.

Twin Spring High Substation Area

The Twin Springs High Substation has a 115/24.9 kV, 11.3 MVA transformer and is expected to experience an annual growth rate of 1% during this study period. This results in a load level of 541 kVA by the year 2024 and 5% of the 11.3 MVA forced air capacity for the station. There are no recommended capacity changes during the study period.

Circuit S8C1

This circuit serves 162 consumers, the entire substation area. The circuit has a projected peak load of 525 kW in 2024. Under these conditions circuit will have 17, 8 and 12 amps on phases A, B and C and a power factor of 89% at the substation. There are no projected voltage or capacity issues and no recommendations for improvement during the study period.

Circuit S8C2

This circuit is currently not serving any consumers and has no load.

Twin Spring Low Substation Area

The Twin Springs Low Substation has a 115/13.2 kV, 11.3 MVA transformer and is expected to experience an annual growth rate of 1% during this study period. This results in a load level of 613 kVA by the year 2024 and 5% of the 11.3 MVA forced air capacity for the station. There are no recommended capacity changes during the study period.

Circuit S7C1

This circuit serves 111 consumers, the entire substation area. The circuit has a projected peak load of 527 kW in 2024. Under these conditions circuit will have 15, 27, and 34 amps on A, B, and C, however load balancing is recommended to save power losses and results in 19, 27 and 31 amps on phases A, B and C and a power factor of 88% at the substation. In addition to load balancing, this

circuit had voltage drop problems that required the use of regulators to bring the voltage to the correct levels. The recommendations are shown below:

Twin Springs Low Load Balance

Circuit	Element	From	To	kW Savings
S7C1	20-31-11-S1301	C	A	1.71

Regulator installation: Install three 100A regulators at span_1499

Circuit S7C2

This circuit is currently not serving any consumers and has no load.

Wheatland Interconnect Metering Point

The Wheatland Interconnect Metering Point is expected to experience an annual growth rate of 1.5% during this study period. This results in a load level of 315 kVA by the year 2024. It is being recommended in this study that a three-phase electronic recloser be installed at the metering point for the Wheatland Interconnect. In addition to this, because of voltage problems on the periphery of Circuit S4C1, it is being recommended that the circuit be opened at span_1022 and the disconnected portion of the circuit to be reconnected to the Wheatland Interconnect by closing switch swit_75-B on the circuit.

400-500. DISTRIBUTION SUBSTATIONS

The LSEC distribution system is supplied from eight substations owned and operated by LSEC and one metering point. Transformer capacity at each delivery point and 2020 historical demand are shown in Table 10. The expected system peak loading after the recommended system improvements are completed is shown in Table 10-B. Two substations operate at 34.5 kV, three substations operate at 24.9 kV and three substations operate at 13.2 kV; all substations are supplied from 115 kV transmission lines owned and operated by Sunflower Electric Power Corporation.

Projected loads at all eight of the substations are expected to be well within the FOA ratings of their respective transformers.

Substation Recommendations Summary				
Substation	**Capacity (kVA)**	**2024 Peak (kVA)**	**Capacity**	**Recommendations**
Alexander 115	20000	3,255	16%	None
Beeler	28000	6,923	25%	None
Dighton Hi	28000	7,334	26%	None
Dighton Lo	22400	5,818	26%	None
Manning	10000	7,560	76%	Monitor Peak Loads
Ness 115	20000	5,671	28%	None
Twin Springs Hi	11300	541	5%	None
Twin Springs Lo	11300	613	5%	None

Table 10

Existing Distribution Substations - 2020 Peak Load

Substation Info			Voltage Bus (kV)		Sub Capacity (kVA)	2020 Historical Peak			
Substation	**Sub #**	**No. of Circuits**	**High Side**	**Low Side**		**kW**	**kVA**	**PF**	**Percent Capacity**
Alexander 115	A115	5	115	34.5	20000	2,871	3,022	95%	15.1%
Beeler	3	4	115	24.9	28000	6,653	8,020	99%	28.6%
Dighton Hi	2	6	115	24.9	28000	6,357	6,978	91%	24.9%
Dighton Lo	1	8	115	13.2	22400	4,135	4,575	90%	20.4%
Manning	4	6	115	13.2	10000	6,921	7,193	96%	71.9%
Ness 115	N115	7	115	34.5	20000	5,501	5,531	99%	27.7%
Twin Springs Hi	8	2	115	24.9	11300	504	515	98%	4.6%
Twin Springs Lo	7	2	115	13.2	11300	527	583	90%	5.2%
	Totals:	40			151000	33,469	36,418	95%	24.1%

Table 10 - A									
Existing Distribution Substations - 2024 Peak Load									
Substation Info			**Voltage Bus (kV)**		**Sub Capacity (kVA)**	**2024 Projected Peak**			
Substation	**Sub #**	**No. of Circuits**	**High Side**	**Low Side**		**kW**	**kVA**	**PF**	**Percent Capacity**
Alexander 115	A115	5	115	34.5	20000	3,093	3,255	95%	16.3%
Beeler	3	4	115	24.9	28000	6,821	6,923	99%	24.7%
Dighton Hi	2	6	115	24.9	28000	6,681	7,334	91%	26.2%
Dighton Lo	1	8	115	13.2	22400	4,239	5,818	90%	26.0%
Manning	4	6	115	13.2	10000	7,274	7,560	96%	75.6%
Ness 115	N115	7	115	34.5	20000	5,640	5,671	99%	28.4%
Twin Springs Hi	8	2	115	24.9	11300	530	541	98%	4.8%
Twin Springs Lo	7	2	115	13.2	11300	554	613	90%	5.4%
	Totals:	40			151000	34,832	37,716	95%	25.0%

Table 10 - B									
Recommended Distribution Substations - 2024 Peak Load									
Substation Info			**Voltage Bus (kV)**		**Sub Capacity (kVA)**	**2024 Projected Peak**			
Substation	**Sub #**	**No. of Circuits**	**High Side**	**Low Side**		**kW**	**kVA**	**PF**	**Percent Capacity**
Alexander 115	A115	5	115	34.5	20000	3,093	3,255	95%	16.3%
Beeler	3	4	115	24.9	28000	6,821	6,923	99%	24.7%
Dighton Hi	2	6	115	24.9	28000	6,681	7,334	91%	26.2%
Dighton Lo	1	8	115	13.2	22400	4,239	5,818	90%	26.0%
Manning	4	6	115	13.2	10000	7,274	7,560	96%	75.6%
Ness 115	N115	7	115	34.5	20000	5,640	5,671	99%	28.4%
Twin Springs Hi	8	2	115	24.9	11300	530	541	98%	4.8%
Twin Springs Lo	7	2	115	13.2	11300	554	613	90%	5.4%
	Totals:	40			151000	34,832	37,716	95%	25.0%

600. MISCELLANEOUS DISTRIBUTION EQUIPMENT

601. Distribution Transformers and Meters

During the 2019-2020 period, the following were installed:

Table 11.1
Historical Installations of Transformers & Meters 2019-2020

Type of Transformers	Quantity	Average Unit Cost	Total Cost
Overhead			
25kVA & Below	50	$ 1,671.91	$ 83,595.26
37.5kVA to 167kVA	7	$ 2,103.58	$ 14,725.04
167kVA & Above	1	$ 4,496.08	$ 4,496.08
Total	58		$ 102,816.38
Underground Single ϕ			
37.5kVA to100kVA	2	$ 6,079.15	$ 12,158.30
Underground Three ϕ			
300kVA to 750kVA	5	$ 12,883.95	$ 64,419.76
Total	7		$ 76,578.06
Meters			
Single ϕ	240	$ 433.77	$ 104,103.74
Three ϕ	0	$ -	$ -
Total	240		$ 104,103.74

It is estimated that the following transformers and meters will be purchased in the 2022-2024 period for new service connects and increased capacity. See Table 11.2 and 11.3 below.

Table 11.2			
Cost Estimates For Transformers & Meters			
2022			
Type of Transformers	**Quantity**	**Average Unit Cost**	**Total Cost**
Overhead			
25kVA & Below	25	$ 1,800.00	$ 45,000.00
37.5kVA to 167kVA	4	$ 2,200.00	$ 8,800.00
167kVA & Above	1	$ 4,600.00	$ 4,600.00
Total	30		$ 58,400.00
Underground Single ϕ			
37.5kVA to100kVA	1	$ 6,200.00	$ 6,200.00
Underground Three ϕ			
300kVA to 750kVA	3	$ 14,000.00	$ 42,000.00
Total	4		$ 48,200.00
Meters			
Single ϕ	120	$ 500.00	$ 60,000.00
Three ϕ	0	$ -	$ -
Total	120		$ 60,000.00
2023			
Type of Transformers	**Quantity**	**Average Unit Cost**	**Total Cost**
Overhead			
25kVA & Below	25	$ 1,800.00	$ 45,000.00
37.5kVA to 167kVA	4	$ 2,200.00	$ 8,800.00
167kVA & Above	1	$ 4,600.00	$ 4,600.00
Total	30	$ 1,946.67	$ 58,400.00
Underground Single ϕ			
37.5kVA to100kVA	1	$ 6,200.00	$ 6,200.00
Underground Three ϕ			
300kVA to 750kVA	3	$ 14,000.00	$ 42,000.00
Total	4	$ 12,050.00	$ 48,200.00
Meters			
Single ϕ	120	$ 500.00	$ 60,000.00
Three ϕ	0	$ -	$ -
Total	120	$ 500.00	$ 60,000.00
2024			
Type of Transformers	**Quantity**	**Average Unit Cost**	**Total Cost**
Overhead			
25kVA & Below	25	$ 1,800.00	$ 45,000.00
37.5kVA to 167kVA	4	$ 2,200.00	$ 8,800.00
167kVA & Above	1	$ 4,600.00	$ 4,600.00
Total	30	$ -	$ 58,400.00
Underground Single ϕ			
37.5kVA to100kVA	1	$ 6,200.00	$ 6,200.00
Underground Three ϕ			
300kVA to 750kVA	3	$ 14,000.00	$ 42,000.00
Total	4	$ -	$ 48,200.00
Meters			
Single ϕ	120	$ 500.00	$ 60,000.00
Three ϕ	0	$ -	$ -
Total	120	$ -	$ 60,000.00

Table 11.3			
Three Year Summary of Transformers & Meters 2022-2024			
Type of Transformers	**Quantity**	**Average Unit Cost**	**Total Cost**
Overhead			
25kVA & Below	75	$ 1,800.00	$ 135,000.00
37.5kVA to 167kVA	12	$ 2,200.00	$ 26,400.00
167kVA & Above	3	$ 4,600.00	$ 13,800.00
Total	90	$ 1,946.67	$ 175,200.00
Underground Single ϕ			
37.5kVA to100kVA	3	$ 6,200.00	$ 18,600.00
Underground Three ϕ			
300kVA to 750kVA	9	$ 14,000.00	$ 126,000.00
Total	12	$ 12,050.00	$ 144,600.00
Meters			
Single ϕ	360	$ 500.00	$ 180,000.00
Three ϕ	0	$ -	$ -
Total	360	$ 500.00	$ 180,000.00

603. Sectionalizing Equipment

The overall quality of service and reliability of the distribution system will be greatly enhanced with a continuous review of a sectionalizing needs in conjunction with this construction work plan, and an ongoing maintenance/replacement program. Coordination of over-current protection devices should be evaluated near specific projects.

Table 12.1 shows the historical installation of sectionalizing equipment for the years 2019 and 2020/ Table 12.2 lists the estimated sectionalizing equipment required over the next four years under normal operations.

Table 12.1
Historical Installations of Sectionalizing Equipment 2019-2020

Item	Quantity	Unit Cost	Total Cost
Electronic Reclosers	15	$2,250.52	$ 33,757.85
Fused Cutouts	85	$ 108.97	$ 9,262.69
Lightening Arrester Banks	76	$ 46.92	$ 3,566.04
Total	176		$ 46,586.58

Table 12.2
Cost Estimates For Sectionalizing Equipment 2022-2024

Item	Quantity	Unit Cost	Total Cost
Electronic Reclosers	23	$2,500.00	$ 57,500.00
Fused Cutouts	128	$ 120.00	$ 15,360.00
Lightening Arrester Banks	114	$ 50.00	$ 5,700.00
Total	265		$ 78,560.00

604. Regulators

Table 13 lists the existing and proposed locations of voltage regulators based on the results of the voltage drop study. This work plan calls for one voltage regulator to be removed from the Manning substation area and one regulator to be added in the Twin Springs Low substation area. Attempts were made to avoid cascaded regulators when possible; they are needed to maintain required voltage levels during peak loading conditions. These regulators help power quality for far-reaching consumers.

Table 13
Existing and Recommended Voltage Regulators

Substation	Tx Station	Circuit	Name	Existing	Recommended
Alexander 115	Bazine	N&E Rurals	G314100	100 A	100 A
			G345100	100 A	100 A
			G314010	100 A	100 A
	McCracken	Brownell & Rurals	G321010	100 A	100 A
		Alex & Rurals	G321100	150 A	150 A
		City	volt_75	100 A	100 A
Beeler		S3C2	G320100	231 A	231 A
			G320200	100 A	100 A
			G320300	200 A	200 A
		S3C3	G319200	100 A	100 A
			G330100	200 A	200 A
			G300010	578 A	578 A
		S3C4	G340200	150 A	150 A
			G340100	50 A	50 A
Dighton Hi		S2C1	G210100	100 A	100 A
			G210200	100 A	100 A
Dighton Lo		S1C2	G120100	219 A	219 A
		S1C3	G130100	219 A	219 A
		S1C4	G140100	219 A	219 A
Manning		S4C1	G410100	100 A	100 A
			volt_79	50 A	remove
		S4C2	G420100	100 A	100 A
		S4C5	G450100	219 A	219 A
			G450200	100 A	100 A
Ness 115	Ransom	Ransom City	G319010	219 A	219 A
Twin Springs Low		S7C1	REG45116	none	100A

Regulators @ $8,200 $24,600

605. Shunt Capacitors

Table 14 lists the existing installations and the recommended based on VAR requirements shown in the voltage drop study. The projected system wide power factor using the recommended model with 2024 loads was calculated using the Milsoft Windmil engineering analysis software to be 95.1% During the 2022-2024 Construction Work Plan period, one additional capacitor bank is required due to the increased inductive motor load.

1 Capacitor Bank @ $13,000/bank $13,000

Table 14
Existing and Recommended System Capacitors

Substation	Tx Station	Circuit	Name	Existing kVAr	Recommended kVAr
Beeler		S3C2	C320100	(3)200	(3)200
			C320300	(1)50	(1)50
		S3C3	C340200	(3)100	(3)100
			C319200	(3)100	(3)100
			C319210	(3)100	(3)100
Dighton Hi		S2C1	C210100	(3)100	(3)100
Dighton Lo		S1C2	C120100	(3)50	(3)100
			C120400	(3)50	(3)50
Manning		S4C1	C410100	(3)150	(3)150
			C410200	(3)50	(3)50
			C410300	(1)50	(1)50
		S4C2	C420100	(3)150	(3)150
		S4C5	C450100	(3)100	(3)100
			C450200	(3)50	(3)50
			C450300	(3)50	(3)50
		S4C6	C460100	(3)200	(3)200
Ness 115	Nes City	NW Commercial	C127100	(3)100	(3)100
		South Commercial	C127310	(3)200	(3)200
	Ransom	Ransom City	C319100	(3)100	(3)100

606. Pole Replacements

Table 15.1 shows the utility pole replacements for the 2019-2020 period:

Table 15.1			
Historical Installations of Utility Poles 2019-2020			
Item	**Quantity**	**Unit Cost**	**Total Cost**
Utility Pole	508	$2,063.72	$1,048,370.13

It is estimated that 762 poles (includes anchors, cross arms and guys) will be replaced in each of the next three years, as shown in Table 15.2.

Table 15.2			
Cost Estimation of Utility Poles 2022-2024			
Item	**Quantity**	**Unit Cost**	**Total Cost**
Utility Pole	762	$2,200.00	$1,676,400.00

607. Miscellaneous Replacements

It is estimated that $30,000 be spent on miscellaneous replacements, including anchors, guys and grounds

608. Conductor Replacement

In addition to any site-specific conductor replacement included in Distribution System Improvements, the management has requested that ample funding be allocated for replacing ten (10.0) miles of copperweld conductor with #2 ACSR during this work plan period. This overhead to overhead conductor replacement will be in the same right-of-way and no special circumstances are present per 7CFR 1970.52. This work will increase system reliability and improve voltage levels.

10 miles of copperweld conductor @$48,000/mile	$480,000

612. Step Up/ Step Down Transformers

During the course of this workplan it is being recommended that a transformer station be built near Utica on the Beeler circuit S3C3, however, the transformers are already in stock with LSEC and the only cost needed will be to build the transformer station as provided for in Project 300-01.

Table 16 lists the existing and proposed Step Up/Step Down transformers for voltage conversion

Table 16
System Auto Transformers

Substation	Circuit	Name	Rated kVA	Rated LG Output	Esixting	Recommended
Alexander	McCracken	XFMR45088	3750	7620	3	3
Alexander	Bazine	XFMR45086	2240	7620	3	3
Beeler	S3C3	T330843	1500	7620	1	1
Beeler	S3C3	T211674	500	7620	1	1
Beeler	S3C3	XFMR45108	1500	7620	0	3
Dighton High	S2C1	tran_7996	1500	7620	3	3
Ness	Ness City	XFMR45099	10500	7620	3	3
Ness	Ransom	XFMR45089	2800	7620	3	3

615 Communication – Two Way Radio Communication System

Towers and Radios for the radio communication system are expected to be purchased and installed during the Work Plan period. The proposed cost including installation is $750,000.

4 Towers	@ $150,000	$600,000
Associated Equipment Costs		$150,000

700. OTHER DISTRIBUTION ITEMS

702. Security Lights

During 2019 and 2020, LSEC installed 49 security lights at a cost of $9,800. In the 2022-2024 period, it is expected that LSEC will install 74 security lights in the Work Plan period.

74 Lights	@ $250	$18,500

1100. TRANSMISSION EQUIPMENT

1104. Pole & Associated Hardware Replacement

To keep their transmission lines reliable and in good condition, it is necessary for RBEC to invest in replacements of aging poles and crossarms. Over the course of this workplan it is projected that RBEC will need to replace the following:

162 Pole Replacements	@ $4,000	$648,000

1300. HEADQUARTERS

The cooperative is planning on investing $280,500 to update and improve their offices. There are two projects that the cooperative has identified: improving the North Yard, which includes dirt work, rock and concrete; and internal construction for the server room.

1300-01 Server Room	$100,000
1300-02 North Yard	$180,500

SECTION III
SYSTEM LOSSES

SECTION III - SYSTEM LOSSES

System losses comprise the following elements: distribution line (I^2R) losses, transformer losses, and losses due to such miscellaneous items as metering errors, losses in meter loops and services, and trees in overhead lines. Total system losses for LSEC in 2020 amounted to 5,773,836 kWh or 3.52% of total purchased energy. System losses for the year 2024 (Recommended System) are expected to be 16,215,717 kWh, or 9.07% of purchased energy. These losses are expected to consist of the following:

Distribution Line Loss	1,801,798 kWh	1.01%
Transformers	3,695,511 kWh	2.07%
Other	10,718,409 kWh	5.99%
	16,215,717 kWh	9.07%

Detailed calculations for losses are shown on page III-3.

Distribution line losses are generally only two to three percent of total system losses. Anticipated 2024 losses for the LSEC distribution system are under that range, primarily because of lighter loads, increased wire size and very minimum about of 8A or 6A copper conductors.

Transformer losses represent the major cause of system losses simply because of the number of units connected to the distribution lines. It is difficult to calculate the exact transformer losses for a system because of the lack of test data for distribution transformers and the lack of individual consumer daily load curves.

Other losses include errors in metering and losses due to faulty arresters or insulators, contact with trees, loose connectors, etc. These losses are often difficult to identify and correct. Replacement of older meters and a continuing meter testing program will help reduce unidentified losses.

DISTRIBUTION LINE LOSSES

These losses are directly related to load (I^2) and conductor impedance (R). Items affecting line losses include operating voltage level and conductor sizes. A system operating at 24.9/14.4 kV, for example, will have only 25% of the losses that the same system would have if operated at 12.47/7.2 kV.

The Milsoft WindMil engineering analysis software included in this work plan calculated line losses, voltage regulator losses, and step-up transformer bank losses. These loss calculations were used to determine the line losses with and without system improvements, as shown on Page III-3. The recommended system improvements included in this work plan will result in an annual loss savings of $21,990 based on current Sunflower rates.

TRANSFORMER LOSSES

Transformer losses represent the major cause of system losses simply because of the total number of units connected to the system. Transformer losses consist of two components: no-load, or core loss, and load or “copper” losses. No-load losses represent the energy required just to keep the transformer energized and are independent of load. These are present if the transformer is connected to the line. Load losses are directly proportional to the amount of current flowing through the transformer and will vary as the square of the current; these are the I^2R losses of the transformer windings.

It is difficult to calculate the exact transformer losses for a system because, as a rule, transformer loss data is not known and daily load curves for individual consumers are not available. It is often difficult even to determine the actual total kVA connected to the system. Transformer losses have been estimated, however, by making the assumptions shown on Page III-3. It is recommended that LSEC evaluate transformer losses when new units are purchased. An evaluation program should include the total life-cycle cost of owning the transformer, including the original purchase price. This practice should help reduce transformer losses and the impact they have on LSEC’s total system losses. As loss evaluation becomes a larger part of transformer purchasing, the system losses attributable to transformers will decrease.

SECTION III - LOSSES CALCULATIONS

DISTRIBUTION LOSSES:

	LINE LOSSES kW	LOSS FACTOR	LINE LOSSES kWh	SALES (kWh)	PURCHASES (kWh)	%LOSSES
HISTORICAL SALES						
EX SYS WITH CWP LOAD	856	29.51%	2,212,825	158,238,434	164,012,270	3.52%
CWP LOAD W/IMPROVEMENTS	697	29.51%	1,801,798	162,645,107	178,860,824	9.07%
LOSS SAVINGS			411,027	18.57% DECREASE		
COST OF LOSS SAVINGS: CLE:	$0.0535 /KWH		$21,990			

TRANSFORMER LOSSES:

Avg Transformer Size:	25	kVa
No. Transformers/Consumer	1.004	
Total No. of Consumers:	5,795	
Installed Transformer Capacity:	151,000	
Peak KW	33,469	
Peak KW / Transf. Capacity:	22.16%	
No Load Loss: (# Transf * 58 Watts * 8760 Hours) (58 Watts changes with transformer size)	2,956,101	KWH/yr
Load Loss (ratio * Avg Size/Sys Voltage)^2 * 83 Ohms	49.16	watts peak
System Voltage	7.20	kV
Annual Load Loss (Load Loss * 8.760 * Loss Factor)	127.09	kWh/Transformer
Total Annual Load Loss: Annual Load Loss * No of Transformers	739,410	KWH/Year
Total Transf Losses	3,695,511	KWH/Year

TOTAL SYSTEM LOSSES:

		% OF SALES	
2019	5,773,836	3.65%	
2024	16,215,717	9.97%	
COMPOSED OF:			
DISTRIBUTION:	1,801,798	1.01%	11.11%
TRANSFORMER:	3,695,511	2.07%	22.79%
OTHER:	10,718,409	5.99%	66.10%
	16,215,717	9.07%	100.00%

APPENDICES

APPENDIX A
ECONOMIC CONDUCTOR ANALYSES

ECONOMIC CONDUCTOR ANALYSIS

Economic Design of Distribution Lines

In designing a distribution line, there are three major considerations: voltage drop, service reliability, and conductor power losses. The most economical conductor size as determined by an evaluation of power losses and fixed charges of the investment is the minimum size that should be used. Often the improvement in service reliability, greater operating flexibility or reduced voltage drop necessitates a larger wire size than the economic minimum size.

Any new or reconductored circuit should provide sufficient capacity for 20 years and possibly longer. Reconductoring a line in less than 20 years after it was built is often an indication of poor planning and premature obsolescence. The long-range system is designed to provide a guide in the selection of conductor sizes for main distribution circuit lines. Any new line construction or reconductoring should be coordinated with this plan to ensure that the line will not be economically overloading for the loading levels projected in this study. The procedures outlined in RUS Bulletin 60-9 will be followed in this economic conductor analysis unless otherwise indicated. The kWh losses per mile of line per year are calculated as being equal to:

$$\frac{(\text{Peak kW})^2(\text{Resistance per Phase per Mile})(\text{Loss Factor})(8760)}{(\text{kV})^2(\text{Power Factor})^2(\text{Number of Phases})(1000)}$$

where the Loss Factor is (from an empirical formula) equal to 0.84 (Load Factor)^2 + 0.16 (Load Factor).

The values for resistance of various conductor sizes are listed at the end of this section.

To determine the load at which it is economical to use the next larger conductor, the carrying charges and cost of losses of the two types of construction are set equal and the equation is solved for the kW load. The total annual carrying charges and cost of energy losses equals:

$$(\text{Annual Carrying Charge})(\text{Cost of Line}) + (\text{Cost of Loss Energy})(\text{Annual Energy Loss})$$

which equals:

$$(CC)(CL)+\frac{(CLE)(kW)^2(R)(LoF)(8760)}{(kV)^2(P.F.)^2(P)(1000)}$$

where:

kV = the line to neutral voltage

P.F. = the power factor

P = the number of phases. Note: P = 0.833 for single-phase lines To account for 45.0 percent current flow in the neutral.

CC = sum of the interest rate of loan funds, operations and maintenance expense, Depreciation, and taxes expressed in decimal form.

CLE = $\text{Energy Charge}+\frac{12\,(\text{Demand Charge})(\text{Demand Adj. Factor})}{8{,}760\,(\text{Load Factor})}$

= $L+\frac{12MN}{8{,}760(LF)}$

The demand adjustment factor (N) for one year is the weighted average of (1) for those months which the peak exceeds the ratcheted minimum, it is the sum of the square of the monthly peaks divided by the square of the peak month plus (2) the per unit ratchet times the number of months the ratchet is paid all divided by twelve.

Setting the annual costs of line, with phase resistance R_1 and P_1 phases equal to the annual costs of Line$_2$ with phase resistance R_2 and P_2 phases:

$$(CC)(CL_1)+\frac{(CLE)(kW)^2(R_1)(LoF)(8760)}{(kV)^2(P.F.)^2(P_1)(1000)}=(CC)(CL_2)+\frac{(CLE)(kW)^2(R_2)(LoF)(8760)}{(kV)^2(P.F.)^2(P_2)(1000)}$$

Solving for kW,

$$kW=(kV)(P.F.)\sqrt{\frac{(CC)(CL_1-CL_2)}{(CLE)(LoF)(8.76)\left(\frac{R_2}{P_2}-\frac{R_1}{P_1}\right)}}$$

Note: This equation is only true when Line $_1$ and Line$_2$ operate at the same voltage level.

As an example, let us calculate the load level above which three phase, 4/0 ACSR is more economic than three phase, 1/0 ACSR.

$$kW = (7.2)(0.95)\sqrt{\frac{(0.113)(26,000 - 21,000)}{(0.053)(0.2\ 24)(8.76)\left(\frac{1.12}{3} - \frac{0.592}{3}\right)}} = 1,202$$

This calculation, however, assumes static conditions; that is, no escalation of wholesale power costs and no-load growth.

ALLOWING FOR LOAD GROWTH AND INCREASED WHOLESALE POWER COSTS

In the economic comparison of plans involving different conductor sizes and/or number of phases, consideration should be given to the rate of escalation of purchased power costs. Since losses for any given plan are escalating at some assumed rate and are also being time-valued at a different interest rate, an effective discount rate must be derived to account for this difference. The formula used to derive the effective discount rate in percentage form is:

$$i_{effective} = i_e = \left[\frac{\left(1 + \frac{\%\ Interest}{100}\right)}{\left(1 + \frac{\%\ Escalation}{100}\right)} - 1\right] \times 100\%$$

Since losses are not constant but are escalating at a rate proportional to the square of the growth rate, the above formula should be modified to also reflect load growth:

$$i_e = \left[\frac{\left(1 + \frac{\%\ Interest}{100}\right)}{\left(1 + \frac{\%\ Escalation}{100}\right)\left(1 + \frac{\%\ Growth\ Rate}{100}\right)^2} - 1\right] \times 100\%$$

The present worth of loss cost savings are:

$$\text{PW Loss Cost} = \left[\frac{(1+i_e)^n - 1}{(1+i_e)^n (i_e)}\right] \times \left[\frac{1+i_e}{1+i}\right] \times \begin{bmatrix}\text{Initial Annual} \\ \text{Loss Cost}\end{bmatrix}$$

The levelized annual loss cost savings would be the product of the capital recovery factor using the nominal interest rate and the present worth of the loss costs:

Levelized Annual Loss Cost Savings =

$$\left[\frac{(1+i_e)^n - 1}{(1+i_e)^n (i_e)}\right] \times \left[\frac{1+i_e}{1+i}\right] \times \left[\frac{i(1+i)^n}{(1+i)^n - 1}\right] \times \begin{bmatrix}\text{Initial Annual} \\ \text{Loss Cost}\end{bmatrix}$$

When this levelized annual loss cost savings equals the carrying charges on the construction costs associated with the system improvements, an economic break-even point is reached.

As an example, assume a 6.8 percent interest rate and a 5.0 percent inflation in wholesale power costs, and a 30-year life to correspond to the term of RUS loan funds. Three growth rates are assumed:

(1) No growth.

(2) 2.0 percent growth.

(3) 4.0 percent growth.

The Levelized Annual Loss Cost Savings (LALCS) for these varying growth rates are:

(1) No growth:

$$\text{LALCS} = \left[\frac{\left(\frac{1.068}{1.05}\right)^{30} - 1}{\left(\frac{1.068}{1.05}\right)^{30}\left(\frac{1.068}{1.05} - 1\right)}\right] \times \left[\frac{\frac{1.068}{1.05}}{1.068}\right] \times \left[\frac{(0.068)(1.068)^{30}}{(1.068)^{30} - 1}\right] \times \begin{bmatrix}\text{Initial Annual} \\ \text{Loss Cost}\end{bmatrix}$$

= 1.75 x initial annual loss cost.

(2) 2.0 percent growth:

$$LALCS=\left[\frac{\left(\frac{1.068}{(1.05)(1.02)^2}\right)^{30}-1}{\left(\frac{1.068}{(1.05)(1.02)^2}\right)^{30}\left(\frac{1.068}{(1.05)(1.02)^2}-1\right)}\right]\times\left[\frac{\frac{1.068}{(1.05)(1.02)^2}}{1.068}\right]\times\left[\frac{(0.068)(1.068)^{30}}{(1.068)^{30}-1}\right]\times\left[\begin{matrix}\text{Initial Annual}\\ \text{Loss Cost}\end{matrix}\right]$$

= 3.14 x initial annual loss cost.

(3) 4.0 percent growth.

$$LALCS=\left[\frac{\left(\frac{1.068}{(1.05)(1.04)^2}\right)^{30}-1}{\left(\frac{1.068}{(1.05)(1.04)^2}\right)^{30}\left(\frac{1.068}{(1.05)(1.04)^2}-1\right)}\right]\times\left[\frac{\frac{1.068}{(1.05)(1.04)^2}}{1.068}\right]\times\left[\frac{(0.068)(1.068)^{30}}{(1.068)^{30}-1}\right]\times\left[\begin{matrix}\text{Initial Annual}\\ \text{Loss Cost}\end{matrix}\right]$$

= 6.20 x initial annual loss cost.

The initial annual cost of losses will, therefore, be increased by these respective factors to obtain the economic loading limits for new or rebuilt lines. A word of caution: care must be taken in using large load growth factors for long periods of time because the tendency is to relieve existing lines with the installation of new substations and circuit lines.

ECONOMIC LOADING RANGES FOR NEW LINES

Utilizing the above formulae, economic loading ranges were developed for various types and sizes of lines for three load growth scenarios; these are summarized in Table A-1. It is the responsibility of management to select the economic and load growth criteria, which best fit conditions at the time new facilities are to be constructed. New computations will be required if interest rates or power costs are different than those assumed in this study.

Conductor sizes for new overhead lines should be selected so that the initial load does not exceed 15.0 percent of the conductor's thermal limit. As an example, if the initial loading on a proposed line exceeds 1,400 kW, consideration should be given to 14.4/24.9 kV facilities or an additional circuit. An exception to the initial loading limits as specified in Table A-1 would be for

lines which have a short useful life such as lines to serve temporary loads.

REPLACEMENT LINES

Line conversions involving a change in conductor size or increasing the number of phase conductors may be necessary to improve voltage, to provide multi-phase service, to establish a tie line or to reduce losses. If line loss reduction is the sole reason for increasing the number of phases or the conductor size, then the annual savings in line losses should equal or exceed the fixed charges of the cost of conversion. Since the operation and maintenance costs seldom increase and often decrease when a line is rebuilt, the additional carrying charges will not include operation and maintenance.

A maximum economic loading limit of electric lines can be calculated if the cost of losses and the annual fixed cost of the additional investment for the larger capacity line can be determined. The maximum economic limit is the peak load at which the resulting annual savings in losses equals the additional carrying charges for the reconductored or rebuilt line:

(Additional Carrying Charge) (Cost of Rebuilt Line) =

$$\frac{(\text{Cost of Loss Energy})\left(\frac{R_1}{P_1}-\frac{R_2}{P_2}\right)(\text{Loss Factor})(87\,60)(\text{Peak kW}^2)}{(\text{kV})^2(\text{Power Factor})^2(1000)}$$

Where:

R_1	=	resistance per mile of existing line
R_2	=	resistance per mile of proposed line
P_1	=	number of phases of existing line
P_2	=	number of phases of proposed line
kV	=	line to ground voltage in kV

Solving the above equation for peak kW gives the formula for the maximum normal economic loading limit.

$$\text{Peak kW} = \sqrt{\frac{(\text{Annual CC})(\text{Cost of Rebuilt Line})(\text{kV})^2(\text{P.F.})^2(1000)}{(\text{Cost of Loss Energy})\left(\frac{R_1}{P_1} - \frac{R_2}{P_2}\right)(\text{Loss Factor})(87\,60)}}$$

Assuming the cost of replacing an existing line is 20.0 percent greater than the cost of a new line and the operations and maintenance cost will decrease with an upgraded line, the economic loading limit for various types and sizes of existing lines were calculated from the above formula.

Rita Blanca Electric Cooperative
Texas - 00145

2020 ANNUAL FIXED COSTS

TOTAL PLANT IN SERVICE: (PG2, LINE 1)	58,108,127
DISTRIBUTION O&M	2,406,876
TAXES (PG1, L 13+14)	0
DEPRECIATION (PG1, L12)	2,458,304

INTEREST CALCULATIONS:

% REA	100.00%	@	5.00%
%CFC	0.00%	@	6.55%

INTEREST	5.00%		
O&M	4.14%		
DEPRECIATION	4.23%	ESCALATION	5.00%
TAXES	0.00%	GROWTH	2.00%
TOTAL	13.37%		

SYSTEM, DEMAND and ENERGY INFORMATION

CKT LIFE	35	YRS	
L-N KV	14.4	KV	14.4/24.9 KV

NCP DEMANDS:

JAN	31,443
FEB	24,242
MAR	22,901
APR	22,269
MAY	24,124
JUN	29,473
JUL	31,977
AUG	30,446
SEP	25,714
OCT	24,137
NOV	22,493
DEC	22,671

PEAK KW = 31,977

PEAK KVAR = 33,708

POWER FACTOR AT PEAK DEMAND (PF)

= 68.82%

ANNUAL kWh = 164,012,270

ANNUAL LOAD FACTOR (LF) = 58.55%

ANNUAL kWh USAGE / (PEAK kW * 8760)

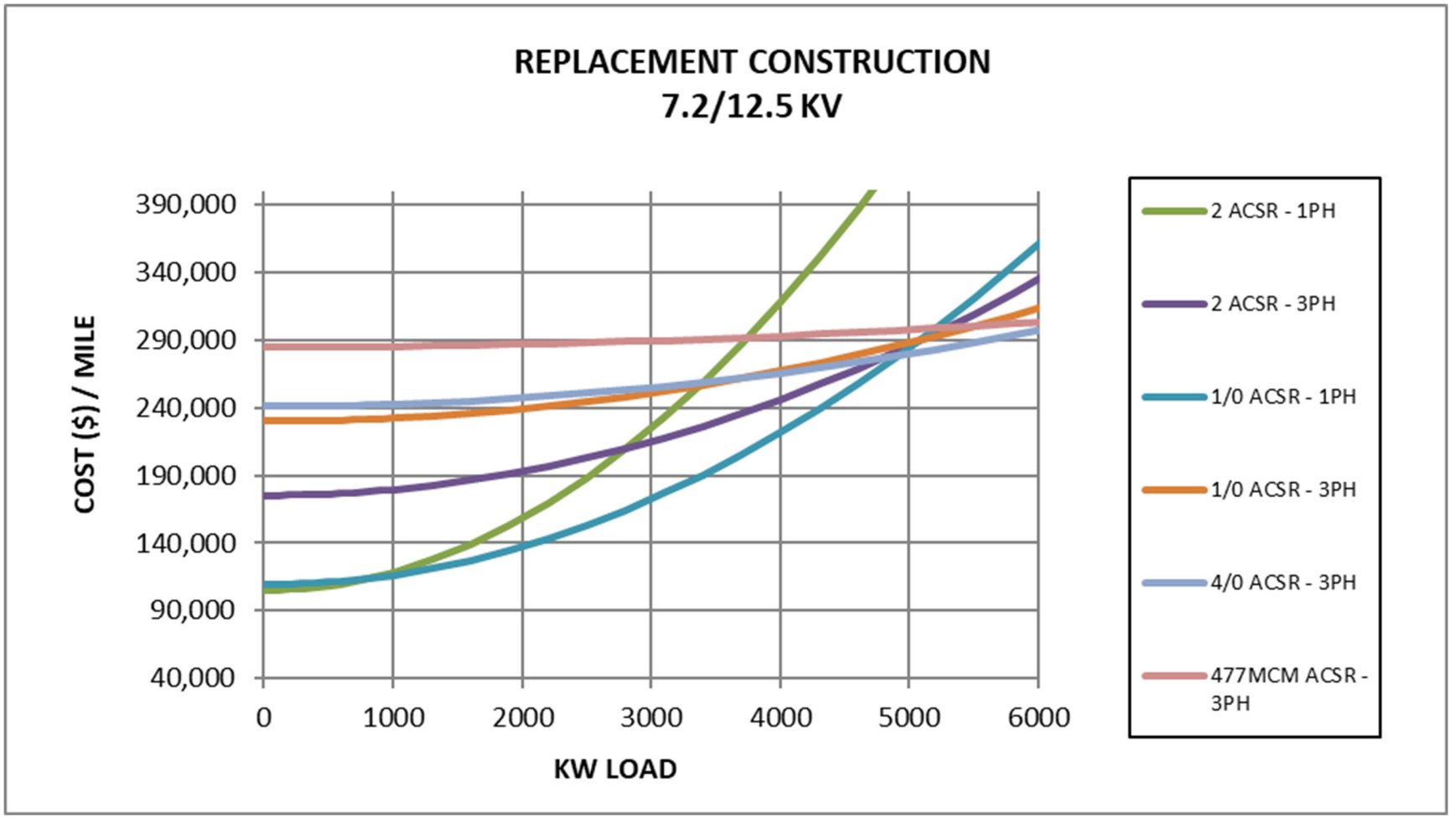
COST ALLOCATIONS

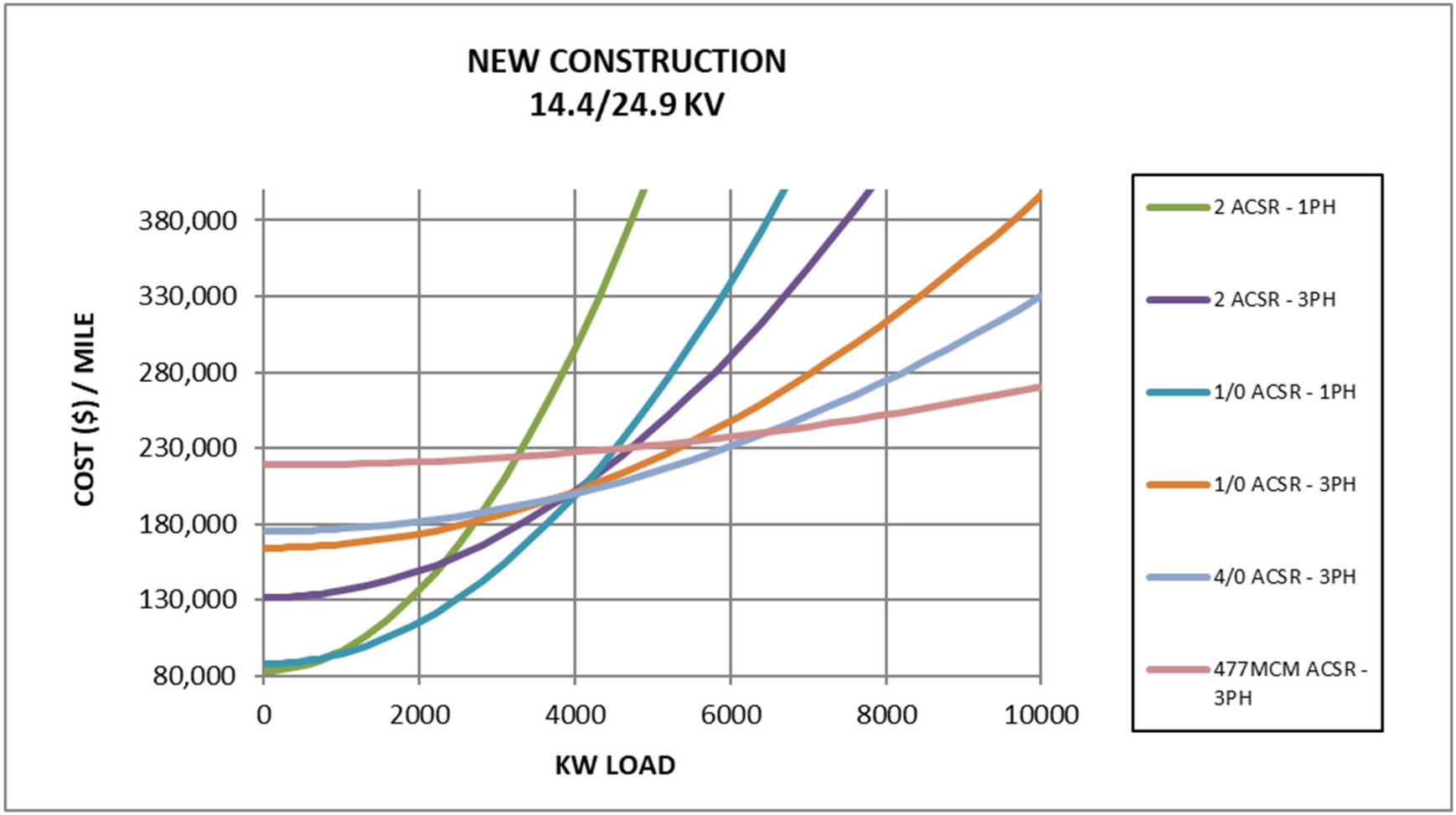
DEMAND CHARGE (M)	/kW/MONTH	=	$8.72
ENERGY CHARGE+FUEL CHARGE(L)	/kWh	=	0.02804
DEMAND ADJUSTMENT FACTOR (N)		=	0.813
LOSS FACTOR		=	.84 (LF)^2 + .16 (LF)
		=	0.3817
COST OF LOSS ENERGY (CLE)		=	L + (12 * M * N) / (8760 * LOSS FACTOR)
	$/kwh	=	0.0535
	$/kw	=	178.78

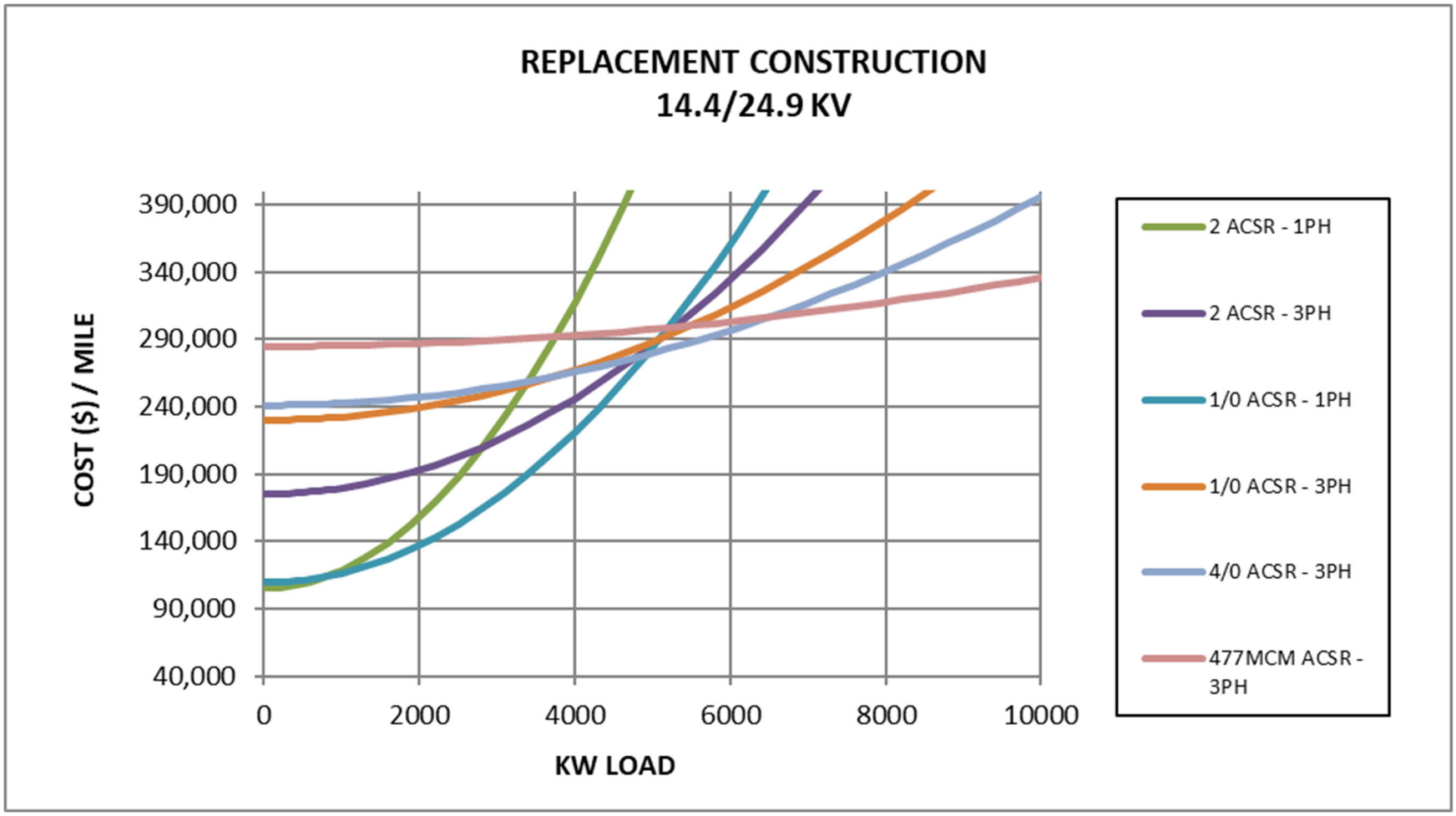
COOP_NAME: Rita Blanca Electric Cooperative
REA ID: Texas - 00145
ECONOMIC CONDUCTOR EVALUATION

	Rita Blanca Electric Cooperative Texas - 00145 ECONOMIC CONDUCTOR EVALUATION						
	SIZE	NUMBER OF PHASES	25o C R1/MI	THERMAL AMPS	CAPACITY (KW)	14.4/24.9 KV COST/MILE	REPLACE LC/MI
WIRE3	2 ACSR	1	1.69	180	2,592	38,000	48,000
WIRE4	2 ACSR	3	1.69	180	7,776	60,000	80,000
WIRE5	1/0 ACSR	1	0.888	230	3,312	40,000	50,000
WIRE6	1/0 ACSR	3	0.888	230	9,936	75,000	105,000
WIRE7	4/0 ACSR	3	0.592	340	14,688	80,000	110,000
WIRE8	477 ACSR	3	0.196	670	28,944	100,000	130,000


NEW CONSTRUCTION
7.2/12.5 KV
COST ($) / MILE
380,000
330,000
280,000
230,000
180,000
130,000
80,000
0
1000
2000
3000
4000
5000
6000
KW LOAD
2 ACSR - 1PH
2 ACSR - 3PH
1/0 ACSR - 1PH
1/0 ACSR - 3PH
4/0 ACSR - 3PH
477MCM ACSR - 3PH


REPLACEMENT CONSTRUCTION
7.2/12.5 KV
COST ($) / MILE
390,000
340,000
290,000
240,000
190,000
140,000
90,000
40,000
0
1000
2000
3000
4000
5000
6000
KW LOAD
2 ACSR - 1PH
2 ACSR - 3PH
1/0 ACSR - 1PH
1/0 ACSR - 3PH
4/0 ACSR - 3PH
477MCM ACSR - 3PH


NEW CONSTRUCTION
14.4/24.9 KV
COST ($) / MILE
380,000
330,000
280,000
230,000
180,000
130,000
80,000
0
2000
4000
6000
8000
10000
KW LOAD
2 ACSR - 1PH
2 ACSR - 3PH
1/0 ACSR - 1PH
1/0 ACSR - 3PH
4/0 ACSR - 3PH
477MCM ACSR - 3PH


REPLACEMENT CONSTRUCTION
14.4/24.9 KV
COST ($) / MILE
390,000
340,000
290,000
240,000
190,000
140,000
90,000
40,000
0
2000
4000
6000
8000
10000
KW LOAD
2 ACSR - 1PH
2 ACSR - 3PH
1/0 ACSR - 1PH
1/0 ACSR - 3PH
4/0 ACSR - 3PH
477MCM ACSR - 3PH

APPENDIX B
HISTORIC COST DATA

HISTORICAL CONSTRUCTION COST SUMMARY

For Period: For Period Jan. 2019 to Dec. 2020

A. New Construction for Member Service Extensions

Insert the number of consumers, number of miles of line, and total cost including R/W clearing. Do not include costs for transformers, meters and security lights that are listed separately.
Do include secondary and services. If these facilities are underground but served from overhead primary, the costs should be included with the overhead.

Underground Line	Consumers	Miles of Line	Cost
Single Phase Line	0	0	0
Three Phase Line	2	0.35	66511.63

Overhead Line	Consumers	Miles of Line	Cost
Single Phase Line	12	2.37	112074.3
Three Phase Line	11	4.09	305927.4

Sub-Total A

B. Service Wires to Increase Capacity — No — Cost

Pole Replacements — No 508 — Cost 1048370

All other — Cost

Sub-Total B

C. Special Equipment Capitalized on purchase

1) Transformers(All)		Size	No.	Cost	
Overhead:		25 & less	50	83595.26	
		37.5-100	7	14725.04	
		167 & up	1	4496.08	
			_____	$_____	
			_____	$_____	
Underground:	1 ph	25 & less	_____	$_____	
		37.5-100	2	12158.3	
		167 & up	_____	$_____	
	3 ph	75 & less	_____	$_____	
		112.5 - 225	_____	$_____	
		300 - 750	5	64419.76	
		1000 & up	_____	$_____	
			_____	$_____	
2)Meters					
1 ph			240	104103.7	
3 ph			_____	$_____	
3)Voltage Regulators					
50 AMP			_____	$_____	
75 AMP			_____	$_____	
100 AMP			1	8000.15	8200
4)Sectionalizing Equipment					
1 ph OCR			15	33757.85	
3 ph OCR			_____	$_____	
1 ph Electonic Recloser			_____	$_____	
3 ph Electonic Recloser			_____	$_____	
Fused Cutouts			85	9262.69	
Lightning Arrestors			76	3566.04	
5)Capacitors					
600KVAC Switched			_____	$_____	
300KVAC Switched			_____	$_____	
300KVAC Fixed			_____	$_____	
6)Autotransformers					
			_____	$_____	
			_____	$_____	
7)Other Distribution Equipment			_____	$_____	

D. Security Lights 49 9800

Estimating Costs
Distribution Projects

	($/per mile)
Overhead Distribution - New	
3 Ph-477 ACSR	N/A
3 Ph-4/0 ACSR or (3/0)	$83,318
3 Ph-1/0 ACSR	N/A
1 Ph-1/0 ACSR	N/A
3 Ph-#2 ACSR	$54,575
1 Ph-#2 ACSR	$38,997
1 Ph-#4 ACSR	N/A
Overhead Distribution - Rebuild	
3 Ph-477 ACSR	N/A
3 Ph-4/0 ACSR or (3/0)	$71,506
3 Ph-1/0 ACSR	N/A
1 Ph-1/0 ACSR	N/A
3 Ph-#2 ACSR	$65,597
1 Ph-#2 ACSR	$48,000.00
1 Ph-#4 ACSR	N/A
Underground Distribution - New	
3 Ph-1000 UG	N/A
3 Ph-750 UG	N/A
3 Ph-4/0 UG	N/A
3 Ph-1/0 UG #2 UG	$423,704
1 Ph-1/0 UG	N/A
1 Ph-#2 UG	N/A
Underground Distribution - Replace	
3 Ph-1000 UG	N/A
3 Ph-750 UG	N/A
3 Ph-4/0 UG	N/A
3 Ph-1/0 UG	N/A
1 Ph-1/0 UG	N/A
1 Ph-#2 UG	$286,931

CWP City of Dighton Substations

South Sub

Items	Number	each	total	Notes
CT's	2	925	1850	Steel frame
PT's	2	850	1700	Blue = quoted price
Meter and base	1	1000	1000	
conduit and wiring	1	2000	2000	
OCR's	2	18250	36500	
DA radios	2	1200	2400	
inside switches	6	500	3000	
outside switches/fuse	6	1500	9000	
control transformer	1	2000	2000	
construction labor	96	85	8160	4 men 3 days
switching/testing labor	16	85	1360	2 men 1 day
Total			**$68,970.00**	

West Sub

Items	Number	each	total	Notes
CT's	2	925	1850	Has control trans.
PT's	2	850	1700	
Meter and base	1	1000	1000	
conduit and wiring	1	2000	2000	
OCR's	2	18250	36500	
DA radios	2	1200	2400	
inside switches	6	500	3000	
outside switches/fuse	6	1500	9000	
timbers	20	250	5000	
Air Brake Swith	1	3000	3000	
construction labor	96	85	8160	4 men 3 days
switching/testing labor	16	85	1360	2 men 1 day
Total			**$74,970.00**	

North Sub

Items	Number	each	total	Notes
CT's	2	925	1850	
PT's	2	850	1700	
Meter and base	1	1000	1000	
conduit and wiring	1	2000	2000	
OCR's	2	18250	36500	
DA radios	2	1200	2400	
inside switches	6	500	3000	
outside switches/fuse	6	1500	9000	
control transformer			0	
construction labor	96	85	8160	4 men 3 days
switching/testing labor	16	85	1360	2 men 1 day
Total			**$66,970.00**	

APPENDIX C

RUS FORM 300

APPENDIX D

SMART GRID

Lane-Scott Electric Cooperative 2022-2024 CWP

Identification of Smart Grid Facilities

Smart Grid Facilities in the CWP			
740C Code	**Description**	**Category**	**Total**
601	Meters	E	$104,103.74
603	Electronic Reclosers	C	$ 57,500.00
604	Voltage Regulators	C	$ 24,600.00
605	Capacitors & Controls	C	$ 13,000.00
615	Communiction Towers & Radios	E	$750,000.00
		Total	**$949,203.74**

VOLTAGE DROP AND LINE LOSS STUDIES

EXISTING SYSTEM, EXISTING LOAD

EXISTING SYSTEM, 2024 LOAD

RECOMMENDED 2024 SYSTEM
(Sample Pages Following)
(Full Reports Included on Flash Drive)

Unbalanced Voltage Drop Report
Source: Dighton Hi

Database: Q:\E&E\520-POWER_PROVIDERS\LANE-SCOTT\PROJECTS\KS00042030 - CWP\MILSOFT\EXISTING SYSTEM 2025 LOADS.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	Thru KVAR	% PF	kW Loss	% Loss	mi From Src	Length (mi)	Element KW	Element KVAR	Cons On	Cons Thru	
Dighton Hi		A		14.40Y	120.0	0.00	0.00	179.69	0	2363	1055	91	0.00	0.0			0	0	0	183	
		B		14.40Y	120.0	0.00	0.00	158.78	0	2079	952	91					0	0	0	97	
		C		14.40Y	120.0	0.00	0.00	170.87	0	2243	1011	91					0	0	0	168	
P G200020	Dighton Hi	A	200 AMP	15.11Y	125.9	-5.90	-5.90	88.91	44	1094	665	85	percent Boost= 4.69 Tap=15.0							0	P
P		B		15.11Y	125.9	-5.90	-5.90	88.91	44	1094	665	85	percent Boost= 4.69 Tap=15.0							0	P
P		C		15.11Y	125.9	-5.90	-5.90	88.91	44	1094	665	85	percent Boost= 4.69 Tap=15.0							0	P
---------- Feeder No. 4 (S2C4 Spare) Beginning with Device B240000 ----------																					
B240000	G200020	A		15.11Y	125.9	0.00	-5.90	-0.10	0	0	-1	0	0.00	0.0			0	0	0	0	
		B		15.11Y	125.9	0.00	-5.90	-0.10	0	0	-1	0					0	0	0	0	
		C		15.11Y	125.9	0.00	-5.90	-0.10	0	0	-1	0					0	0	0	0	
P span 31353	B240000	A	500 AL 15K	15.11Y	125.9	0.00	-5.90	-0.10	0	0	-1	0	0.00	0.0	0.053	0.053	0	0	0	0	P
P		B		15.11Y	125.9	0.00	-5.90	-0.10	0	0	-1	0					0	0	0	0	P
P		C		15.11Y	125.9	0.00	-5.90	-0.10	0	0	-1	0					0	0	0	0	P
---------- Feeder No. 3 (S2C3 Saddlehorn) Beginning with Device B230000 ----------																					
B230000	G200020	A		15.11Y	125.9	0.00	-5.90	84.80	0	1094	666	85	0.00	0.0	0.000	0.000	0	0	0	0	
		B		15.11Y	125.9	0.00	-5.90	84.80	0	1094	666	85					0	0	0	0	
		C		15.11Y	125.9	0.00	-5.90	84.80	0	1094	666	85					0	0	0	0	
P span_31352	B230000	A	500 AL 15K	15.11Y	125.9	0.01	-5.89	84.80	18	1094	666	85	0.28	0.0	0.054	0.054	0	0	0	0	P
P		B		15.11Y	125.9	0.01	-5.89	84.80	18	1094	666	85					0	0	0	0	P
P		C		15.11Y	125.9	0.01	-5.89	84.80	18	1094	666	85					0	0	0	0	P
P span 31354	span 31352	A	4/0 AL	15.10Y	125.8	0.05	-5.84	84.85	26	1094	668	85	1.48	0.0	0.174	0.120	0	0	0	0	P
P		B		15.10Y	125.8	0.05	-5.84	84.85	26	1094	668	85					0	0	0	0	P
P		C		15.10Y	125.8	0.05	-5.84	84.85	26	1094	668	85					0	0	0	0	P
P span 31355	span 31354	A	4/0 AL	15.09Y	125.8	0.06	-5.78	84.96	26	1094	671	85	1.80	0.1	0.320	0.146	0	0	0	0	P
P		B		15.09Y	125.8	0.06	-5.78	84.96	26	1094	671	85					0	0	0	0	P
P		C		15.09Y	125.8	0.06	-5.78	84.96	26	1094	671	85					0	0	0	0	P
P span 31356	span 31355	A	4/0 AL	15.09Y	125.7	0.04	-5.74	85.09	26	1093	674	85	1.12	0.0	0.411	0.091	0	0	0	0	P
P		B		15.09Y	125.7	0.04	-5.74	85.09	26	1093	674	85					0	0	0	0	P
P		C		15.09Y	125.7	0.04	-5.74	85.09	26	1093	674	85					0	0	0	0	P
P span_31357	span_31356	A	4/0 AL	15.09Y	125.7	0.01	-5.72	85.17	26	1093	676	85	0.43	0.0	0.445	0.034	0	0	0	0	P
P		B		15.09Y	125.7	0.01	-5.72	85.17	26	1093	676	85					0	0	0	0	P
P		C		15.09Y	125.7	0.01	-5.72	85.17	26	1093	676	85					0	0	0	0	P
P 18-29-22-L0101	span_31357	A	Consumer	15.09Y	125.7	0.00	-5.72	85.20	0	1093	677	85	0.00	0.0	0.445	0.000	1093	677	0	0	P
P		B		15.09Y	125.7	0.00	-5.72	85.20	0	1093	677	85					1093	677	0	0	P
P		C		15.09Y	125.7	0.00	-5.72	85.20	0	1093	677	85					1093	677	0	0	P
G200010	Dighton Hi	A	231 AMP	15.11Y	125.9	-5.90	-5.90	92.16	40	1268	391	96	percent Boost= 4.69 Tap=15.0							182	
		B		15.11Y	125.9	-5.90	-5.90	71.22	31	984	287	96	percent Boost= 4.69 Tap=15.0							97	
		C		15.11Y	125.9	-5.90	-5.90	83.33	36	1149	346	96	percent Boost= 4.69 Tap=15.0							168	
---------- Feeder No. 1 (S2C1 Diehls 3ph) Beginning with Device B210000 ----------																					
B210000	G200010	A		15.11Y	125.9	0.00	-5.90	67.00	0	953	341	94	0.00	0.0	0.000	0.000	0	0	0	67	
		B		15.11Y	125.9	0.00	-5.90	57.74	0	829	271	95					0	0	0	49	
		C		15.11Y	125.9	0.00	-5.90	68.53	0	981	332	95					0	0	0	119	
span_14371	B210000	A	500 AL 15K	15.11Y	125.9	0.01	-5.89	67.00	14	953	341	94	0.16	0.0	0.051	0.051	0	0	0	67	
		B		15.11Y	125.9	0.01	-5.90	57.74	12	829	271	95					0	0	0	49	
		C		15.11Y	125.9	0.01	-5.89	68.53	15	981	332	95					0	0	0	119	
S210100-A	span 14371	A	Closed	15.11Y	125.9	0.00	-5.89	67.03	0	953	343	94	0.00	0.0	0.051	0.000	0	0	0	67	
		B		15.11Y	125.9	0.00	-5.90	57.77	0	829	272	95					0	0	0	49	
		C		15.11Y	125.9	0.00	-5.89	68.56	0	981	333	95					0	0	0	119	
S210100-B	S210100-A	A	Closed	15.11Y	125.9	0.00	-5.89	67.03	0	953	343	94	0.00	0.0	0.051	0.000	0	0	0	67	
		B		15.11Y	125.9	0.00	-5.90	57.77	0	829	272	95					0	0	0	49	
		C		15.11Y	125.9	0.00	-5.89	68.56	0	981	333	95					0	0	0	119	
span 11149	S210100-B	A	336 ACSR	15.11Y	125.9	0.01	-5.89	67.03	13	953	343	94	0.09	0.0	0.078	0.027	0	0	0	67	
		B		15.11Y	125.9	0.01	-5.89	57.77	11	829	272	95					0	0	0	49	
		C		15.11Y	125.9	0.01	-5.88	68.56	13	981	333	95					0	0	0	119	
span_28157	span_11149	A	336 ACSR	15.09Y	125.8	0.11	-5.78	67.03	13	953	343	94	1.47	0.1	0.498	0.421	0	0	0	67	
		B		15.10Y	125.8	0.09	-5.80	57.77	11	829	272	95					0	0	0	49	
		C		15.09Y	125.8	0.12	-5.76	68.57	13	981	333	95					0	0	0	119	
span_28158	span_28157	A	336 ACSR	15.09Y	125.8	0.01	-5.77	67.05	13	952	342	94	0.12	0.0	0.532	0.034	0	0	0	67	
		B		15.10Y	125.8	0.01	-5.79	57.79	11	829	272	95					0	0	0	49	
		C		15.09Y	125.8	0.01	-5.75	68.58	13	980	333	95					0	0	0	119	

Unbalanced Voltage Drop Report
Source: Dighton Hi

Database: Q:\E&E\520-POWER_PROVIDERS\LANE-SCOTT\PROJECTS\KS00042030 - CWP\MILSOFT\EXISTING SYSTEM 2025 LOADS.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	span 5752	span 28158	A	#4 ACSR 6/	15.09Y	125.8	0.00	-5.77	0.16	0	2	1	89	0.00	0.0	0.565	0.033	0	0	0	0	P
P			B		15.10Y	125.8	0.00	-5.79	0.16	0	2	1	86					0	0	0	0	P
P			C		15.09Y	125.8	0.00	-5.75	0.16	0	2	1	86					0	0	0	0	P
P	span 5753	span 5752	A	#4 ACSR 6/	15.09Y	125.8	0.00	-5.77	0.16	0	2	1	89	0.00	0.0	0.590	0.025	0	0	0	0	P
P			B		15.10Y	125.8	0.00	-5.79	0.16	0	2	1	86					0	0	0	0	P
P			C		15.09Y	125.8	0.00	-5.75	0.16	0	2	1	86					0	0	0	0	P
P	fake g 99	span 5753	A	Node	15.09Y	125.8	0.00	-5.77	0.16	0	2	1	89	0.00	0.0	0.590	0.000	0	0	0	0	P
P			B		15.10Y	125.8	0.00	-5.79	0.16	0	2	1	85					0	0	0	0	P
P			C		15.09Y	125.8	0.00	-5.75	0.16	0	2	1	85					0	0	0	0	P
P	18-29-14-L141	fake_g_99	A	Consumer	15.09Y	125.8	0.00	-5.77	0.16	0	2	1	89	0.00	0.0	0.590	0.000	2	1	0	0	P
P			B		15.10Y	125.8	0.00	-5.79	0.16	0	2	1	85					2	1	0	0	P
P			C		15.09Y	125.8	0.00	-5.75	0.16	0	2	1	85					2	1	0	0	P
	span_9498	span_28158	A	336 ACSR	15.09Y	125.8	0.02	-5.75	66.89	13	950	341	94	0.23	0.0	0.598	0.066	0	0	0	67	
			B		15.09Y	125.8	0.01	-5.78	57.63	11	827	271	95					0	0	0	49	
			C		15.09Y	125.7	0.02	-5.73	68.42	13	978	331	95					0	0	0	119	
	span 11578	span 9498	A	336 ACSR	15.09Y	125.7	0.01	-5.74	66.89	13	950	341	94	0.11	0.0	0.631	0.033	0	0	0	67	
			B		15.09Y	125.8	0.01	-5.77	57.63	11	827	271	95					0	0	0	49	
			C		15.09Y	125.7	0.01	-5.72	68.43	13	978	331	95					0	0	0	119	
	span 11579	span 11578	A	336 ACSR	15.09Y	125.7	0.02	-5.73	66.90	13	950	341	94	0.23	0.0	0.696	0.065	0	0	0	67	
			B		15.09Y	125.8	0.01	-5.76	57.64	11	827	271	95					0	0	0	49	
			C		15.08Y	125.7	0.02	-5.70	68.43	13	978	331	95					0	0	0	119	
	span 9429	span 11579	A	336 ACSR	15.08Y	125.7	0.02	-5.71	66.90	13	950	341	94	0.25	0.0	0.768	0.072	0	0	0	67	
			B		15.09Y	125.7	0.02	-5.74	57.64	11	827	271	95					0	0	0	49	
			C		15.08Y	125.7	0.02	-5.68	68.43	13	978	331	95					0	0	0	119	
	span_8327	span_9429	A	336 ACSR	15.08Y	125.6	0.07	-5.64	66.90	13	950	340	94	0.90	0.0	1.025	0.257	0	0	0	67	
			B		15.08Y	125.7	0.05	-5.69	57.64	11	827	271	95					0	0	0	49	
			C		15.07Y	125.6	0.08	-5.61	68.43	13	978	331	95					0	0	0	119	
	span_12288	span_8327	A	336 ACSR	15.06Y	125.5	0.12	-5.52	66.91	13	950	340	94	1.68	0.1	1.509	0.484	0	0	0	67	
			B		15.07Y	125.6	0.10	-5.59	57.65	11	826	271	95					0	0	0	49	
			C		15.06Y	125.5	0.14	-5.46	68.44	13	977	331	95					0	0	0	119	
	span 12289	span 12288	A	336 ACSR	15.06Y	125.5	0.02	-5.50	66.93	13	949	339	94	0.25	0.0	1.581	0.072	0	0	0	67	
			B		15.07Y	125.6	0.02	-5.57	57.67	11	826	270	95					0	0	0	49	
			C		15.05Y	125.4	0.02	-5.44	68.46	13	976	330	95					0	0	0	119	
	span 8299	span 12289	A	336 ACSR	15.06Y	125.5	0.01	-5.49	66.93	13	949	339	94	0.13	0.0	1.619	0.038	0	0	0	67	
			B		15.07Y	125.6	0.01	-5.57	57.67	11	826	270	95					0	0	0	49	
			C		15.05Y	125.4	0.01	-5.43	68.46	13	976	330	95					0	0	0	119	
	span 6195	span 8299	A	336 ACSR	15.06Y	125.5	0.02	-5.47	66.93	13	949	339	94	0.26	0.0	1.694	0.075	0	0	0	67	
			B		15.07Y	125.6	0.02	-5.55	57.67	11	826	270	95					0	0	0	49	
			C		15.05Y	125.4	0.02	-5.41	68.46	13	976	330	95					0	0	0	119	
	span_6034	span_6195	A	336 ACSR	15.05Y	125.4	0.05	-5.42	66.93	13	949	339	94	0.69	0.0	1.891	0.197	0	0	0	67	
			B		15.06Y	125.5	0.04	-5.51	57.67	11	826	270	95					0	0	0	49	
			C		15.04Y	125.4	0.06	-5.35	68.46	13	976	330	95					0	0	0	119	
	span_6035	span_6034	A	336 ACSR	15.05Y	125.4	0.03	-5.39	66.94	13	949	339	94	0.41	0.0	2.010	0.119	0	0	0	67	
			B		15.06Y	125.5	0.02	-5.49	57.68	11	826	270	95					0	0	0	49	
			C		15.04Y	125.3	0.03	-5.32	68.47	13	976	329	95					0	0	0	119	
	span 3260	span 6035	A	336 ACSR	15.05Y	125.4	0.00	-5.39	-0.00	0	0	0	100	0.00	0.0	2.053	0.043	0	0	0	0	
P			B		15.06Y	125.5	0.00	-5.49	-0.00	0	0	0	0					0	0	0	0	P
P			C		15.04Y	125.3	0.00	-5.32	-0.00	0	0	0	0					0	0	0	0	P
	span 7774	span 6035	A	336 ACSR	15.05Y	125.4	0.01	-5.38	66.95	13	949	339	94	0.13	0.0	2.048	0.038	0	0	0	67	
			B		15.06Y	125.5	0.01	-5.48	57.68	11	825	270	95					0	0	0	49	
			C		15.04Y	125.3	0.01	-5.30	68.48	13	976	329	95					0	0	0	119	
	span 7775	span 7774	A	336 ACSR	15.03Y	125.2	0.15	-5.22	66.95	13	949	339	94	2.09	0.1	2.647	0.599	0	0	0	67	
			B		15.04Y	125.4	0.13	-5.35	57.68	11	825	270	95					0	0	0	49	
			C		15.02Y	125.1	0.18	-5.13	68.48	13	976	329	95					0	0	0	119	
	span_5715	span_7775	A	336 ACSR	15.02Y	125.1	0.08	-5.15	66.97	13	948	338	94	1.02	0.0	2.939	0.292	0	0	0	67	
			B		15.03Y	125.3	0.06	-5.29	57.70	11	825	270	95					0	0	0	49	
			C		15.01Y	125.0	0.09	-5.04	68.50	13	975	328	95					0	0	0	119	
	S210150-A	span_5715	A	Closed	15.02Y	125.1	0.00	-5.15	66.98	0	948	337	94	0.00	0.0	2.939	0.000	0	0	0	67	
			B		15.03Y	125.3	0.00	-5.29	57.71	0	825	270	95					0	0	0	49	
			C		15.01Y	125.0	0.00	-5.04	68.51	0	974	328	95					0	0	0	119	
	S210150-B	S210150-A	A	Closed	15.02Y	125.1	0.00	-5.15	66.98	0	948	337	94	0.00	0.0	2.939	0.000	0	0	0	67	
			B		15.03Y	125.3	0.00	-5.29	57.71	0	825	270	95					0	0	0	49	
			C		15.01Y	125.0	0.00	-5.04	68.51	0	974	328	95					0	0	0	119	

Unbalanced Voltage Drop Report
Source: Dighton Hi

Database: Q:\E&E\520-POWER_PROVIDERS\LANE-SCOTT\PROJECTS\KS00042030 - CWP\MILSOFT\EXISTING SYSTEM 2025 LOADS.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
span 11990	S210150-B	A	336 ACSR	15.02Y	125.1	0.01	-5.14	66.98	13	948	337	94	0.13	0.0	2.976	0.036	0	0	0	67
		B		15.03Y	125.3	0.01	-5.28	57.71	11	825	270	95					0	0	0	49
		C		15.00Y	125.0	0.01	-5.03	68.51	13	974	328	95					0	0	0	119
span 11991	span 11990	A	336 ACSR	15.02Y	125.1	0.01	-5.13	66.98	13	948	337	94	0.13	0.0	3.012	0.036	0	0	0	67
		B		15.03Y	125.3	0.01	-5.28	57.71	11	825	270	95					0	0	0	49
		C		15.00Y	125.0	0.01	-5.02	68.51	13	974	328	95					0	0	0	119
span 3261	span 11991	A	336 ACSR	15.01Y	125.1	0.05	-5.08	66.98	13	948	337	94	0.74	0.0	3.225	0.213	0	0	0	67
		B		15.03Y	125.2	0.04	-5.23	57.71	11	825	270	95					0	0	0	49
		C		15.00Y	125.0	0.06	-4.96	68.51	13	974	328	95					0	0	0	119
span_3385	span_3261	A	336 ACSR	15.01Y	125.1	0.00	-5.07	32.85	6	480	111	97	0.03	0.0	3.262	0.036	0	0	0	67
		B		15.03Y	125.2	0.00	-5.23	23.97	5	357	44	99					0	0	0	49
		C		14.99Y	125.0	0.01	-4.95	34.48	7	507	102	98					0	0	0	119
span_3262	span_3385	A	336 ACSR	15.01Y	125.1	0.00	-5.07	32.85	6	480	111	97	0.03	0.0	3.303	0.041	0	0	0	67
		B		15.03Y	125.2	0.00	-5.23	23.97	5	357	44	99					0	0	0	49
		C		14.99Y	124.9	0.01	-4.95	34.48	7	507	102	98					0	0	0	119
R210100	span 3262	A	039-100-E	15.01Y	125.1	0.00	-5.07	32.86	0	480	111	97	0.00	0.0	3.303	0.000	0	0	0	67
		B		15.03Y	125.2	0.00	-5.23	23.97	0	357	44	99					0	0	0	49
		C		14.99Y	124.9	0.00	-4.95	34.48	0	507	102	98					0	0	0	119
span 3164	R210100	A	336 ACSR	15.01Y	125.1	0.01	-5.06	32.86	6	480	111	97	0.09	0.0	3.416	0.113	0	0	0	67
		B		15.03Y	125.2	0.01	-5.22	23.97	5	357	44	99					0	0	0	49
		C		14.99Y	124.9	0.02	-4.93	34.48	7	507	102	98					0	0	0	119
span 6536	span 3164	A	ACSR 336	15.01Y	125.0	0.01	-5.04	32.86	6	480	112	97	0.09	0.0	3.530	0.115	0	0	0	67
		B		15.03Y	125.2	0.01	-5.21	23.97	5	357	44	99					0	0	0	49
		C		14.99Y	124.9	0.02	-4.91	34.46	7	507	102	98					0	0	0	118
span_6537	span_6536	A	336 ACSR	15.00Y	125.0	0.00	-5.04	32.86	6	480	112	97	0.03	0.0	3.568	0.038	0	0	0	67
		B		15.03Y	125.2	0.00	-5.21	23.97	5	357	45	99					0	0	0	49
		C		14.99Y	124.9	0.01	-4.91	34.47	7	506	102	98					0	0	0	118
span_3264	span_6537	A	336 ACSR	15.00Y	125.0	0.02	-5.02	32.86	6	480	112	97	0.17	0.0	3.775	0.207	0	0	0	67
		B		15.02Y	125.2	0.01	-5.20	23.97	5	357	45	99					0	0	0	49
		C		14.99Y	124.9	0.03	-4.88	34.47	7	506	102	98					0	0	0	118
F210030	span_3264	A		15.00Y	125.0	0.00	-5.02	-0.01	0	0	0	100	0.00	0.0	3.775	0.000	0	0	0	1
P span_1521	F210030	A	#4 ACSR 6/	15.00Y	125.0	0.00	-5.02	-0.01	0	0	0	100	0.00	0.0	3.878	0.102	0	0	0	1 P
18-28-30-L11	span_1521	A	Consumer	15.00Y	125.0	0.00	-5.02	0.00	0	0	0	100	0.00	0.0	3.878	0.000	0	0	1	1
span_1367	span_3264	A	336 ACSR	15.00Y	125.0	0.02	-5.00	32.87	6	480	112	97	0.17	0.0	3.986	0.211	0	0	0	66
		B		15.02Y	125.2	0.01	-5.19	23.97	5	357	45	99					0	0	0	49
		C		14.98Y	124.8	0.03	-4.85	34.47	7	506	102	98					0	0	0	118
span 10746	span 1367	A	336 ACSR	15.00Y	125.0	0.01	-4.99	28.41	5	418	82	98	0.07	0.0	4.080	0.094	0	0	0	56
		B		15.02Y	125.2	0.01	-5.18	23.39	4	349	42	99					0	0	0	48
		C		14.98Y	124.8	0.01	-4.84	33.87	6	498	99	98					0	0	0	117
span 10747	span 10746	A	336 ACSR	15.00Y	125.0	0.00	-4.99	28.42	5	418	82	98	0.03	0.0	4.128	0.048	0	0	0	56
		B		15.02Y	125.2	0.00	-5.18	23.39	4	349	42	99					0	0	0	48
		C		14.98Y	124.8	0.01	-4.83	33.88	6	498	99	98					0	0	0	117
span 5644	span 10747	A	336 ACSR	15.00Y	125.0	0.00	-4.98	26.66	5	394	67	99	0.03	0.0	4.170	0.042	0	0	0	53
		B		15.02Y	125.2	0.00	-5.18	23.39	4	349	42	99					0	0	0	48
		C		14.98Y	124.8	0.01	-4.82	33.88	6	498	99	98					0	0	0	117
span_26099	span_5644	A	336 ACSR	14.99Y	124.9	0.04	-4.94	26.66	5	394	67	99	0.49	0.0	4.883	0.713	0	0	0	53
		B		15.02Y	125.1	0.05	-5.13	23.39	4	349	42	99					0	0	0	48
		C		14.97Y	124.7	0.10	-4.72	33.88	6	498	99	98					0	0	0	117
span_26100	span_26099	A	336 ACSR	14.99Y	124.9	0.00	-4.94	26.67	5	394	68	99	0.03	0.0	4.925	0.042	0	0	0	53
		B		15.02Y	125.1	0.00	-5.13	23.40	4	349	43	99					0	0	0	48
		C		14.97Y	124.7	0.01	-4.72	33.89	6	497	100	98					0	0	0	117
span 26098	span 26100	A	336 ACSR	14.99Y	124.9	0.00	-4.94	26.67	5	394	68	99	0.03	0.0	4.967	0.042	0	0	0	53
		B		15.01Y	125.1	0.00	-5.12	23.40	4	349	43	99					0	0	0	48
		C		14.97Y	124.7	0.01	-4.71	33.89	6	497	100	98					0	0	0	117
span 31993	span 26098	A	336 ACSR	14.99Y	124.9	0.00	-4.93	26.67	5	394	68	99	0.03	0.0	5.009	0.043	0	0	0	53
		B		15.01Y	125.1	0.00	-5.12	23.40	4	349	43	99					0	0	0	48
		C		14.96Y	124.7	0.01	-4.71	33.89	6	497	100	98					0	0	0	117
span 31994	span 31993	A	336 ACSR	14.99Y	124.9	0.02	-4.91	26.68	5	394	68	99	0.23	0.0	5.344	0.335	0	0	0	53
		B		15.01Y	125.1	0.02	-5.10	23.40	4	349	43	99					0	0	0	48
		C		14.96Y	124.7	0.05	-4.66	33.90	6	497	100	98					0	0	0	117

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: Dighton Hi

Database: Q:\E&E\520-POWER_PROVIDERS\LANE-SCOTT\PROJECTS\KS00042030 - CWP\MILSOFT\EXISTING SYSTEM 2025 LOADS.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	Thru KVAR	% PF	kW Loss	% Loss	mi From Src	Element Length (mi)	Element KW	Element KVAR	Element Cons On	Element Cons Thru
fake g 100	span 31994	A	Node	14.99Y	124.9	0.00	-4.91	0.00	0	0	0	100	0.00	0.0	5.344	0.000	0	0	0	0
		B		15.01Y	125.1	0.00	-5.10	0.00	0	0	0	100					0	0	0	0
		C		14.96Y	124.7	0.00	-4.66	0.00	0	0	0	100					0	0	0	0
18-28-28-L0302	fake g 100	A	Consumer	14.99Y	124.9	0.00	-4.91	0.00	0	0	0	100	0.00	0.0	5.344	0.000	0	0	0	0
		B		15.01Y	125.1	0.00	-5.10	0.00	0	0	0	100					0	0	0	0
		C		14.96Y	124.7	0.00	-4.66	0.00	0	0	0	100					0	0	0	0
span 25968	span 31994	A	336 ACSR	14.99Y	124.9	0.00	-4.91	26.68	5	394	68	99	0.03	0.0	5.387	0.042	0	0	0	53
		B		15.01Y	125.1	0.00	-5.09	23.40	4	349	44	99					0	0	0	48
		C		14.96Y	124.7	0.01	-4.66	33.90	6	497	100	98					0	0	0	117
span_8009	span_25968	A	336 ACSR	14.99Y	124.9	0.02	-4.89	26.68	5	394	68	99	0.23	0.0	5.721	0.335	0	0	0	53
		B		15.01Y	125.1	0.02	-5.07	23.40	4	349	44	99					0	0	0	48
		C		14.95Y	124.6	0.05	-4.61	33.90	6	497	100	98					0	0	0	116
span_12110	span_8009	A	336 ACSR	14.99Y	124.9	0.00	-4.89	26.69	5	394	68	99	0.00	0.0	5.728	0.007	0	0	0	53
		B		15.01Y	125.1	0.00	-5.07	23.41	4	349	44	99					0	0	0	48
		C		14.95Y	124.6	0.00	-4.61	33.91	6	497	100	98					0	0	0	116
span 12111	span 12110	A	336 ACSR	14.99Y	124.9	0.02	-4.88	26.69	5	394	68	99	0.19	0.0	6.004	0.276	0	0	0	53
		B		15.01Y	125.0	0.02	-5.05	23.41	4	349	44	99					0	0	0	48
		C		14.95Y	124.6	0.04	-4.57	33.91	6	497	100	98					0	0	0	116
span_31360	span_12111	A	#4 ACSR 6/	14.98Y	124.8	0.06	-4.81	3.51	3	49	19	93	0.02	0.0	6.761	0.757	0	0	0	16
R210200	span_31360	A	037-50-E O	14.98Y	124.8	0.00	-4.81	3.53	0	49	19	93	0.00	0.0	6.761	0.000	0	0	0	16
span_31361	R210200	A	#4 ACSR 6/	14.98Y	124.8	0.00	-4.81	3.53	3	49	19	93	0.00	0.0	6.823	0.061	0	0	0	16
span_36009	span_31361	A	#4 ACSR 6/	14.98Y	124.8	0.00	-4.81	1.41	1	20	8	93	0.00	0.0	6.898	0.076	0	0	0	5
span_36010	span_36009	A	#4 ACSR 6/	14.98Y	124.8	0.00	-4.81	1.41	1	20	8	93	0.00	0.0	6.955	0.057	0	0	0	5
span_36011	span_36010	A	#4 ACSR 6/	14.98Y	124.8	0.00	-4.80	1.41	1	20	8	93	0.00	0.0	7.005	0.050	0	0	0	5
span_36012	span_36011	A	#4 ACSR 6/	14.98Y	124.8	0.00	-4.80	1.41	1	20	8	93	0.00	0.0	7.080	0.075	0	0	0	5
span_5784	span_36012	A	#4 ACSR 6/	14.98Y	124.8	0.00	-4.80	0.81	1	11	4	94	0.00	0.0	7.137	0.057	0	0	0	4
span_32679	span_5784	A	#4 ACSR 6/	14.98Y	124.8	0.00	-4.80	0.81	1	11	4	94	0.00	0.0	7.195	0.058	0	0	0	4
span_32680	span_32679	A	#4 ACSR 6/	14.98Y	124.8	0.00	-4.80	0.81	1	11	4	94	0.00	0.0	7.251	0.056	0	0	0	4
span_32678	span_32680	A	#4 ACSR 6/	14.98Y	124.8	0.00	-4.80	0.81	1	11	4	94	0.00	0.0	7.309	0.058	0	0	0	4
span_32677	span_32678	A	#4 ACSR 6/	14.98Y	124.8	0.00	-4.80	0.81	1	11	4	94	0.00	0.0	7.366	0.058	0	0	0	4
span_33052	span_32677	A	#4 ACSR 6/	14.98Y	124.8	0.00	-4.80	0.71	1	10	4	93	0.00	0.0	7.420	0.053	0	0	0	3
span_33053	span_33052	A	#4 ACSR 6/	14.98Y	124.8	0.00	-4.79	0.71	1	10	4	93	0.00	0.0	7.474	0.055	0	0	0	3
18-28-21-L32	span_33053	A	Consumer	14.98Y	124.8	0.00	-4.79	0.52	0	7	3	92	0.00	0.0	7.474	0.000	7	3	1	1
serv_7527	span_33053	A	Consumer	14.98Y	124.8	0.00	-4.79	0.00	0	0	0	100	0.00	0.0	7.474	0.000	0	0	0	0
span_32675	span_33053	A	#4 ACSR 6/	14.98Y	124.8	0.00	-4.79	0.20	0	3	1	95	0.00	0.0	7.530	0.056	0	0	0	2
span_32676	span_32675	A	#4 ACSR 6/	14.98Y	124.8	0.00	-4.79	0.21	0	3	1	95	0.00	0.0	7.584	0.053	0	0	0	2
span_36013	span_32676	A	#4 ACSR 6/	14.98Y	124.8	0.00	-4.79	0.21	0	3	1	95	0.00	0.0	7.634	0.051	0	0	0	2
span_36014	span_36013	A	#4 ACSR 6/	14.98Y	124.8	0.00	-4.79	0.21	0	3	1	95	0.00	0.0	7.693	0.059	0	0	0	2
span_36015	span_36014	A	#4 ACSR 6/	14.98Y	124.8	0.00	-4.79	0.21	0	3	1	95	0.00	0.0	7.752	0.059	0	0	0	2
span_36016	span_36015	A	#4 ACSR 6/	14.98Y	124.8	0.00	-4.79	0.21	0	3	1	95	0.00	0.0	7.810	0.057	0	0	0	2
span_36017	span_36016	A	#4 ACSR 6/	14.98Y	124.8	0.00	-4.79	0.21	0	3	1	95	0.00	0.0	7.869	0.059	0	0	0	2
span_36018	span_36017	A	#4 ACSR 6/	14.98Y	124.8	0.00	-4.79	0.21	0	3	1	95	0.00	0.0	7.929	0.060	0	0	0	2
span_36019	span_36018	A	#4 ACSR 6/	14.98Y	124.8	0.00	-4.79	0.21	0	3	1	95	0.00	0.0	7.981	0.052	0	0	0	2
span_36020	span_36019	A	#4 ACSR 6/	14.98Y	124.8	0.00	-4.79	0.21	0	3	1	95	0.00	0.0	8.035	0.054	0	0	0	2
span_11589	span_36020	A	#4 ACSR 6/	14.98Y	124.8	0.00	-4.79	0.13	0	2	1	89	0.00	0.0	8.041	0.006	0	0	0	1
span_9750	span_11589	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.79	0.13	0	2	1	89	0.00	0.0	8.154	0.113	0	0	0	1
span_12718	span_9750	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.79	0.13	0	2	1	89	0.00	0.0	8.238	0.085	0	0	0	1
span_12719	span_12718	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.79	0.13	0	2	1	89	0.00	0.0	8.617	0.379	0	0	0	1

Unbalanced Voltage Drop Report
Source: Dighton Hi

Database: Q:\E&E\520-POWER_PROVIDERS\LANE-SCOTT\PROJECTS\KS00042030 - CWP\MILSOFT\EXISTING SYSTEM 2025 LOADS.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	Cons On	Cons Thru	
P	18-28-17-L101	span_12719	A	Consumer	14.97Y	124.8	0.00	-4.79	0.14	0	2	1	89	0.00	0.0	8.617	0.000	2	1	1	1	P
	18-28-17-L161	span_36020	A	Consumer	14.98Y	124.8	0.00	-4.79	0.09	0	1	1	71	0.00	0.0	8.035	0.000	1	1	1	1	
	18-28-21-L033	span_32675	A	Consumer	14.98Y	124.8	0.00	-4.79	0.00	0	0	0	100	0.00	0.0	7.530	0.000	0	0	0	0	
	span_2682	span_32677	A	#4 ACSR 6/	14.98Y	124.8	0.00	-4.80	0.10	0	1	1	71	0.00	0.0	7.418	0.051	0	0	0	1	
	18-28-21-L031	span_2682	A	Consumer	14.98Y	124.8	0.00	-4.80	0.10	0	1	1	71	0.00	0.0	7.418	0.000	1	1	1	1	
	span_2391	span_36012	A	#4 ACSR 6/	14.98Y	124.8	0.00	-4.80	0.61	0	8	4	89	0.00	0.0	7.148	0.068	0	0	0	1	
	18-28-21-L21	span_2391	A	Consumer	14.98Y	124.8	0.00	-4.80	0.61	0	8	4	89	0.00	0.0	7.148	0.000	8	4	1	1	
	span_31450	span_31361	A	ACSR #2	14.98Y	124.8	0.00	-4.81	0.47	0	6	3	89	0.00	0.0	6.827	0.005	0	0	0	2	
	F210060	span_31450	A		14.98Y	124.8	0.00	-4.81	0.47	0	6	3	89	0.00	0.0	6.827	0.000	0	0	0	2	
	span_31451	F210060	A	ACSR #2	14.98Y	124.8	0.00	-4.81	0.47	0	6	3	89	0.00	0.0	6.870	0.043	0	0	0	2	
	span_31452	span_31451	A	ACSR #2	14.98Y	124.8	0.00	-4.81	0.47	0	6	3	89	0.00	0.0	6.913	0.043	0	0	0	2	
	span_31453	span_31452	A	ACSR #2	14.98Y	124.8	0.00	-4.81	0.47	0	6	3	89	0.00	0.0	6.953	0.040	0	0	0	2	
	18-28-22-L0401	span_31453	A	Consumer	14.98Y	124.8	0.00	-4.81	0.46	0	6	3	89	0.00	0.0	6.953	0.000	6	3	1	1	
	span_31454	span_31453	A	ACSR #2	14.98Y	124.8	0.00	-4.81	0.02	0	0	0	100	0.00	0.0	6.987	0.034	0	0	0	1	
	span_31455	span_31454	A	ACSR #2	14.98Y	124.8	0.00	-4.81	0.02	0	0	0	100	0.00	0.0	7.021	0.033	0	0	0	1	
	span_31456	span_31455	A	ACSR #2	14.98Y	124.8	0.00	-4.81	0.02	0	0	0	100	0.00	0.0	7.057	0.037	0	0	0	1	
	span_31457	span_31456	A	ACSR #2	14.98Y	124.8	0.00	-4.81	0.02	0	0	0	100	0.00	0.0	7.101	0.044	0	0	0	1	
	span_31458	span_31457	A	ACSR #2	14.98Y	124.8	0.00	-4.81	0.02	0	0	0	100	0.00	0.0	7.145	0.044	0	0	0	1	
	span_31459	span_31458	A	ACSR #2	14.98Y	124.8	0.00	-4.81	0.02	0	0	0	100	0.00	0.0	7.188	0.044	0	0	0	1	
	span_31460	span_31459	A	ACSR #2	14.98Y	124.8	0.00	-4.81	0.02	0	0	0	100	0.00	0.0	7.232	0.044	0	0	0	1	
	18-28-22-L0301	span_31460	A	Consumer	14.98Y	124.8	0.00	-4.81	0.02	0	0	0	100	0.00	0.0	7.232	0.000	0	0	1	1	
	span_36217	span_31361	A	#4 ACSR 6/	14.98Y	124.8	0.00	-4.81	1.66	1	23	9	93	0.00	0.0	6.874	0.051	0	0	0	9	
	span_36218	span_36217	A	#4 ACSR 6/	14.98Y	124.8	0.00	-4.81	1.66	1	23	9	93	0.00	0.0	6.911	0.037	0	0	0	9	
	span_10960	span_36218	A	#4 ACSR 6/	14.98Y	124.8	0.00	-4.81	1.66	1	23	9	93	0.00	0.0	6.928	0.017	0	0	0	9	
P	18-28-15-L1301	span_10960	A	Consumer	14.98Y	124.8	0.00	-4.81	0.34	0	4	3	80	0.00	0.0	6.928	0.000	4	3	1	1	P
	span_10961	span_10960	A	#4 ACSR 6/	14.98Y	124.8	0.00	-4.80	1.32	1	19	6	95	0.00	0.0	6.971	0.043	0	0	0	8	
P	span_10356	span_10961	A	#4 ACSR 6/	14.98Y	124.8	0.00	-4.80	0.31	0	4	2	89	0.00	0.0	6.988	0.017	0	0	0	1	P
P	span_36007	span_10356	A	#4 ACSR 6/	14.98Y	124.8	0.00	-4.80	0.31	0	4	2	89	0.00	0.0	7.040	0.052	0	0	0	1	P
P	span_36008	span_36007	A	#4 ACSR 6/	14.98Y	124.8	0.00	-4.80	0.32	0	4	2	89	0.00	0.0	7.085	0.045	0	0	0	1	P
P	18-28-16-L161	span_36008	A	Consumer	14.98Y	124.8	0.00	-4.80	0.32	0	4	2	89	0.00	0.0	7.085	0.000	4	2	1	1	P
	span_36219	span_10961	A	#4 ACSR 6/	14.98Y	124.8	0.00	-4.80	1.02	1	15	4	97	0.00	0.0	7.028	0.057	0	0	0	7	
	span_36220	span_36219	A	#4 ACSR 6/	14.98Y	124.8	0.00	-4.80	1.02	1	15	4	97	0.00	0.0	7.089	0.061	0	0	0	7	
	span_36221	span_36220	A	#4 ACSR 6/	14.98Y	124.8	0.00	-4.80	1.02	1	15	4	97	0.00	0.0	7.124	0.035	0	0	0	7	
	span_36222	span_36221	A	#4 ACSR 6/	14.98Y	124.8	0.00	-4.80	1.02	1	15	4	97	0.00	0.0	7.184	0.061	0	0	0	7	
	span_36223	span_36222	A	#4 ACSR 6/	14.98Y	124.8	0.00	-4.80	1.02	1	15	4	97	0.00	0.0	7.246	0.061	0	0	0	7	
	span_36224	span_36223	A	#4 ACSR 6/	14.98Y	124.8	0.00	-4.80	1.02	1	15	4	97	0.00	0.0	7.303	0.058	0	0	0	7	
	span_36225	span_36224	A	#4 ACSR 6/	14.98Y	124.8	0.00	-4.80	1.02	1	15	4	97	0.00	0.0	7.361	0.058	0	0	0	7	
	span_36226	span_36225	A	#4 ACSR 6/	14.98Y	124.8	0.00	-4.79	1.03	1	15	4	97	0.00	0.0	7.418	0.057	0	0	0	7	
	span_36227	span_36226	A	#4 ACSR 6/	14.98Y	124.8	0.00	-4.79	1.03	1	15	4	97	0.00	0.0	7.475	0.057	0	0	0	7	
	span_36228	span_36227	A	#4 ACSR 6/	14.98Y	124.8	0.00	-4.79	1.03	1	15	5	95	0.00	0.0	7.532	0.057	0	0	0	7	
	span_36229	span_36228	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.79	1.03	1	15	5	95	0.00	0.0	7.589	0.057	0	0	0	7	
	span_36230	span_36229	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.79	1.03	1	15	5	95	0.00	0.0	7.646	0.057	0	0	0	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: Dighton Hi

Database: Q:\E&E\520-POWER_PROVIDERS\LANE-SCOTT\PROJECTS\KS00042030 - CWP\MILSOFT\EXISTING SYSTEM 2025 LOADS.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	
span_36231	span_36230	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.79	1.03	1	15	5	95	0.00	0.0	7.703	0.057	0	0	0	7	
span_36232	span_36231	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.79	1.03	1	15	5	95	0.00	0.0	7.761	0.058	0	0	0	7	
span_36233	span_36232	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.79	1.03	1	15	5	95	0.00	0.0	7.818	0.057	0	0	0	7	
span_36234	span_36233	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.78	1.03	1	15	5	95	0.00	0.0	7.876	0.058	0	0	0	7	
span_36235	span_36234	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.78	1.04	1	15	5	95	0.00	0.0	7.932	0.057	0	0	0	7	
span_12965	span_36235	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.78	0.84	1	12	3	97	0.00	0.0	7.975	0.042	0	0	0	6	
span_36236	span_12965	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.78	0.85	1	12	3	97	0.00	0.0	8.012	0.037	0	0	0	6	
span_36237	span_36236	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.78	0.85	1	12	4	95	0.00	0.0	8.046	0.035	0	0	0	6	
span_36238	span_36237	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.78	0.85	1	12	4	95	0.00	0.0	8.087	0.040	0	0	0	6	
18-28-10-L121	span_36238	A	Consumer	14.97Y	124.8	0.00	-4.78	0.46	0	6	3	89	0.00	0.0	8.087	0.000	6	3	1	1	
span_36239	span_36238	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.78	0.40	0	6	1	99	0.00	0.0	8.133	0.046	0	0	0	5	
span_36240	span_36239	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.78	0.40	0	6	1	99	0.00	0.0	8.200	0.067	0	0	0	5	
span_36241	span_36240	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.78	0.40	0	6	1	99	0.00	0.0	8.256	0.056	0	0	0	5	
span_36242	span_36241	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.78	0.40	0	6	1	99	0.00	0.0	8.290	0.034	0	0	0	5	
span_36243	span_36242	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.78	0.39	0	6	1	99	0.00	0.0	8.312	0.022	0	0	0	4	
span_36244	span_36243	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.78	0.39	0	6	1	99	0.00	0.0	8.370	0.058	0	0	0	4	
span_36245	span_36244	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.78	0.39	0	6	1	99	0.00	0.0	8.428	0.058	0	0	0	4	
span_36246	span_36245	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.78	0.39	0	6	1	99	0.00	0.0	8.485	0.057	0	0	0	4	
span_36247	span_36246	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.78	0.39	0	6	1	99	0.00	0.0	8.542	0.056	0	0	0	4	
span_36248	span_36247	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.78	0.39	0	6	1	99	0.00	0.0	8.600	0.058	0	0	0	4	
span_36249	span_36248	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.77	0.39	0	6	1	99	0.00	0.0	8.657	0.057	0	0	0	4	
span_36250	span_36249	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.77	0.39	0	6	1	99	0.00	0.0	8.715	0.058	0	0	0	4	
span_36251	span_36250	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.77	0.40	0	6	1	99	0.00	0.0	8.772	0.057	0	0	0	4	
span_36252	span_36251	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.77	0.40	0	6	1	99	0.00	0.0	8.830	0.058	0	0	0	4	
span_36253	span_36252	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.77	0.40	0	6	1	99	0.00	0.0	8.885	0.056	0	0	0	4	
span_36254	span_36253	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.77	0.40	0	6	1	99	0.00	0.0	8.948	0.062	0	0	0	4	
18-28-10-L51	span_36254	A	Consumer	14.97Y	124.8	0.00	-4.77	0.00	0	0	0	100	0.00	0.0	8.948	0.000	0	0	1	1	
span_36255	span_36254	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.77	0.40	0	6	1	99	0.00	0.0	9.006	0.058	0	0	0	3	
span_36256	span_36255	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.77	0.40	0	6	1	99	0.00	0.0	9.079	0.073	0	0	0	3	
span_36257	span_36256	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.77	0.40	0	6	2	95	0.00	0.0	9.137	0.058	0	0	0	3	
span_36258	span_36257	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.77	0.40	0	6	2	95	0.00	0.0	9.196	0.058	0	0	0	3	
P span_36275	span_36258	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.77	0.02	0	0	0	100	0.00	0.0	9.245	0.049	0	0	0	1	P
span_36276	span_36275	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.77	0.02	0	0	0	100	0.00	0.0	9.295	0.050	0	0	0	1	
span_36274	span_36276	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.77	0.02	0	0	0	100	0.00	0.0	9.339	0.044	0	0	0	1	
span_36273	span_36274	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.77	0.02	0	0	0	100	0.00	0.0	9.382	0.042	0	0	0	1	
span_36272	span_36273	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.77	0.02	0	0	0	100	0.00	0.0	9.431	0.050	0	0	0	1	
18-28-03-L51	span_36272	A	Consumer	14.97Y	124.8	0.00	-4.77	0.02	0	0	0	100	0.00	0.0	9.431	0.000	0	0	1	1	
span_36259	span_36258	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.77	0.39	0	6	2	95	0.00	0.0	9.257	0.061	0	0	0	2	
span_36260	span_36259	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.77	0.39	0	6	2	95	0.00	0.0	9.314	0.057	0	0	0	2	
span_36261	span_36260	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.77	0.39	0	6	2	95	0.00	0.0	9.376	0.062	0	0	0	2	
span_11757	span_36261	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.77	0.39	0	6	2	95	0.00	0.0	9.437	0.062	0	0	0	2	
span_5613	span_11757	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.77	0.39	0	6	2	95	0.00	0.0	9.454	0.017	0	0	0	2	

Unbalanced Voltage Drop Report
Source: Dighton Hi

Database: Q:\E&E\520-POWER_PROVIDERS\LANE-SCOTT\PROJECTS\KS00042030 - CWP\MILSOFT\EXISTING SYSTEM 2025 LOADS.WM\
Title:
Case:

Units Displayed In Volts
-Base Voltage:120.0-

																mi	Element				
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	From Src	Length (mi)	KW	KVAR	Cons On	Cons Thru	
span_1082	span_5613	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.77	0.39	0	5	3	86	0.00	0.0	9.464	0.010	0	0	0	1	
18-28-03-L121	span_1082	A	Consumer	14.97Y	124.8	0.00	-4.77	0.39	0	5	3	86	0.00	0.0	9.464	0.000	5	3	1	1	
P span_36262	span_5613	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.77	-0.04	0	0	0	100	0.00	0.0	9.509	0.055	0	0	0	1	P
P span_36263	span_36262	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.77	-0.04	0	0	0	100	0.00	0.0	9.569	0.060	0	0	0	1	P
P span_10969	span_36263	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.77	-0.03	0	0	0	100	0.00	0.0	9.627	0.058	0	0	0	1	P
P span_36264	span_10969	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.77	0.03	0	0	0	100	0.00	0.0	9.687	0.060	0	0	0	1	P
P span_36265	span_36264	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.77	0.03	0	0	0	100	0.00	0.0	9.745	0.059	0	0	0	1	P
P span_36266	span_36265	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.77	0.03	0	0	0	100	0.00	0.0	9.810	0.064	0	0	0	1	P
span_36267	span_36266	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.77	0.02	0	0	0	100	0.00	0.0	9.865	0.056	0	0	0	1	
span_36268	span_36267	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.77	0.02	0	0	0	100	0.00	0.0	9.925	0.060	0	0	0	1	
span_36269	span_36268	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.77	0.02	0	0	0	100	0.00	0.0	9.988	0.062	0	0	0	1	
span_36270	span_36269	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.77	0.02	0	0	0	100	0.00	0.0	10.043	0.055	0	0	0	1	
span_36271	span_36270	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.77	0.02	0	0	0	100	0.00	0.0	10.087	0.045	0	0	0	1	
18-28-03-L0701	span_36271	A	Consumer	14.97Y	124.8	0.00	-4.77	0.02	0	0	0	100	0.00	0.0	10.087	0.000	0	0	1	1	
P span_1394	span_5613	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.77	-0.00	0	0	0	100	0.00	0.0	9.500	0.046	0	0	0	0	P
P span_11842	span_36247	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.78	-0.00	0	0	0	100	0.00	0.0	8.559	0.017	0	0	0	0	P
P span_11843	span_11842	A	#4 ACSR 6/	14.97Y	124.8	0.00	-4.78	-0.00	0	0	0	100	0.00	0.0	8.601	0.042	0	0	0	0	P
18-28-09-L81	span_11843	A	Consumer	14.97Y	124.8	0.00	-4.78	0.00	0	0	0	100	0.00	0.0	8.601	0.000	0	0	0	0	
18-28-10-L81	span_36242	A	Consumer	14.97Y	124.8	0.00	-4.78	0.01	0	0	0	100	0.00	0.0	8.290	0.000	0	0	1	1	
18-28-10-L124	span_12965	A	Consumer	14.97Y	124.8	0.00	-4.78	0.00	0	0	0	100	0.00	0.0	7.975	0.000	0	0	0	0	
P 18-28-10-L122	span_36235	A	Consumer	14.97Y	124.8	0.00	-4.78	0.20	0	3	2	83	0.00	0.0	7.932	0.000	3	2	1	1	P
span_1371	span_12111	A	336 ACSR	14.98Y	124.9	0.01	-4.87	23.26	4	345	50	99	0.12	0.0	6.192	0.188	0	0	0	37	
		B		15.00Y	125.0	0.02	-5.03	23.41	4	348	45	99					0	0	0	48	
		C		14.95Y	124.5	0.03	-4.54	33.92	6	497	101	98					0	0	0	116	
span_9904	span_1371	A	336 ACSR	14.98Y	124.9	0.01	-4.86	23.26	4	345	50	99	0.18	0.0	6.478	0.286	0	0	0	37	
		B		15.00Y	125.0	0.02	-5.01	23.42	4	348	45	99					0	0	0	48	
		C		14.94Y	124.5	0.04	-4.51	33.92	6	497	101	98					0	0	0	116	
P fake g 101	span 9904	A	Node	14.98Y	124.9	0.00	-4.86	0.18	0	2	1	89	0.00	0.0	6.478	0.000	0	0	0	1	P
P		C		14.94Y	124.5	0.00	-4.51	0.18	0	2	1	85					0	0	0	1	P
P 18-28-22-L152	fake g 101	A	Consumer	14.98Y	124.9	0.00	-4.86	0.18	0	2	1	89	0.00	0.0	6.478	0.000	2	1	1	1	P
P		C		14.94Y	124.5	0.00	-4.51	0.18	0	2	1	85					2	1	1	1	P
span_9905	span_9904	A	336 ACSR	14.98Y	124.9	0.00	-4.85	23.10	4	343	49	99	0.05	0.0	6.558	0.080	0	0	0	37	
		B		15.00Y	125.0	0.01	-5.00	23.42	4	348	45	99					0	0	0	48	
		C		14.94Y	124.5	0.01	-4.49	33.75	6	494	100	98					0	0	0	115	
span 5483	span 9905	A	336 ACSR	14.98Y	124.9	0.00	-4.85	23.10	4	343	49	99	0.05	0.0	6.642	0.084	0	0	0	37	
		B		15.00Y	125.0	0.01	-5.00	23.42	4	348	45	99					0	0	0	48	
		C		14.94Y	124.5	0.01	-4.48	33.75	6	494	100	98					0	0	0	115	
span 11188	span 5483	A	336 ACSR	14.98Y	124.8	0.01	-4.84	23.10	4	343	49	99	0.13	0.0	6.849	0.207	0	0	0	37	
		B		15.00Y	125.0	0.02	-4.98	23.42	4	348	45	99					0	0	0	48	
		C		14.93Y	124.5	0.03	-4.46	33.76	6	494	100	98					0	0	0	115	
span 11189	span 11188	A	336 ACSR	14.98Y	124.8	0.01	-4.84	23.10	4	343	50	99	0.13	0.0	7.057	0.207	0	0	0	37	
		B		15.00Y	125.0	0.02	-4.96	23.42	4	348	46	99					0	0	0	48	
		C		14.93Y	124.4	0.03	-4.43	33.76	6	494	100	98					0	0	0	115	
span_10696	span_11189	A	336 ACSR	14.98Y	124.8	0.00	-4.84	16.74	3	251	-5	-100	0.05	0.0	7.180	0.123	0	0	0	31	
		B		14.99Y	125.0	0.01	-4.96	18.01	3	270	-1	-100					0	0	0	46	
		C		14.93Y	124.4	0.01	-4.42	28.08	5	416	53	99					0	0	0	114	
span_10697	span_10696	A	336 ACSR	14.98Y	124.8	0.00	-4.83	16.74	3	251	-5	-100	0.21	0.0	7.708	0.529	0	0	0	31	
		B		14.99Y	124.9	0.03	-4.93	18.01	3	270	-1	-100					0	0	0	46	
		C		14.92Y	124.4	0.05	-4.36	28.08	5	416	53	99					0	0	0	114	
span 12716	span 10697	A	#4 ACSR 6/	14.98Y	124.8	0.00	-4.83	0.07	0	1	0	100	0.00	0.0	7.811	0.102	0	0	0	1	
P		B		14.99Y	124.9	-0.00	-4.93	-0.01	0	0	0	0					0	0	0	0	P
		C		14.92Y	124.4	0.00	-4.36	0.07	0	1	0	92					0	0	0	1	

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: Dighton Hi

Database: Q:\E&E\520-POWER_PROVIDERS\LANE-SCOTT\PROJECTS\KS00042030 - CWP\MILSOFT\EXISTING SYSTEM 2025 LOADS.WM\
Title:
Case:

Units Displayed In Volts
-Base Voltage:120.0-

																		mi	----------Element----------							
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	From Src	Length (mi)	KW	KVAR	Cons On	Cons Thru	
P span 12717	span 12716	A	#4 ACSR 6/	14.98Y	124.8	0.00	-4.83	0.08	0	1	1	71	0.00	0.0	7.873	0.062	0	0	0	1	P
P		B		14.99Y	124.9	-0.00	-4.93	-0.01	0	0	0	0					0	0	0	0	P
P		C		14.92Y	124.4	0.00	-4.36	0.08	0	1	1	88					0	0	0	1	P
P fake g 102	span 12717	A	Node	14.98Y	124.8	0.00	-4.83	0.08	0	1	1	71	0.00	0.0	7.873	0.000	0	0	0	1	P
P		C		14.92Y	124.4	0.00	-4.36	0.08	0	1	1	85					0	0	0	1	P
P 18-28-23-L151	fake_g_102	A	Consumer	14.98Y	124.8	0.00	-4.83	0.08	0	1	1	71	0.00	0.0	7.873	0.000	1	1	1	1	P
P		C		14.92Y	124.4	0.00	-4.36	0.08	0	1	1	85					1	1	1	1	P
span 6458	span 10697	A	336 ACSR	14.98Y	124.8	0.00	-4.83	16.67	3	250	-5	-100	0.08	0.0	7.905	0.197	0	0	0	31	
		B		14.99Y	124.9	0.01	-4.91	18.01	3	270	0	-100					0	0	0	46	
		C		14.92Y	124.3	0.02	-4.34	28.01	5	415	53	99					0	0	0	113	
span 6459	span 6458	A	336 ACSR	14.98Y	124.8	0.00	-4.83	16.67	3	250	-4	-100	0.02	0.0	7.948	0.043	0	0	0	31	
		B		14.99Y	124.9	0.00	-4.91	18.01	3	270	0	100					0	0	0	46	
		C		14.92Y	124.3	0.00	-4.34	28.01	5	415	53	99					0	0	0	113	
span 1376	span 6459	A	336 ACSR	14.98Y	124.8	0.00	-4.83	16.67	3	250	-4	-100	0.03	0.0	8.034	0.086	0	0	0	31	
		B		14.99Y	124.9	0.00	-4.91	18.01	3	270	0	100					0	0	0	46	
		C		14.92Y	124.3	0.01	-4.33	27.84	5	412	52	99					0	0	0	112	
S210300-A	span_1376	A	Closed	14.98Y	124.8	0.00	-4.83	16.67	0	250	-4	-100	0.00	0.0	8.034	0.000	0	0	0	31	
		B		14.99Y	124.9	0.00	-4.91	18.01	0	270	0	100					0	0	0	46	
		C		14.92Y	124.3	0.00	-4.33	27.84	0	412	52	99					0	0	0	112	
S210300-B	S210300-A	A	Closed	14.98Y	124.8	0.00	-4.83	16.67	0	250	-4	-100	0.00	0.0	8.034	0.000	0	0	0	31	
		B		14.99Y	124.9	0.00	-4.91	18.01	0	270	0	100					0	0	0	46	
		C		14.92Y	124.3	0.00	-4.33	27.84	0	412	52	99					0	0	0	112	
span 3358	S210300-B	A	336 ACSR	14.98Y	124.8	0.00	-4.83	16.67	3	250	-4	-100	0.01	0.0	8.065	0.031	0	0	0	31	
		B		14.99Y	124.9	0.00	-4.91	18.01	3	270	0	100					0	0	0	46	
		C		14.92Y	124.3	0.00	-4.32	27.84	5	412	52	99					0	0	0	112	
span 3359	span 3358	A	#4 ACSR 6/	14.98Y	124.8	0.01	-4.83	9.18	7	126	-55	-92	0.04	0.0	8.120	0.054	0	0	0	24	
		B		14.99Y	124.9	0.01	-4.90	9.25	7	128	-54	-92					0	0	0	26	
		C		14.92Y	124.3	0.01	-4.31	12.18	9	180	-27	-99					0	0	0	41	
S210400-A	span 3359	A	Closed	14.98Y	124.8	0.00	-4.83	9.18	0	126	-55	-92	0.00	0.0	8.120	0.000	0	0	0	24	
		B		14.99Y	124.9	0.00	-4.90	9.25	0	128	-54	-92					0	0	0	26	
		C		14.92Y	124.3	0.00	-4.31	12.18	0	180	-27	-99					0	0	0	41	
S210400-B	S210400-A	A	Closed	14.98Y	124.8	0.00	-4.83	9.18	0	126	-55	-92	0.00	0.0	8.120	0.000	0	0	0	24	
		B		14.99Y	124.9	0.00	-4.90	9.25	0	128	-54	-92					0	0	0	26	
		C		14.92Y	124.3	0.00	-4.31	12.18	0	180	-27	-99					0	0	0	41	
span_6818	S210400-B	A	#4 ACSR 6/	14.98Y	124.8	0.02	-4.81	9.18	7	126	-55	-92	0.14	0.0	8.328	0.208	0	0	0	24	
		B		14.98Y	124.9	0.03	-4.87	9.25	7	128	-54	-92					0	0	0	26	
		C		14.91Y	124.3	0.05	-4.27	12.18	9	180	-27	-99					0	0	0	41	
span 7248	span 6818	A	#4 ACSR 6/	14.97Y	124.7	0.07	-4.73	9.18	7	126	-55	-92	0.48	0.1	9.037	0.709	0	0	0	24	
		B		14.97Y	124.8	0.09	-4.78	9.24	7	127	-54	-92					0	0	0	26	
		C		14.89Y	124.1	0.15	-4.11	12.18	9	180	-27	-99					0	0	0	41	
span 9824	span 7248	A	#4 ACSR 6/	14.97Y	124.7	0.01	-4.73	9.15	7	126	-54	-92	0.03	0.0	9.087	0.049	0	0	0	24	
		B		14.97Y	124.8	0.01	-4.77	9.22	7	127	-53	-92					0	0	0	26	
		C		14.89Y	124.1	0.01	-4.10	12.17	9	179	-26	-99					0	0	0	41	
span 9825	span 9824	A	#4 ACSR 6/	14.96Y	124.7	0.03	-4.70	9.15	7	126	-54	-92	0.22	0.1	9.416	0.330	0	0	0	24	
		B		14.97Y	124.7	0.04	-4.73	9.22	7	127	-53	-92					0	0	0	26	
		C		14.88Y	124.0	0.07	-4.03	12.17	9	179	-26	-99					0	0	0	41	
span_25644	span_9825	A	#4 ACSR 6/	14.96Y	124.7	0.01	-4.69	9.14	7	126	-53	-92	0.04	0.0	9.477	0.060	0	0	0	24	
		B		14.97Y	124.7	0.01	-4.72	9.20	7	127	-53	-92					0	0	0	26	
		C		14.88Y	124.0	0.01	-4.02	12.16	9	179	-26	-99					0	0	0	41	
span_25655	span_25644	A	#4 ACSR 6/	14.96Y	124.7	0.01	-4.68	8.95	6	122	-56	-91	0.04	0.0	9.535	0.058	0	0	0	23	
		B		14.97Y	124.7	0.01	-4.72	9.01	6	123	-55	-91					0	0	0	26	
		C		14.88Y	124.0	0.01	-4.01	11.91	9	175	-28	-99					0	0	0	41	
span 9156	span 25655	A	#4 ACSR 6/	14.96Y	124.6	0.06	-4.63	8.95	6	122	-56	-91	0.37	0.1	10.113	0.578	0	0	0	23	
		B		14.96Y	124.6	0.07	-4.65	9.01	6	123	-55	-91					0	0	0	26	
		C		14.87Y	123.9	0.12	-3.88	11.90	9	175	-28	-99					0	0	0	40	
span 9157	span 9156	A	#4 ACSR 6/	14.96Y	124.6	0.00	-4.63	8.93	6	122	-55	-91	0.01	0.0	10.126	0.013	0	0	0	23	
		B		14.96Y	124.6	0.00	-4.64	8.99	6	123	-55	-91					0	0	0	26	
		C		14.87Y	123.9	0.00	-3.88	11.64	8	171	-30	-99					0	0	0	39	
P span 38512	span 9157	A	#4 ACSR 6/	14.95Y	124.6	0.04	-4.59	8.69	6	116	-59	-89	0.27	0.1	10.568	0.442	0	0	0	23	P
		B		14.95Y	124.6	0.06	-4.59	8.99	6	123	-54	-91					0	0	0	26	
		C		14.86Y	123.8	0.09	-3.80	11.32	8	165	-33	-98					0	0	0	39	

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: Dighton Hi

Database: Q:\E&E\520-POWER_PROVIDERS\LANE-SCOTT\PROJECTS\KS00042030 - CWP\MILSOFT\EXISTING SYSTEM 2025 LOADS.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	Thru KVAR	% PF	kW Loss	% Loss	mi From Src	Element Length (mi)	Element KW	Element KVAR	Cons On	Cons Thru	
fake g 103	span 38512	A	Node	14.95Y	124.6	0.00	-4.59	0.00	0	0	0	100	0.00	0.0	10.568	0.000	0	0	0	0	
		B		14.95Y	124.6	0.00	-4.59	0.00	0	0	0	100					0	0	0	0	
		C		14.86Y	123.8	0.00	-3.80	0.00	0	0	0	100					0	0	0	0	
18-28-12-L0501	fake g 103	A	Consumer	14.95Y	124.6	0.00	-4.59	0.00	0	0	0	100	0.00	0.0	10.568	0.000	0	0	0	0	
		B		14.95Y	124.6	0.00	-4.59	0.00	0	0	0	100					0	0	0	0	
		C		14.86Y	123.8	0.00	-3.80	0.00	0	0	0	100					0	0	0	0	
P span 38511	span 38512	A	#4 ACSR 6/	14.94Y	124.5	0.05	-4.54	8.68	6	116	-58	-89	0.30	0.1	11.062	0.494	0	0	0	23	P
		B		14.94Y	124.5	0.06	-4.53	8.97	6	123	-54	-92					0	0	0	26	
		C		14.84Y	123.7	0.10	-3.70	11.31	8	165	-32	-98					0	0	0	39	
P span_3690	span_38511	A	#4 ACSR 6/	14.94Y	124.5	0.00	-4.54	-0.07	0	1	-1	-71	0.00	0.0	11.069	0.007	0	0	0	1	P
F210300	span_3690	A		14.94Y	124.5	0.00	-4.54	-0.07	0	1	-1	-71	0.00	0.0	11.069	0.000	0	0	0	1	
P span_37936	F210300	A	#4 ACSR 6/	14.94Y	124.5	0.00	-4.54	-0.07	0	1	-1	-71	0.00	0.0	11.116	0.047	0	0	0	1	P
P span_37937	span_37936	A	#4 ACSR 6/	14.94Y	124.5	0.00	-4.54	-0.06	0	1	-1	-71	0.00	0.0	11.165	0.049	0	0	0	1	P
P span_37938	span_37937	A	#4 ACSR 6/	14.94Y	124.5	0.00	-4.54	-0.06	0	1	-1	-71	0.00	0.0	11.213	0.049	0	0	0	1	P
P span_37939	span_37938	A	#4 ACSR 6/	14.94Y	124.5	0.00	-4.54	-0.06	0	1	-1	-71	0.00	0.0	11.261	0.048	0	0	0	1	P
P span_37940	span_37939	A	#4 ACSR 6/	14.94Y	124.5	0.00	-4.54	-0.06	0	1	-1	-71	0.00	0.0	11.310	0.049	0	0	0	1	P
P span_37941	span_37940	A	#4 ACSR 6/	14.94Y	124.5	0.00	-4.54	-0.05	0	1	-1	-71	0.00	0.0	11.358	0.049	0	0	0	1	P
P span_37942	span_37941	A	#4 ACSR 6/	14.94Y	124.5	0.00	-4.54	-0.05	0	1	-1	-71	0.00	0.0	11.406	0.048	0	0	0	1	P
P span_37943	span_37942	A	#4 ACSR 6/	14.94Y	124.5	0.00	-4.54	0.05	0	1	-1	-71	0.00	0.0	11.455	0.049	0	0	0	1	P
P span_37944	span_37943	A	#4 ACSR 6/	14.94Y	124.5	0.00	-4.54	0.05	0	1	0	100	0.00	0.0	11.503	0.048	0	0	0	1	P
P span_37945	span_37944	A	#4 ACSR 6/	14.94Y	124.5	0.00	-4.54	0.05	0	1	0	100	0.00	0.0	11.552	0.048	0	0	0	1	P
P span_37946	span_37945	A	#4 ACSR 6/	14.94Y	124.5	0.00	-4.54	0.04	0	1	0	100	0.00	0.0	11.605	0.053	0	0	0	1	P
P span_37947	span_37946	A	#4 ACSR 6/	14.94Y	124.5	0.00	-4.54	0.04	0	1	0	100	0.00	0.0	11.657	0.052	0	0	0	1	P
P span_37948	span_37947	A	#4 ACSR 6/	14.94Y	124.5	0.00	-4.54	0.04	0	1	0	100	0.00	0.0	11.709	0.053	0	0	0	1	P
span_37949	span_37948	A	#4 ACSR 6/	14.94Y	124.5	0.00	-4.54	0.04	0	1	0	100	0.00	0.0	11.762	0.053	0	0	0	1	
span_37950	span_37949	A	#4 ACSR 6/	14.94Y	124.5	0.00	-4.54	0.04	0	1	0	100	0.00	0.0	11.817	0.054	0	0	0	1	
span_37951	span_37950	A	#4 ACSR 6/	14.94Y	124.5	0.00	-4.54	0.04	0	1	0	100	0.00	0.0	11.869	0.052	0	0	0	1	
span_37952	span_37951	A	#4 ACSR 6/	14.94Y	124.5	0.00	-4.54	0.04	0	1	0	100	0.00	0.0	11.923	0.054	0	0	0	1	
span_37953	span_37952	A	#4 ACSR 6/	14.94Y	124.5	0.00	-4.54	0.04	0	1	0	100	0.00	0.0	11.977	0.054	0	0	0	1	
span_37954	span_37953	A	#4 ACSR 6/	14.94Y	124.5	0.00	-4.54	0.04	0	1	0	100	0.00	0.0	12.031	0.054	0	0	0	1	
span_37955	span_37954	A	#4 ACSR 6/	14.94Y	124.5	0.00	-4.54	0.04	0	1	0	100	0.00	0.0	12.084	0.054	0	0	0	1	
span_37956	span_37955	A	#4 ACSR 6/	14.94Y	124.5	0.00	-4.54	0.04	0	1	0	100	0.00	0.0	12.140	0.055	0	0	0	1	
18-28-01-L0702	span_37956	A	Consumer	14.94Y	124.5	0.00	-4.54	0.00	0	0	0	100	0.00	0.0	12.140	0.000	0	0	0	0	
span_10705	span_37956	A	#4 ACSR 6/	14.94Y	124.5	0.00	-4.54	0.04	0	1	0	100	0.00	0.0	12.200	0.060	0	0	0	1	
18-28-01-L71	span_10705	A	Consumer	14.94Y	124.5	0.00	-4.54	0.04	0	1	0	100	0.00	0.0	12.200	0.000	1	0	1	1	
P span 2268	span 38511	A	#4 ACSR 6/	14.94Y	124.5	0.05	-4.49	8.60	6	115	-57	-90	0.31	0.1	11.581	0.519	0	0	0	22	P
		B		14.94Y	124.5	0.07	-4.46	8.96	6	123	-53	-92					0	0	0	26	
		C		14.83Y	123.6	0.10	-3.60	11.31	8	165	-32	-98					0	0	0	39	
P span 5696	span 2268	A	#4 ACSR 6/	14.93Y	124.4	0.05	-4.45	8.58	6	115	-56	-90	0.31	0.1	12.101	0.520	0	0	0	22	P
		B		14.93Y	124.4	0.07	-4.40	8.94	6	123	-53	-92					0	0	0	26	
		C		14.82Y	123.5	0.10	-3.50	11.30	8	165	-31	-98					0	0	0	39	
span_5697	span_5696	A	#4 ACSR 6/	14.93Y	124.4	0.05	-4.40	8.56	6	115	-56	-90	0.29	0.1	12.591	0.490	0	0	0	22	
		B		14.92Y	124.3	0.06	-4.33	8.92	6	123	-52	-92					0	0	0	26	
		C		14.81Y	123.4	0.09	-3.41	11.27	8	164	-31	-98					0	0	0	38	
span_9454	span_5697	A	#4 ACSR 6/	14.92Y	124.4	0.04	-4.36	8.55	6	115	-55	-90	0.28	0.1	13.061	0.470	0	0	0	22	
		B		14.91Y	124.3	0.06	-4.28	8.91	6	122	-52	-92					0	0	0	26	
		C		14.80Y	123.3	0.09	-3.31	11.25	8	164	-30	-98					0	0	0	36	
span 28990	span 9454	A	#4 ACSR 6/	14.92Y	124.4	0.01	-4.35	8.53	6	115	-54	-91	0.04	0.0	13.123	0.062	0	0	0	22	
		B		14.91Y	124.3	0.01	-4.27	8.89	6	122	-51	-92					0	0	0	26	
		C		14.80Y	123.3	0.01	-3.30	11.23	8	164	-29	-98					0	0	0	35	

Unbalanced Voltage Drop Report
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Database: Q:\E&E\520-POWER_PROVIDERS\LANE-SCOTT\PROJECTS\KS00042030 - CWP\MILSOFT\EXISTING SYSTEM 2025 LOADS.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	Cons On	Cons Thru	
span 28991	span 28990	A	#4 ACSR 6/	14.92Y	124.3	0.01	-4.35	8.53	6	115	-54	-91	0.04	0.0	13.182	0.059	0	0	0	22	
		B		14.91Y	124.3	0.01	-4.26	8.89	6	122	-51	-92					0	0	0	26	
		C		14.79Y	123.3	0.01	-3.29	11.23	8	164	-29	-98					0	0	0	35	
span 6941	span 28991	A	#4 ACSR 6/	14.92Y	124.3	0.01	-4.34	8.53	6	115	-54	-91	0.04	0.0	13.242	0.060	0	0	0	22	
		B		14.91Y	124.3	0.01	-4.25	8.89	6	122	-51	-92					0	0	0	26	
		C		14.79Y	123.3	0.01	-3.28	11.23	8	164	-29	-98					0	0	0	35	
T210583	span_6941	A	Transforme	7.91Y	124.5	-0.17	-4.51	8.52	8	115	-54	-91	0.00	0.0	13.242	0.000	0	0	0	22	
fake g 104	T210583	A	Node	7.91Y	124.5	0.00	-4.51	16.11	0	115	-55	-90	0.00	0.0	13.242	0.000	0	0	0	22	
		B		7.89Y	124.3	0.00	-4.25	16.79	0	122	-51	-92					0	0	0	26	
		C		7.83Y	123.3	0.00	-3.28	21.23	0	164	-29	-98					0	0	0	35	
span 7906	fake g 104	A	#4 ACSR 6/	7.91Y	124.5	0.02	-4.49	16.11	12	115	-55	-90	0.12	0.0	13.300	0.057	0	0	0	22	
		B		7.89Y	124.2	0.03	-4.23	16.79	12	122	-51	-92					0	0	0	26	
		C		7.83Y	123.2	0.04	-3.24	21.23	15	164	-29	-98					0	0	0	35	
17-28-25-L121	span_7906	A	Consumer	7.91Y	124.5	0.00	-4.49	0.03	0	0	0	100	0.00	0.0	13.300	0.000	0	0	1	1	
span 7907	span 7906	A	#4 ACSR 6/	7.90Y	124.5	0.02	-4.47	16.09	11	115	-55	-90	0.13	0.0	13.360	0.061	0	0	0	21	
		B		7.89Y	124.2	0.03	-4.20	16.79	12	122	-51	-92					0	0	0	26	
		C		7.82Y	123.2	0.04	-3.20	21.23	15	164	-29	-98					0	0	0	35	
R211100	span 7907	A	007-50-H O	7.90Y	124.5	0.00	-4.47	16.09	0	115	-55	-90	0.00	0.0	13.360	0.000	0	0	0	21	
		B		7.89Y	124.2	0.00	-4.20	16.79	0	122	-51	-92					0	0	0	26	
		C		7.82Y	123.2	0.00	-3.20	21.23	0	163	-29	-98					0	0	0	35	
span 3104	R211100	A	#4 ACSR 6/	7.90Y	124.5	0.02	-4.45	16.09	11	115	-55	-90	0.12	0.0	13.418	0.058	0	0	0	21	
		B		7.88Y	124.2	0.03	-4.17	16.79	12	122	-51	-92					0	0	0	26	
		C		7.82Y	123.2	0.04	-3.16	21.23	15	163	-29	-98					0	0	0	35	
G210200	span_3104	A	100 AMP	7.98Y	125.6	-1.18	-5.63	16.09	16	115	-55	-90	percent Boost= 0.94 Tap= 3.0							21	
		B		7.98Y	125.7	-1.57	-5.74	16.79	17	122	-51	-92	percent Boost= 1.25 Tap= 4.0							26	
		C		8.00Y	125.9	-2.75	-5.91	21.23	21	163	-29	-98	percent Boost= 2.19 Tap= 7.0							35	
span_8216	G210200	A	#4 ACSR 6/	7.98Y	125.6	0.00	-5.63	15.94	11	115	-55	-90	0.01	0.0	13.421	0.003	0	0	0	21	
		B		7.98Y	125.7	0.00	-5.74	16.58	12	122	-51	-92					0	0	0	26	
		C		8.00Y	125.9	0.00	-5.91	20.76	15	163	-29	-98					0	0	0	35	
span 8217	span 8216	A	#4 ACSR 6/	7.98Y	125.6	0.03	-5.60	15.94	11	115	-55	-90	0.18	0.0	13.509	0.088	0	0	0	21	
		B		7.98Y	125.7	0.04	-5.70	16.58	12	122	-51	-92					0	0	0	26	
		C		7.99Y	125.9	0.06	-5.85	20.76	15	163	-29	-98					0	0	0	35	
span 7141	span 8217	A	#4 ACSR 6/	7.97Y	125.6	0.01	-5.58	15.94	11	115	-55	-90	0.09	0.0	13.553	0.044	0	0	0	21	
		B		7.98Y	125.7	0.02	-5.69	16.58	12	122	-51	-92					0	0	0	26	
		C		7.99Y	125.8	0.03	-5.82	20.04	14	157	-32	-98					0	0	0	34	
span 10094	span 7141	A	#4 ACSR 6/	7.97Y	125.6	0.00	-5.58	-0.04	0	0	0	100	0.00	0.0	13.559	0.006	0	0	0	0	
P		B		7.98Y	125.7	-0.00	-5.69	-0.04	0	0	0	0					0	0	0	0	P
		C		7.99Y	125.8	-0.00	-5.82	-0.04	0	0	0	0					0	0	0	0	
span_11966	span_10094	A	#4 ACSR 6/	7.97Y	125.6	-0.00	-5.58	-0.04	0	0	0	100	0.00	0.0	13.844	0.285	0	0	0	0	
P		B		7.98Y	125.7	-0.00	-5.69	-0.04	0	0	0	0					0	0	0	0	P
		C		7.99Y	125.8	-0.00	-5.82	-0.04	0	0	0	0					0	0	0	0	
span_11967	span_11966	A	#4 ACSR 6/	7.97Y	125.6	-0.00	-5.58	-0.02	0	0	0	100	0.00	0.0	14.018	0.174	0	0	0	0	
P		B		7.98Y	125.7	-0.00	-5.69	-0.02	0	0	0	0					0	0	0	0	P
		C		7.99Y	125.8	-0.00	-5.82	-0.02	0	0	0	0					0	0	0	0	
span 6288	span 11967	A	#4 ACSR 6/	7.97Y	125.6	-0.00	-5.58	-0.02	0	0	0	100	0.00	0.0	14.064	0.046	0	0	0	0	
P		B		7.98Y	125.7	-0.00	-5.69	-0.02	0	0	0	0					0	0	0	0	P
		C		7.99Y	125.8	-0.00	-5.82	-0.02	0	0	0	0					0	0	0	0	
span 6289	span 6288	A	#4 ACSR 6/	7.97Y	125.6	-0.00	-5.58	-0.02	0	0	0	100	0.00	0.0	14.304	0.240	0	0	0	0	
P		B		7.98Y	125.7	-0.00	-5.69	-0.02	0	0	0	0					0	0	0	0	P
		C		7.99Y	125.8	-0.00	-5.82	-0.02	0	0	0	0					0	0	0	0	
span 7754	span 6289	A	#4 ACSR 6/	7.97Y	125.6	0.00	-5.58	-0.00	0	0	0	100	0.00	0.0	14.362	0.057	0	0	0	0	
P		B		7.98Y	125.7	0.00	-5.69	-0.00	0	0	0	0					0	0	0	0	P
		C		7.99Y	125.8	0.00	-5.82	-0.00	0	0	0	0					0	0	0	0	
span_7755	span_7754	A	#4 ACSR 6/	7.97Y	125.6	0.00	-5.58	-0.00	0	0	0	100	0.00	0.0	14.411	0.049	0	0	0	0	
P		B		7.98Y	125.7	0.00	-5.69	-0.00	0	0	0	0					0	0	0	0	P
		C		7.99Y	125.8	0.00	-5.82	-0.00	0	0	0	0					0	0	0	0	
fake_g_105	span_7754	A	Node	7.97Y	125.6	0.00	-5.58	0.00	0	0	0	100	0.00	0.0	14.362	0.000	0	0	0	0	
		B		7.98Y	125.7	0.00	-5.69	0.00	0	0	0	100					0	0	0	0	
		C		7.99Y	125.8	0.00	-5.82	0.00	0	0	0	100					0	0	0	0	
17-28-25-L081	fake g 105	A	Consumer	7.97Y	125.6	0.00	-5.58	0.00	0	0	0	100	0.00	0.0	14.362	0.000	0	0	0	0	
		B		7.98Y	125.7	0.00	-5.69	0.00	0	0	0	100					0	0	0	0	
		C		7.99Y	125.8	0.00	-5.82	0.00	0	0	0	100					0	0	0	0	

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

10. b. Nominating Committee Report

The Lane-Scott Electric Cooperative Committee on Nominations will meet prior to the June 7, 2021, meeting of the Board of Trustees. Attorney Joseph Gasper will provide a report of the meeting.

10. c. 2021 Cost of Service Study

Lane-Scott Electric Cooperative, Inc. sent Requests for Proposal to two established consulting firms for the preparation and presentation of the 2021 Cost-of-Service Study (COSS). Firms were selected based on the Cooperatives prior experience and from an informal survey of firms used by our surrounding sister cooperatives. These firms are:

- Guernsey. They are in Oklahoma City and have worked for Lane-Scott, Pioneer, and Sunflower. I have worked with Guernsey for over 20 years and always been impressed by their work ethic and product. Guernsey focuses on electric cooperatives and is a national leader in preparing Cost of Service Studies.

- Power Systems Engineering. They are in Topeka, Kansas and have worked for Sunflower, Pioneer, and Western. I have not worked with PSE but received very good referrals from other cooperatives about their work-product.

- Power Engineers of Fort Worth, Texas was considered because they also work for several Kansas Cooperatives but was eliminated because they do not preform COSS.

The Cooperative has budgeted $40,000.00 for the 2021 COSS. That includes:

1. A review of existing rate designs and recommendations for amendments or new rates. This could include but is not limited to:
   a. Security Lighting
   b. Prepaid Residential rates
   c. Oil and Gas analysis
   d. Local Access Charges (at transmission)
   e. Distribution Wheeling rates
   f. Distributed Generation net metering rates
   g. EV charging rates / options
   h. Innovative Rate design
2. Contribution in Aid of Construction rates and structure.
3. Review / update of service charges and fees.
4. Preparation of Tariff / Rate sheets.

It has been six years since the last COSS which was done by Mr. Doug Sheppard of KEC. That study was focused on updating existing rates rather than a comprehensive look at revenue requirements and current rate design adequacy.

Consulting firms.

Both firms presented a Proposal for the 2021 Cost-of-Service Study.

- Guernsey - $21,000 to $30,000
  - Base proposal: Determine Revenue requirement, Cost of Service & Rate Design, billing comparisons, and Line Extension Analysis.
  - Option #1 – Base proposal plus: an adjusted test year analysis, Revenue requirement Modeling & Discussion, and a 10-year Financial Forecast: $25,000-$30,000
  - Option #2 – Base Proposal plus LSEC's Budget for the proposed Revenue Requirement

- Price excludes expenses related to on-site Board or member meetings.

Cost Estimate

Option #1		Option #2	
Step 1: Determination of Revenue Requirement		Step 1: Determination of Revenue Requirement	
Adjusted Test Year with Normalized Expenses Revenue Requirement Modeling & Discussion Ten Year Financial Forecast		LSEC's Budget for the proposed Revenue Requirement	
Cost Estimate	$7,000 – $10,000	Cost Estimate	$3,000 - $4,000
Step 2 - 7: Cost of Service & Rate Design, Billing Comparisons, Line Ext. Analysis		Step 2 - 7: Cost of Service & Rate Design, Billing Comparisons, Line Ext. Analysis	
Cost Estimate	$18,000 - $20,000	Cost Estimate	$18,000 - $20,000
TOTAL COST ESTIMATE	$25,000 - $30,000	TOTAL COST ESTIMATE	$21,000 - $24,000

Cost estimates exclude labor and direct expenses for travel related to on-site Board or Member meetings

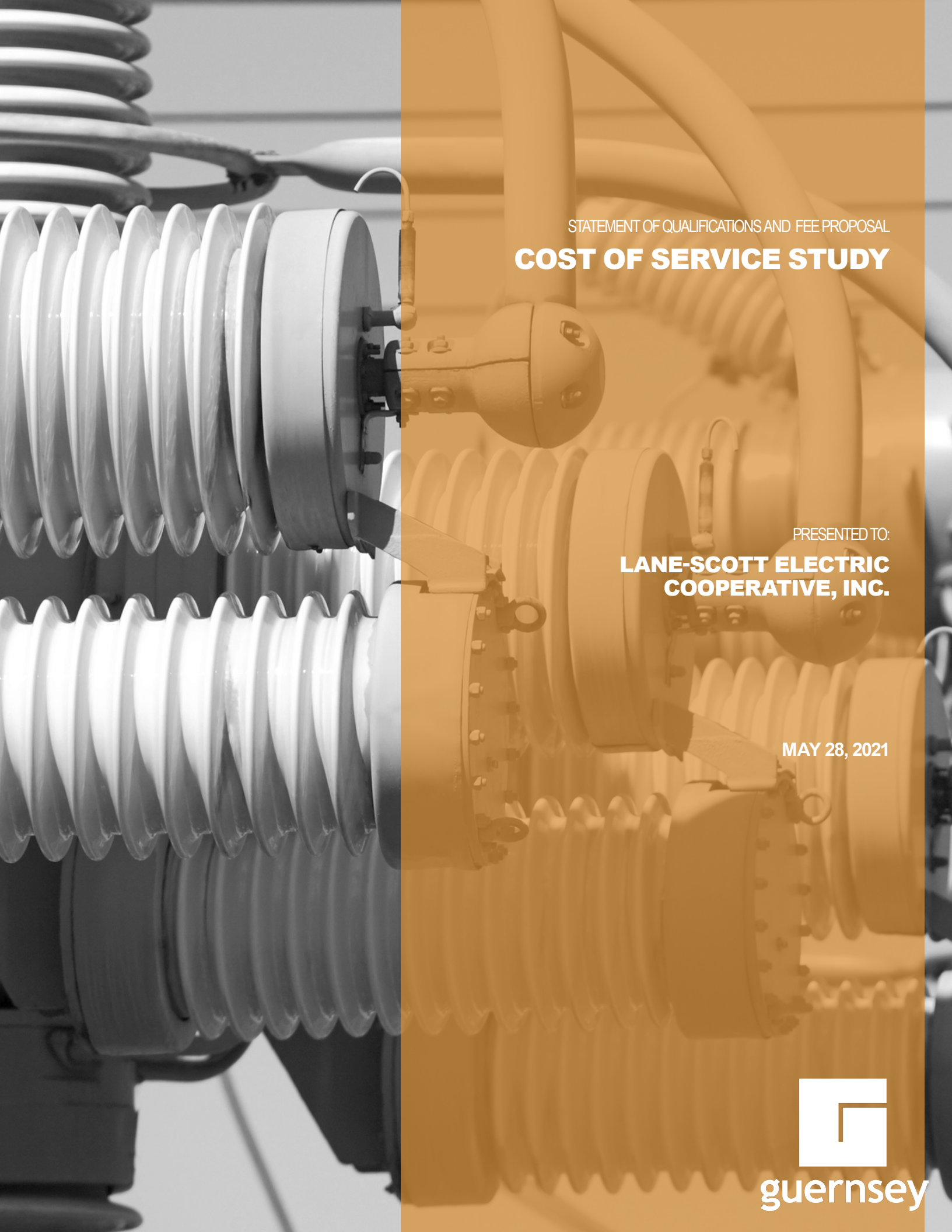
- Power Systems Engineering - $37,500 to $39,500
  - Project Fee – Revenue requirement and Class COS, Retail rate Design, 2 on-site meetings: $31,500
  - Financial Forecast: $6,000 to $8,000

Project Fee Proposal

Major Tasks	Cost Estimate
Revenue Requirement and Class COS	$16,500
Retail Rate Design	11,500
On-Site Meetings and Travel (up to 2)	3,500
Subtotal	**$31,500**
Separate 10-Year Financial Forecast	$6,000 to $8,000
Total with Separate Financial Forecast	**$37,500 to $39,500**

We feel that **the Guernsey proposal offers the most value**. This is because we have good experience and rapport with Guernsey and the success that we are having with them under the current Construction Work Plan project.

Staff recommends that the Board of Trustees select Guernsey to prepare the 2021 Cost-of-Service Study.



STATEMENT OF QUALIFICATIONS AND FEE PROPOSAL

COST OF SERVICE STUDY

PRESENTED TO:

LANE-SCOTT ELECTRIC COOPERATIVE, INC.

MAY 28, 2021

guernsey

guernsey
ENGINEERS
ARCHITECTS
CONSULTANTS

May 28, 2021

Lane-Scott Electric Cooperative, Inc.
P.O. Box 758
Dighton, KS 67839

ATTN: Richard McLeon, General Manager

SUBJECT: Cost of Service Study | Statement of Qualifications and Fee Proposal

Dear Mr. McLeon:

Lane-Scott Electric Cooperative, Inc. (LSEC) can trust Guernsey to develop a comprehensive Cost of Service Study that provides your staff and Board with the necessary detail to make informed decisions regarding rates and cost recovery. Our staff have worked with cooperatives across Kansas providing guidance on rate design matters addressing important issues affecting each cooperative. We can assist LSEC as you consider important changes to your rates.

Founded in 1928, Guernsey has a proud history of partnering with our clients on projects worldwide. Since the Rural Electrification Administration (REA) of 1935, our firm has been an integral partner with electric cooperatives. In the late 1930s, Guernsey was instrumental in the initial design and construction of many electric cooperatives. Starting in the 1960s, we have specialized in cost of service studies, financial forecasting, architectural, engineering, and environmental services. Guernsey's services have spanned eight decades, hundreds of cooperatives across the nation, and maintains a comprehensive portfolio.

We appreciate the opportunity to provide innovative solutions that best meet the needs of your members and position LSEC for financial success. If you have any questions regarding our proposal, please contact me at 405.416.8191 or email justin.proctor@guernsey.us. We look forward to the opportunity to work with you, your staff, and the Board of Directors.

Sincerely,
C. H. Guernsey & Company

Justin Proctor
Managing Consultant

[Enclosure]

5555 North Grand Boulevard
Oklahoma City, OK 73112-5507
405.416.8100
guernsey.us

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APPENDIX C- DATA REQUEST

EXECUTIVE SUMMARY

BASIC INFORMATION

Guernsey
5555 N. Grand Blvd.
Oklahoma City, Oklahoma 73112
Established – 1928

Contact:

David Hedrick
Executive Vice President
405.416.8157
david.hedrick@guernsey.us

Justin Proctor
Managing Consultant
405.416.8191
justin.proctor@guernsey.us

Lane-Scott Electric Cooperative, Inc. (LSEC) can trust Guernsey to develop a comprehensive Cost of Service and Rate Study that supports your vision to provide for the Cooperative's members' present and future needs. We know you take great pride in providing customer service and enhancing the quality of life for the communities you serve. At Guernsey, we have been focused on serving the needs of electric cooperatives for more than 80 years.

Our rich history and knowledge of the cooperative landscape is diverse – providing cost of service and innovative rate design services, including solutions integrating rate options for renewable energy, energy efficiency, electric vehicle charging, and time-based rates for residential and commercial members. Our staff also assist cooperatives by providing management consulting, power supply planning, load forecasting, and distribution engineering-related services. Our unique relationship with cooperatives and their organizations enables our staff to address important issues affecting our clients.

Founded in 1928, Guernsey has a proud history of partnering with our clients on projects worldwide. Since the signing of the REA Act, Guernsey has been an integral partner with electric cooperatives. In the late 1930s, Guernsey was instrumental in the initial design and construction of many electric cooperatives. Starting in the 1960s, Guernsey has provided cost of service studies, financial forecasting, engineering, and other services. Guernsey's services have spanned eight decades, hundreds of cooperatives across the nation, and a comprehensive portfolio.

One of our strong points is related to employee and board training. Guernsey routinely provides training on cost of service analysis, rate design, financial forecasting, line extension development, equity management, evaluating energy efficiency projects, renewable energy and net metering, electric vehicle charging, and many other topics. Our staff routinely presents at NRECA conferences, statewide meetings, and individual cooperatives.

RESPONDENT QUALIFICATIONS

COMPANY OVERVIEW

Guernsey has worked with electric cooperatives for over eighty years. We are known and trusted among electric cooperatives throughout the U.S. Guernsey is an employee-owned firm with approximately 100 staff located in Oklahoma City. Our consultants and engineers have worked around the globe. Guernsey is highly capable of serving LSEC's needs in all aspects of the Cooperative's operations, including the development of the cost of service and rate studies, and financial forecasts.

Guernsey's experience with electric cooperatives across the country includes providing services related to:

- Cost of Service and Rate Studies
- Financial Forecast and Modeling
- Key Account Support and Industrial Contracts
- Resource Planning and Optimization
- Power Requirements Studies
- Load Forecasting
- Production Cost Modeling
- Wholesale Power Solicitations
- Substation and Distribution Engineering
- CCN Applications
- Long-Range Planning Studies
- Cooperative HQ Master Planning
- Headquarter and Facility Design
- Distributed Generation Integration and Modeling
- Allowable Line Extension Analysis and Policy
- Pole Attachment Analysis and Regulatory Support
- Merger Analysis
- Cybersecurity Consulting
- Cyber Penetration Testing
- Environmental Studies and Support

Guernsey is a unified collection of engineering, architectural, and consulting services. A unique and cohesive employee-owned firm, serving federal, state, municipal, and county agencies, as well as educational, commercial, and cooperative and municipal power sectors. We are committed to bringing the diverse skills of our professionals together in a collaborative effort to meeting your needs. This is what makes Guernsey different.

MAIN LINES OF BUSINESS
Consulting, Engineering, and Architecture Services

ORGANIZATION STRUCTURE
Employee-Owned

HEADQUARTERS LOCATION
Oklahoma City, Oklahoma

NUMBER OF EMPLOYEES
100

NUMBER OF CONTRACTORS
None

COMPANY MISSION
Our mission is to provide innovative solutions to our clients by understanding their business and with skilled, enthusiastic staff.

COMPANY VISION
Our vision is to achieve extraordinary results through caring, commitment, and collaboration.

STRATEGIC RELATIONSHIPS
Guernsey provides all the required services for Cost of Service Studies in-house.

GUERNSEY – A TRUSTED ADVISOR

Many of Guernsey's cost of service and rate study clients date back to the 1970s when cooperatives first began to study the cost of providing electric service and using such analyses to determine rates. For more than four decades, these clients have turned to Guernsey for consulting and engineering services. We are known and trusted among these cooperatives staff and the board of directors. We work along with our clients' who often consider us "an extension of their staff." Often, our consulting expertise and support extend well beyond the development and implementation of the cost of service study. Our clients find our expertise helpful in the cooperative planning and operation in many areas beyond the cost of service analysis. It is a status and relationship we are very proud of and seek to maintain with all clients.

NO CUTTING CORNERS

Guernsey's cost of service and rate studies are developed in a manner consistent with regulatory standards, even if the cooperative is not jurisdictional to a state regulatory commission. We believe this is extremely important, not only for the cooperative but also for cooperative members. Our clients trust the work that we perform and withstand the scrutiny of all interested parties. In Kansas, this approach has proved extremely valuable. In 2013, members of Lyon-Coffee Electric Cooperative sought to cause their cooperative's rate change to be reviewed by the Kansas Corporation Commission (KCC). Because of member intervention, Guernsey assisted in providing as part of the Lyon-Coffey team by developing written and in-person testimony before the KCC. Lyon-Coffey was successful in implementing its proposed rates without commission change.

Moreover, Guernsey's cost of service and rate studies are not developed with the intent of formulating a predisposed answer. Guernsey's analysis will provide a thorough examination of LSEC's cost of providing electric service to each of its rate classes. From the study, the Cooperative can then determine the best approach to address identified concerns such as interclass and/or intraclass rate subsidies.

The study will identify the components of expense which provides the actual cost of providing service to each member of each of the Cooperative's rates. Typical components of expenses include:

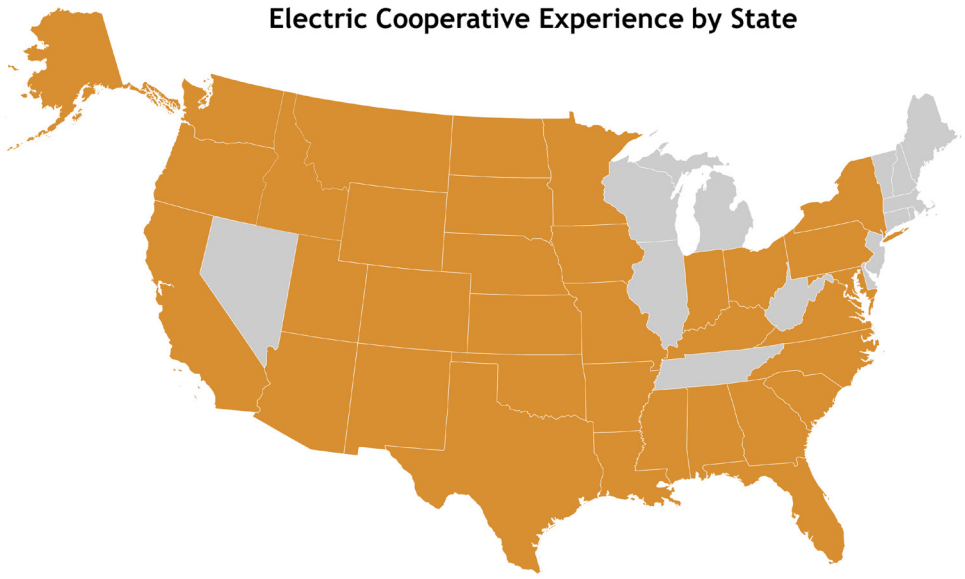
- Purchased Power Capacity
- Purchased Power Delivery
- Purchased Power Energy
- Transmission Capacity
- Distribution Substation Capacity
- Distribution Backbone Capacity
- Distribution Demand
- Distribution Customer
- Distribution Metering
- Meter Reading
- Billing and Records
- Customer Service
- Revenue Related

A thorough analysis provides the necessary data to later determine other important Cooperative metrics, such as On- and Off-Peak costs, allowable line extension analysis, pole attachment costs, avoided costs and the capability to design cost-based rates for loads not currently connected.

CHANGING UTILITY ENVIRONMENT

The cooperative landscape is ever-changing. Guernsey is a leader in providing management consulting services, rate study, and financial analysis, even as the environment changes around our clients. Our staff has advised cooperatives through cycles of:

- Conservation,
- Load-building,
- Declining or stagnant residential sales,
- Market restructuring,
- Energy efficiency, and
- Renewable integration.



Throughout these cycles, Guernsey has advised cooperatives on the importance of cost-based rates. When cooperative electric rates are cost-based, we understand that members can use energy in any manner, including integrating distributed energy resources (DER), and the cooperative will remain financially stable by recovering its fixed costs through effective rate design. Our staff routinely work with boards of directors leading discussions as they consider their need to balance their fiduciary responsibilities to the cooperative against the rate impact on members. The primary challenge is changing existing rates to be more cost-based without a significant impact on member bills.

ALTERNATIVE RATE DESIGNS

Guernsey has been designing "alternative rates" for many years. Alternative rates provide an effective recovery of the cost of providing service to the group of customers to whom they are applied. Examples include time-of-use energy rates, on-peak and off-peak demand rates, hours use energy/demand rates, special-use rates (coal mines, pipelines, ski lifts, auto manufacturing, data centers, etc.), seasonal rates, bifurcated customer charges, three and four-part demand rates and power cost-plus rates. Developing alternative rates that are effective requires a full understanding of the member group to be served, the costs of providing service, the data available, and the cooperative's billing capabilities. We believe that Guernsey's ability to develop these types of rates for our clients over the years is due in large part to our commitment to not cutting corners on the analysis and recognizing and evaluating the key components of good rate design.

Guernsey believes that the more actively involved the cooperative staff is in developing the cost of service study and rates, the better the results will be, and the more effective the staff can be in using the analysis for more than just rate development. Guernsey can assist in the development of rate designs that provide a smooth transition and minimize member concerns.

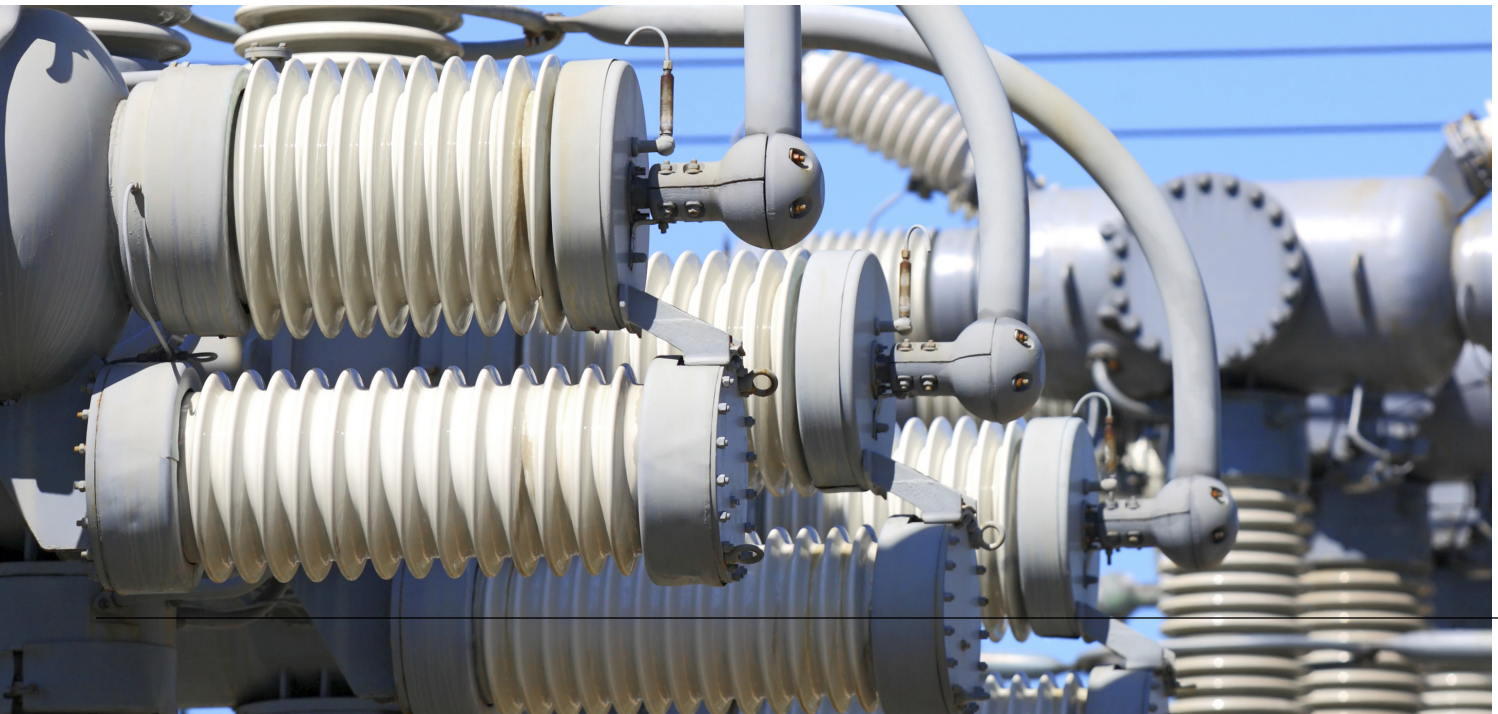
DISTRIBUTED ENERGY RESOURCE RATE OBJECTIVES AND FIXED COST RECOVERY

Guernsey has worked with many clients in several states on developing rates, policies, and procedural guidelines to address the issues related to Distributed Generation (DG). In recent years there has been considerable discussion regarding the impact of DG on the cooperative, the appropriateness of net metering, and the development of excess energy purchase rates.

Our staff will provide guidance on the merits of DER rate designs including the avoided costs related to DER member installations. We will assist the Cooperative in clarifying much of the confusing information in the industry regarding the recovery of fixed costs and the multiple methodologies based upon the cooperative objectives. In Kansas, we have assisted cooperatives in implementing approaches unique to the DER's cost causation at their electric cooperative.

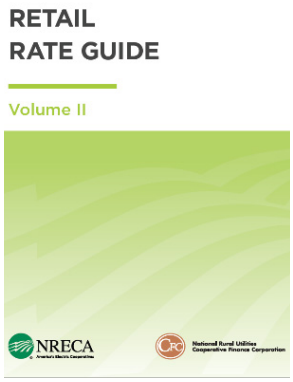
WRITING THE BOOK ON RATES

NRECA and CFC selected Guernsey to develop a "Rate Guide" for member systems. The guide serves as a helpful tool for cooperatives across the nation as they consider the cost of service and ratemaking process. It is critical for cooperatives to understand the cost of service process and level of detail required to develop members' rates appropriately. It is also essential that the cost of service study includes the appropriate level of detail to provide the necessary information to make informed decisions. As exhibited in the NRECA/CFC Retail Rate Guides, a complete rate analysis and cost of service study should include not only the development of the revenue requirement, cost of service analysis, functional unbundling of cost components, and proposed rate designs but also a testing of the cooperative revenue requirement in a ten-year financial forecast. It should also include developing the allowable line extension model for each rate class under the cooperative's approved rates.



We have developed a wide range of innovative rate design options for cooperative clients. These rate designs include time differentiated rates such as time of use rates, critical peak rates, three-part rates, four-part rates; life-style rates, low income, or multi-family rates; or technology-based rates such as EV charger, thermal heat storage, or heat pump rates. Our staff has developed and supported such rates for varied customer classes in both regulated and non-regulated states.

Both Volumes are available from NRECA.



Guernsey also authored a white paper developed for Western Farmers Electric Cooperative, a generation and transmission (G&T) cooperative that provides electric service to 21 member cooperatives located primarily in Oklahoma and New Mexico. The paper, "Priming the Pump: The Current State of Electric Vehicle Charging in the Cooperative World," provides a thorough review of electric vehicle charging and analysis specific to WFEC depicting EV's impact on the G&Ts wholesale cost of service. The report includes impact analysis on both residential and commercial charging applications and recommendations along with potential distribution electric rates designs such as:

- EV only
- TOU EV
- TOU Whole Home with EV
- TOU with DSM

We continue to provide unique solutions to the coming wave of EV charging load. Cooperatives in rural and urban settings are experiencing varied member interest EV vehicles. Commercial customers such as restaurants are installing Level 2 stations, catering to EV patrons. Cooperative power supply structures and their own position on providing cost-based rates versus fostering the development of a new technology drive the discussion on what approach best fits each cooperative. Guernsey is leading these discussions and providing unique solutions that fit each cooperative; not a canned one-size-fits-all approach.

PROJECT EXPERIENCE

The following is a sample of recently completed cost of service projects with a description.

MID-SOUTH SYNERGY NAVASOTA, TX

Contact Information:
Kerry Kelton
CEO | General Manager
936.825.5100

Guernsey developed a Cost of Service and Rate Study for Mid-South Synergy in the Spring of 2020. The Cost of Service study included developing the Cooperative's revenue requirement based upon adjustments made for known and measurable changes to test year expenses and revenues. The revenue requirement Mid-South was tested with several Financial Forecast cases taking into consideration varied levels of member growth and its impact on the revenue requirement.

The Cost of Service was developed considering Brazos' recent structural change in its wholesale power rate, which is more in line with how the G&T incurs costs in the ERCOT market. Guernsey developed proposed rates for Mid-South, including several Time-of-Use variants intended to pass along power cost savings pricing signals of the ERCOT market and Brazos' rate. This also included rates beneficial to EV charging.

Mid-South serves approximately 32,000 consumers.

Mid-South did not adopt any proposed rate changes due to the onset of the COVID pandemic.

OZARKS ELECTRIC COOPERATIVE FAYETTEVILLE, AR

Contact Information:
Mitchel Johnson
General Manager
479.521.2900

Guernsey completed Ozark's Cost of Service Study in 2016 and 2018.

Guernsey first worked with OECC in 2003 and recently developed a cost of service study with a 2017 test year. Our work includes developing multiple rate filings with the Arkansas Public Service Commission, development of new tariffs and contract rates, Board and staff training, financial forecast development, and the development of net metering, energy efficiency, and conservation programs.

Guernsey assisted OECC with developing a 1 MW community solar project, including providing testimony and support for filing rate cases and on-going proceedings related to net metering and renewables before the state regulatory Commission. Recently, Guernsey assisted Ozarks with a 10MW PV installation owned by a member and connected to a cooperative owned 10MW battery storage unit. Guernsey provided analytical support and submitted testimony to the Arkansas Public Service Commission.

Ozarks serves approximately 70,000 consumers.

VICTORIA ELECTRIC COOPERATIVE VICTORIA, TX

Contact Information:
Blaine Warzecha
General Manager
361.573.2428

Guernsey completed Victoria Electric Cooperative's Cost of Service Study in 2015.

Victoria's cost of service study is also typical of most electric cooperatives. Guernsey developed the Cooperative's revenue requirement based upon adjustments made for known and measurable changes to test year expenses and revenues. The revenue requirement for each study developed for Victoria by Guernsey reflected input by the Cooperative Management and Board to meet the Cooperative's financial goals. Guernsey allocated the Cooperative's revenue requirement to individual customer classes based upon the cost of service study, taking into account certain direct assignments, and developed rates specific to Members.

Guernsey also provided Board training on cost of service and rate issues, produces the Cooperative's Financial Forecast(s), and has developed specialty industrial and load control rates, along with a review of its line extension policies.

Victoria serves approximately 23,000 consumers.

Guernsey first worked with Victoria in 1981.

Guernsey has represented the Cooperative in contract negotiations with potential large industrial customers.

UNITED COOPERATIVE SERVICES

Contact Information:
Cameron Smallwood
CEO | General Manager
817.556.4000

Guernsey recently completed a cost of service and rate study for United Cooperative Services. The Cost of Service study included developing the Cooperative's revenue requirement based upon adjustments made for known and measurable changes to test year expenses and revenues. The revenue requirement was tested with several Financial Forecast cases taking into consideration varied levels of member growth and capital additions and their impact on the revenue requirement.

United approved rates reflecting changes resulting in Brazos' recent structural change in its wholesale power rate, including revisions to its Large Industrial four-part rate, which includes an ERCOT 4CP billing component.

United serves approximately 86,000 consumers.

Guernsey first worked for United Cooperative Services in 1977 and recently completed Cost of Service Studies in 2014 and 2020.

TRICO ELECTRIC COOPERATIVE MARANA, AZ

Contact Information:
Mr. Vin Nitido
CEO | General Manager
520.744.2944

Guernsey recently completed a cost of service and rate study for Trico. Trico is seeing expansive growth of renewables, especially among its residential member base. Guernsey developed the study and designed proposed rates to address the significant lost fixed costs incurred by the cooperative annually. Trico's rate case occurred and the same time that the ACC conducted its Value of Solar hearings, which eliminated net metering and established a process for determining the appropriate export rate for renewable generation. Guernsey has provided regulatory support and direct testimony on behalf of Trico and the Grand Canyon Cooperative Statewide Association regarding the value of solar, net metering, and fixed cost recovery. Guernsey also assisted Trico with revisions to its line extension policy in the most recent rate filing and in previous rate filings with the commission.

Guernsey first worked with Trico in 2001 and has since developed numerous cost of service studies. Guernsey also provides load forecasting, development, and support of its renewable energy, demand-side management, energy efficiency programs, and power supply planning.

Trico serves approximately 43,000 members.

POWDER RIVER ENERGY SUNDANCE, WY

Contact Information:
Mike Easley
CEO
307.283.3527

Guernsey prepared a rate analysis and cost of service study for PREC and represented PREC in the rate filing at the Wyoming Public Service Commission.

The rate analysis and cost of service study developed for PREC includes the standard process for the development of revenue requirement. The cost of service process involves the allocation of costs to a significant level of industrial and oil and gas load. PREC serves the largest coal mines in the country and a very significant level of coal-bed methane load. As a result, the cost of service allocation process is very detailed, involving the direct assignment of investment costs and the inclusion of the various risk mitigation programs enacted by the cooperative such as revenue deferral, line extension surcharges, contributed capital and accelerated depreciation.

The rate design process at PREC involves presentations to consumer groups and discussion with all stakeholders prior to the filing with the commission. Rate filings are typically contested and require expert testimony and negotiation with intervening parties.

PREC serves approximately 28,000 consumers.

KAY ELECTRIC COOPERATIVE BLACKWELL, OK

Contact Information:
Jason Boesch
CEO
280.363.1260

Guernsey most recently completed a cost of service and rate study for Kay Electric Cooperative in 2014. In the normal course of developing the analysis, the Cooperative's Board and management was interested in transitioning their current non-demand bill two-part rates to a three-part rate with demand billing component, specifically, their Oil Well Pumping and Small Commercial rates. They also wanted alternative rate designs for their Residential rate.

For the Oil Well Pumping rate, Guernsey developed alternative rate designs implementing an NCP demand rate in lieu of the existing rate which included a monthly horsepower charge as a means for recovering fixed capacity related costs. Each Oil Well Pumping rate customer's annual billing was calculated under the existing in proposed rates to show rate impact and how customers of varying load factors may be significantly impacted by the change in the rate structure. Similarly, the Small Commercial rate was developed and includes an NCP demand billing component to enhance the recovery of the Cooperative's fixed distribution wires related costs.

For the Residential rate class, the Cooperative is currently considering multiple rate design options. Guernsey has developed alternate rate structures which include NCP demand and CP demand billing components. The Board and staff are currently considering how to proceed with the proposed Residential rates and whether they want to promote a pricing signal that communicates the cost of generation (CP billing component) or the Cooperative's distribution capacity related costs (NCP billing component).

Our staff is also presenting approaches for transitioning to the alternative rate structures in order to minimize rate impact on the customer while at the same time enhancing the ability of the cooperative to recover its fixed costs. Throughout this process, Guernsey has provided Board training on cost of service, rates design, cost recover, and DER. We have worked with the board and staff to specifically address the merits of alternative rate designs in order to more effectively recover the Cooperative's fixed cost recovery.

Guernsey has worked with Kay Electric Cooperative since 1962.

Kay Electric Cooperative serves approximately 5,812 consumers.

Account Management: Project Team and Support

Guernsey's Team of utility rate consultants has extensive experience preparing cost of service studies and rate designs for electric cooperatives across the country. The project manager has direct responsibility for the development of the study and serves as the primary contact with the client. A second consultant provides production support, presentation assistance and is also available to maintain a high level of communication with cooperative staff and management. Guernsey uses a common approach to the development of all cost of service and rate studies. Other Guernsey team members are available and able to step into the project to provide any needed support if required. LSEC can trust that Guernsey can develop and complete the project immediately upon selection.

In addition to common communications such as email and phone, which may be used extensively with LSEC, Guernsey staff and other clients commonly use Newforma Project Center as a project management tool. Newforma is a robust project management tool Guernsey engineers and architects utilize on large projects with multiple teaming partners. Guernsey consultants use it to manage data requests responses for cost of service studies.

Newforma can maintains email communication among project team members. More importantly, Newforma also eliminates problems associated with transferring large files, which sometimes "bounce" due to email size limitations on servers. Newforma overcomes this hurdle with Info Exchange, an easy-as-email alternative to the FTP server, with additional logging, tracking, and notifications.

One primary focus at Guernsey is the health and well-being of our clients, professionals, and community. Our country's current state of emergency has made us take a good look at how we are currently serving our clients. Guernsey can provide services remotely with limited in-person engagement through situations such as these by using Microsoft Teams web and video conferencing when it is beneficial to the client. We focus on providing the highest level of communication, organization, and team engagement either personally or remotely.

PROPOSED TEAM

RESUMES

Resumes for individuals of the Guernsey Bandera Electric Team are found in Appendix B. They include:

- David Hedrick, Executive Vice President
- Justin Proctor, Managing Consultant
- Rebecca Payne, Managing Consultant

Additional experienced staff is available for project support:

- Mike Searcy, Managing Consultant
- Josh Dan, Consultant
- Zhen Zhu, Ph.D. Economist

These resumes are proof of our qualified consultants and employees. They include our team's current certifications.

COOPERATIVE LEADERS – PROVIDING EDUCATION AND TRAINING

Guernsey consultants have long been involved in providing training at the national, state, and local level for electric cooperatives. Our staff has instructed courses on rate design and cost of service at the NRECA Management Internship Program and cooperative statewide associations. Additionally, Guernsey hosts annual Cost of Service and Rate Design seminars as well as Financial Forecasting seminars. These seminars have provided relevant training to more than:

- 1,000 Cooperative staff
- Representing over 200 electric cooperatives from 26 states

Guernsey also participates in speaking engagements at numerous statewide annual meetings and conferences representing general managers, accounting and finance staff, engineering marketing, and member services staff. Our team has also presented numerous sessions and topics at the NRECA TechAdvantage Conference and had features printed in the NRECA RE Magazine, and the NRECA Management Quarterly issues. Our staff also provides educational seminars and webinars for Texas Electric Cooperative Statewide Association on rates and other important matters affecting cooperatives.

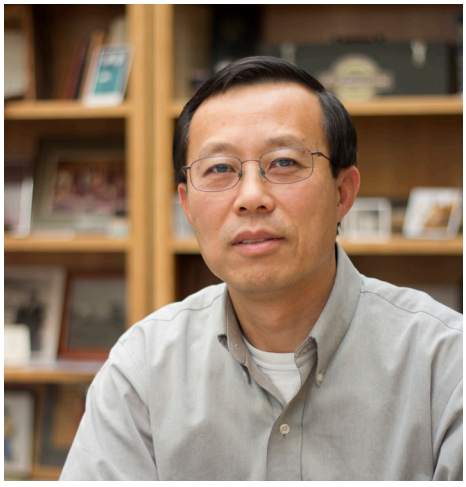
DAVID HEDRICK
Executive Vice President

JUSTIN PROCTOR
Managing Consultant

REBECCA PAYNE
Managing Consultant

MIKE SEARCY
Managing Consultant

JOSH DAN
Consultant



ZHEN ZHU, Ph.D.
Economist

Lastly, Guernsey routinely participates in Board sessions and Board retreats and strategic planning sessions, speaking on topics such as Rates and Cost of Service, Financial Management, and Equity Management. Our staff has recently conducted several sessions for cooperative boards discussing the growing interest in the implementation of demand rates for rate classes not traditionally billed under a "three-part rate."

AN EXTENSION OF LSEC'S STAFF

Guernsey's staff are highly-qualified consultants, providing the highest quality cost of service and financial forecasting services and valued management consulting in all aspects of electric cooperative operations. Guernsey consultants and engineers routinely serve their clients as an extension of their staff working on a multitude of projects, representing the Cooperative during key account meetings and negotiations, training employees, and even joining Board Members and management during strategic planning discussions. Beyond the completion of the cost of service study, our staff routinely provide support to clients on a sundry of projects – large and small.

SUB-CONSULTANTS

Guernsey does not require the assistance of sub-consultants to complete the scope of work requested by LSEC.

CLIENT LIST

Appendix A includes a summary of Cooperatives that have recently worked for and the service (major category) provided.

REFERENCES

Otero County Electric Cooperative
Cloudcroft, New Mexico
Mr. Mario Romero, General Manager/CEO
MarioR@otec-coop.com
575.682.2521

Project: Cost of Service and Rate Design

Otero County serves approximately 19,643 consumers

Wise Electric Cooperative
Decatur, Texas
Mr. Rayce Cantwell, General Manager/CEO
rcantwell@wiseec.com
940.627.2167

Project: Cost of Service and Rate Design, Special Large Power Contract & Rate Design, Stranded Cost Analysis, Cyber Security

Wise serves approximately 22,504 consumers

Ninnescah Rural Electric Cooperative
Pratt, Kansas
Ms. Teresa Miller, General Manager
tmiller@ninnescah.com
620.672.5538

Project: Cost of Service and Rate Study, Distribution Engineering, Construction Work Plan, Load Study, Cyber Security

Ninnescah serves approximately 4,114 consumers

Rusk County Electric Cooperative
Henderson, Texas
Mr. Rhett Reid, General Manager
rhett@rcelectric.org
903.657.4571

Project: Cost of Service and Rate Design, Architecture

Rusk serves approximately 22,182 consumers

Tri-County Electric Cooperative
Hooker, Oklahoma
Mr. Zac Perkins, CEO
zacperkins@tri-countyelectric.coop
580.652.2418

Project: Cost of Service and Rate Design, Special Large Power Contract & Rate Design, Community Solar, Power Supply, Financial Forecasting, Architecture

Tri-County serves approximately 22,687 consumers

Northwestern Electric Cooperative
Woodward, Oklahoma
Mr. Tyson Littau, General Manager/CEO
tyson.littau@nwecok.org
580.256.7425

Project: Cost of Service and Rate Design, Special Large Power Contract & Rate Design, PUC Regulatory Support

Northwestern serves approximately 11,849 consumers

OPALCO
Eastsound, Washington
Mr. Foster Hildreth, General Manager
360.376.3500

Project: Cost of Service Study & Rate Design and assistance in developing special rates. Attending multiple board meetings open to the public and assisting in developing rate options and weather factors and currently assisting in developing net metering, EV charging, and community solar rate options.

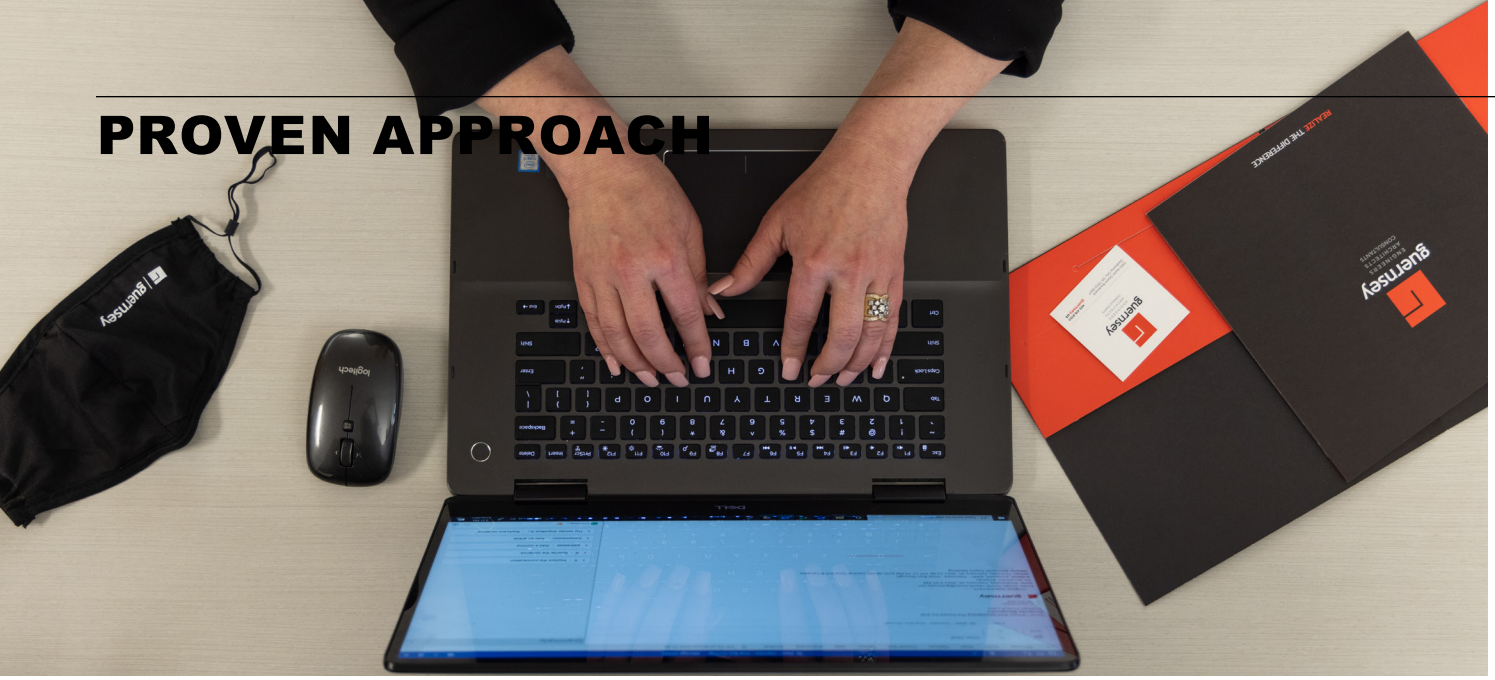
Serves approximately 14,000 consumers

Farmers Electric Cooperative, Inc.
Clovis, New Mexico
Mr. Lance Adkins, General Manager
575.769.2116

Project: Cost of Service Study and Rate Design (2013, 2015, and 2018), including Board training, Net Metering, and EV Charging rate options.

Farmer serves approximately 13,000 consumers

PROVEN APPROACH



The Cost of Service and Rate Study for LSEC will be prepared using generally accepted methodologies and procedures but customized to reflect operating characteristics unique to LSEC. In doing so, Guernsey anticipates the active participation of the LSEC Staff throughout the process. This joint participation is essential for two reasons:

1. Input from individuals most familiar with the unique characteristics of the system ensures results are representative of actual system conditions, and
2. The study provides a foundation for educating the Board and Staff on financial, rate design, and cost of service issues and processes.

Guernsey's approach for the Cost of Service Study is the same methodology we use to assist cooperatives across the country. Input from the Board of Directors and Cooperative Management is an integral part of developing the cost of service, particularly when considering the Cooperative's revenue requirement. Margin levels are usually determined based upon equity management objectives. Guernsey will develop the cost of service study and rate designs to achieve the required margins as determined by the Board.

Review meetings and presentations to the Board are opportunities to educate and/or review the Cooperative's rate design and financial management objectives focusing on:

- Equity targets
- Capital credit refund objectives
- General fund (cash) objectives
- Coverage objectives (TIER and DSC)
- Cost of service classes and allocations
- Rate design alternatives and customer impact

These meetings provide a framework for discussing and resolving the conflicting objectives Boards face when modifying rates. The Cost of Service and Rate Design Study provides a perspective and structure to determine the appropriate balance between maintaining a financially viable organization while at the same time managing Member rate impact.

RATE DESIGN OBJECTIVES AND CONSIDERATION

The Cost of Service and Rate Study provides an opportunity to design rates that recognize and balance the following issues:

- Cost of service-based, including wholesale power pricing signals
- Fairness and equity among Members
- Understandable and acceptable to Members
- Appropriate pricing signals
- Customer impact
- Competitive forces
- Rate continuity considerations
- Capital additions and replacements funding needs
- Allowable plant investment

The rates are a primary communication tool with the Members. It is important to monitor rates to make sure they produce the revenues required to maintain the system's financial viability and send proper pricing signals to the retail customers. It is increasingly important to know the unbundled cost to provide service for each customer class and/or service level and understand how these costs are reflected in the rate design.

CONSERVATION, ENERGY EFFICIENCY & DISTRIBUTED GENERATION

Guernsey works with many clients across the U.S. who are evaluating their current distribution rate structures and exploring alternative designs to promote efficiency and conservation. We have assisted numerous clients as they consider the impact of energy efficiency, renewable energy, demand reduction/peak-shaving, and other conservation programs on member rates. We have also completed the analyses and developed rates for community solar purchasing arrangements, optional renewable purchases, and stand-by generation for peak shaving and load control.

Our staff has also worked with hundreds of cooperatives developing rate designs specific and appropriate for their systems. These rate designs include but are not limited to:

- Residential/General Service "Three-part" rates
- Electric Vehicle Charging rates
- Seasonal rates
- Load management rates
- Time-of-use rates of all types, including critical peak pricing
- Transmission rates
- Flat rates
- Net metering rates
- Declining and inclining block rates
- Urban and rural rates
- NCP and CP demand rates
- Wheeling rates
- Interruptible rates
- Hours-use rates (based on load factor)
- Rebates and cost-benefit calculations
- DER rates
- Stand-by rates

Supporting renewable energy while recovering the cost of providing transmission and distribution service to all members is a challenge facing cooperatives across the country. Guernsey has worked with cooperatives in a variety of jurisdictions to address this situation and has developed a variety of rate-based solutions. Some of these solutions include fully cost-based and unbundled rate designs, fixed distribution recovery charges, three-part rate designs, raised minimum billing, two-register billing with the value of solar, and others.

Guernsey's authorship of the 2017 NRECA Rate Guide provides a thorough review of typical rate designs and their merits in cost recovery, ease of implementation, and pricing signals, all-important issues in addressing DER concerns.

SUMMARY OF MAJOR PROJECT OBJECTIVES

Guernsey will assist LSEC in:

1. Evaluating current rate classes and potential future rate classes
2. Determining the required revenue to meet the Cooperative's financial goals and objectives based on an Adjusted Test Year, reflecting current and projected costs associated with power supply and electric operations based on input from the Cooperative
3. Developing a cost of service study that identifies the relative performance of existing LSEC rate classes and the components of expenses, including costs driven by customer-related, demand-related, and power supply-related factors.
4. Reviewing with Cooperative staff the results of the cost of service study, including how allocation factors were determined in a working meeting and make appropriate revisions to ensure the study reflects the unique characteristics of LSEC.
5. Producing unbundled rate design options to address the results of the study and cooperative concerns, including desired rate options – Time of Use, electric vehicle charging and three-part rates.
6. Present the study to the Cooperative's Board of Directors and Staff.

SCOPE OF WORK

Cost of Service and Rate Study has the following major components and activities:

1. Kick-off Meeting – online meeting or teleconference to discuss study goals and objectives, and the data request.
2. Define the system revenue requirement.
   a. Identify test year actual revenues, expenses, and margins.
   b. Develop adjustments to test year revenues and expenses by making adjustments for "known, measurable, and continuing" changes. Expenses are adjusted to the extent that such changes are usually acceptable to regulatory commissions.
      i. Power supply
      ii. Wages and employee benefits
      iii. Fixed costs - depreciation, property taxes, interest on long-term debt
      iv. Usage – Restate test year rate schedule monthly usage for account reclassifications (consumers, kWh, NCP kW, billing NCP kW, etc.).
      v. Revenue
         1. Recalculate test year actual revenue to validate billing units.
         2. Calculate revenue under current rates with adjusted test year usage (account reclassifications).
         3. Evaluate power cost pass through recovery mechanism
   c. Financial modeling using a ten-year financial forecast of margin requirement incorporating LSEC's financial objectives and requirements for:
      i. Equity ratio
      ii. Capital credit refunds
      iii. Cash reserve
      iv. TIER and DSC
      v. Projected plant additions based on LSEC's Capital Improvement Plan and Four-Year Construction Work Plan
      vi. Projected class customer and kWh consumption
   d. Establish LSEC's total revenue requirement based upon the Cooperative's adjusted test year expenses, financial modeling, and financial objectives, as well as input from management.
   e. As these activities are performed, expect telephone and email communication from Guernsey to clarify information or obtain supplemental information.
3. Cost of service revenue requirement allocation (expenses and margin requirement) to customer classes.
   a. Develop allocations for demand, energy, customer (many weighted), and direct allocations for assigning plant investment, revenue, and expenses to rate classes.
   b. Identify unbundled costs--allocations are tagged to cost components to identify unbundled power supply (capacity, on-peak/off-peak, variable, delivery) and wires costs (demand and customer). These unbundled costs provide valuable information for establishing cost-based rate charges.
   c. Identify return, rate of return, and operating margin under current rates for each class.
   d. Identify class revenue deficiencies for uniform rate of return and for uniform margin as a percent of revenues.
   e. Recommend class revenue requirements based upon the results of the cost of service and customer impact.
4. Rate design, which allocates the class revenue requirement to the individual member/consumer.
   a. Class revenue deficiencies help in establishing the required change, if any, for each class.
   b. Cost components identify targets for customer and wires demand charges in rates.
   c. Discuss with staff considerations for alternate rate structures to address goals and objectives defined by the Cooperative including RFP stated desired rate options.
   d. Develop unbundled rate designs along with comparisons of existing and proposed rates at representative consumption levels.
5. Coordinate line extension allowance with rate design.
   a. Calculate the allowable direct investment for residential, general service, large power, etc., rates.
   b. This activity uses cost component information from the cost of service study and the "wires" components of the rate design.
6. Review with management and staff.
   a. Online conference (or on-site) meeting with management and staff to discuss the initial development of the study, review assumptions and preliminary proposed rate designs:
      i. Preliminary rate designs are intended to facilitate discussion and review of class rate changes and rate designs.
      ii. Make revisions to the study based on discussion and input from staff.
      iii. Conduct additional review meetings and make revisions as directed.
7. Presentation of study findings – Guernsey will:
   a. Prepare a PowerPoint presentation summarizing the revenue requirement, class cost of service, and proposed rate designs.
   b. Present the study and recommended rates to the Cooperative's Board of Directors.
   c. Prepare final rates and billing comparisons.
8. Provide an electronic and/or paper copy of the completed study with the final revenue requirement and rates approved by the Board of Directors. Assist in updating tariff sheet billing rates and applicability. All workpapers are prepared in Excel or in a proprietary software. The work papers and software can be provided with the final report.

Note: Some cooperatives have separated the board presentation into two meetings, especially where the last rate and cost of service study was some time ago or when new board members are involved. A first meeting discusses the process and is educational. The second meeting provides the study results. We would be happy to customize our presentation as needed for LSEC.

PROJECT SCHEDULE

The timeline shows study tasks/benchmarks and the length of time involved in the preparation of a Cost of Service and Rate Study with adjusted test year budget expenses and development of the LSEC revenue requirement. It typically takes us six to eight weeks to develop the initial draft of the study for review once we have received the data. The typical time frame for completing a cost of service study from initial kick-off to board approval and implementation is six to eight months. Our team has extensive experience working through any challenges that may arise. We will do everything on our end to meet your schedule. Guernsey has staff available and is ready to begin work immediately.

WEEKS FOLLOWING RECEIPT OF DATA	JUN		JUL	AUG	SEPT	OCT	NOV	
Kick-Off Meeting	●	●						
Data provided to Guernsey	●	●						
Reconcile plant and expense accounts to operating reports	●	●						
Reconcile rate class usage and billing to operating reports	●	●						
Develop and reconcile billing units for existing rates	●	●						
Prepare budget test year revenues and expenses		●	●					
Evaluate revenue requirement with 10-year financial forecast model (optional)			●	●	●			
Development of basic allocation factors for cost allocation				●	●			
Prepare initial cost of service model				●	●			
Identify class revenue requirements and unbundled costs				●	●			
Review Meeting with Staff (Virtual or Travel)					●	●		
Finalize COS Model upon Review					●	●		
Develop initial proposed rate structures and proof of revenue					●	●		
Develop rate design options and review with staff and billing comparisons					●	●		
Rate design review meeting with staff						●		
Present rate design options to Board						●		
Develop allowable line extension plant investment						●		
Prepare final report						●		
Assist with member meeting/implementation						●	●	●

PRICE INFORMATION

A Cost of Service and Rate Study developed consistent with regulatory principals generally requires the following activities: (1) determining normalized Adjusted Test Year Expenses, (2) identifying how much revenue is required to meet normalized Test Year Expenses, Board defined financial goals and objectives and test the proposed rate increase in a 10-year financial forecast, (3) identifying return, rate of return, and operating margin under current rates and proposed rates, (4) determining unbundled cost components for each cooperative class and unbundled rate designs and (5) comparisons of existing and proposed rates at representative consumption levels.

PROPOSED STUDY COSTS

There are two options provided for the preparation of the study.

Option #1 includes the development of the revenue requirement based on the Cooperative's financial objectives and cash needs. We believe this component of the study is very important and provides management and the Board a review and affirmation of the Cooperative's equity goals, capital credit retirement plan, operating cash needs, coverage requirements as well as the impact of plant growth, kWh sales, and other factors specific to LSEC. Included in Option #1 is the development of a 10-year financial forecast. The development of the revenue requirement in Option #1 is consistent with what would typically be required in a regulatory proceeding. The estimated cost is $25,000 – $30,000

Option #2 assumes the revenue requirement has already been developed and reflects the Cooperative's budget. Option #2 does include the development of the schedules showing the current and projected financial condition. It does not include the development of proforma adjustments to test year expenses or a financial forecast. The estimated cost is $21,000 – $24,000

Both options include the development of the cost of service study and rate design components of the study.

Cost Estimate

Option #1		Option #2	
Step 1: Determination of Revenue Requirement		Step 1: Determination of Revenue Requirement	
Adjusted Test Year with Normalized Expenses Revenue Requirement Modeling & Discussion Ten Year Financial Forecast		LSEC's Budget for the proposed Revenue Requirement	
Cost Estimate	$7,000 – $10,000	Cost Estimate	$3,000 - $4,000
Step 2 - 7: Cost of Service & Rate Design, Billing Comparisons, Line Ext. Analysis		Step 2 - 7: Cost of Service & Rate Design, Billing Comparisons, Line Ext. Analysis	
Cost Estimate	$18,000 - $20,000	Cost Estimate	$18,000 - $20,000
TOTAL COST ESTIMATE	$25,000 - $30,000	TOTAL COST ESTIMATE	$21,000 - $24,000

Cost estimates exclude labor and direct expenses for travel related to on-site Board or Member meetings

TRAVEL EXPENSES
Guernsey will direct bill for expenses such as transportation, lodging, and sustenance.

INTERVAL DATA
Guernsey's cost estimate does not include budgeted hours for processing raw interval data from LSEC's AMI database. The cost estimate assumes the Cooperative will provide summarized hourly interval data by rate class by month.

DEVELOPMENT OF TARIFF SHEETS
The estimate includes review of existing tariffs and development of the proposed tariffs to reflect new rates and charges and language addressing structural changes required for implementing new rate designs. Guernsey's estimate excludes administrative labor associated with extensive editing and formatting of tariff sheets. Guernsey can provide, upon request, administrative staff for composing, editing, and formatting tariff documents at an Administrative billing rate. Costs associated with revisions that extend beyond implementation of the proposed rate changes are in addition to the cost estimated provided in this proposal.

ONLINE CONFERENCING
To control costs to LSEC while still providing value, Guernsey generally performs kick-off meetings and preliminary review meetings via an online conferencing application. Online conferencing enables our staff to meet with staff at important milestones and present the adjusted test year and cost of service model for review without requiring expensive travel. The online conference has mostly eliminated the labor and associated travel expense once common in the development of Guernsey's Cost of Service and Rate Studies.

Guernsey staff are glad to travel to the Cooperative's headquarters to perform the preliminary analysis review, if so desired.

SCOPE CHANGES
Guernsey will develop the study as defined in the scope of services. Project-related activities that may be considered out-of-scope include:

- Numerous revisions of proposed rate designs and associated billing comparisons
- Weather normalization
- Processing interval data for the development of time of use billing units
- Additional meetings with Staff or Board requiring travel
- Member meetings requiring travel
- Any regulatory requirements

Guernsey will notify the Cooperative before undertaking tasks that may be considered out of scope.

PROVIDING VALUE
It is Guernsey's intent to provide consulting services that meet or exceed our clients' expectations. Our goal is to develop a study for LSEC in a manner consistent with regulatory practices.

Each Guernsey cost of service study is developed explicitly for the Cooperative and is not the product of a "cookie-cutter" program. Our staff is proud of the relationships we have built with Cooperatives across the nation and look forward to the opportunity to serve LSEC.

APPENDIX A - EXPERIENCE MATRIX

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	Acquisition / Consolidation / Privatization / Valuation	Billing / Metering / Mapping / Data Collection / Processing	Cogeneration / Power Plants	Cost of Service / Rate Design	Distribution Planning / Analysis	Distribution Design / Inspection	Education & Training / Speaking Engagements	Financial Forecasting / Analysis	Restructuring / Competition / Regulation	Resource Planning / Procurement	Strategic Planning / Analysis	Substation Design	Technical Field Services / Testing	Transmission Line Design	Transmission Planning / Analysis	Renewables / Distributed Generation / Key Accounts	Cyber Security	Architecture / Headquarter Design/ Master Planning	Expert Witness - Support Testimony	Energy Efficiency, REST Planning, Renewables	Environmental
Alabama																					
42 PowerSouth Energy**																					
27 Southern Pine Electric Co-op											X										
32 Wiregrass Electric Co-op											X										
Alaska																					
2 Matanuska Electric Assn.			X							X		X		X							
Arizona																					
22 Mohave Electric Co-op	X			X	X	X	X	X	X	X		X	X	X	X			X	X	X	X
13 Navopache Electric Co-op				X					X	X					X				X	X	
14 Sulphur Springs Valley				X						X									X		
20 Trico Electric Co-op				X						X									X	X	
Sierra Southwest Services										X											
Arkansas																					
34 Arkansas Electric Co-op**				X						H											
13 Arkansas Valley Electric				X																	
22 Clay County Electric																					
10 First Electric Co-op				X			X			X									X		
26 North Arkansas Electric																					
27 Ouachita Electric Co-op				X				X											X	X	
24 Ozarks Electric Co-op				X				X			X								X		
12 SW Arkansas Electric																					
California																					
16 Plumas-Sierra REC																					
Colorado																					
Colorado REA***				X																	
20 Delta-Montrose Electric				X	X	X						X	X	X				X			
33 Empire Electric				X	X	X		X		X		X	X	X							
7 Grand Valley Power				X	X		X														
18 Gunnison County Electric				X														X			
29 Highline Electric				X																	
34 Holy Cross Energy			X	X				X		X		X									
16 Intermountain REA											X							X			
32 La Plata Electric Association																					
15 Morgan County REA				X																	
42 Mountain Parks Electric	X			X			X												X		

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Colorado (Continued)																					
37 Mountain View Electric				X	X	X		X		X	X	X	X	X							
31 Poudre Valley REA	X			X	X	X		X				X	X	X							
24 San Isabel Electric	X			X	X	X				X		X	X	X	X						
14 San Luis Valley REC				X	X	X						X	X	X	X						X
35 Sangre De Cristo Electric	X			X		X															
17 Southeast Colorado Power				X																	
47 Tri-State G&T Assn.**	X			X	X	X						X	X	X							
22 United Power		X		X	X	X						X	X		X						
38 Y-W Electric Assn.				X	X							X		X							
36 Yampa Valley Electric			X	X						X											
Florida																					
35 Glades Electric Cooperative											X										
26 Peace River Electric				X								X		X							
41 Seminole Electric Co-op**				X																	
17 West Florida ECA				X																	X
Georgia																					
103 Coweta-Fayette EMC										X											
20 Diverse Power										X											
Georgia Energy Co-op**									X	X											
37 GreyStone Power Corp.		X		X					X	X											
83 Jackson EMC				X			X	X	X	X											
109 Oglethorpe Power Corp**		X		X					X												
45 Sumter EMC										X											
35 Walton EMC										X											
Idaho																					
23 Salmon River Electric																					
Indiana																					
107 Wabash Valley**									X												
Iowa																					
69 Access Energy Cooperative				X																	
83 Central Iowa Power**													X								
84 Corn Belt Power Co-op**				X	X								X			X				X	
73 Farmers Electric Co-op				X																	
16 Harrison County REC				X												X					
92 Iowa Lakes Electric Co-op				X																	

** G&T Cooperative
*** Statewide Association

X - Electric, G - Gas, H - Hydro

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Iowa (Continued)																					
Iowa Assn. Electric Co-ops.**				X			X														
93 Midland Power				X							X										
26 Nishnabotna Valley REC				X																	X
85 Northwest Iowa Power**				X	X				X	X											
40 Pella Cooperative Elec. Assn.																					X
110 Raccoon Valley Elec. Assn.				X																	
96 Western Iowa Power Co-op				X																	
Kansas																					
32 Ark Valley ECA	X	X		X	X	X		X				X	X	X							
58 Bluestem Electric				X	X	X		X				X	X	X				X			
46 C.M.S. Electric Co-op	X	X		X	X	X		X		X	X	X	X	X							
38 Caney Valley ECA				X																	
15 DS&O Electric Co-op						X															
27 Flint Hills REC				X																	
57 Heartland REC	X			X	X	X				X		X									
21 Kaw Valley Electric					X	X				X		X	X	X							
54 KEPCo**				X				X													
42 Lane-Scott Electric Co-op.				X																	
40 Leavenworth-Jefferson											X										
56 Lyon-Coffey Electric	X	X		X	X	X				X		X	X	X					X		
30 Nemaha-Marshall Electric***				X				X													
33 Ninnescah RECA	X	X		X	X	X		X				X	X	X	X			X			
44 Pioneer Electric Co-op	X			X	X	X	X					X	X	X	X			X			
28 Prairie Land Electric Co-op				X	X	X		X				X	X	X							
41 Radiant Electric Co-op	X			X		X															
16 Sedgwick County Electric		X		X	X	X		X		X			X	X	X						
14 Sumner-Cowley Elec Co-op						X						X									
53 Sunflower Electric Power**		X			X		X			X				X							
48 Victory ECA				X	X	X		X				X	X	X	X			X			
47 Western Cooperative				X	X	X		X		X		X	X	X							
51 Wheatland Electric Co-op				H		X	X					X				X			X		
Kentucky																					
62 Big Rivers Electric**		X													X						
40 Blue Grass Energy				X							X										
59 East Kentucky Power**							X				X								X		

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Kentucky (Continued)																					
Kentucky PSC																	X				
51 Nolin RECC																	X				
KAEC***									X												
Louisiana																					
17 Clairborne Electric				X					X												
Maryland																					
4 Southern Maryland										X											
Massachusettes																					
North Attleborough EC																	X				
Minnesota																					
79 Agralite Electric				X																	
106 Great River Energy**				X						X											
39 Minn. Valley Co-op L&P				X																	
Mississippi																					
28 Coast EPA					X																
30 Dixie Electric Power Assn.				X																	
41 Magnolia EPA				X																	
53 South Mississippi EPA**				X				H													
40 Southern Pine EPA				X				X													
20 Yazoo Valley EPA				X																	
Missouri																					
73 Associated Electric Co-op**				X			X			X											
Assn. MO Electric Co-ops***																					
71 Central Electric Power**															X						
18 Intercounty				X																	
60 M & A Electric Power**								X													
41 Platte-Clay Electric				X																	
31 SEMO Electric Co-op						X															
Montana																					
19 Beartooth Electric				X																	
21 Big Horn County Electric				X																	
10 Vigilante Electric Co-op				X																	
17 Yellowstone Valley Electric																					X
Nebraska																					
78 Dawson PPD				X	X	X		X					X								
Northeast Nebraska PPD				X										X							

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Nebraska (Continued)																					
99 Northwest RPPD						X							X								
Omaha PPD																		X			
4 Polk County RPPD								X													
Nevada																					
18 Valley																					
New Mexico																					
21 Central New Mexico				X				X													
4 Central Valley				X				X													
9 Farmers Electric Cooperative				X				X												X	
23 Lea County				X				X	X												
14 Mora-San Miguel				X				X													
12 Otero County Electric Coop.				X				X													
20 Socorro Electric Cooperative				X				X											X		
New York																					
NY Municipal Power Agency				X																	
North Carolina																					
67 North Carolina EMC**	X			X	X																
39 Union Power Cooperative				X																	
North Dakota																					
Central Power Electric Coop.**				X				X							X						
37 McLean Electric Cooperative				X																	
20 Minnkota Power Cooperative**				X				X													
28 Montrail Williams				X			X														
Ohio																					
71 Logan County Electric				X												X					
75 North Western Electric										X					X						
39 Paulding Putnam Electric				X																	
Oklahoma																					
12 Alfalfa Electric	X			X	X	X				X											
6 Caddo Electric	X	X		X	X			X	X	X		X						X			X
29 Canadian Valley Electric	X	X		X	X	X		X		X		X									
24 Central REC	X			X	X	X		X	X	X	X		X	X				X			
30 Choctaw Electric				X	X	X		X	X												
1 Cimarron Electric	X			X	X	X			X									X			X
35 Cookson Hills Electric		X	X	X	X	X		X										X			

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*** Statewide Association

X - Electric, G - Gas, H - Hydro

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ARCHITECTS
CONSULTANTS

	Acquisition / Consolidation / Privatization / Valuation	Billing / Metering / Mapping / Data Collection / Processing	Cogeneration / Power Plants	Cost of Service / Rate Design	Distribution Planning / Analysis	Distribution Design / Inspection	Education & Training / Speaking Engagements	Financial Forecasting / Analysis	Restructuring / Competition / Regulation	Resource Planning / Procurement	Strategic Planning / Analysis	Substation Design	Technical Field Services / Testing	Transmission Line Design	Transmission Planning / Analysis	Renewables / Distributed Generation / Key Accounts	Cyber Security	Architecture / Headquarter Design/ Master Planning	Expert Witness - Support Testimony	Energy Efficiency, REST Planning, Renewables	Environmental
Oklahoma (Continued)																					
22 Cotton Electric				X	X	X	X	X	X	X				X				X			X
23 East Central Oklahoma				X	X				X									X		X	
GRDA**	X			X				X		X	X				X			X			
26 Harmon Electric		X		X	X	X		X		X				X							
28 Indian Electric	X	X	X	X	X	X		X	X	X		X	X								X
132 KAMO Power**	X	X		X	X		X	X				X	X								
2 Kay Electric		X		X	X	X		X				X									
33 Kiamichi Electric		X		X	X	X				X								X			
21 Kiwash Electric	X	X		X	X	X		X		X								X			
37 Lake Region Electric	X			X	X	X		X										X			
19 Northeast Oklahoma				X	X	X	X	X		X		X	X	X	X						
18 Northfork Electric		X		X	X	X		X		X								X			
31 Northwestern Electric		X		X	X	X		X	X	X		X				X					X
OAEC***	X						X		X												
10 Oklahoma Electric		X		X	X	X	X		X	X				X				X		X	
OMPA**				X																	
14 Red River Electric																		X			
20 Rural Electric				X																	
27 Southeastern Electric		X		X	X	X			X	X											
15 Southwest REA	X	X		X	X	X		X	X											X	
34 Tri-County Electric	X	X	X	X	X	X		X	X	X		X	X	X	X			X			
25 Verdigris Valley Electric				X					X												
32 Western Farmers Electric**			X	X	X	X		X		X		X	X	X	X						
Oregon																					
Oregon Trail EC																	X				
PNGC**				X			X														
Pennsylvania																					
27 Allegheny Electric Coop**				X																	
South Carolina																					
50 Central Electric Power**				X																	
11 West River Electric Co-op				X																	
South Dakota																					
13 Black Hills Electric					X																
43 East River EPC**				X																	
20 Lake Region Electric				X																	
2 Rosebud Electric									X												
Southeastern Electric				X				X													

	Acquisition / Consolidation / Privatization / Valuation	Billing / Metering / Mapping / Data Collection / Processing	Cogeneration / Power Plants	Cost of Service / Rate Design	Distribution Planning / Analysis	Distribution Design / Inspection	Education & Training / Speaking Engagements	Financial Forecasting / Analysis	Restructuring / Competition / Regulation	Resource Planning / Procurement	Strategic Planning / Analysis	Substation Design	Technical Field Services / Testing	Transmission Line Design	Transmission Planning / Analysis	Renewables / Distributed Generation / Key Accounts	Cyber Security	Architecture / Headquarter Design/ Master Planning	Expert Witness - Support Testimony	Energy Efficiency, REST Planning, Renewables	Environmental
South Dakota (Continued)																					
42 West Central Electric				X						X											
Tennessee																					
51 Mountain Electric																					
Texas																					
62 Bailey County Electric			X	X						X											
62 Bandera Electric	X			X						X											
7 Bartlett Electric				X																	
163 Big Country Electric	X		X	X	X		X			X		X		X	X						
100 Bluebonnet Electric				X																	
121 Brazos EPC**				X	X			X	X	X	X										
149 Central Texas Electric	X			X															X		
78 Cherokee County ECA	X			X														X			
61 Coleman County Electric			X	X																	
86 Comanche Electric				X																	
114 Concho Valley Electric	X		X	X	X	X	X			X		X		X							
68 Cooke County ECA				X				X													
49 CoServ Electric				G/X	X	X			X									X			X
47 Deaf Smith Electric			X	X	X			X													
52 Fannin County Electric				X																	
67 Farmers Electric	X			X				X													
98 Fort Belknap Electric	X			X	X	X		X			X										
193 Golden Spread Electric**	X	X	X	X					X	X	X			X	X						X
50 Grayson-Collin Electric				X			X											X			
80 Greenbelt Electric			X	G/X				X		X											X
94 Guadalupe Valley Electric	X			X	X					X											
70 Hamilton County Electric				X																	
38 HILCO Electric				X							X										
166 Heart of Texas Electric				X																	
102 Jackson Electric Co-op				X																	
87 Karnes Electric Co-op				X																	
72 Lamar County ECA	X			X				X				X		X							
59 Lamb County Electric			X	X																	
55 Lighthouse Electric			X	G/X	X										X						
60 Lyntegar Electric			X	X	X																
48 Magic Valley Electric	X		X	X	X	X			X	X		X	X	X	X			X			

	Acquisition / Consolidation / Privatization / Valuation	Billing / Metering / Mapping / Data Collection / Processing	Cogeneration / Power Plants	Cost of Service / Rate Design	Distribution Planning / Analysis	Distribution Design / Inspection	Education & Training / Speaking Engagements	Financial Forecasting / Analysis	Restructuring / Competition / Regulation	Resource Planning / Procurement	Strategic Planning / Analysis	Substation Design	Technical Field Services / Testing	Transmission Line Design	Transmission Planning / Analysis	Renewables / Distributed Generation / Key Accounts	Cyber Security	Architecture / Headquarter Design/ Master Planning	Expert Witness - Support Testimony	Energy Efficiency, REST Planning, Renewables	Environmental
Texas (Continued)																					
95 Medina Electric	X			X		X				X		X	X	X							
115 Mid-South Synergy																		X			
63 Navarro County Electric				X																	
122 Navasota Valley Electric		X		X														X			
135 North Plains Electric			X	X									X								
88 Nueces Electric		X		X	X	X		X	X												
41 Panola Harrison Electric								X							X						
76 Pedernales Electric				X		X	X			X		X	X	X	X						
195 Rayburn Country Electric**		X	X	X			X	X	X	X	X				X						
144 Rio Grande Electric			X	X	X	X				X								X			
145 Rita Blanca Electric			X	X						X											
65 Rusk County Electric				X														X			
111 San Bernard Electric				X																	
155 San Miguel Electric**				X						X											
91 San Patricio Electric				X	X		X		X		X									X	
56 South Plains Electric			X	X	X	X			X	X		X									
148 South Texas Electric**	X	X	X	X						X			H								
124 Southwest Texas Electric			X	X																	X
108 Swisher Electric			X	X						X											
106 Taylor Electric		X	X	X						X											
TEC***		X		X	X		X		X	X					X						
101 Tri-County Electric	X			X																	
162 Trinity Valley Electric				X			X			X		X		X							
164 United Cooperative Services	X			X			X		X							X		X			
30 Upshur Rural Electric				X				X							X						
96 Victoria Electric Co-op				X			X									X					
75 Wharton Co. Electric Co-op				X																	
85 Wise Electric Co-op				X			X														
54 Wood County EC																	X				
Utah																					
5 Garkane Energy Co-op				X							X										
Virginia																					
52 Old Dominion**				X																	
Washington																					
9 OPALCo				X			X													X	

	Acquisition / Consolidation / Privatization / Valuation	Billing / Metering / Mapping / Data Collection / Processing	Cogeneration / Power Plants	Cost of Service / Rate Design	Distribution Planning / Analysis	Distribution Design / Inspection	Education & Training / Speaking Engagements	Financial Forecasting / Analysis	Restructuring / Competition / Regulation	Resource Planning / Procurement	Strategic Planning / Analysis	Substation Design	Technical Field Services / Testing	Transmission Line Design	Transmission Planning / Analysis	Renewables / Distributed Generation / Key Accounts	Cyber Security	Architecture / Headquarter Design/ Master Planning	Expert Witness - Support Testimony	Energy Efficiency, REST Planning, Renewables	Environmental
Wyoming																					
5 Big Horn REC				X										X		X					
9 Bridger Valley Electric Assn.				X																	
21 Carbon Power & Light	X			X			X	X													
12 Garland Light & Power				X																	
27 High Plains Power	X			X						X								X			
22 Niobrara Electric				X	X	X						X	X	X							
25 Powder River Energy	X			X								X									
10 Wheatland REA				X																	
WREA***							X		X												
6 Wyrulec Company				X				X													

** G&T Cooperative
*** Statewide Association

X - Electric, G - Gas, H - Hydro

APPENDIX B - TEAM RESUMES

EDUCATION:

M.B.A., Oklahoma City University, 1993
B.S., Mathematics, University of Central Oklahoma, 1986

EXPERIENCE:

1981-Present – C.H. Guernsey & Company, Oklahoma City, Oklahoma

2019 – Present	Chairman of the Board, Exec. Vice President, Principal
2016 – 2019	Exec. Vice President, Principal
2012 – 2016	Sr. Vice President, Principal
2008 – 2012	Vice President, Manager of Analytical Solutions Group

Mr. Hedrick specializes in the development of revenue requirements, cost of service, rate design, and financial forecasts for retail electric, water, and wastewater utility systems. He is also responsible for the preparation of rate filings and has presented expert testimony before state regulators, including Arizona, Arkansas, Colorado, Louisiana, Oklahoma, Texas and Wyoming. Mr. Hedrick also has extensive experience in the development of wholesale rates and transmission revenue requirements. Mr. Hedrick routinely participates in additional analysis and provides support in areas such as line extension, pole attachment rates, solar and other renewable energy issues, territorial issues and mergers.

As Manager of the Analytical Solutions Group, Mr. Hedrick has oversight of all studies, analyses and filings that are developed by the group. He continues to represent clients before the appropriate regulatory authority and is responsible for the preparation of rate filings and other analytical studies.

SPECIFIC CONSULTING EXPERIENCE:

Acquisitions, Consolidations & Valuation Analysis

Mr. Hedrick has provided analytical support for consolidation studies in Oklahoma, Texas and Wyoming. In addition, he has been involved in the valuation analysis of utility assets for purposes of acquisition and determination of fair market value for clients in Oklahoma and Kansas.

Retail Rate Analysis, Cost of Service Studies, and Line Extension Analysis

Mr. Hedrick's rate analysis and cost of service experience includes the following:

Arizona

- Mohave Electric Cooperative – Regulated by Arizona Corporation Commission
- Navopache Electric Cooperative, Inc. – Regulated by Arizona Corporation Commission
- Sulphur Springs Valley Electric Cooperative, Inc. – Regulated by Arizona Corporation Comm.

- Trico Electric Cooperative, Inc. – Regulated by Arizona Corporation Commission

Arkansas

- Arkansas Valley Electric Cooperative Corporation – Regulated by Arkansas PSC and Oklahoma Corporation Commission
- Ouachita Electric Cooperative Corporation – Regulated by Arkansas PSC
- Ozarks Electric Cooperative Corporation – Regulated by Arkansas PSC

Colorado

- Colorado Rural Electric Association
- Delta-Montrose Electric Association
- Empire Electric Association, Inc.
- Grand Valley Rural Power Lines
- Holy Cross Electric Association, Inc.
- Mountain Parks Electric, Inc.
- Poudre Valley REA, Inc.
- San Luis Valley Rural Electric Cooperative, Inc.
- Yampa Valley Electric Cooperative, Inc.

Iowa

- Iowa Lakes Electric Cooperative, Inc.
- Midland Electric Cooperative, Inc.

Kansas

- Ark Valley Electric Cooperative Association
- CMS Electric Cooperative, Inc.
- Flint Hills Electric Cooperative, Inc.
- Lyon-Coffey Electric Cooperative
- City of Meade
- Ninnescah Rural Electric Cooperative Assn., Inc.
- Pioneer Electric Cooperative, Inc.
- Sedgwick County Electric Cooperative, Inc.
- Western Cooperative Electric Association, Inc.

Louisiana

- Claiborne Electric Cooperative

Mississippi

- Southern Pine EPA
- Yazoo Valley EPA

Montana

- Tongue River

Nebraska

- Dawson County Public Power District

New Mexico

- Farmers Electric Cooperative, Inc.
- Lea County Electric Cooperative, Inc.
- Mora-San Miguel Electric Cooperative, Inc.

North Carolina

- Union Power Cooperative, Inc.

Oklahoma

- City of Blackwell
- Caddo Electric Cooperative
- Canadian Valley Electric Cooperative, Inc.
- Central Rural Electric Cooperative, Inc.
- Choctaw Electric Cooperative, Inc.
- Cimarron Electric Cooperative, Inc.
- Cookson Hills Electric Cooperative, Inc.
- Cotton Electric Cooperative, Inc.
- City of Duncan
- East Central Oklahoma Electric Cooperative
- City of Ft. Supply
- Indian Electric Cooperative, Inc.
- Kay Electric Cooperative, Inc.
- City of Kingfisher
- Kiwash Electric Cooperative, Inc.
- Lake Region Electric Cooperative, Inc.
- City of Mangum
- City of Mooreland
- Northeast Oklahoma Electric Cooperative, Inc.
- Northfork Electric Cooperative
- Northwestern Electric Cooperative, Inc.
- Oklahoma Electric Cooperative, Inc.
- Peoples Electric Cooperative
- City of Ponca City
- Rural Electric Cooperative, Inc.
- Southeastern Electric Cooperative, Inc.
- Southwest Rural Electric Association
- Tri-County Electric Cooperative, Inc.
- Verdigris Valley Electric Cooperative

Texas

- Bailey County ECA
- Bandera Electric Cooperative, Inc.
- Big Country Electric Cooperative, Inc.
- Bluebonnet Electric Cooperative, Inc.
- Central Texas Electric Cooperative, Inc.
- Concho Valley Electric Cooperative, Inc.
- Cooke County Electric Cooperative Assn.
- CoServ Electric

- Deaf Smith Electric Cooperative, Inc.
- Fannin County Electric Cooperative, Inc.
- Farmers Electric Cooperative, Inc.
- Fort Belknap Electric Cooperative, Inc.
- Grayson-Collin Electric Cooperative, Inc.
- Greenbelt Electric Cooperative, Inc.
- HILCO Electric Cooperative, Inc.
- Jackson Electric Cooperative, Inc.
- Lamar County Electric Cooperative, Inc.
- Lighthouse Electric Cooperative, Inc.
- Lyntegar Electric Cooperative, Inc.
- Magic Valley Electric Cooperative, Inc.
- Medina Electric Cooperative, Inc.
- Navarro County Electric Cooperative, Inc.
- Navasota Valley Electric Cooperative, Inc.
- North Plains Electric Cooperative, Inc.
- Nueces Electric Cooperative, Inc.
- Pedernales Electric Cooperative, Inc.
- Rayburn Country Electric Cooperative, Inc.
- Rita Blanca Electric Cooperative, Inc.
- San Bernard Electric Cooperative, Inc.
- South Plains Electric Cooperative, Inc.
- Southwest Rural Electric Association, Inc., Okla.
- Southwest Texas Electric Cooperative, Inc.
- Swisher Electric Cooperative, Inc.
- Taylor Electric Cooperative, Inc.
- Texas Electric Cooperatives, Inc., Statewide Association
- Tri-County Electric Cooperative, Inc.
- Trinity Valley Electric Cooperative, Inc.
- United Cooperative Services
- Wharton County Electric Cooperative, Inc.
- Wise Electric Cooperative, Inc.

Utah

- Garkane Electric Cooperative, Inc.

Wyoming

- Big Horn REC – Regulated by Wyoming Public Service Commission until 2007
- Carbon Power & Light, Inc. – Regulated by Wyoming Public Service Commission until 2007
- High Plains Power, Inc. – Regulated by Wyoming Public Service Commission until 2007
- Powder River Energy Corporation – Regulated by Wyoming Public Service Commission
- Wyrulec Company – Regulated by Wyoming Public Service Commission until 2007

Wholesale Rate Analysis and Cost of Service Studies

- Allegheny Electric Cooperative, Harrisburg, Pennsylvania
- Arkansas Electric Cooperative Corporation, Little Rock, Arkansas
- Brazos Electric Cooperative, Waco, Texas
- Central Electric Power Cooperative, Columbia, South Carolina
- Central Iowa Electric Cooperative, Cedar Rapids, Iowa
- Cooperative Energy, Hattiesburg, Mississippi
- Corn Belt Power Cooperative, Humboldt, Iowa
- 1803 Electric Cooperative, Franklinton, Louisiana
- Kansas Electric Power Cooperative, Topeka, Kansas
- Golden Spread Electric Cooperative, Amarillo, Texas
- Grand River Dam Authority, Vinita, Oklahoma
- Hoosier Energy REC, Bloomington, Indiana
- Minnkota Power Cooperative, Grand Forks, North Dakota
- North Carolina Electric Membership Corporation, North Carolina
- Oklahoma Municipal Power Authority, Edmond, Oklahoma
- Old Dominion Electric Cooperative, Richmond, Virginia
- Piedmont Municipal Power Authority, Greer, South Carolina
- Rayburn Country Electric Cooperative, Rockwall, Texas
- Western Farmers Electric Cooperative, Anadarko, Oklahoma

Special Projects

Development of Distributed Generation Procedures and Guidelines Manual:

- Western Farmers Electric Cooperative, Anadarko, Oklahoma
- KAMO Electric, Vinita, Oklahoma
- Texas Electric Cooperatives, Austin, Texas

Energy Policy Act of 2005 / EISA 2007 - Testimony in Support of Cooperative Staff's Position in Consideration of new PURPA Standards:

- Central Rural Electric Cooperative, Stillwater, Oklahoma
- Cotton Electric Cooperative, Walters, Oklahoma
- Farmers Electric Cooperative, Greenville, Texas
- Grand River Dam Authority, Vinita, Oklahoma
- Grayson-Collin Electric Cooperative, Van Alstyne, Texas
- HILCO Electric Cooperative, Itasca, Texas
- Lake Region Electric Cooperative, Hulbert, Oklahoma
- Lyntegar Electric Cooperative, Tahoka, Texas
- Magic Valley Electric Cooperative, Mercedes, Texas
- Northwestern Electric Cooperative, Woodward, Oklahoma
- Oklahoma Electric Cooperative, Norman, Oklahoma
- Tri-County Electric Cooperative, Azle, Texas
- Tri-County Electric Cooperative, Hooker, Oklahoma
- United Electric Co-op Services, Cleburne, Texas

Testimony before Colorado State House and Senate Committees in support of the Colorado Rural Electrification Association with regard to HB1169, Mandating Net Metering for Electric Cooperatives, 2007.

A Fresh Look Analysis and Review of East Kentucky Power Cooperative on behalf of the members of EKPC as directed by the Kentucky Public Service Commission, 2011 -2012

Analysis of community solar resource options including vendor selection and contract negotiations. Development of community solar tariffs and member program agreements.

Testimony on behalf of the Grand Canyon Statewide Association and Sulphur Springs Valley Electric Cooperative in the Value of Solar Docket No. E-00000J-14-0023 before the Arizona Corporation Commission in 2016.

Testimony on behalf of the Texas Electric Cooperative Association in 2017, SOAH Docket No. 473-17-2691, PUC Docket No. 46734, opposing the request of Murphy Oil for the right to receive service from another utility by extension of a private network in contradiction to state law and Public Utility Commission rules.

Testimony on behalf of Northwestern Electric Cooperative in 2017 - 2019, Cause No. PUD201800021, opposing the application of Iochem for approval to switch its load to another provider.

Testimony on behalf of CK Energy Electric Cooperative in 2018-2019, Cause No. PUD 201800075, for an order enjoining OG&E from serving or constructing electric facilities to serve and electric consuming facility in violation of the retail electric supplier act.

Testimony on behalf of Oklahoma Association of Electric Cooperatives in its intervention in OG&E's rate filing in 2019, to determine fair and reasonable rates and line extension allowable expenditures for competitive loads.

Education and Training

Mr. Hedrick provides educational seminars and training for cooperative staff and boards of directors, statewide associations, and professional organizations on the topics of Rate Analysis, Cost of Service, Rate Design, Line Extension Policy, and related issues.

Expert Witness

Mr. Hedrick has provided expert testimony related to the development of revenue requirements, cost of service, rate design, and special contract issues in Arizona, Arkansas, Oklahoma, Texas, and Wyoming.

Financial Forecasting & Analysis

Mr. Hedrick prepares and provides training in the development of financial forecast models for electric cooperatives and municipal utility systems.

Software Sales & Support

Mr. Hedrick provided assistance in the development of software for GUERNSEY's 10-year Financial Forecast, Cost of Service, and Financial Performance Analysis programs. Mr. Hedrick is proficient in the use of these software packages and provides support to client users.

Strategic Planning & Analysis

Mr. Hedrick has provided assistance to electric cooperative boards of directors in the development of strategic goals and objectives.

Publications and Presentations:

Articles:

Hedrick, David W. "Retail Rate Development: The Role of the Cooperative Board." *Management Quarterly*, published by NRECA's Education and Training Department. (Spring 2005): 20-35.

Presentations Made by Mr. Hedrick:

"Assessing the Impact of DG and Evaluating Community Solar" Webinar presented by CoBank in conjunction with the National Energy Solutions Institute and Smart Energy Source Association, March 2015

"Knowledge is Power: Financial Forecasting." Seminar written and presented by Guernsey personnel annually since 2006 in Oklahoma City, Okla. Mr. Hedrick has been a presenter for this seminar numerous times.

"Knowledge is Power: Understanding Rates and Cost of Service." Seminar written and presented by Guernsey personnel annually since 2005, in Oklahoma City, Okla., as well as other locations. Mr. Hedrick has been a presenter numerous times.

"Distributed Generation Net Metering Issues." Written for and presented at *TEC Engineers Association Annual Meeting.* September 2006.

"Net Metering Issues." Written for and presented at *G&T Planners Association Meeting,* Tucson. Arizona, September 2006.

"Development of Distributed Generation Policies and Procedures." Written and presented for *Texas Electric Cooperatives' Managers Meeting.* San Antonio, Texas, December 2, 2004.

"Rate Design in a Restructured Environment." Written and presented for *Texas Electric Cooperatives Accountants Association*. Austin, Texas, April 19, 2000.

EDUCATION:

M.B.A., West Texas A&M University, 2001
B.B.A., Marketing, Tarleton State University, 1995

PERTINENT EXPERIENCE FOR THE PROJECT:

Mr. Proctor specializes in the areas of Rate Analysis, Cost of Service, Financial Planning and Forecasts, Financial Modeling, Strategic Planning and Revenue requirements. His areas of responsibility include rate filings, rate design, cost of service, special contract rates and financial forecasts. In addition, he has assisted with analysis and development of energy efficiency, demand side management and renewable analysis and programs.

SPECIFIC CONSULTING EXPERIENCE:

Cost of Service and Rate Design Experience

Mr. Proctor is responsible for developing the adjusted test year financials, proof of revenue and demand allocations for Cost of Service studies as well as other related financial studies. Mr. Proctor has managed or assisted in the development of cost of service and rate design analysis for the following clients:

Arizona

- Trico Electric Cooperative, Inc. – Regulated by Arizona Corporation Commission

Arkansas

- Arkansas Valley Electric Cooperative, Inc. – Regulated by Arkansas PSC and Oklahoma Corporation Commission

Colorado

- San Luis Valley Electric Cooperative, Inc.
- Holy Cross Electric Association, Inc.
- Southeast Colorado Power Association, Inc.
- Yampa Valley Electric Association, Inc.

Florida

- Peace River Electric Cooperative, Inc.
- West Florida Electric Cooperative, Inc.

Iowa

- Corn Belt Power Cooperative
- Farmers Electric Cooperative

- Iowa Lakes Electric Cooperative, Inc.
- Nishnabotna Valley Electric Power Cooperative
- Northern Iowa Power Cooperative, Le Mars, Iowa
- Raccoon Valley Electric Cooperative

Kansas

- Ark Valley Electric Cooperative Association
- Flint Hills Rural Electric Cooperative Association
- Ninnescah Electric Cooperative Association
- Sedgwick County Electric Cooperative, Inc.

Kentucky

- East Kentucky Power Cooperative, Strategic Review

Mississippi

- Dixie Electric Membership Cooperative, Inc.
- Southern Pine Electric Cooperative, Inc.

Missouri

- Intercounty Electric Cooperative, Inc.

Montana

- Vigilante Electric Cooperative, Inc.

Nebraska

- Dawson Public Power District

New Mexico

- Lea County Electric Cooperative, NERC Compliance
- Central Valley Electric Cooperative
- Mora-San Miguel Electric Cooperative
- Socorro Electric Cooperative

North Dakota

- Capital Electric Cooperative

Ohio

- Logan County Electric Cooperative
- Paulding Putnam Electric Cooperative

Oklahoma

- Alfalfa Electric Cooperative, Inc.
- Central Rural Electric Cooperative, Inc.
- Choctaw Electric Cooperative, Inc.
- Cimarron Electric Cooperative, Inc.
- City of Ardmore
- City of Cushing
- City of Collinsville
- City of Skiatook
- City of Stroud
- City of Claremore
- Cotton Electric Cooperative, Inc.
- Lake Region Electric Cooperative, Inc.
- Northwestern Electric Cooperative, Inc.
- Rural Electric Cooperative
- Tri-County Electric Cooperative, Inc. – COSS, Vendor Managed Inventory Solicitation and Community Solar Analysis
- Western Farmers Electric Cooperative, Inc.

South Dakota

- Lake Region Electric Association, Inc.
- Southeastern Electric Cooperative, Inc.

Texas

- Bailey County Electric Cooperative
- Bandera Electric Cooperative, Inc.
- Bluebonnet Electric Cooperative, Inc.
- Concho Valley Electric Cooperative, Inc.
- CoServ Electric
- Deaf Smith Electric Cooperative, Inc.
- Farmers Electric Cooperative, Inc.
- Fannin Electric Cooperative, Inc.
- Fort Belknap Electric Cooperative, Inc.
- Golden Spread Electric Cooperative, Inc.
- Grayson-Collin Electric Cooperative, Inc.
- Guadalupe Valley Electric Cooperative, Inc.
- Karnes Electric Cooperative, Inc.
- Lighthouse Electric Cooperative, Inc.
- Lyntegar Electric Cooperative, Inc.
- Medina Electric Cooperative, Inc.
- Mid-South Synergy
- North Plains Electric Cooperative, Inc.

- Panola Harrison Electric Cooperative, Inc.
- Pedernales Electric Cooperative, Inc.
- Rita Blanca Electric Cooperative, Inc.
- Rusk Electric Cooperative, Inc.
- San Patricio Electric Cooperative, Inc.
- Southwest Texas Electric Cooperative, Inc.
- Taylor Electric Cooperative, Inc.
- Texas Electric Cooperative, Inc. Statewide
- Trinity Valley Electric Cooperative, Inc.
- United Cooperative Services
- Upshur-Rural Electric Cooperative, Inc.
- Wise Electric Cooperative, Inc.

Washington

- OPALCO

Wyoming

- High Plains Electric Cooperative, Inc.
- Wyrulec Company

Other Project Experience

Utility and Community Scale Solar Analysis Experience

- Canadian Valley Electric Cooperative, Inc., Oklahoma
- North Arkansas Electric Cooperative, Inc., Arkansas
- Rita Blanca Electric Cooperative, Inc., Texas
- Tri-County Electric Cooperative, Inc., Oklahoma

Southwest Power Pool ATRR Experience

- Panola-Harrison Electric Cooperative, Inc., Texas
- Upshur-Rural Electric Cooperative Inc., Texas

Vendor Managed Inventory RFP Administration & Analysis Experience

- Cimarron Electric Cooperative, Inc., Oklahoma
- CoServ Electric, Texas
- Tri-County Electric Cooperative Inc., Oklahoma

NERC Compliance Experience

- Claiborne Electric Cooperative, Inc., Louisiana
- Lea County Electric Cooperative Inc., New Mexico
- Rayburn Country Electric Cooperative, Inc., Texas
- Trinity Valley Electric Cooperative, Inc., Texas

National Rural Electric Cooperative Association

Transmission Capacity Limitations Study, NRECA Cooperative Research Network (CRN).

Kentucky Corporation Commission

The "Fresh Look" review of East Kentucky Power Cooperative on behalf of the cooperative's distribution members as required by the Kentucky Corporation Commission, 2011 – 2012

U.S. Army Corps of Engineers, Tulsa District

Phase II Master Plan, Arkansas River Corridor (42-miles of the river). Mr. Proctor coordinated the Engineering and Environmental group's public relations and communications efforts with the Tulsa COE and GUERNSEY's teaming partner, Schnake Turnbo Frank, PR.

PUBLICATIONS & PRESENTATIONS:

- "The Latest on Distributed Energy Resources"", Texas Electric Cooperative, Inc. Learning Circuit Webinar Series. March 2020.
- Mr. Proctor was one of the Guernsey authors for the 2017 NRECA/CFC Retail Rate Guide, Volumes I and II, available from NRECA or CFC for member systems.
- "Cost of Service Seminar" for Texas Electric Cooperatives. April 2012.
- "Knowledge is Power: Financial Forecasting." Seminar written and presented by Guernsey personnel annually since 2006 in Oklahoma City, Okla. Mr. Proctor has been a presenter numerous times.
- "Knowledge is Power: Understanding Rates and Cost of Service." Seminar written and presented by Guernsey personnel annually since 2005 in Oklahoma City, Okla. Mr. Proctor has been a presenter numerous times.
- "Update on Rates," presented to New Mexico Statewide Manager Meeting. April 2012.
- "Going Green: The Customer Impact and the Role of Member Services," presented for the Texas Electric Cooperatives' Marketing & Member Services 2009 Annual Meeting, San Antonio, Texas, October 2009.

EXPERIENCE RECORD:

2002-Present – C. H. Guernsey & Company, Oklahoma City, Okla.

2008-Present – Consultant, Analytical Solutions Group
2002-2008 – Corporate Marketing Manager

1996-2002 – Swisher Electric Cooperative, Tulia, Texas

Marketing & Safety Director

PROFESSIONAL ACTIVITIES / HONORS:

Rotary International:

- West Oklahoma City Rotary Club, President, 2010
- Tulia Rotary Club, President, 1998, 1999 and 2000
- Tulia Rotary Club, 1998 District 5730 Club of the Year

Community/Economic Development:

- Oklahoma City Chamber of Commerce, Board of Advisor, 2003 – 2008
- The High Ground of Texas Economic Development Coalition, Director & Chairman of Marketing, 2001 – 2002
- Panhandle Regional Planning Commission, Board of Director, 2000 – 2001

Texas Electric Cooperatives Statewide Association:

- Marketing & Member Services – Group V President, 1997
- Texas Member Services Association Board of Directors, 1997

Awards:

- Society of American Military Engineers, Tulsa Post, President, 2006 – 2007
- 2006 SAME Top Medium Size Post (Worldwide Award)
- Oklahoma Society of Marketing Professional Services:
  - Guernsey – 2005 Marketing Achievement Award- Best Company Brochure
  - Guernsey – 2006 Marketing Achievement Award – Best Company Website
- National Rural Electric Cooperative Association (NRECA)
  - National Award of Merit - Smart Choice Electric Cooperatives – Communications Campaign (Two Awards)

EDUCATION:

MBA, Oklahoma City University, 2002
B.S.B., International Business, Oklahoma City University, 1999

PERTINENT EXPERIENCE FOR THE PROJECT:

Ms. Payne specializes in the development of revenue requirements, cost of service, consolidation analysis, rate design, and financial forecasts for electric, water, and wastewater utility systems. Ms. Payne has also assisted in the preparation of rate filings and has provided testimony supporting rate changes in Arizona and Arkansas.

SPECIFIC CONSULTING EXPERIENCE:

Consolidation Analysis

Ms. Payne has developed analytical support for consolidation studies for several clients in Oklahoma. The analysis includes computation of consolidation impacts on both short-term and long-term revenue requirement and evaluation of the best path for consolidating rate schedules.

Cost of Service and Rates

Ms. Payne develops Rate Analysis and Cost of Service Studies for electric cooperatives and municipals by defining the appropriate revenue requirement and allocating plant investment and operation and maintenance expenses to each rate class. She then uses the Cost of Service study to examine the extent to which costs are being recovered by existing rates and, if necessary, develops new rates to recover revenue requirement and appropriate costs.

The following are projects on which Ms. Payne has been involved:

Arizona

- Navopache Electric Cooperative, Lakeside
- Sulphur Springs Valley Electric Cooperative, Willcox
- Trico Electric Cooperative, Marana

Arkansas

- Ozarks Electric Cooperative Corp., Fayetteville

Colorado

- San Luis Valley REC, Monte Vista
- Y-W Electric Association, Akron

Iowa

- Harrison County, Woodbine
- Iowa Lakes Electric Cooperative, Estherville
- Midland Power Cooperative, Jefferson
- Nishnabotna Valley REC, Harlan

Kansas

- Ark Valley ECA, Hutchinson

Louisiana

- Claiborne Electric Cooperative, Homer

Minnesota

- Agralite Electric Cooperative, Benson

Missouri

- Platte-Clay Electric Cooperative, Kearney
- Barton County Electric Cooperative, Lamar
- M&A Electric Cooperative, Poplar Bluff
- Sho-Me Power Electric Cooperative, Marshfield

Nebraska

- Dawson County PPD, Lexington

New Mexico

- Central Valley Electric Cooperative, Artesia
- Otero County Electric Cooperative, Cloudcroft
- Socorro Electric Cooperative, Socorro

North Dakota

- Capital Electric Cooperative, Bismarck
- Mountrail-Williams, Williston

Mississippi

- Southern Pine Electric Cooperative,

Taylorsville

Oklahoma

- Caddo Electric Cooperative, Binger
- CKEnergy Electric Cooperative, Binger
- Canadian Valley Electric Cooperative, Seminole
- Central Rural Electric Cooperative, Stillwater
- Choctaw Electric Cooperative, Choctaw
- Cimarron Electric Cooperative, Kingfisher
- Cookson Hills Electric Cooperative, Stigler
- Cotton Electric Cooperative, Walters
- KAMO Electric Cooperative, Vinita
- Kiwash Electric Cooperative, Cordell
- City of Ponca City
- City of Tecumseh
- Lake Region Electric Cooperative, Hulbert

- Rural Electric Cooperative, Lindsay
- Tri-County Electric Cooperative, Hooker

Texas

- Bailey County ECA, Muleshoe
- Bandera Electric Cooperative, Bandera
- Bluebonnet Electric Cooperative, Giddings
- Comanche Electric Cooperative, Comanche
- Cooke County ECA, Muenster
- Deaf Smith Electric Cooperative, Hereford
- Fannin County Electric Cooperative, Bonham
- Farmers Electric Cooperative, Greenville
- Grayson-Collin Electric Cooperative, Van Alstyne
- Greenbelt Electric Cooperative, Wellington
- Guadalupe Valley Electric Cooperative, Gonzales
- Jackson Electric Cooperative, Edna
- Karnes Electric Cooperative, Karnes City
- Magic Valley Electric Cooperative, Mercedes
- Medina Electric Cooperative, Hondo
- North Plains Electric Cooperative, Perryton
- Nueces Electric Cooperative, Robstown
- South Plains Electric Cooperative, Lubbock
- Southwest Texas Electric Cooperative, El Dorado
- Swisher Electric Cooperative, Tulia
- Taylor Electric Cooperative, Merkel
- Tri-County Electric Cooperative, Azle
- Trinity Valley Electric Cooperative, Kaufman
- United Cooperative Services, Cleburne
- Victoria Electric Cooperative, Victoria
- Wise Electric Cooperative, Decatur

Wyoming

- Powder River Energy Corporation, Sundance
- Wyrulec Company, Lingle

Publications and Presentations:

- "Knowledge is Power: Financial Forecasting" has been presented yearly in GUERNSEY's offices in Oklahoma City since 2006. Ms. Payne has been a presenter for this seminar numerous times.

- "Knowledge is Power: Understanding Rates and Cost of Service" has been presented several times each year since 2005, at GUERNSEY's offices in Oklahoma City as well as in other locations. Ms. Payne has been a presenter for this seminar.

- "Cost of Service Seminar" for Texas Electric Cooperatives – March 2011
- "Cost of Service Seminar" for Wyoming Rural Electric Association – March 2011

- "Cost of Service Seminar" for Tri-County Electric Cooperative, Hooker, OK – September 2011
- "Cost of Service Seminar" for New Mexico Rural Electric Cooperative Association – November 2014
- "Cost of Service Seminar" for Otero County Electric Cooperative, Cloudcroft, NM– March 2015

- "Cost of Service Seminar" for Mountrail-Williams Electric Cooperative, Williston, ND – October 2019
- "Key Considerations in the Development of Rate Designs", Texas Electric Cooperatives Learning Circuit Webinar Series – February 2020
- "Fixed Cost Recovery in Rates", Colorado Rural Electric Association – February 2019
- "Understanding the Rate Change Process", Oklahoma Electric Cooperative Accountants Association – October 2018

EXPERIENCE RECORD:

1999-Present – Consultant, C. H. Guernsey & Company, Oklahoma City, Okla.
1999-2004 – Consultant, Analytical Solutions Group

2004-2005 – Video Professor, Inc., Lakewood, Colo.

Ms. Payne worked as a Financial Analyst providing information to upper management to aid in making business decisions. She prepared and monitored reports on key elements of the business model to identify problem areas. She assisted in budget preparation for multiple business segments and maintained updated forecasts to monitor deviations from the budget. She also provided financial viability analysis that helped measure success of marketing projects.

EXPERIENCE:

Mr. Dan has over 5 years of accounting and analytical experience. Starting at Guernsey in June of 2019, he has assisted on multiple Cost of Service Studies as well as an energy efficiency study and other miscellaneous projects. Prior to Guernsey, he performed a variety of roles at Love's Travel Stops. Most recently, he worked as an Indirect Tax Analyst where he filed multiple types of tax returns for 4 of Love's different companies. Prior to that, he was the Supervisor of Wholesale Inventory, which involved reconciling terminal fuel reports with internal accounting records and investigating discrepancies. His initial role at Love's was as a Staff Accountant where he analyzed daily fuel margins for over 400 locations.

Education
MBA – Business Administration- University of Central Oklahoma - 2018

B.B.A – Bachelor of Business Administration – University of Central Oklahoma – 2014

30 hours of upper-level Accounting courses

Certifications
Currently sitting for the Certified Public Accountant exam

Cost of Service Studies:

Central New Mexico Electric Cooperative 2019

Choctaw Electric Cooperative 2019

Grayson-Collin Electric Cooperative 2019

MidSouth Electric Cooperative 2019

Mountrail-Williams Electric Cooperative 2019

Wheatland Electric Cooperative, Inc. 2019

Y-W Electric Association 2019

Wyrulec Company 2019

Medina Electric Cooperative, Inc. 2019

City of Kingfisher 2019

High Plains Electric Cooperative 2019

Trico 2019

Southwest Mississippi Electric Cooperative 2019

Northwest Electric Cooperative 2019

Intercounty Electric Cooperative 2019

Logan County Electric Cooperative 2019

First Electric Cooperative 2019

Farmers Electric Cooperative 2020

Canadian Valley Electric Cooperative 2020

Vigilante Electric Cooperative 2020

Jemez Mountains Electric Cooperative 2019

Nueces Electric Cooperative 2020

San Patricio Electric Cooperative 2020

Southeastern Electric Cooperative 2019

EDUCATION:

BA, Communications, Oklahoma Baptist University, 1977
Graduate work in Communications, University of Oklahoma and Louisiana State University
Completed RUS Accounting Course

PERTINENT EXPERIENCE FOR THE PROJECT:

Mr. Searcy specializes in the areas of Rate Analysis, Cost of Service, Financial Planning and Forecasts, Financial Modeling, Strategic Planning and Revenue requirements. His areas of responsibility include expert witness support, rate filings, rate design, cost of service, special contract rates and financial forecasts. In addition, he has assisted with analysis and development of energy efficiency, demand side management and renewable analysis and programs.

During Mr. Searcy's prior experience on the staff of an electric cooperative he worked with consultants to design all rates and charges and to create and present all proposals as part of the Cooperative's marketing department. Mr. Searcy created, organized and supervised all aspects of a Cooperative subsidiary. At GUERNSEY, Mr. Searcy has experience in developing cost of service studies, general rate and special contract rate designs, management consulting and education.

Cost of Service and Rates – Energy Efficiency and DSM

At GUERNSEY, Mr. Searcy has managed or assisted in the preparation of Rate Analysis and Cost of Service Studies, energy efficiency/renewable analysis, or other projects.

Education and Training

Mr. Searcy has experience in classroom teaching and utility job training and safety. He supervised cooperative public relations, providing training and educational programs on a variety of topics. At GUERNSEY he has experience in making presentations to utility management, boards of directors, consumer groups and industry organizations.

Mr. Searcy has assisted in energy efficiency, DSM or renewable analysis for the following clients:

- Cornbelt Electric Power Cooperative, Humbolt, Iowa
- Northern Iowa Power Cooperative, Le Mars, Iowa
- Mohave Electric Cooperative, Bullhead City, Arizona
- Ouachita Electric Cooperative, Camdon, Arkansas
- Ozarks Electric Cooperative, Fayetteville, Arkansas
- Trico Electric Cooperative, Marana, Arizona
- Western Farmers Electric Cooperative, Anadarko, Oklahoma

Mr. Searcy has provided cost of service and rate design analysis and/or training for the following clients:

Arizona

- Mohave Electric Cooperative, Bullhead City
- Trico Electric Cooperative, Marana

Arkansas

- First Electric Cooperative, Jacksonville
- Ouachita Electric Cooperative, Camden

Colorado

- Mountain Parks Electric, Granby

Georgia

- Jackson EMC, Jefferson

Iowa

- Corn Belt Power Cooperative, Humbolt
- Harrison County, Woodbine
- Iowa Lakes, Estherville

Kansas

- CMS Electric Cooperative, Meade
- Heartland REC, Girard
- Nemaha-Marshall Electric Cooperative, Axtell
- The Victory Electric Cooperative, Dodge City
- Wheatland Electric Cooperative, Scott City

Mississippi

- Dixie Electric EPA, Laurel

Missouri

- Associated Electric Cooperative, Springfield
- Intercounty Electric Cooperative, Licking
- NW Electric Power Cooperative, Cameron

Nebraska

- Dawson County PPD, Lexington

New Mexico

- Central New Mexico Electric Cooperative, Moriarty
- Farmers Electric Cooperative, Clovis

Ohio

Logan County Cooperative Power & Light, Bellefontaine
Paulding-Putnam Electric Cooperative, Inc, Paulding

Oklahoma

- Central Electric Cooperative, Stillwater
- City of Blackwell
- City of Tecumseh
- Cotton Electric Cooperative, Walters
- East Central Oklahoma Electric Cooperative, Okmulgee
- Northwestern Electric Cooperative, Woodward
- Oklahoma Association of Electric Cooperatives, Oklahoma City
- Oklahoma Electric Cooperative, Norman
- Southeastern Electric Cooperative, Durant
- Southwest Rural Electric Association, Tipton
- Verdigris Valley Electric Cooperative, Collinsville
- Western Farmers Electric Cooperative, Anadarko

Oregon

- PNGC Power, Portland

South Carolina

- Central Electric Power Cooperative, Columbia

Texas

- Big Country Electric Cooperative, Roby
- Bluebonnet Electric Cooperative, Bastrop
- Central Texas Electric Cooperative, Fredericksburg
- CoServ Electric, Corinth
- Farmers Electric Cooperative, Greenville
- Greenbelt Electric Cooperative, Wellington
- Medina Electric Cooperative, Hondo
- Navarro County Electric Cooperative, Corsicana
- Rita Blanca Electric Cooperative, Dalhart
- San Bernard Electric Cooperative, Bellville
- San Patricio Electric Cooperative, Sinton
- Taylor Electric Cooperative, Merkel
- Texas Electric Cooperatives, Austin
- United Cooperative Services, Cleburne
- Victoria Electric Cooperative, Victoria

Washington

- OPALCO, East Sound

Wyoming

- Big Horn REC, Basin
- Carbon Power & Light, Saratoga
- Garland Light & Power Company, Powell
- Wheatland REA, Wheatland

In particular, Mr. Searcy has assisted in developing and designing rates and programs related to renewable energy and net metering, including for cooperatives in regulated states. This assistance includes designing and supporting net metering rates, and in cases providing supporting testimony. A partial list of these cooperatives includes First Electric, Ouachita and Ozarks in Arkansas, Victory and Wheatland in Kansas, Mohave in Arizona, Victoria, San Patricio, United and Nueces in Texas and Southwest, Oklahoma and East Central in Oklahoma.

Publications and Presentations

Articles:

Searcy, Mike, Judy Lambert, and Michael Moore. "Energy Efficiency, Conservation and Margins: Catch 22 Rate Design." NRECA's *Management Quarterly* (Fall 2007): 26-47.

Mr. Searcy was one of the Guernsey authors for the 2017 NRECA/CFC Retail Rate Guide, Volumes I and II, available from NRECA or CFC for member systems.

Mr. Searcy prepared a white paper for five G&T cooperatives headed by Western Farmers in 2019 related to electric vehicle charging.

Presentations:

"Knowledge is Power: Financial Forecasting." Seminar written and presented by Guernsey personnel annually since 2006 in Oklahoma City, Okla. Mr. Searcy has been a presenter numerous times.

"Knowledge is Power: Understanding Rates and Cost of Service." Seminar written and presented by Guernsey personnel annually since 2005 in Oklahoma City, Okla. Mr. Searcy has been a presenter numerous times.

Mr. Searcy has taught a number of courses on a variety of topics, including EV Charging rates, Revenue Requirement, and Innovative Rate Designs for Texas Electric Cooperatives in Austin, Texas, in recent years.

Mr. Searcy has taught a variety of courses over the past five years for National Rural Electric Cooperative Association meetings of all types, including the Tax, Finance and Accounting Conferences for Cooperatives.

Mr. Searcy has presented webinar for other entities, including CoBank.

Industry Restructuring and Competition

Mr. Searcy's cooperative experience includes supervising a Texas cooperative during key restructuring and competition exercises.

Strategic Planning and Analysis

Mr. Searcy's cooperative experience includes preparing and presenting board and other reports, budgets, business plans, and strategic planning. Mr. Searcy supervised the preparation and completion of customer surveys and focus groups.

EXPERIENCE RECORD:

2002-Present – C. H. Guernsey & Company, Oklahoma City, Okla.

2010-Present – Managing consultant with Analytical Solutions Group
2002-2010 – Consultant with Analytical Solutions Group

Currently – Managing Consultant with Analytical Solutions Group

1982-2002 – Southwest Rural Electric Association, Inc., Tipton, Okla.

1987-2002 – Manager of Member Services
1999-2000 – SWRE's Interim Chief Executive Officer

PROFESSIONAL ACTIVITIES / HONORS:

Selected as "Oklahoma's Outstanding Electric Cooperative Communicator" by the Oklahoma Association of Electric Cooperatives, 2000

EDUCATION:

Ph.D., Economics, University of Michigan, 1994
M.A., Economics, Bowling Green State University, 1987
B.A., Business Administration, People's University of China, 1985

EXPERIENCE RECORD:

2000-Present C. H. Guernsey & Company, Oklahoma City, Okla.

Dr. Zhu is an Economist specializing in the areas of cost of capital and cost of service analysis for electric and gas utilities. He has provided analyses and support in many public utility (both electric and gas) cost-of-capital cases and cost of service cases. He has been providing consulting services on behalf of the State Water Project of California (an Intervenor) in the Southern California Edison, Pacific Gas & Electric, and San Diego Gas & Electric Transmission Formula rate cases. Most recently, he was involved with providing consulting services to the Duke Energy Progress rate case intervention for the Department of Defense/All Other Federal Executive Agencies. He also testified as an ROE expert for DoD/FEA in a rate case involving Dominion Energy South Carolina.

Dr. Zhu also specializes in areas such as load forecasting, natural gas market analysis and modeling, gas price and underground storage forecasting, risk management and hedging strategy, financial analysis of merger potential, and other economic and statistical analyses. He has performed various studies regarding natural gas market risk management, price and volatility determination, market efficiency, and the analysis of gas pipelines. He has also performed numerous power price analyses, load analyses, weather normalization, and demand and energy forecasts for electric IOUs and cooperatives, evaluation of solar energy projects, corporate merger activities, stock market and foreign exchange market volatility, and financial market deregulation. Dr. Zhu has been instrumental in successfully modeling the storage injections and withdrawals from the U.S. natural gas reservoirs and the impact of these net supply changes on natural gas prices. Dr. Zhu and other Guernsey economists have received national recognition for successfully modeling the prices of natural gas in the physical market and at many trading hubs used in pricing natural gas in today's markets.

Dr. Zhu has testified in cases before several public service commissions regarding cost of capital, long-term demand and load forecasts, fuel price projections, and other issues.

Dr. Zhu is also Dr. Michael Metzger Endowed Chair and Professor of Economics at the University of Central Oklahoma.

Dr. Zhu teaches Master's level Energy Finance courses (Energy Valuation and Investment, Trading, and Risk Management) for the Mewbourne School of Petroleum

and Geological Engineering and International Finance, Trade, and other courses for Advanced Programs at the University of Oklahoma.

SPECIFIC EXPERIENCE:

Natural Gas

Dr. Zhu has developed and maintains natural gas futures contract pricing models and natural gas storage models. He has also developed and maintained natural gas pricing models for multiple delivery points for a large Texas-based electric distribution cooperative and several other cooperatives. Dr. Zhu devised hedging strategies for several utilities and has done extensive study of natural gas prices and natural gas markets.

Cost of Capital

Dr. Zhu has provided testimony and support in many gas and electric utility cost of capital cases.

Dr. Zhu has assisted Department of Defense on Duke Energy Progress rate case in North Carolina on cost of capital and capital structure issues, DOCKET NO. E-2, SUB 1219, 2019-2020.

Dr. Zhu has assisted clients in Illinois on cases pending at FERC on ROE issues based on the new FERC ROE methodology.

Dr. Zhu has been providing consulting services, specifically related to capital structure and return on equity, to and on behalf of the State Water Project of California (an Intervenor) in the Southern California Edison, Pacific Gas & Electric, and San Diego Gas & Electric Transmission Formula rate cases. Teaming with legal counsel, Dr. Zhu represents and negotiates on behalf of client at settlement conferences conducted at FERC in Washington DC.

Dr. Zhu testified on cost of capital on behalf of Michigan Attorney General's Office before Michigan Public Service Commission in the Matter of the Application of Indiana Michigan Power Company for authority to increase its rates in the sale of electricity energy and for approval of depreciation accrual rates and other related matters, Case No. U-18370, 2017.

Dr. Zhu testified on cost of capital on behalf of Department of Defense/All Other Federal Executive Agencies before South Carolina Public Service Commission in the Application of Dominion Energy South Carolina for Adjustment of Rates and Charges in South Carolina, Case No. 2020-125-E, 2020-2021.

In addition, Dr. Zhu has studied the connection of the U.S. economy and U.S. gas and electric utility return on equities, and the determination of the ROE. The studies have been published in trade, industry, and academic journals.

Gas Price and Market, Load Forecasting & Statistical Analysis, and other Financial and Economic Analysis

Dr. Zhu examined factors determining future fuel prices and loads, and then provided expert testimony services related to fuel prices and load forecasts for the following projects:

- Natural gas prices and natural gas markets on behalf of Oklahoma Attorney General's Office before Oklahoma Corporation Commission in application of Public Service Company of Oklahoma for approval of the cost recovery pf the Wind Catcher Energy Connection Project, and other issues. Cause No. PUD 201700267, 2017-2018.
- Energy and demand forecasts, and fuel price forecast issues before the Georgia Public Service Commission in Georgia Power Company's application for Approval of its 2007 Integrated Resource Plan, Docket No. 24505-U, 2007.
- Expert testimony before the Oklahoma Corporation Commission on fuel cost/pricing issues, providing rebuttal testimony before the Corporation Commission of the State of Oklahoma, in the Application of Blue Canyon Windpower II, LLC for establishment of purchased power rates and a purchase power contract with AEP – Public Service Company of Oklahoma, pursuant to PURPA, Cause No. PUD 20030063, 2004.
- Expert testimony before the South Carolina Public Service Commission Docket No. 2008-196-E: "Combined Application of SCE&G for the Construction and Operation of a Nuclear Facility in Jenkinsville, S. Car." regarding load forecast and fuel forecast issues.

Dr. Zhu has performed numerous studies of financial markets and has been published extensively in financial economics, energy economics and other economics/finance fields.

Dr. Zhu studied the impact of government regulation on stock price volatilities using the event study methodology. This study was published in Journal of Financial Services Review and many other journals.

Dr. Zhu has used many time series models to study the financial prices including exchange rates, stock prices, natural gas futures prices, and so on. The studies have been published in many leading academic journals.

Other Consulting Experience

Dr. Zhu developed and maintained Guernsey's LDC, DisCo, and GenCo stock price indices, developed fuel cost and hedging strategies for utilities, and developed and maintains load forecast models.

Dr. Zhu has been involved in the inventory forecast system development, merger intervention projects for gas and electric utilities, integrated resource planning

projects, survey design and statistical analysis, weather normalization studies, and many others.

Previous Professional Experience:

Dr. Zhu has served as Assistant Professor of Economics at The University of Oklahoma, a Research Fellow of Financial Research Institute at the University of Missouri, and as an Instructor and Teaching Assistant in the Department of Economics at the University of Michigan.

SELECTED RECENT PUBLICATIONS AND PROFESSIONAL PAPERS

Zhu, Zhen, with William Sutton, 2020, "Cost Savings in Areas with Unproven Reserves: Risk = Reward in Big Oil", *Energy Forum*, International Association for Energy Economists 2021 (1).

Zhu, Zhen, with Sheng-Hung Chen, Song-Zan Chiou-Wei, 2020. "Natural Gas Price, Market Fundamentals and Hedging Effectiveness", *Quarterly Review of Economics and Finance.* November 2020, pages 321-337.

Zhu, Zhen, with Sheng-Hung Chen, Song-Zan Chiou-Wei, 2019. "Energy and Agricultural Commodity Markets Interaction: An Analysis of Crude Oil, Natural Gas, Corn, Soybean, and Ethanol Prices." *The Energy Journal*, Volume 40, Number 2, pages 265-296.

Zhu, Zhen 2018. "Chinese Natural Gas Market: Huge but Beset with Difficulties." *Natural Gas and Electricity*, July 2018, Volume 34, Number 12, pp. 1-7.

Zhu, Zhen, with Yue Wang. 2018. "Cost of Natural Gas in Eastern Chinese Markets: Implications for LNG Imports," *Energy Forum*, International Association for Energy Economists, 2018:3, pp. 13-20.

Zhu, Zhen, with Kuang-Chung Hsu, Michael Wright. 2017. "What motivates merger and acquisition activities in the upstream oil & gas sectors in the U.S.?" *Energy Economics*, pp. 240-250.

Zhu, Zhen, with Song Zan Chiou-Wei. 2016. "Controlling for Relevant Variables: Energy Consumption and Economic Growth," *Energy*, Vol. 109, 391-399, 2016.

Zhu, Zhen, with Song Zan Chiou-Wei. 2015. "A Meta-Analysis of the Energy Consumption-Economic Growth Nexus," *International Journal of Economics and Social Sciences*, 2015.

Zhu, Zhen, with Song Zan Chiou-Wei, and Fanbei Zhou. 2014. "Forecasting Natural Gas Consumption: China and Japan," *Asia-Pacific Economic and Management Review, Vol. 18, No. 1, 65-84*, 2014.

Zhu, Zhen, with Mariya Berdina, Michael Wright. 2014. "Is the Stock Market Sticker Shocked? A Study of Market Response to Recent CAFE Regulations in the U.S.," *Applied Economics*, 2014.

Zhu, Zhen, with Chiou Wei Song Zan and Scott Linn. 2014. "The response of U.S. natural gas futures and spot prices to storage change surprises: Fundamental information and the effect of escalating physical gas production," *Journal of International Money and Finance,* 2014, Vol. 42, 156-173.

Zhu, Zhen, with Glenn Hsu and Michael Wright. 2014. "Merger and Acquisition Activities in the U.S. Oil and Gas Industry," *Energy Forum*, International Association for Energy Economists, 2014:1.

Zhu, Zhen, with Donald A. Murry. 2013. "For Gas and Electric Utilities the Recent Recession/Recovery is Different from Previous Ones," *United States Association for Energy Economics Forum* (May 2013).

Zhu, Zhen, with Joe Johnson and Cody Woods. 2013. "An Economic Analysis of Wind Generation Capacity," *International Journal of Economics and Social Sciences*.

Zhu, Zhen, with Don Murry, and Mike Knapp. 2011. "The Equivalent Risk Standard and Allowed ROEs in the Gas and Electric Utility Industries," *Journal of Applied Economics and Policy*, Volume 30, Number 1, 47-60.

Zhu, Zhen and M Ji, and H Lin. 2011, "The Roles of Speculation and Fundamentals in Commodity Markets: The Case of U.S. Natural Gas Market," *Review of Futures Markets*, Volume 19, Issue 3, 217-246.

Zhu, Zhen, with Don Murry, and Mike Knapp. 2010. "Economic Recovery and Industrial Natural Gas Demand." *USAEE Dialogue* 18 (November).

Zhu, Zhen, with J.D. Ju, and Scott Linn. 2010. "Price Dispersion in a Model with Middlemen and Oligopolistic Market Journal Makers: A Theory and an Application to the North American Natural Gas Market." *Journal of Economics and Management Strategy* 19 (Spring): 1–23.

Zhu, Zhen, and Don Maxwell. 2011. "An Empirical Examination of the Impacts of Natural Gas Prices and LNG Transport Costs on the Dynamics of LNG Import Demand." *Energy Economics.* Vol. 33, 2011, 217-226.

Zhu, Zhen, and Shinhua Liu. 2009. "Stock Market Volatility and Commission Deregulation: Further Evidence from Japanese Stock Markets." *Journal of Financial Services Review* 36 (August): 65-83.

Zhu, Zhen, with Chiou Wei Song Zan and Yung-Hsing Kuo. 2010. **"**Government Size and Economic Growth: An Application of the Smooth Transition Regression Model." *Applied Economics Letters* 17: 1405–1415.

Zhu, Zhen, with Veljko Fotak and Scott Linn. 2008. "Natural Gas Price Volatility." *Natural Gas and Electricity* 24 (June): 8-13.

Zhu, Zhen, with Don Murry and Mike Knapp. 2008. "Linking Risk and ROE," *Public Utility Fortnightly* (January): 30-33.

Zhu, Zhen. "Hedging Strategies and Cost/Price of Natural Gas." 2009.

Zhu, Zhen, and Song Zan Chiou Wei. 2007. "Volatility Impact of Political and Economic Events on Stock Prices: Empirical Evidence from Taiwan." *India Economics Journal* 55 (October-December): 24-39.

Zhu, Zhen, with Song Zan Chiou Wei and Ching-Fu Chen. 2008. "GDP Growth and Energy Consumption Revisited: Evidence from Linear and Nonlinear Granger Causality." *Energy Economics* 30 (November): 3063-3076.

Zhu, Zhen, and Chiou Wei Song Zan. 2010. "Financial Development and Economic Growth in South Korea: An Application of Smooth Transition Error Correction Analysis." *Applied Economics*. June-July 2010, v. 42, iss. 16-18, pp. 2041-52

Zhu, Zhen, and Don Murry. 2008. "Asymmetric Price Responses, Market Integration and Market Power: A Study of the U.S. Natural Gas Market." *Energy Economics* 30: 748-765.

Zhu, Zhen and Song Zan Chiou Wei. 2006. "Commodity Convenience Yield and Risk Premium Determination: The Case of the U.S. Natural Gas Market." *Energy Economics*, 28 (July): 523-534.

Zhu, Zhen, and Don Murry. 2004. "An Empirical Analysis of U.S. Natural Gas Market Power." *Proceedings of 24th International Association of Energy Economists Meetings* (July).

Zhu, Zhen, and Scott Linn. 2004. "Storage Announcement and Natural Gas Futures Market Volatility." *Journal of Futures Market* 24 (March): 283-313.

Zhu, Zhen, and Don Murry. 2004. "Enron Online and Informational Efficiency in the U.S. Natural Gas Market." *The Energy Journal* 25.

Zhu, Zhen and Chiou Wei Song Zan. "Equality of Interest Rates Revisited: The Multi-Country Evidence." *International Economic Journal.*

Zhu, Zhen and Donald A. Murry, Ph.D. 2002. "Economic Modeling Refutes Some Common Gas Market Assumptions." *UE Perspectives* 1 (February). Published by The Williams Company.

Zhu, Zhen, and Scott Linn. 2002. "Forecastability of Natural Gas and Its Implications for Hedging." *Financial Research Institute* (November). University of Missouri, Columbia, Missouri.

Zhu, Zhen and Scott Linn. 2002. "Public News and Energy Market Response: The Case of Natural Gas Market." *Financial Management Association Meetings* (October). San Antonio, Texas.

Zhu, Zhen. 2002. "Time-Varying Forward Bias and the Expected Excess Returns." *Journal of International Financial Markets, Institutions and Money.*

Zhu, Zhen, and Chiou Wei Song Zhang. 2002. "Sources of Export Fluctuations: Empirical Evidence from Taiwan and South Korea, 1981-2000." *Journal of Asian Economies*.

Zhu, Zhen. 2001. "Are Long-Term Bond Yields Excessively Volatile?" *Journal of Economic Studies* 28: 433-445.

Zhu, Zhen. 2001. "The Effect of Exchange-Rate Risk on Exports: Some Additional Empirical Evidence." *Journal of Economic Studies* 28: 106-121.

Zhu, Zhen, and Donald A. Murry, Ph.D. 2001. "Recession Should Have Little Effect on Gas Prices" *The Competitive Edge* 3. Published by C. H. Guernsey & Company.

Zhu, Zhen, and Donald A. Murry, Ph.D. 2001. "Gas Market Trends Create Opportunities for Low-Cost, Risk-Averse Strategy." *The Competitive Edge* 3. Published by C. H. Guernsey & Company.

Zhu, Zhen. 2000. "Generation Companies Exhibit Growth and Volatility." *The Competitive Edge* 2. Published by C. H. Guernsey & Company.

PROFESSIONAL ACTIVITIES / HONORS:

Barnabas Fellow, UCO, 2011-2012
Distinguished Paper Award, Association of Public and Business Administration, 2008
Faculty Research Merit Award, UCO, 2007, 2009, 2011
OSEHE-EPSCor Summer Grant Writing Institute, UCO, 2008
Faulty Incentive Awards, Graduate College, UCO, 2007, 2008, 2009
McGraw-Hill Irwin Distinguished Paper Award, Southwestern Society of Economists, 2006.
Marquis' Who's Who in American Education, 2003.
Research Fellow, Financial Research Institute, University of Missouri, 2001, 2002.
Hauptman Fellow, University of Central Oklahoma, 2001.
Distinguished Researcher Award, College of Business, University of Central Oklahoma, 2002.
Marquis Who's Who in America: Finance and Industry, 1999
ODE Professor of the Year, 1997-1998, University of Oklahoma
Member, American Finance Association, International Association for Energy Economists

APPENDIX C - DATA REQUEST

DATA REQUEST

LANE-SCOTT ELECTRIC COOPERATIVE, INC.
Dighton, Kansas

Guernsey's cost of service data request is intended to serve as a checklist for data needed to prepare a study which accurately reflects your Cooperative's cost of providing service. While each data request item is important, some items may not be applicable to your Cooperative. When responding to the data request, a "Not Applicable" or "No" response is helpful since it provides important information about your Cooperative. A "still working on it" response lets us know that data is pending. We encourage you to contact us about any item you have questions about or find burdensome to prepare – there may be other more readily available reports with the information needed for the study.

Data Format

We'll work with your information in whatever form you provide the data. However, some items are requested in a specific format because this will help reduce the cost of your project. Spreadsheet files should be provided with a print setup to print on letter size paper (8.5 x 11) with appropriate page breaks for multiple page reports. Unless specifically indicated, underlying individual journal entries are not needed. Usually the account totals, whether monthly or test year total are sufficient.

Naming Electronic Files

It is helpful if the names of electronic files incorporate the data request item number. For example:

1.1_Rate Schedules.doc
1.2_December Form7s.pdf
1.3_Summary Trial Balance.xls

Sending Data Request Responses

(1) Your **test year** is the twelve months ending **December 31, 2020**.

(2) An electronic file response is designated for some data request items. Excel compatible files (xlsx, xls, csv) are preferred for spreadsheets. Word and WordPerfect are preferred for narrative descriptions. Text or pdf files are acceptable if that is the only available output for a report. Hard copy files, CDs, etc. may be mailed to the address below.

(3) You will be provided access information for a web-based project management application for transferring electronic data request responses.

(4) If you have any questions about the information requested, please contact:

Justin Proctor (405-416-8191)
justin.proctor@guernsey.us

(5) Send USB drives, CDs, and hard copy responses to:

Guernsey
Attention: Justin Proctor
5555 North Grand Blvd.
Oklahoma City, OK 73112-5507

DO NOT mail responses to the PO Box to which you remit payments to Guernsey. The PO Box is a bank lockbox. Using the PO Box delays receipt of data or may result in lost data.

1. GENERAL INFORMATION

1.1 Existing Rate Schedules

a. Provide a copy of all existing rates schedules and service rules and regulations. If the Cooperative is providing service under a special contract, provide a copy of the contract(s).
b. Provide a summary of the rate schedule codes billed under each rate schedule or contract.
c. If you want to create additional rate schedules or consolidate existing rate schedules as a part of this study, indicate the proposed rate schedule(s) and the existing rate schedule codes which would be served under each new rate. If you want to implement special rates such as time-of-day or load management as part of this study, please call us so we can discuss the required data and whether or not the rate can be developed with the data available.
d. If any rate change (increase or decrease), adjustment, or flow through went into effect during the test year or after the test year, for each change provide the following:
   (1) The effective date of the rate change.
   (2) Indicate on which Form 7 the revenue associated with the change would first be reflected.
   (3) Were all consumer rates changed at the same time?
   (4) A copy of the rate schedules (tariffs), both before and after the rate change.
   (5) If the changes reflected above were the result of a final order from a state regulatory authority, indicate the docket number of that case and, if possible, provide a copy of the final order and hearings judge/examiner's report.

1.2 Provide copies of the following RUS/CFC Form 7 reports (ignore if you subscribe to GUERNSEY's *Financial Performance Analysis* service):

a. December Form 7s (ALL PAGES) for the test year and previous ten (10) years.
b. Monthly Form 7s for the 12 months of the test year and the 24 months prior to the test year (a total of 36 months). Part R (or Part O) is not required for January-November if the December report shows each of these months.

Note: If Part R (or Part O) Power Requirements Database of the December report does not show all 12 months, provide a report/spreadsheet showing the Part R (or Part O) information for each month (January through December) and the totals for the year.

1.3 Provide a copy of the Year-to-Date Trial Balance for test year end or the Summary General Ledger(s) for the same period or monthly Summary Trial Balances for the thirteen months ending with the test year end. The report(s) provided should show the beginning of year balances and the end of year balances by detailed account for ALL accounts (including but not limited to) the plant accounts (the "300" account series), the Other Revenue accounts ("450" account series), the operating expenses (the "500" and 900 account series), depreciation (the "403" account series), taxes (the "408" account series), and accumulated depreciation (the "108" account series).

Note: The Summary General Ledger report is typically 20 pages or less. If available, provide electronically in spreadsheet format.

1.4 If not provided with the above General Ledger/Trial Balances, provide the monthly balances for the 13 months ending with the last month of the test year, for Materials and Supplies (A/C 154, 154.1, etc.), Prepayments (A/C 165, 165.1, 165.2, etc.), Customer Deposits (A/C 235, 235.1, etc.), Customer Advances for Construction (A/C 252, 252.1, etc.), and Consumer Energy Prepayments (A/C 253.1, etc.).

Note: If available, provide electronically in spreadsheet format.

1.5 Provide Asset Reports or Continuing Property Records (CPR) reports as of test year end for each distribution plant account (360 through 373) showing:

a. The quantity or number of units by various sizes and the total investment for that unit type.
b. The sum of the investment for unit types for each account should correspond to the general ledger/trial balance test year ending balance of that account.

Note: Depending on the plant account, units are poles, conductor, conduit, line transformers (by kVA size), regulators, capacitors, meters, etc.

If available, provide electronically in spreadsheet format.

1.6 Provide a copy of the most recent annual audit report. If the current audit has not been completed, provide a copy of the audit report as soon as it is available.

1.7 Provide a copy of the most recent financial forecast.

1.8 Provide a copy of the operating budget for the current calendar year.

1.9 If the plant additions in the financial forecast should be updated, provide the projected plant additions and retirements for the next five (5) years with the yearly additions separated by transmission, distribution, and general plant. Note: A copy of Form 740C from the most recent Construction Work Plan or a copy of the summary pages from the work plan may contain much of this information.

1.10 Provide a narrative description of the Cooperative's capital credit rotation policy. Be sure to discuss rotation cycle, method of rotation (FIFO, percentage, or other), and the Board's intention for capital credit rotation for the next three (3) to five (5) years.

1.11 Provide a copy of any current Board policy statements addressing the financial objectives of the Cooperative or the adoption of equity management objectives. (Financial objectives typically include desired TIER, DSC, equity ratios, capital credit refund cycle or amount, and required cash balance.)

2. USAGE STATISTICS AND COST OF SERVICE DATA

2.1 Provide the following monthly sales information:

a. Copies of the monthly sales/billing reports by rate schedule code for each month of the test year. The reports should show:
   (1) Number of customers served,
   (2) kWh sold,
   (3) Base rate revenue, and
   (4) Power Cost Adjustment (PCRF, ECA, PCA, etc.), Fuel Cost Adjustment (FCA), Debt Cost Adjustment (DCA, DSA), etc. revenue.
b. Unbilled revenue (net monthly amount if booked).
c. PCRF Over/Under recovery revenue (net monthly amount if booked).
d. For Miscellaneous Charges such as meter reading fees, return check fees, connect fees, trip fees, etc., provide the present fee for each charge and the number of times (by month or total) each fee was charged during the test year. Note: If the fee for overtime is different from regular work-hour fees, provide separately the number of times for overtime fees and regular fees.

Note: For Item a, provide the reports as produced by your billing software. Provide all pages of the report for at least one month.

2.2 Wholesale Power Bills.

a. Provide copies of the test year monthly power bills from each wholesale supplier (including distributed generation and co-generator, if applicable).
b. If the wholesale supplier made any adjustments for metering corrections, refunds, etc., provide copies of each adjustment and an explanation of the adjustment. For metering corrections, show the corrected metered kW, billing kW, kWh, or other billing units, and indicate the metering point for which the correction was made.
c. If any portion of the wholesale power billing is charged to an expense account other than Account 555, provide a monthly summary showing the account, amount, and an explanation of how the amount was determined.
d. If the wholesale power supplier applies any adjustments or special charges to the power bill such as special facilities charges, investment credit, meter reading or processing charges, etc., provide complete details.
e. Provide a copy of the applicable wholesale rate schedule (tariff sheet) for each wholesale power supplier and co-generator.
f. If the wholesale rate changed after the test year or if the wholesale power supplier is proposing a rate change, provide a copy of the changed and/or proposed rate.

2.3 Provide the following for the monthly adjustment factors (PCRF, PCA FCA, ECA, DCA, etc.):

a. The factors ($ per kWh) applied to customer billing for each month of the test year.
b. The monthly worksheets for calculating the test year monthly factors.
c. If not shown on the General Ledger/Trial Balance or provided above, the monthly over/under recoveries booked to revenue.

2.4 For security lights and street lights, provide the following information, by month:

a. Number of lights served, by lamp size, for the test year.
b. Additional pole charges (if any) or other additional charges billed under the light rate.
c. The kWh usage assumed each month for each lamp size (e.g., 70 kWh per month for 175-Watt lamps and 120 kWh per month for 400-Watt lamps, etc.).
d. How many security lights represent separate service (i.e., separate transformer, pole, etc.)?

2.5 For each consumer billed or to be billed on a demand (kW or kVA) or horsepower (HP) rate, provide the following for each month of the test year:

a. Account number, name, rate code, revenue code and state;
b. Installed kVA (if available);
c. Metered demand (kW or kVA) or installed HP;
d. Billing demand (kW or kVA) or billing HP;
e. If applicable, metered and billing on-peak or coincident peak (CP) kW
f. kWh (exclude unmetered security lights);
g. Base rate revenue (customer charge billing, demand charge billing, energy charge billing, etc.) excluding sales and franchise taxes; and
h. FCA/PCA/PCRF/DCA, etc. revenue, if applicable (excluding sales and franchise taxes).
i. If non-coincident peak kW (NCP kW) or HP data is available for any other consumers or rate codes, provide the above data for those customers.

Note: If available, provide electronically in spreadsheet format.

2.6 Provide test year monthly bill frequency reports for all rate codes (except lighting rates and rate codes for which individual account information is provided for Item 2.5). Bill frequency reports **are required** for rates with declining or inclining block rates or with a minimum bill greater than the customer/facilities charge or for those rates for which you desire blocked rates or increased minimum bills. Recommended block sizes for the bill frequency reports are:

a. Blocks in increments of 10 from 0 to 100 (i.e., 0-10, 11-20, 21-30, ... 91-100).
b. Blocks in increments of 100 from 101 to 1000 (i.e., 101-200, 201-300, ... 901-1000).
c. Blocks in increments of 1000 from 1001 to 10,000 (i.e., 1001-2000, ... 9001-10,000).
d. Blocks for all over 10,000.

There will be 29 blocks for the bill frequency analysis. The bill frequency analysis summarizes the kWh and consumers whose usage ended in a block. For example, the block from 11-20 kWh includes only those customers whose kWh usage was 11 to 20 kWh for the month. A bill for 14 kWh goes in the 11 to 20 kWh block. A bill for 961 kWh goes in the 901 to 1000 kWh block.

Check with us before asking your billing software provider to create a custom program or if your billing program offers a standard bill frequency report. Most of the time, the standard report is acceptable.

Note: If available, provide electronically in spreadsheet format.

2.7 Provide a summary showing the number of consumers by rate schedule requiring single-phase service and those requiring multi-phase service. If available, provide the consumer counts by overhead and underground service.

2.8 Identify by account number, name, and rate schedule, all consumers served at a transmission or distribution primary voltage and identify those who receive a transmission or primary service discount.

2.9 If the test-year usage (kW and kWh) for any class or large power consumer was abnormal, provide normalized monthly usage for each affected class or consumer. If the consumer has notified the Cooperative that their usage will increase or decrease considerably, provide normalized monthly usage (kW and kWh) for the customer's expected operations.

2.10 If available for the test year, or a portion thereof, provide the totalized interval data (15, 30, or 60 minute) **by rate code**. If 60 minute intervals, there will be 8,760 data points (365 days x 24 hours) per rate code.

Note: Provide electronically in spreadsheet compatible format.

2.11 Provide by overhead and underground categories the miles of distribution single-phase, three-phase, and V-phase line at the end of the test year. The totals should agree with the RUS Form 7, Part B, Items 6 and 7.

2.12 For any significant facilities (i.e., transmission lines, substations, distribution feeders, etc.) serving only one customer or one class of customers, provide the following:

a. The direct investment by plant account (with and without contributions in aid of construction) for the class or customer.
b. If the direct assignment is transmission or distribution line or transformers, indicate the applicable miles of line and the number of transformers by size for the direct assignment.

Example: Special contract customer with $0 contribution in aid of construction - $300,000 in Account 362, $75,000 in Accounts 364 and 365, and $45,000 in Account 368 with 1.5 miles of distribution line and three 1000 kVA transformers.

2.13 Provide a tabulation showing the representative present-day cost of the following:

a. Cost per mile for constructing typical three-phase extensions (both overhead (OH) and underground (UG)).
b. Cost per mile for constructing typical single-phase line (both OH and UG).
c. Cost per mile for constructing main feeder three-phase line (OH and UG).
d. Provide a brief description of your underground plant. For example, is it primarily used around airports, in subdivisions serving residential customers, etc.
e. Installed cost per meter (Account 370) for typical consumers such as single-phase, three-phase, three-phase with demand meters, primary service with demand meters, and any other special metered consumers.
f. Cost per services (Account 369) for typical consumers such as single-phase and three-phase residential, single-phase and three-phase small commercial, single-phase and three-phase irrigation, large power, and any other customer groups. Note: This cost excludes transformers and meters.

3. DATA FOR REVENUES AND EXPENSES

3.1 Provide the following information for each note payable to RUS and/or CFC and any other long-term notes or obligations as of the end of the test year:

a. Note number
b. Note origination date and term (years) of the note
c. Lender (RUS CFC Other)
d. Original amount of note
e. Unadvanced loan funds
f. Interest rate
g. Note balance at end of test year
h. Advance payments
i. If any CFC notes repriced during the test year or will reprice within one year, identify the notes and indicate the reprice interest rate and date.

Note: The sum of the outstanding balances of all notes should reconcile to the total long-term debt plus current maturities on long-term debt reported on the Form 7 for the last month of the test year.

3.2 Provide copies of the monthly and quarterly invoices (detailed invoices showing principal outstanding, principal payments, interest payments, discounts, etc.) for the test year and invoices subsequent to the test year from:

a. RUS
b. CFC
c. Other lenders and obligations such as CoBank, NCSC, FFB, NRECA, long-term leases, etc.

3.3 For each variable interest rate note, provide a copy of the Loan Amortization Schedule top sheet (which shows the loan number, loan date, final payment date, billing cycle, number of payments, amortization interest rate, principal amount amortized, and level debt service amount) or provide the monthly/quarterly principal payments for the next five years.

3.4 If the Cooperative has drawn additional loan funds from RUS, CFC, or others since the end of the test year, provide a list showing the date of each draw, the amount drawn, and the interest rate. Provide the same information for any draws the Cooperative anticipates within the twelve months following the end of the test year.

3.5 If the Cooperative has bought-out or intends to buyout all or a portion of the RUS debt, provide a schedule showing:

a. The gain on the buyout.
b. The amortization of the gain included in the test year.
c. The annual amortization of the gain for the next five (5) years.
d. The date of intended buyout.

3.6 If the Cooperative expects to refinance any CFC or Other debt during the next year, provide:

a. The notes to be refinanced.
b. The replacement loan portfolio including interest rates, term, and amortization (level payments, balloon payments, fixed principal payments, etc.).

3.7 For CFC capital-term certificates, provide the test-year interest income earned and the estimated interest income for the next five (5) years.

3.8 Provide a summary of the patronage capital for each year since inception showing the patronage capital assigned, amount retired, and amount unretired for the Cooperative. If there are G&T capital credits, separate amounts should be shown for the Cooperative and the G&T. (The amount retired should be shown with the year the patronage capital was assigned, NOT the year the retirement was made.) Note: The annual audit may include a schedule with all or most of this information.

3.9 Provide the following for depreciation:

a. The depreciation rates for transmission and distribution plant (example: 2.75% for transmission plant and 3.00% for distribution plant). If composite depreciation rates are not used, provide the applicable depreciation rates by plant account.
b. If not provided with the General Ledger/Trial Balances, provide the test year monthly depreciation expense by account number (403.5, 403.6, 403.7, etc.).
c. Provide the monthly depreciation expense by account number for the three months following the end of the test year.

3.10 Provide the following for bad debt expense:

a. The bad debt expense for the test year and the three prior calendar years.
b. The amount of bad debts actually written-off for the test year and three prior years.
c. The amount of bad debts actually collected after write-off for the test year and three prior years.

3.11 Provide the following for Property Tax:

a. Test year property tax by detailed account by account number (i.e., Accounts 107, 108, 163, 184, 242, 456, 560 through 932, etc.).
b. The total property tax paid for the most recent calendar year.
c. If the taxing authority assesses property tax on only certain plant accounts or types, provide a summary of the test year property tax by plant account or type.

Note: If available, provide electronically in spreadsheet format.

3.12 Provide the following for Payroll Taxes:

a. Test year FICA, and MICA, Federal unemployment, and State unemployment taxes by account number (i.e., Accounts 107, 108, 163, 184, 242, 456, 560 through 932, etc.).
b. For State Unemployment Taxes, provide the base wages subject to the tax and the tax rate. For example, the first $7,000 of wages at 3%.
c. For Federal Unemployment Taxes, provide the base wages subject to the tax and the tax rate. For example, the first $9,000 of wages at 0.8%.

Note: If available, provide electronically in spreadsheet format.

3.13 Provide the following payroll information:

a. A list, by employee showing current wage rate for each employee. (Show hourly wage for non-salaried and monthly wage for salaried employees.) Provide electronically in spreadsheet format.
b. Describe any Christmas bonuses, longevity pay, or other compensation. If based on years of service, indicate years of employment for each employee.
c. Indicate part-time employees and include estimate of annual hours worked by each part-time employee.
d. If any job positions are unfilled at the present time, indicate when the position will be filled and the wage level.
e. If wages will be increased within six months from the end of the test year, provide the wages and salaries after the increase or the estimated percentage increase.
f. Payroll charged to expense ($), payroll capitalized ($), and payroll other ($) in the test year and the five (5) previous calendar years; and
g. Regular pay ($) and overtime pay ($) for the test year and five (5) previous calendar years.

3.14 Provide test-year payroll by account number (i.e., Accounts 107, 108, 163, 184, 242, 456, 560 through 932, etc.)

Note: If available, provide electronically in spreadsheet format.

3.15 For EACH employee benefit (e.g., medical insurance, dental insurance, life insurance, long-term disability insurance, savings plan, retirement plan, post-retirement benefits, workers compensation, etc.), provide the following for the test year:

a. Cooperative cost incurred for each benefit (total contribution/premium less employee contribution),
b. Test year employee benefits by benefit, by account number (i.e., Accounts 107, 108, 163, 184, 242, 456, 560 through 932, etc.).

Note: If available, provide electronically in spreadsheet format.

3.16 For each director benefit, if not included with Employee Benefits above, provide the following for the test year:

a. Cooperative cost incurred for each benefit (total contribution/premium less director contribution),
b. Test year director benefits by benefit, by account number (i.e., Accounts 107, 108, 163, 184, 242, 456, 560 through 932, etc.)

Note: If available, provide electronically in spreadsheet format.

3.17 For each employee and director's benefit:

a. A copy of the most recent invoice (all pages) for each benefit.
b. Indicate for each benefit the premium paid by employees, retirees, directors, attorney, etc. (e.g., employee pays 50% of medical; retired employee pays 100% of medical; etc.).
c. If available, provide the premium and/or contributions for:
   (1) The test year.
   (2) The calendar year following the test year.

Note: If benefits are through NRECA, much of this information is available on a memo which is usually sent in November or December.

3.18 Provide the following for property insurance, workers' compensation insurance (if not included with Employee Benefits), general liability insurance, and umbrella liability insurance:

a. For each type of insurance, the test year insurance by account number (i.e., Accounts 107, 108, 163, 184, 242, 456, 560 through 932, etc.).
b. For each type of insurance, the current annual premium amount and the premium amount for the next calendar year.

Note: If available, provide electronically in spreadsheet format.

3.19 Summarize any changes in programs such as pole inspection, meter testing, tree trimming, right-of-way clearing, PCB disposal, AMR conversion, data processing, etc. Provide:

a. Changes in program costs from the test year.
b. New program costs not included in the test year.
c. The cost for programs included in the test year by account number.

If any costs related to these programs will be capitalized rather than expensed, indicate the amount to be capitalized.

3.20 For any non-recurring expenses or abnormal expense levels booked during the test year, provide the following for each:

a. A description of the non-recurring expense.
b. The test year expense by account number.
c. The normal or recurring annual expense by account number.

5555 N Grand Boulevard
Oklahoma City, OK 73112
405.416.8100
guernsey.us

Power System Engineering

Request for Proposal for Cost of Service and Rate Design Study

Proposal Prepared for:

Lane-Scott Electric Cooperative

June 2, 2021

Contact: Rich Macke

macker@powersystem.org

Direct: 763-783-5349

Mobile: 612-817-3462

10710 Town Square Dr. NE, Suite 201
Minneapolis, MN 55449

www.powersystem.org

June 2, 2021

Mr. Richard McLeon [via email: richard.mcleon@lanescott.coop]
General Manager
Lane-Scott Electric Cooperative
PO Box 758
410 S. High St.
Dighton, KS 67839

Subject: Request for Proposal for Cost of Service and Rate Design Study

Mr. McLeon:

Power System Engineering, Inc. (PSE) welcomes the opportunity to provide a proposal for a 2021 Cost of Service and Rate Design Study to Lane-Scott Electric Cooperative (Lane-Scott or Cooperative). It is our belief that you will find our recent experience and ongoing work with other similar cooperatives gives us the ability to perform the required study objectively, efficiently, and in a manner that achieves Lane-Scott's goals. Please feel free to call me at 763-783-5349 or email at macker@powersystem.org.

Very truly yours,

Richard J. Macke
V.P., Economics, Rates and Business Planning

If this proposal meets your needs, sign below to allow us to begin the project at a mutually convenient date. Please scan this signature page and email to me at macker@powersystem.org.

06/02/2021	
Signature and Date	Signature and Date
Rich Macke, VP, Economics, Rates & Business Planning	
Print Name and Title	Print Name and Title
Power System Engineering, Inc.	
Company Name	Company Name

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1 Qualifications

1.1 Overview of PSE

History: Power System Engineering, Inc. (PSE) began in early 1974, establishing an office in Madison, WI, our corporate headquarters, to serve the engineering and technology needs of electric cooperatives. Over the past 40+ years, PSE has evolved to become a full service electrical and mechanical consulting firm for commercial and industrial clients while continuing to serve the needs of our utility clients.

PSE serves utilities, private industry, government entities, and associations across North America.

Company: PSE is a professional services consulting firm organized as a Subchapter "S" Wisconsin Corporation (TIN 39-1204386). As such, PSE's stock is 100% owned by its employees. The President and other principals of the Company make up PSE's Executive Committee:

- Erik S. Sonju, P.E. - President
- Richard J. Macke - Vice President, Economics, Rates, and Business Planning
- Josh L. Mulder, P.E. - Vice President, Industrial Engineering and Energy Resources
- Jim Weikert - Vice President, Utility Automation and Communications
- Kevin L. McCutcheon - Regional Manager - Utility Engineering Services
- Christine Loga - Business Office Manager

Employees: The approximately 80 professionals at PSE include engineers and consultants with extensive experience in system planning, design, communications, technology, rates, economics and finance. Our mission statement -- "*Forward thinking professionals helping clients and colleagues achieve their goals*" -- shows the commitment we have to our clients and gives them the confidence that our team is motivated to satisfy their needs and represent their interests.

Offices: PSE has offices and/or staff in Madison, WI (headquarters), Minneapolis, MN; Prinsburg, MN; Marietta, OH; Sioux Falls, SD; Cincinnati, OH; and Topeka, KS.

PSE is entirely focused as an independent consultant. PSE is NOT a value-added reseller (VAR) of any software, hardware, or services from any supplier. Our entire business model is based on being an agent, advocate, resource, and technical advisor to our clients.

PSE's Core Values

1. **Client Relationships:** We value the foundation of client relationships which has allowed us to continue our profession for over 40 years.
2. **Our Colleagues:** We value the talent, work ethic, supportiveness, down-to-earth traits, and team spirt portrayed by our colleagues whom we work alongside.
3. **Integrity:** We value the quality of being honest, accountable, and having strong moral principles through the professional services we provide.
4. **Opportunity:** We value the opportunities that offer us to make improvements, learn new things, grow, and be successful.
5. **Safety:** We value the health and safety of those around us, and it is our responsibility to place it before everything else regardless of our role and where we find ourselves.
6. **Community:** Our value of community is shown by where we live, where we volunteer, where we donate, and where we provide our professional services.

PSE's Vision Statement

We are committed to uniting innovative solutions with proven approaches to become an industry leader for the benefit of clients and colleagues.

1.2 Rate and Cost of Service (COS) Studies

Why PSE?

We believe that our real key differentiator on this project is our focus on providing customized and reliable analysis and advice in a way that empowers our clients to make confident and well-informed decisions. We do not approach our studies as a "cookbook" process, e.g., one where we simply take your data, crunch the numbers, and hand you the results. Instead, our team will dig into your data to understand your system. We will have multiple discussions concerning your objectives, strategies, concerns, capabilities, and membership. This means that, at each turn in our work plan, we can develop and explain our analysis in a way that "makes sense"; and where there might need to be course corrections, you will have confidence that such guidance is the outcome of not just some spreadsheet model, but our robust experience and understanding of your situation. This carries all the way through to presenting results and recommendations to the Board of Directors. Our goal is that the Board will receive a big picture understanding of the studies and a robust understanding of the key results, recommendations, alternatives, and fit within the industry so that they can have confidence in their decisions.

Through our project work, papers, and presentations, we have very strong experience when it comes to rates and COS work. We have performed rate and Class COS studies, and training workshops for many cooperatives in Kansas, as well as across the country.

General Approach

Rate and COS studies require a blending of accounting, financial, economic, engineering, member relations, and project management expertise. Expertise in utility finance and accounting is required to decipher and help establish the overall costs of running the utility. This overall cost is referred

to as the utility's revenue requirement which is comprised of operating expenses and margin requirements. PSE's rate and financial analysts are experienced working with utility trial balances, billing systems, financial statements, equity management plans, financial forecasts, and budgets to help establish the proper level of operating expenses and margin requirements to be recovered by rates.

A class COS study is the industry-accepted standard of fairness used to both evaluate existing rates and rate design. While largely an accounting process involving the allocation of costs, the COS also requires an understanding of utility operations and general engineering concepts. It is from this understanding that we will make determinations concerning the cause and use of costs to ensure proper allocation to rate classifications. PSE has a diverse understanding of how various system or consumer peaks are measured and contribute to the utility's revenue requirement so that costs are fairly and equitably allocated to the classes. Through project work, attending seminars, and conducting seminars, PSE has the experience needed not only to conduct the COS but to explain the various industry-accepted cost allocation techniques used and/or considered.

COS studies and especially rate designs are more of an art than a science. There are many, often competing objectives to consider when it comes to setting and designing rates. In completing hundreds of rate and COS study projects with a diverse client base, PSE has extensive experience helping utilities navigate these issues and building consensus among various stakeholder groups. We are qualified to guide your staff and directors in all these areas to ensure that your rates are fair and equitable, financially adequate, and reflect your goals and objectives.

An important success factor in completing rate and COS studies beyond technical competence is project management. At PSE, we place great emphasis on involving the client throughout the project and in communicating the intermediate results of our analysis. Our mutually agreed-upon timeline will clearly define the project's key deliverables throughout the course of the project. We have established processes and models in place so that we can conduct robust analyses efficiently on behalf of our clients. Our approach to project management will help ensure that the project is completed on time and that it meets or exceeds your expectations.

To give you a feel for the cooperatives that we are currently working with on rate-related projects, please see the following list.

Client	Contact Name
Agralite Electric Cooperative, MN	Kory Johnson, CEO
Chippewa Valley Electric Cooperative, WI	Dean Ortmann, President/CEO
Corn Belt Energy Corporation, IL	Don Taylor, President/CEO
Dakota Energy, SD	Chad Felderman, CEO/General Manager
Delta-Montrose Electric Association, CO	Wade Pynes, CFO
East Kentucky Power Cooperative, KY	Isaac Scott, Pricing Manager
Eau Claire Energy Cooperative, WI	Lynn Thompson, General Manager
Graham County Electric Cooperative, AZ	Phil Cook, General Manager
Jump River Electric Cooperative, WI	Scott Peterson, General Manager

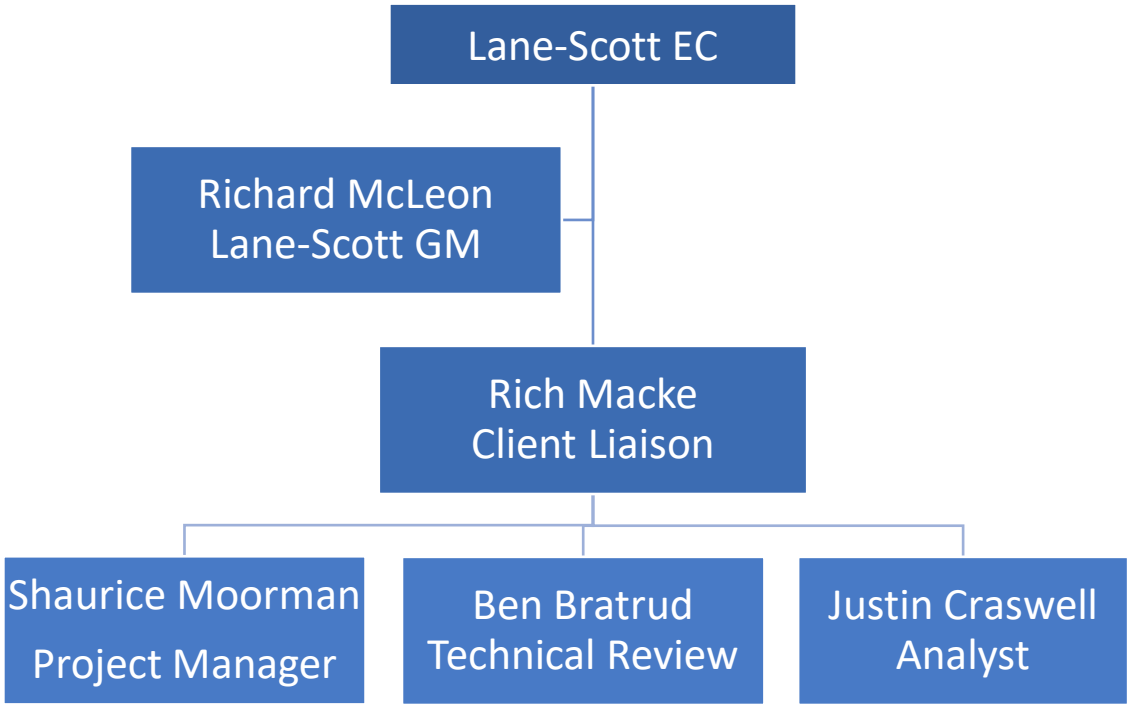
Client	Contact Name
Midwest Energy, KS	Pat Parke, CEO
Pee Dee Electric Cooperative, SC	William Fleming, CEO
Pioneer Electric Cooperative, KS	Randy Magnison, Exec. VP/Assistant CEO
Prairie Land Electric Cooperative, KS	Kirk Girard, CEO
Rock Energy, WI	Shane Larson, CEO
San Isabel Electric Association, CO	Reg Rudolph, General Manager
San Luis Valley Electric Association, CO	Loren Howard, General Manager
Sangre De Cristo Electric Association, CO	Michael Allen, Key Accounts/Energy Use Adv
Shelby Electric Cooperative, IL	Josh M. Shallenberger, President/CEO
Southern Illinois Power Cooperative, IL	Don Gulley, President/CEO
St. Croix Electric Cooperative, WI	Brian Zelenak, President & CEO
Steele-Waseca Cooperative Electric, MN	Syd Briggs, CEO/General Manager
Vernon Electric Cooperative, WI	Craig Buros, CEO/General Manager

2 Key Personnel

The Economics, Rates, and Business Planning department at PSE has been completing rate design and COS studies for over 40 years. **Over the past five years, PSE has completed over 100 rate and financial projects for electric utilities spanning 16 states.** Our staff includes former utility rate analysts and a former utility CFO, along with several MBAs and CPAs. The team holds various degrees in mathematics, accounting, business, and economics. We regularly attend and present at industry events concerning rate design, COS, accounting, and financial matters and have conducted training seminars for domestic and international utilities and organizations.

PSE conducts its rate and COS projects using a team approach that includes not only PSE professionals but key staff of the client. At PSE this generally includes Client Liaison, Project Manager, Analyst, and Technical Review personnel. Our communications with Lane-Scott's project team concerning data and decision requirements will occur via emailed letters or memos, MS Teams meetings, or conference calls at scheduled intervals throughout the project. In this way you can be assured that 1) we will adequately explain the interim results of each major task and 2) we will solicit input; and you will have multiple opportunities to ask questions, provide feedback, etc. for us to produce a study that meets your goals and exceeds your expectations.

The client liaison will be Rich Macke. Project manager for the study will be Shaurice Moorman. Ms. Moorman will be assisted by Justin Craswell and Ben Bratrud. Collectively, this team has completed well over 100 rate and COS studies for electric cooperatives. While we have other staff available to assist in this project, the following diagram illustrates the composition of the key project team members.



Below find the PSE Project team qualifications (resumes available upon request):

Richard J. Macke *(Vice President, Economics, Rates, and Business Planning, Minneapolis, MN)*
Mr. Macke and his team provide business strategy, economic, cost of service, rate design, merger and acquisition, regulatory, and expert testimony consulting services to PSE clients. Electric utility management and various industry associations frequently request Mr. Macke to speak, write, or participate on various committees concerning distributed generation, policy, and rate design impacts and strategies. Mr. Macke holds an MBA from the Carlson School of Management at the University of Minnesota and serves on PSE's Board of Directors and Executive Committee.

Shaurice Moorman *(Manager, Rates and Financial Planning, Minneapolis, MN)*
Ms. Moorman earned a BS degree in Industrial Administration/Accounting from Iowa State University at Ames, Iowa. Her focus is on performing complex financial analyses, such as rate studies consisting of determination of revenue requirements, cost of service analysis, and rate design. Her other responsibilities include strategic financial forecasting, EV rate design, automatic adjustment mechanisms, development of time-of-use pricing and residential demand pilots, line extension and other policy development and evaluation, and other financial analysis for PSE clients. She also has experience with the procurement of CIS/FIS systems.

Justin Craswell *(Rate and Data Analyst, Minneapolis, MN)*
Mr. Craswell earned MS and BS Degrees in Agricultural and Applied Economics from the University of Wisconsin Madison. He provides analysis and consulting services to PSE staff and clients for a wide range of economic and financial engagements. He assists in the preparation of cost allocation studies, reviews and audits financial policies, and rate development.

Benjamin M. Bratrud *(Rate and Financial Analyst, Minneapolis, MN)*
Mr. Bratrud earned a BA degree in Economics from the University of Minnesota Duluth. He reviews utility financial reports and prepares cost allocation studies in order to develop new and innovative rates as well as assists with the review and audit of financial and management policies for clients.

3 Project Scope of Services

3.1 Work Plan

PSE proposes to complete a comprehensive study of electric rates for Lane-Scott. The purpose of the study, per the Request for Proposals (RFP) is to assist Lane-Scott in better meeting the needs of its membership and positioning it for financial success. The RFP further elaborates on a variety of services being requested and which will be further discussed in the Rate Design section of the Project Scope of Services.

To complete this scope of services, we propose the following work plan:

- Determine Lane-Scott's revenue requirements for a 5-Year Planning Horizon.
- Develop a detailed fully allocated COS with unbundled unit costs by rate class using customer hourly, daily, and monthly usage data.
- Evaluate and propose rate design changes based upon the results of class COS analysis, PSE experience and expertise, and in consideration of other objectives.
- Compare proposed and present rates, revenues, and billing impacts.
- Project financial impacts of proposed rates over a 10-year forecast period.
- Present the study results, conclusions, and recommendations to the Board of Directors.
- Provide a fully documented report.

3.2 Revenue Requirements: Determine Adequacy of Present Rates

The term Revenue Requirements refers to the total cost of providing service and is comprised of Operating Expenses and Margin Requirements.

$$\textit{Revenue Requirements} = \textit{Operating Expenses} + \textit{Margin Requirements}$$

The first major task of the study will be to determine the revenue requirements for the Planning Horizon. This will include:

- Completion of Proof of Revenue exhibit to reconcile the study's revenue model with actual recorded revenues by rate class.
- Calculation of revenue under present rates for the Planning Horizon.
- Determination of operating expenses and margin requirements for the Planning Horizon.
- Determination of any overall rate increase or decrease needs for each year of the Planning Horizon.

The operating revenues under present rates and expenses will be summarized on an Operating Statement following the RUS Form 7 format for each year of the Planning Horizon. It will list the major expense categories such as purchased power, operation and maintenance, consumer accounting, administrative, depreciation, taxes, etc. Similarly, an Operating Statement will also be developed under the proposed rates to show the impact of the proposed rates as appropriate.

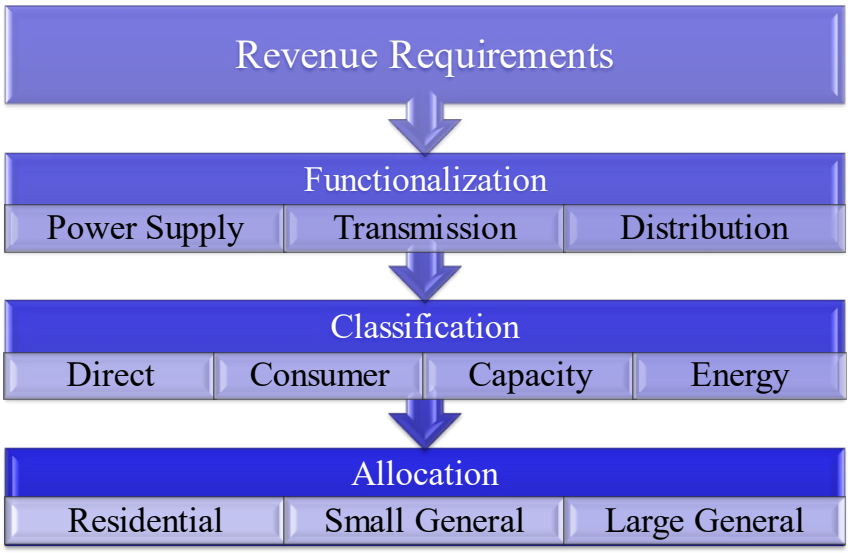
An important component of the revenue requirements analysis will be the determination of purchased power expense. In this regard, we expect to establish the study purchased power expense using the rates of Sunflower Electric Power Corporation (Sunflower).

Several approaches may be taken in determining the margin requirements. One method is referred to as the rate base - rate of return approach. This method of determining margin requirements is particularly appropriate in a regulatory environment but has value even outside of this context. It also has some application with rural electric cooperatives since an analogy can be made between "return on equity" and the rotation or retirement of patronage capital. Alternative approaches, especially relevant for rural electric cooperatives, use targeted Times Interest Earned Ratio (TIER) or Debt Service Coverage (DSC) requirements. We will check multiple approaches and will collaborate with Lane-Scott, based on the financial objectives defined by the Board of Directors, to determine the appropriate methodology for establishing the margin requirements for this study. The objective should be to develop a margin level that supports 1) funding of plant investments, 2) retirement of capital credits, 3) achieving or maintaining of equity goals, and 4) meeting minimum coverage requirements of lenders (i.e., RUS, CoBank, and/or CFC).

3.3 Class Cost of Service Study: Evaluate Recovery and Design of Existing Rates

PSE will develop a fully allocated analysis of the cost of providing service to various rate classifications to allow for an evaluation of the recovery and design of current rates. For the most part, we will use an average embedded cost approach (e.g., the use of data as actually recorded on the books) which is the approach accepted in most regulatory jurisdictions. In certain instances, after discussion, it may be desirable to use short-run marginal cost techniques for the development of certain promotional and/or off-peak rates to cause improvements in seasonal and daily load curves. These rates, if developed, will be consistent with the wholesale rates and program goals of Lane-Scott and Sunflower.

The following illustrates the process used to complete the Class COS:



We have a well-developed Class COS model for this analysis. The analysis model employs generally accepted methodologies and has been accepted in rate filings in multiple states. It is consistent with processes and methodologies contained in the National Association of Regulatory Utility Commissioners (NARUC) Cost Allocation Manual.

The Class COS produces the margins by rate class under present rates and illustrates the change required of each rate to achieve a fair and equitable return. Example tables are provided below for illustration purposes only. Table 1 is a summary of the over or under collection by rate class to achieve margin parity.

Table 1
Class Cost of Service
Summary - Present Rates

Rate Class	Present Rate Revenue	Cost of Service	Difference	As Percent
	($)	($)	($)	(%)
Residential	23,742,982	23,910,032	167,050	0.7
Small Power	299,725	304,580	4,855	1.6
Large Power	1,510,922	1,442,954	(67,968)	(4.5)
Irrigation	340,799	350,590	9,792	2.9
Large Power Interrupt.	178,315	189,719	11,404	6.4
Lighting	235,875	222,782	(13,093)	(5.6)
TOTAL	26,308,619	26,420,658	112,040	0.4

Additionally, a table and chart will be provided to show the margins being produced by the present rates in terms of dollars, O-TIER, etc. Together, this information clearly identifies any cross-class subsidies in the present rates.

Table 2 illustrates the breakdown of the Class COS for each rate class into unbundled unit costs that is helpful in evaluating the design of the present rates.

Table 2
Class Cost of Service
Unbundled Unit Costs and Rate Design Factors

Rate Class	Power Supply		Trans-mission	Distribution		Total Cost
	Capacity	Energy		Consumer	Capacity	
	(¢/kWh)	(¢/kWh)	(¢/kWh)	($/mo.)	(¢/kWh)	(¢/kWh)
Residential	1.64	5.26	1.16	35.54	1.36	13.72
Small Power	1.45	5.26	1.10	78.16	1.20	11.37
Large Power	1.55	5.26	1.27	99.61	1.25	10.45
Irrigation	-	5.08	2.20	78.16	2.23	13.54
Large Power Interrupt.	-	5.26	1.28	114.24	1.21	8.36
Lighting	2.25	5.00	0.93	0.71	2.01	23.87
Total - Average	1.59	5.26	1.18	32.75	1.36	13.45

The Class COS results will therefore allow PSE to advise on the fairness and equity of present rates not only between the rate classes but in the design of the rate schedules.

Additional Information

Our Class COS model produces additional information useful for evaluating and developing rates and policies. This includes:

1. Customer Cost Breakdown: While the Class COS will show a total cost related to simply having a customer, we believe it is beneficial to see a detailed breakdown of exactly what comprises this cost. This is useful to help understand, discuss, and communicate this often-controversial issue and avoid rate shock that can otherwise result from making a knee-jerk change. This information will be provided and will be included in the fully documented report.
2. Standby Rate: Results of the Class COS allow for the development and consideration of a standby rate. Recently, with the interest in small customer-owned generation (i.e., wind and related political pressures), the ability to determine standby rates is becoming more important. PSE has assisted dozens of cooperatives in developing standby policies and tariffs and the analysis provided in this study produces a per unit ($/kW) standby reservation rate. This analysis will be included in the fully documented report.
3. Rate Schedule Income Statement: The Class COS model will also produce an Income Statement broken out by rate schedule. This may be of particular interest in evaluating alternative, COS-based patronage capital allocation methods. This information will be provided with the results and will be included in the fully documented report.
4. Line Extension Analysis: This study is the optimal time to assess the current line extension policy because of the interrelationship of the policy and rates. A substantial portion of your distribution COS is directly related to the ownership and maintenance of your distribution plant, i.e., primary line and secondary service facilities. In completing the Class COS, we will therefore allocate plant to each rate classification. We will provide a table that

summarize this information in a way that makes it is easy to assess the current policy and practice. The table will provide the dollars of plant for both primary and secondary accounts for each rate classification. These results are then easily converted to common metrics used by cooperatives such as a fixed allowance per member, per kW/HP, or even per footage allowances supported by present rates.

3.4 Rate Design: A Balanced Approach

We understand that one of the main ways you communicate with your members is through the rates that you offer and charge. For that reason, we advocate a balanced approach to rate design that puts emphasis on not only the Class COS results, but also a multitude of generally accepted rate design objectives as illustrated below:

PSE will aid in developing and reviewing retail rate designs developed pursuant to the Class COS. Since it is often impossible to fully accomplish all the above objectives in developing proposed rate tariffs, compromises may be needed based on judgment which reflects your policies and philosophy. We will facilitate discussions to establish various rate design goals concerning things like interclass subsidizations, rate structures, new rate offerings and data requirements, frequency of rate adjustments, etc.

PSE has completed hundreds of rate design studies ranging from simple to very complex and for large and small cooperatives and with a variety of different power supply situations. We have written and presented on the importance of proper rate design at an individual cooperative, statewide association, and national level. Whether it is developing rates for recovery of fixed costs, demand rates and demand rate pilots, new large loads, demand response, changing wholesale rate structures, electric vehicle charging, or distributed energy resources (DER), PSE possesses the insight and experience to develop, explain, and support rate design recommendations that make sense to you and your membership.

Per the Request for Proposal and prior discussions, we will include the following:

- Review of existing rates designs and recommendations for change or new rates in the following areas:
    - Security Lighting: This may include development of equivalent or new monthly rates for LED, or other requested standardization or rate options.
    - Prepaid Residential Rates: Many cooperatives now offer prepaid programs and we can help Lane-Scott develop a prepaid program to be offered to residential members. This can include how to spread/charge the Fixed Charge, minimum balance and contribution amounts, impact on bad debt expense, etc.
    - Oil and Gas Analysis: Based upon Lane-Scott being able to separately identify oil and gas members and loads, we can provide cost of service and rate analysis specific to these accounts.
    - Local Access Charges (at transmission): PSE is not aware that Lane-Scott presently service any wholesale customers using its 34.5kV sub-transmission facilities, however, we have extensive experience assisting neighboring cooperative with ratemaking for purposes of recovering 34.5kV cost of service.
    - Distribution Wheeling Rates: We can facilitate conversation and rate analysis, as needed, on the topic of distribution wheeling rates. We have developed a "template" model for this to be used by Sunflower distribution cooperatives.
    - Distributed Generation net metering rates: PSE has been very involved in DG rates in Kansas, participating and submitting comments in the KCC general investigative docket and also testifying and participating in the Westar Docket concerning DG rates. We have been involved in significant efforts like this elsewhere on behalf of our clients, including cooperative statewide associations.
    - EV Charging Rates/Options: PSE has been developing charging station rates for cooperatives for at least 5 years, including rates for public charging and home charging. For home charging, we have developed time-of-use rates, controlled off-peak rate options, and monthly subscription pricing options for cooperative clients in multiple states.
    - Innovative Rate Designs: In addition to some of the more innovative rates described above, we have develop "lifestyle" rate options such as Time-of-Use, Fixed Bill, Free Nights and Weekends, and other related innovative rate offerings to help cooperatives better engage with their membership according to their wants and needs.

  - Energy Cost Adjustment: As part of this study we will include Lane-Scott's ECA and can evaluate a means of adjusting or "re-basing" the ECA as necessary or desired.
- Review of contribution in aid of construction rates and structure: As noted previously in this proposal, we will provide an analysis of the plant investment supported by rates for each rate class. Based upon this we can evaluate the current CIAC rates and structures to ensure that Lane-Scott investments are being appropriately recovered by a combination of the rates and CIAC policy. We are always cognizant of how changes can be perceived and how they affect different generations of members. We also understand that changes in the structure can have impacts on administrative and member relation functions.
- Review/update of service charges and fees: Based upon information provided by Lane-Scott we can help validate and/or update various service charges and fees.
- Preparation of Tariff/Rate sheets
- Preparation of 10-year Financial Forecast based on the proposed rates: We will provide a 10-year Financial Forecast under the proposed rates. We have 2-3 options for how to deliver this request. We can either update the CFC Compass model, prepare a new forecast using the RUS model, or utilize a PSE model which is based largely on the RUS model. We find that the results do not vary significantly although there can be differences in how we project certain expenditures, establish general fund levels, and finance future plant investments. We will need significant input from Lane-Scott to complete this task including construction work plans, long-range plans, load forecasts, capital credit payments, etc.

One of the deliverables for the above will be to provide a complete schedule showing side-by-side comparison of the present rate design versus the Class COS results. This will highlight components of the present rate that are in line or out of line versus the Class COS and which therefore may cause a concern when it comes to intra-class subsidization and providing proper price signals. Similarly, we will provide a detailed comparison of recommended rate designs to present rate designs to clearly illustrate how the present rates can be modified in response to the Class COS and to achieve ratemaking objectives. The present rates will be compared to both the Class COS resulting unit costs and recommended rates at various levels of consumption to show potential bill impacts and the "fairness" of the rate designs.

Comparison of Present and Proposed Rates

PSE will compare the revenue generated by the proposed rates with the revenue generated by the existing rates. The revenue comparison will be developed for each rate class in total and for typical monthly energy usage levels within each class. If appropriate, PSE will make recommendations on "phasing in" and timing of any rate changes necessary to minimize adverse consumer reaction in either the short or long term.

3.5 Presentation of Results: Meetings with Management, Staff, and Board of Directors

At PSE we view the preparation of this study as an interactive process. Throughout the process, we will seek input and discussion from you and your staff, beginning with a kick-off meeting to

review and answer questions regarding data requests, determine a timeline, and setup key contacts. We will also hold virtual meetings with you and your staff using Teams or equivalent to review and obtain feedback at various steps of the study.

PSE proposes to make a formal presentation to the Board of Directors summarizing the conclusions and recommendations of the study. We regularly make such presentations to cooperative boards and receive positive feedback on the education and communication they provide.

Results of the study will be presented in a fully documented report including narrative, exhibits, tables, and graphs, as appropriate. PSE prides itself on including well laid out and well documented exhibits that are clearly labeled and annotated to facilitate review, understanding, and future reference. The availability of a fully documented detailed COS analysis is very important both for supporting any recommended action and for any future rate efforts. For example, when evaluating a potential new load, the detail available in our COS can be a very valuable tool that allows for the development of specific rate components and/or customer Contributions in Aid of Construction (CIAC) requirements. The COS model can also be used to efficiently and economically perform updates to evaluate changing costs such as purchased power expense on retail rates.

4 Project Schedule

Below is a draft project schedule for the completion of the requested study. We have found that the entire process from data collection through issuing the final report typically takes three to five months. The specific time requirements and milestones will be established later to ensure the project meets your needs. Below is a preliminary timeline that illustrates the general time requirements allocated to each major Study task.

Major Task	June		July				August				September				October			
	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Data Request Sent																		
Data Received and Processed																		
Kick-Off Meeting with Staff																		
Revenue Requirements Study																		
Proof of Revenue Analysis																		
Develop Revenue Requirement																		
Meeting: Review Rev. Req.																		
Cost of Service Study																		
Revenue Req. and Other Inputs																		
Develop Classification Factors																		
Develop Allocation Factors																		
Compare Rates to COS Results																		
Meeting: Review COS Study																		
Rate Design Study																		
Evaluate Present Rates and Subsidies																		
Design Rates for each Rate Class																		
Rate Impact and Comparison																		
Meeting: Rate Design Study																		
Prepare 10-Year Financial Forecast																		
On-Site Board Presentation															Oct. 4			
Final Report and Public Meeting															Oct. – Dec.			

5 Project Cost Estimate

PSE generally prefers to be compensated for services performed on an hourly rate basis. In this way, our clients are assured that they are paying only for services rendered. The cost of preparing these types of studies is greatly influenced by the complexity of the existing rate tariffs, accuracy and/or adequacy of data provided by the client, and scope of rate changes considered. Based on our review of your rates and our experience, we propose the following price for the Proposed Scope of Services:

Project Fee Proposal	
Major Tasks	**Cost Estimate**
Revenue Requirement and Class COS	$16,500
Retail Rate Design	11,500
On-Site Meetings and Travel (up to 2)	3,500
Subtotal	**$31,500**
Separate 10-Year Financial Forecast	$6,000 to $8,000
Total with Separate Financial Forecast	**$37,500 to $39,500**

Pricing shall remain valid for a period of ninety (90) days from the submission of this proposal.

6 Business References

Available upon request.

10. d. CFC Integrity Fund

The National Cooperative Services Cooperative Finance Corporation (CFC) is holding their annual fund drive for the CFC Integrity Fund.

The Integrity Fund awards grants to help cooperatives fight annexations, take-overs, regulatory, judicial, and legislative challenges, etc. My last Cooperative received over $10,000,000 in grants to fight a very large IOU over a certification issue. We won the fight but would not have been able to get in the ring without the Integrity Fund.

The Lane-Scott Electric Cooperative has typically donated $250.00 of our patronage capital retirement to this fund. Over the past 5 years our retirement has averaged $15,087.90 per year. The donation amount is subtracted from the retirement amount giving us a net check.

CFC requests that members donate 5.0% of their CFC retired Capital Credits to the Fund. The 2021 retirement amount have not been released but based on our 5-year average, 5.0% would be $754.40.

Staff requests that the Board donate five (5) percent of the 2021 Lane-Scott CFC Capital Credit retirement amount to the CFC Integrity Fund.

National Rural Utilities Cooperative Finance Corporation
Created and Owned by America's Electric Cooperative Network

20701 Cooperative Way
Dulles, Virginia 20166
703-467-1800 | www.nrucfc.coop

April 29, 2021

Mr. Richard McLeon
General Manager
Lane-Scott Electric Cooperative
P.O. Box 758
Dighton, KS 67839-0758

Dear Mr. McLeon,

The electric cooperative network has a valuable resource available in the **Cooperative System Integrity Fund.** The Integrity Fund supports systems across the network in resisting threats to their service territories, their right to offer non-electric energy services to consumers, and when facing regulatory, judicial or legislative challenges that threaten their existence under the cooperative business model. Thanks to more than $29.9 million in grants awarded since 1986, nearly 300 cooperatives in 43 states have been able to fight takeover and annexation attempts and combat other issues that threatened their right to exist.

In the spirit of the Sixth Cooperative Principle, "Cooperation Among Cooperatives," Integrity Fund grants are funded exclusively by the rural electric network, for the rural electric network. The Integrity Fund would not exist without the generous financial support of systems like yours. We would like to encourage you to support the Integrity Fund by making a contribution this year.

There are two convenient ways you can help support the Integrity Fund:

- **Contribute a Portion of Your CFC Patronage Capital Refund**
  Many systems designate a portion of their CFC patronage capital retirement to the Integrity Fund. Although 2021 patronage capital retirement amounts have not been determined at this time, we encourage you to commit to donating 5 percent of your refund. If you wish, you may also designate a maximum contribution dollar amount.

- **General Fund Check**
  You can make a contribution from your system's general fund by sending a check. Checks are accepted year-round.

You can also select how your contribution is utilized:

(1) All Purposes
Supports cooperatives facing territorial integrity issues as well as other challenges that threaten one or more systems' ability to exist under the cooperative business model, as described in the Integrity Fund's terms and conditions document.

(2) Territorial Integrity Purposes Only
Only supports systems facing territorial integrity challenges.

If you would like to contribute, please complete and return the enclosed Participation Authorization form to Donna Goff **no later than June 30, 2021**. You can send it via e-mail (donna.goff@nrucfc.coop), fax (703-467-7427) or in the enclosed envelope. If you have any questions about the fund or how to contribute, please contact Donna Goff or me at 800-424-2954.

The Integrity Fund clearly embodies the strength of a unified electric cooperative network. Your contribution can make it an even more effective force in preserving the foundation and future growth of rural electric cooperatives across the nation.

On behalf of the Cooperative System Integrity Fund Committee, thank you for your time and support.

Sincerely,

Brad Captain
CFC Senior Vice President, Corporate Relations

Contributions to the Cooperative System Integrity Fund are not tax deductible as charitable contributions.

COOPERATIVE SYSTEM INTEGRITY FUND
FY2022/CY2021 Participation Authorization

A. Participation Authorization (Please select one)

☐ Please deduct ____ percent (please select a whole number e.g., 5 percent) from our system's CFC patronage capital refund this year and for all future years until notified otherwise, for our contribution to the Cooperative System Integrity Fund. **Please do not exceed $_____ annually. (Deadline for this selection is 06/30/21)**

☐ Please deduct ____ percent (please select a whole number e.g., 5 percent) from the CFC patronage capital refund our system will receive this year. **Please do not exceed $_____. (Deadline for this selection is 06/30/21)**

☐ We prefer to contribute by check. Enclosed is a check for $_____, payable to the Cooperative System Integrity Fund. **Check contributions are accepted year-round.**

B. Use of Contributions (Please select one.)

Please use our contributions for:

☐ **All Purposes:** Contributions may be used to support cooperatives facing territorial integrity issues, as well as other challenges that threaten one or more cooperative's ability to exist under the cooperative business model as described in the Integrity Fund's Terms and Conditions document.

☐ **Territorial Integrity Purposes Only:** Contributions may be used only to support systems facing territorial integrity issues.

_____ _____
(Participant Signature) (Date)

_____
(Title)

_____ _____
(System Name) (System ID)

Please return the completed form to Donna Goff by e-mail, fax or U.S. Mail
Fax: 703-467-7427 **E-mail:** donna.goff@nrucfc.coop
If you opt to mail this form, please send the form and/or check to
NRUCFC, Attention: Donna Goff, 20701 Cooperative Way, Dulles, VA 20166

Contributions to the Cooperative System Integrity Fund are not tax deductible as charitable contributions.

10. e. Office Closure Request

The Safety Council presented the following for consideration:

The Safety Council would like to close the front office of Lane-Scott Electric on October 21, 2021 at 10:00am to 12:00pm for active shooter training so all office personnel may attend.

Thank you for your consideration.

Sincerely,

Safety Council

Board Policy 502 states that the regular office hours of the Cooperative are 8:00am to 5:00pm Monday through Friday. Therefore, granting the request of the Safety Council will require Board approval.

Staff requests that the Board approve the Safety Council request and allow the office to close between 10:00am and 12:00pm on October 21, 2021 to allow office personnel to attend active shooter training.

10. f. 2021 3rd Quarter Schedule

Lane-Scott Electric Cooperative, Inc. 2021 Board Schedule
(based on known calendars as of May 7, 2021)

July	5	Office Closed – 4th of July	
	12	LSEC Board of Trustees meeting	change - Holiday conflict
	20	LSEC Annual Meeting	
	21	Sunflower EPC Board, Hays	
	31	KEC Summer Meeting, Overland Park (7/31-8/2)	
August	1-2	KEC Summer Meeting, Overland Park	
	9	LSEC Board of Trustees meeting	change - KEC conflict
	23	Sunflower EPC Board, Hays	
September	6	Office Closed – Labor Day	
	13	LSEC Board of Trustees meeting	change - Labor Day conflict
	15	Sunflower EPC Board, Hays	
	28-30	NRECA Regional Meeting, Las Vegas, NV	

The third quarter of 2021 has three conflicts with meeting the first Monday of the month. The July meeting co-insides with the 4th of July Holiday, the August meeting conflicts with the KEC Summer meeting, and the September meeting fall on the Labor Day Holiday.

Staff would like to re-schedule these meetings for the 2nd Monday in each month.

Staff requests that the Board approve the three amended LSEC Board meeting dates identified above.

SAFETY PROGRAM

*SAFETY PROJECTS **COMPLETED** AS OF MAY 2021*

1. RESAP/Self-Assessment/Annual Supervisor Inspection improvements completed:
    - Dighton Hi Substation all 6-underground outside of sub have been grounded.
    - Twin Springs Substation circuits hare identified.
    - Manning Substation – underground need relabeled.
2. Researched Kansas Region A, B, C, & D Hazard Mitigation resolution information, determined service area county regions, gathered region hazard mitigation plans for review by the general manager.
3. Safety document record retention and data archiving.
4. Ann Jennings's member safety awareness publishes to either KCL newsletter, social media, and/or the Lane Scott Electric website concerning:
    - Line Worker Safety
    - 811
    - Right Tree Right Place
    - Farming – Overhead Lines
    - Downed Lines Stay Back 35 Feet
    - Know What's Below
5. Diana Kuhlman submitted reports:
    - KEC Loss Control, Safety and Compliance System Monthly Statistical Report.
    - CDL Medical Certification report.
    - CDL qualification folders scanned to document vault.
6. KEC May safety meeting topics was concerning safety summary, Pole Top/Bucket Rescue, Fall Arrest, and Administrative: Emergency Preparedness. May safety minutes are included in the board packet.
7. Scott Briand and Chris Terhune attended PCB/SPCC Seminar.
8. Chris Terhune attended the Safety Coordinators Roundtable meeting.

*SAFETY PROJECTS **IN PROGRESS** AS OF MAY 2021*

1. RESAP/Self-Assessment/Annual Supervisor Inspection improvements **in progress**:
    - Truck #173 – upper boom chipped (Working with Brady at Altec to fix.)
    - Retail Warehouse – main office walkways need cleared and truck bay needs walkways marked.
    - Truck #110 – 2 traffic signs needed.
    - Ness Truck Bay – broken windowpane south end near highway is broken and needs replaced.
2. RESAP/Self-Assessment/Annual Supervisor Inspection improvements in **work plan**:
    - Bazine Substation – center switch beside regulators needs changed out.
    - Dighton City West Substation – needs switch bypass on north side of substation.
    - Ness City Substation – arrestors blown, and need replaced.
    - Ransom Substation – arrestors blown, and needs replaced.
3. Demo trailer is postponed due to cost inflation.
4. Emergency Action Plan (EAP) binder.
5. Safety manual.
6. Researching OSHA Sharp program.
7. Researching radio communication with Sunflower Electric to replace radio base stations conversion from analog to digital and service area study for radio towers.

LANE-SCOTT ELECTRIC COOPERATIVE, INC.
SAFETY MEETING
May 19, 2021

Chris Terhune called the meeting to order at 10:28am.
Minutes were read: Dal Hawkinson made a motion to approve the April 14th minutes and Kevin Bradstreet seconded. Minutes were read and approved as printed.

Present: David Howard, Nate Burns, Ben Mann, Dal Hawkinson, Chad Rupp, Chris Terhune, Larry Kraft, Myron Seib, Kevin Bradstreet, Dellon Shelton, Blake McVicker, Scott Briand, Kalo Mann, Michael Pollock, Mark McCulloch, Kathy Lewis, Carrie Borell, Rebecca Campbell, Ann Marie Jennings, and Diana Kuhlman
Absent: Richard McLeon
On Outage: Kasey Jenkinson and Leighton Ayers

Truck report of inspections:

105	Dellon Shelton	Not here, Richard took to meeting.
110	Myron Seib	OK
112	Leighton Ayers	OK
117	Chris Terhune	OK
123	Mark McCulloch	OK
124	Michael Pollock	No longer have.
132	Kevin Bradstreet	OK
135	Nate Burns	OK
136	Dellon Shelton	OK
143	Michael Pollock	OK
144	Kalo Mann	OK
145	David Howard	OK
150	Kasey Jenkinson	Chip in windshield, Not here, Kasey & Leighton on outage.
173	Chad Rupp	OK
174	Dal Hawkinson	OK
191	Myron Seib	OK
193	Myron Seib	OK
200	Ben Mann	OK
304	Michael Pollock	OK
305	Myron Seib	OK

Trailer and Equipment report of inspections:

502	Myron Seib	OK
507	Myron Seib	OK
515	Myron Seib	OK
504	Chris Terhune	OK
505	Chris Terhune	OK
508	Chris Terhune	OK
509	Chris Terhune	OK
513	Chris Terhune	OK
516	Chris Terhune	OK
700	Chris Terhune	OK
701	Chris Terhune	OK
702	Chris Terhune	OK
512	Scott Briand	OK
514	Scott Briand	OK

Warehouse, building, and pole yard inspections:

Ness City Warehouse	Myron Seib	OK
Ness Pole Yard & Transformer Dock	Myron Seib	OK
Warehouse	Scott Briand	OK

Pole Yard & Transformer Dock	Scott Briand	OK
Office	Diana Kuhlman	OK

Personal Tools: All Passed
Gloves Monthly Test Results: All Passed

Substation and Regulator Report: Ben Mann reported regulators changed West of Healy and waiting on more new regulators.

PCB Report: None to report
Line Clearance: Bazine and Ness. Tree trimmers are working in Alexander and Bazine.
Accident and Near Misses: David Howard discussed airplanes that flew through lines located in Hodgeman County and East of Dighton near McLeish and Ernie Kuehn places. Mark McCulloch hurt his back putting in tube heaters.

Old Business:

- Chris Terhune reported demonstration trailer is postponed due to cost inflation. Replacement gate openers have been received.
- Myron Seib reported the Ness gate motherboard has been installed.

New Business:

- Chris Terhune discussed PCB/SPCC seminar that him and Scott Briand attended. Chris Terhune attended the Safety Coordinator Roundtable meeting topic on awareness of parallel lines that intersect with transmission lines. Progress on radio communication of radio base replacements, repeater upgrades, and Sunflower Tower project south of Dighton and north of Ness City was discussed. Reported October 21st in house meeting Todd Hillman with the Highway Patrol has been scheduled to do Active Shooter training. Reminder that July is RESAP On-Site Regulatory Compliance Visits to review utility vehicles, facilities, and SPCC plan.
- Scott Briand discussed Oil Spill Response and Remediation workshop that him and Dal Hawkinson attended.
- Nate Burns discussed signed contract for 3-phase underground at Scott Park.
- Ben Mann discussed the SRS dispatch automated system options and possible options for pumpers that service multiple oil consumer accounts to ensure accurate information can be documented. Carrie Borell will check into the call system to see possible outage reporting options for persons that are not an account owner but need to report an outage for their company via an automated method.
- Bruce McAntee with KEC trained on pole top/bucket rescue and fall arrest, discussed the safety summary and emergency preparedness. Blake McVicker read accidents and near misses. Discussed handling situations during spring sever weather season. Preparedness of different types of accidents were discussed.

Meeting adjourned

_____ _____

Chris Terhune
Safety Coordinator

Carrie Borell
Safety Secretary

Active Shooter Training

Office Closure Request:

Safety Council would like to close the front office of Lane-Scott Electric on October 21, 2021 at 10:00am to 12:00pm for active shooter training so all office personnel may attend.

Thank you for your consideration.

Sincerely,

Safety Council

KEC
KANSAS ELECTRIC COOPERATIVES, INC.
A Touchstone Energy® Cooperative

Certificate of Attendance

Chris Terhune

Lane-Scott Electric Cooperative, Inc.

has completed six hours of the PCB/SPCC Seminar
May 12, 2021
Rolling Hills Electric Cooperative, Inc., Beloit, KS

Lee Tafanelli
Chief Executive Officer

Larry E. Detwiler
Director, Loss Control, Safety & Compliance

KEC
KANSAS ELECTRIC COOPERATIVES, INC.
A Touchstone Energy® Cooperative

Certificate of Attendance

Scott Briand

Lane-Scott Electric Cooperative, Inc.

has completed six hours of the PCB/SPCC Seminar
May 12, 2021
Rolling Hills Electric Cooperative, Inc., Beloit, KS

Lee Tafanelli
Chief Executive Officer

Larry E. Detwiler
Director, Loss Control, Safety & Compliance

SAFETY SUMMARY

MAY 2021 | VOL. 67 – NO. 5

KEC KANSAS ELECTRIC COOPERATIVES, INC.
A Touchstone Energy® Cooperative

INSIDE

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2 Accident Summary

3 Accidents & Upcoming Events

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SAFETY SUMMARY

Safety Summary is published monthly by the Loss Control, Safety & Compliance Department at Kansas Electric Cooperatives, Inc., Topeka, Kansas.

EDITOR: Larry Detwiler,
Director, Loss Control, Safety & Compliance

LOSS CONTROL, SAFETY & COMPLIANCE COMMITTEE

TOPIC - 29

Spring Severe Weather Season

The months of March through May are the Spring Severe Weather Season, but severe weather can happen at any moment. On January 26, 2021, a tornado struck Fultondale and Center Point, Alabama, killing a 14-year-old boy and injuring approximately 30 people. The National Weather Service classified it as an EF-3 with peak winds of about 150 mph. The intensity varied along the storm's path, which was around 9.5 miles.

Discussion Points:

Meteorologists are continually monitoring the atmosphere for changing weather conditions to give future weather predictions helping us plan accordingly. One of the most challenging weather predictions to make is when and where atmospheric conditions meet to create lightning, high wind, and tornadoes.

All thunderstorms can be dangerous because they produce lightning. Some thunderstorms pack more of a punch than others, bringing a variety of severe weather hazards. The National Weather Service classifies a storm as "severe" if it produces at least one of the following:

- A tornado
- Hail at least one inch in diameter
- Straight-line winds of at least 58 miles per hour

Suppose the National Weather Service Storm Prediction Center, located in Norman, Oklahoma, identifies an area with favorable conditions for an organized outbreak of severe thunderstorms. In that case, they will choose to issue either a severe thunderstorm watch or a tornado watch for that area. What do these watches mean?

- A severe thunderstorm watch means that severe thunderstorms are possible and that you should be prepared.
- A tornado watch means that severe thunderstorms with multiple tornadoes or powerful tornadoes (in addition to other severe weather threats) are possible and that you should be prepared.

When severe thunderstorms are

Continued on page 4

Accident Summary *February 2021*

	No Lost Time	Lost Time	Days Lost	Employees Full-time	Employees Part -time	Hours Worked	Vehicles Used	Miles Driven	Vehicle Accidents
4 Rivers	0	0	0	39	0	6,988	31	36,061	0
Ark Valley	0	0	0	15	0	2,252	13	7,834	0
Bluestem	0	0	0	29	0	4,920	31	21,039	0
Brown-Atchison	0	0	0	12	0	1,587	9	3,898	0
Butler	0	0	0	44	3	7,403	16	11,490	0
Caney Valley	1	0	0	17	0	2,754	16	6,876	0
CMS	0	0	0	33	0	5,135	22	22,042	2
DSO	0	0	0	29	0	4,515	26	18,217	0
Doniphan	0	0	0	8	0	1,103	5	1,916	0
Flint Hills	0	0	0	20	0	3,190	18	9,096	0
FreeState	0	0	0	78	2	11,657	48	40,321	0
Heartland	0	0	0	39	0	6,575	30	30,204	1
KEC	0	0	0	15	0	2,600	7	7,500	0
KEPCo	0	0	0	24	0	3,236	10	12,868	0
Lane-Scott	0	0	0	22	1	3,450	21	13,452	0
Nemaha-Marshall	0	0	0	14	1	2,308	11	9,887	0
Ninnescah	0	0	0	17	0	2,733	12	10,265	0
Pioneer	0	0	0	70	2	12,302	47	45,055	0
Prairie Land	0	0	2*	85	0	12,363	63	46,672	0
Rolling Hills	0	0	0	38	1	5,944	40	51,507	0
Sedgwick County	0	0	0	19	0	2,724	16	6,544	0
Southern Pioneer	0	0	0	45	2	7,314	40	29,286	0
Sumner-Cowley	**NO REPORT**								
Twin Valley	0	0	0	13	1	1,960	12	7,595	0
Victory	1	0	0	70	0	11,462	40	31,015	0
Western	0	0	0	57	0	8,402	39	26,157	0
Wheatland	1	0	0	137	1	NA	104	NA	0
Total	**3**	**0**	**0**	**989**	**14**	**134,877**	**727**	**506,797**	**3**

Accident Previously Reported +Reflects Cumulative Lost Time

Accident Reports *February 2021*

February 2021
CMS, MEADE
Vehicle accidents (2): No accident forms submitted.
Lost time: No

February 2021
VICTORY, DODGE CITY
No accident form submitted.
Lost time: No

February 1, 2021
CANEY VALLEY, CEDAR VALE
Apprentice Lineman
Injury: Laceration to right index finger.
Cause: Cooperative employee was stripping insulation from a secondary conductor, knife slipped cutting through leather glove, cutting employee's finger requiring sutures.
Lost time: No

February 8, 2021
Heartland, Gas
Vehicle accident: Cooperative employee pulled cooperative's aerial device into cooperative's warehouse and closed warehouse door. Warehouse door struck attachment on jib causing the cable on door to break.
Lost time: No

February 25, 2021
WHEATLAND, SYRACUSE
Lineman
Injury: Contusion to upper nose.
Cause: Cooperative employee was tightening locknut with 12-inch wrench, wrench slipped off striking employee in the face.
Lost time: No

Federated Near-Miss Reporting

Dear Safety Professional:

As you are aware, Federated launched a Near-Miss reporting program in December of 2015, encouraging employees to report any and all near-miss incidents experienced at the system or through interaction with the general public. Some of you have asked if we have received any reported incidents and the answer is yes, we have. For expediency, I am sending the reported incidents to you so you have an opportunity to discuss these incidents, with your employees as soon as possible. I will provide more information as it becomes available, and in the near future, you will have access to this information by accessing our website. Thank you.

R. COREY PARR
VP Safety & Loss Prevention

UPCOMING EVENTS

2021 WORKSHOPS

Safety Coordinators Roundtable
May 7 (Solomon)

PCB/SPCC Seminar
May 12 (Beloit)

KEC Hot Line Schools
September 8-10 (Pratt)
September 14-16 (Manhattan)

Transformer Workshop
November 16-17 (Topeka)

Metering Workshop
November 18-19 (Topeka)

Speak Up!/Listen Up!
December 7 & 8 (Ulysses)
December 9 & 10 (Topeka)

Continued from page 1

occurring, or when radar reveals signs of imminent severe weather, the National Weather Service's local forecast office will issue a severe thunderstorm warning or tornado warning. What do these warnings mean?

- A severe thunderstorm warning is identified as a thunderstorm capable of producing at least one-inch diameter hail or wind gusts of at least 50 knots (58 miles per hour) based on its radar characteristics (or storm spotters are reporting that at least one of these things is occurring). Seek shelter immediately!
- A tornado warning means that forecasters have identified a thunderstorm capable of producing a tornado (possibly in addition to other severe weather) based on its radar characteristics (or based on spotter reports). Seek shelter immediately!

Recommendations: TORNADO SAFETY

Your safest course of action is to take shelter immediately when a tornado warning is issued for your area.

If you are in a home or small business:

- Go to the basement or a small interior room such as a closet, bathroom, or interior hallway without windows on the lowest level. Put as many walls between yourself and the outside as possible. If possible, get under something sturdy, such as a heavy table, or use a mattress to protect yourself from flying debris. Most injuries associated with high winds are from flying debris, so remember to protect your head. If available, put on a bicycle or motorcycle helmet to protect yourself from head injuries.

If you are in a large business, school, or shopping center:

- Go to the designated shelter area. If a sheltered spot is not available, the best place is to go to an interior hallway on the lowest level. Stay away from the structurally weaker portions of buildings, such as windows and rooms with expansive roofs, which are more likely to collapse when tornadoes strike. If you are in a mobile home or home on stilts:
- Get out and take shelter in a sturdy building or storm shelter. If there is not one nearby, take shelter in the most interior room with no windows, such as an interior bathroom or closet.

If you are caught in a vehicle:

- Get out and into a sturdy shelter. If one is not available nearby, get to a low spot and cover your head from flying debris. Do not take cover under an overpass as this does not provide adequate shelter during a tornado and can cause increased wind speeds due to a tunneling effect.

Lightning Safety

Lightning strikes the United States about 25 million times a year. Although most lightning occurs in the summer, lightning can strike people at any time of year. Lightning kills 20 or more people in the United States each year, and hundreds more are severely injured. Lightning is hotter than the surface of the sun and can reach temperatures around 50,000°F. Lightning leaves many victims with permanent disabilities. While only about 10% of lightning victims die, many survivors must live the rest of their lives with intense pain, neurological disabilities, depression, and other health problems.

Before beginning any outdoor work or activity, check your local weather reports. If a thunderstorm is predicted or approaching, take the following measures:

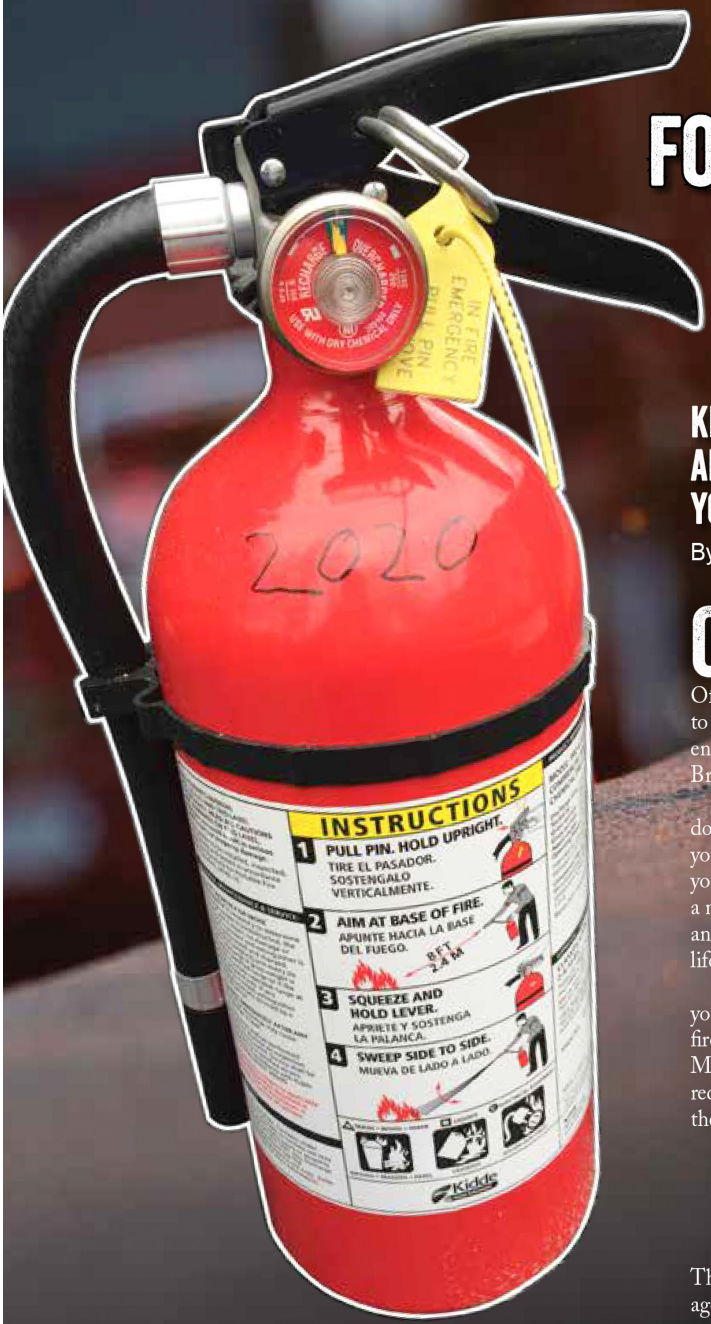
- Consider postponing activities if thunderstorms are forecast.
- Monitor the weather. Once outside, look for signs of developing or approaching thunderstorms.
- If you hear thunder, seek safety immediately. Fully enclosed buildings are best. A hard-topped metal vehicle with the windows closed is also safe. Stay inside until 30 minutes after the last sound of thunder.
- If you hear thunder, don't use a corded phone except in an emergency. Cordless phones and cell phones are safe to use.
- Keep away from electrical equipment and plumbing. Lightning will travel through the wiring and plumbing if your building is struck. Don't take a bath or shower or wash dishes during a storm.

Employers should have a written Emergency Action Plan (EAP), as outlined in OSHA 1910.38 or 1926.35. The EAP should include a section on severe weather, outlining the steps an employee should take during severe weather. The plan should:

- Inform supervisors and workers to take action after hearing thunder, seeing lightning, or perceiving any other warning signs of approaching thunderstorms.
- Indicate how workers are notified about severe thunderstorm warnings.
- Identify locations and requirements to take shelter.

For internal cooperative use only!

FIRE EXTINGUISHER USE AND SAFETY FOR UTILITY WORKERS



KNOWING HOW TO EFFECTIVELY USE AN EXTINGUISHER CAN HELP SAVE YOUR LIFE AND THE LIVES OF OTHERS.

By Steve Nash

Officer George Brentar, a 22-year veteran of the Euclid, Ohio, police force, died October 10, 2007, when his car skidded into a pole and caught fire on an entrance ramp to Interstate 90. Officer Brentar had spotted a speeding motorist and was attempting to catch up to the vehicle when his car hydroplaned. The right rear end hit a pole and the car immediately burst into flames, with Officer Brentar trapped inside.

If your job has you on the road much of the time, as it sometimes does in the utility industry, there always exists the possibility that you may come upon such a horrific accident. And if you are like me, you hope to be well-prepared and properly equipped to help ensure a more favorable outcome. A trained person with a fire extinguisher and seat-belt cutter could have made a difference in Officer Brentar's life that day.

For those of you who are over-the-road drivers for your company, you likely have what is known as a dry chemical/multipurpose/ABC fire extinguisher on your vehicle. If you don't, you should; see Federal Motor Carrier Safety Regulation 393.95(a) regarding extinguisher requirements for commercial motor vehicles. The "ABC" stands for the three different classifications of fire:

1. A: ordinary combustibles, such as paper products and wood.
2. B: liquid fires, such as gasoline or diesel fuel.
3. C: charged electrical fires; if you take away the power, this type of fire can become a Class A or B fire.

Class D fires — which involve combustible metals — also exist. These fires burn very hot and need their own type of extinguishing agent. Magnesium wheels can fall into this category, but unless you are hauling such a material, you probably won't encounter a Class D fire.

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Fire Extinguisher Use and Safety for Utility Workers

Continued from page 5

It is worth noting here that a carbon dioxide unit is another type of extinguisher you may come across. These extinguishers are not as common and are rated for both Class B and C fires. They are essentially dry ice, very heavy and make a lot of noise when discharged. Their reach typically is shorter than that of a dry chemical extinguisher, and the nozzle is much wider — it looks somewhat like a cowbell. This type of extinguisher works by displacing oxygen and smothering the fire.

Fire Extinguisher Storage and Use

Of course, having a fire extinguisher onboard your vehicle isn't terribly helpful if you don't know how to use it. Here are some tips on dry chemical fire extinguisher storage and use so that you can make the most of it.

First, make certain the fire extinguisher is mounted in an easily accessible spot on your vehicle where you can see the gauge at least monthly. That is how often you should check to make sure pressure in the unit is adequate. The gauge should be in the green area. In addition, the unit should be serviced at least annually by a licensed company to ensure it's always ready for use.

When attempting to operate the dry chemical extinguisher, use the acronym PASS to recall the proper procedure:

- Pull the pin.
- Aim the nozzle.
- Squeeze the valve.
- Sweep at the front base of the fire.

Pull the Pin

Look at the top of the unit. There should be a ring/pin held in place by a small nylon tie. This pin prohibits the valve from being depressed until you need it. Some people find it easier to set the extinguisher on the ground to provide more leverage while pulling the pin. The nylon tie should break away.

Aim the Nozzle

Aim for the flame front lowest and closest to you. Before you approach the fire, quickly depress and release the valve, for two reasons: one, to make sure the unit is operable, and two, to check what type of reach you can expect.

Squeeze the Valve

When approaching the fire, do so with your dominant hand holding the weighty portion of the unit and your nondominant hand outstretched from your side, holding the nozzle (e.g., I am right-handed, so I hold the unit and squeeze the valve with my right hand and point the nozzle with my left). Approach the fire somewhat sideways, for two reasons: one, it exposes less of you to any heat, and two, you can run away from the fire quickly if something goes wrong, without having to turn around.

Keep in mind that when you squeeze the valve, you puncture an internal canister of inert gas. This charges the rest of the vessel, thereby expelling the extinguishing agent. Once the canister is punctured, the pressure will bleed off. The fire extinguisher will need service after any use. If you do not get it serviced, it will not be ready the next time you need it.

Sweep the Base of the Fire

When you first hit a fire with the extinguishing agent, it may flare up just slightly — this is not abnormal, especially if you're dealing with a liquid fire. Don't give up, keep on it. Shuffle your feet if you're moving up on the flames. When the powder from the extinguisher mixes with the flames, it is disrupting

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Fire Extinguisher Use and Safety for Utility Workers

Continued from page 6

what is known as the uninhibited chain reaction of the fire.

Before you sweep the base, however, you will need to determine if the fire is small enough to handle. A fire the size of a large wheelbarrow or so ought to be your cutoff point. If it's much larger, you might not have enough extinguishing agent. A tire or partial engine fire is generally OK to approach. Then you'll need to assess whether you can safely attempt to put out the fire. Be sure to check the area for other hazards, including electrical hazards, traffic hazards, and explosion potential from exposed fuel and vessels.

Extinguishers vary in size, and the length of time your extinguisher lasts will be crucial. The squeeze valve provides the ability to start and stop the stream. If you leave it in the fully open position, you'll have roughly 20 seconds of fight time based on my experience. You'll also raise quite a cloud of dust in the process. If you are by yourself and determine that you have not made a difference with one extinguisher, you need to consider moving away from the situation.

Extinguisher Training

If your company vehicles are equipped with portable fire extinguishers, your employer is required to provide training to employees on their proper use per OSHA 29 CFR 1910.157(g)(1), which states, "Where the employer has provided portable fire extinguishers for employee use in the workplace, the employer shall also provide an educational program to familiarize employees with the general principles of fire extinguisher use and the hazards involved with incipient stage fire fighting." Local fire departments often are called upon to assist with this type of training.

Other Helpful Hints

In addition to the information above, following are some other tips that I have picked up over the course of my career. I hope you will find them helpful if you ever encounter a fire on the road, or if a fire breaks out on a vehicle you're driving or riding in.

- If there is a fire in either a semitractor or trailer, consider separating the units. This may be addressed in your company's policies, and if so, follow that policy. Separating the units should only be attempted if it can be done safely. An extreme example of why this may be beneficial is a small fire in a tractor attached to a flammable tanker truck.
- If you notice a fire on your vehicle and it's possible to do so, do not stop under power lines or on top of or under bridges. As I am writing this article, the main I-75/I-71 bridge over the Ohio River between Kentucky and Ohio is still closed due to a fiery two-semi accident.
- One of the last vehicle fires my crew handled before I retired was three cars on fire in a parking lot in the middle of the night. As we began battling the blaze, a huge shot rang out. After watching the video from my body cam, and through investigation the next day, we determined that a charged airbag cylinder in one vehicle's window frame had overpressurized and exploded. Be aware of hazards posed by those pressurized cylinders.
- Many of the synthetic materials used on or in vehicles will throw off smoke that likely contains hydrogen cyanide. It's critical not to breathe that in and to have an escape route from the fire that does not lead into traffic or off a bridge.
- Always wear bright clothing or have a reflective vest nearby that you can quickly throw on in case you come upon a fire emergency. Although other drivers are supposed to give you a safety lane, they don't always do so. Many secondary tragedies have occurred from inattentive, speeding drivers. When assisting during a fire, keep your eyes open toward oncoming traffic; make sure first responders have been contacted; and use emergency flashers, safety flares, reflectors or LED beacons as prescribed.

Continued on page 8

Fire Extinguisher Use and Safety for Utility Workers

Continued from page 7

- If your situation is untenable — meaning that you are not making the situation better at an accident scene or fire — strongly consider moving yourself (and possibly others) to a safety zone on the other side of a guardrail. Doing so could save you from bodily harm.
- Have a seat-belt cutter within reach of your driving position. In the aftermath of rollover accidents, I have seen occupants trapped, unable to reach their seat-belt release button.
- Be mindful if your vehicle is stopped on a slope. Running fuel fires may result, and you want to be ready for this. Don't place valuables in this pathway, and consider blocking sewer inlets with unopened bags of Oil-Dri.

Conclusion

Fighting a fire — even a small one — is not for everyone. But if you know that you would want to try to make a difference in a situation like the one I referenced at the beginning of this article, make the effort now to be prepared. The small amount of time you spend doing so will pale in comparison to a potential lifetime of regret.

STEVE NASH entered the fire/emergency medical services industry at the age of 16. He belonged to several departments over the years, holding many ranks while becoming a paramedic and hazardous materials technician. Nash earned a bachelor's degree in fire and safety engineering technology from the University of Cincinnati while working on several safety patents for firefighters. He retired from firefighting and EMS operations in late 2019 as a battalion chief and currently serves as a peer supporter with the Ohio Association of Professional Firefighters. Nash continues to develop products through his company, Halcyon Products Inc., and can be reached at sdnash@halcyonproducts.com.

Special thanks to Incident Prevention for allowing KEC to reprint the article.

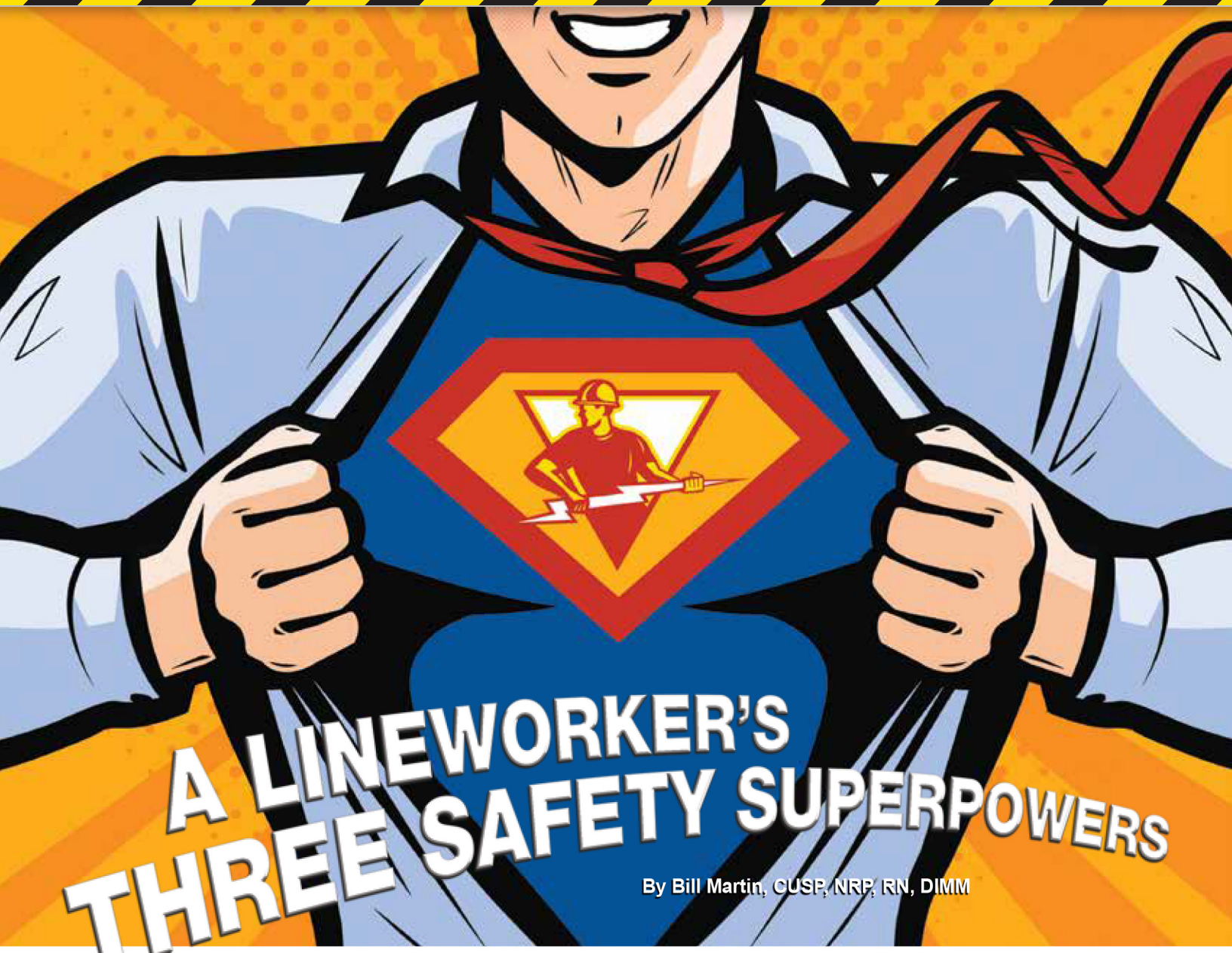
4 Ways to Avoid Overloaded Circuits

Label circuit breakers to understand the different circuits in your home.

Contact a qualified electrician to **inspect your home** if it's older than 40 years or before a major appliance is installed.

Have a **qualified electrician** install new circuits for high energy use devices.

Purchase **energy-efficient** appliances and lighting to reduce electrical load.



A LINEWORKER'S THREE SAFETY SUPERPOWERS

By Bill Martin, CUSP, NRP, RN, DIMM

Workplace safety requires each of us to do our part to keep ourselves and our co-workers free from injury and illness. To meet this goal, we must understand the tools we have and know how to use them. Let's look at a lineman's life, for example. He can climb poles, float through the air in a bucket, safely touch energized conductors, balance poles and transformers, and construct all of these items into a working system. The skills needed to accurately accomplish these tasks are a result of training and repetitive practice, but these skills are only partially responsible for the lineman's success because the lineman is part of and works in a team. True success occurs when the team members who perform the dance are connected to each other.

How do team members connect with one another? You may not know it, but human beings have superhero powers that have evolved over thousands of years. And when we understand how to successfully tap into them, we can improve our connections with others

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A Lineworker's Three Safety SuperPowers

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and change outcomes. This article will identify three of your superpowers — reading minds, reasoning and looking into the future — and how to tap into them to improve safety on the job.

SUPERPOWER 1: READING MINDS

When we listen to our teammates, much of what we hear is unspoken. Thousands of years of evolution have produced muscles in our faces that move skin over bone. Our subconscious reads and interprets those facial expressions as well as other body language. Were you aware that when your dog reacts poorly to a person it doesn't know, the dog often is reacting to you? It knows you very well and can read your body's nonverbal signals.

Active listening is required to kick-start your mindreading skills. After all, you can only truly listen when you are quiet while someone else is speaking. Are you the foreman who reads the job brief to your crew and receives very little input from them? It's necessary to realize that the more your crew speaks during the job brief, the more powerful your superpower becomes. You'll be able to hear confidence and weakness, certainty and uncertainty, contempt, compassion, illness and pain. Are you wondering if your crew member is fit for duty today? Watching how they interact with others and listening to them speak will give you clues.

As your mindreading superpower kicks into gear, you also must listen to yourself. The feelings you experience are sometimes difficult to put into words because the feeling part of your brain is not connected to the verbal part of your brain. For instance, try to describe what it is about your significant other that attracted you to them. You will arrive at a group of descriptive terms that, by themselves, do not sufficiently explain your feelings.

So, when you listen to your team, keep track of the feelings you experience and ask questions related to those feelings. If you sense something off with a co-worker you know well, you might discreetly meet with him and say, for example, "John, it sounds like you have identified your role in the bucket today and mentioned the parts of the job you are concerned about. But listening to you this morning, you sound different. I can't put my finger on it. Are you feeling OK, or is there something on your mind I can help you with?" Perhaps John replies, "My wife is really sick, and we went to the emergency room last night. I didn't get much sleep." That insight may lead to changing your team's lineup for the day, or at least make you aware that John may be distracted from his work.

SUPERPOWER 2: REASONING

The evolution of the human brain over time has improved our reasoning skills. We can apply past learning to present situations and then simulate how it will affect our future plans. Our brain considers all the available information to come up with ideas and strategies.

This superpower — reasoning — has allowed us to achieve some amazing things over the course of history. Flight via airplanes, space travel, electric vehicles and wind power are results of taking what we already knew and applying it to unknowns. It happened by applying the past and present to a simulated future, which also is what happens every time you plan a project and then follow it through to successful completion. What we learn in the process is stored in our brains, allowing us to apply it to similar situations.

The connections in our brain are sorted subconsciously while we do other things. When we sleep, for example, our brain is sorting information and working on problems behind the scenes. We process 11 million bits of information per second unconsciously. Consciously, we process 40 to 50 bits of information per second. So, when you awake with an idea, it did not arrive in your brain with your permission. It was brought to your consciousness from a deeper place.

Our reasoning superpower enables us to make important

Continued on page 11

READING MINDS, REASONING AND LOOKING INTO

A Lineworker's Three Safety SuperPowers *Continued from page 10*

connections. Insights appear from sorting information. When we ask questions of our co-workers and listen to their responses, the things we agree with and the things we disagree with form the material that results in an insight. We just have to listen. If you want to unleash your reasoning superpower, ask for others' thoughts and opinions. Listen to understand. If you listen only to respond, your reasoning superpower won't be activated.

SUPERPOWER 3: LOOKING INTO THE FUTURE

We attempt to look into the future in almost everything we do. When we plan to drive somewhere, we predict a future arrival date and time. An idea becomes a plan and then a construction project. Our very existence depends on our ability to see the future. And while we are good at predicting it, we aren't always skilled at considering the things that will keep us from reaching our intended destination.

Realize that predicting the future requires eliminating the things that could cause our plan to fail. In our line of work, it's critical to use risk assessments and risk management methodologies to weigh those things. In addition, by gathering input from all members of our team, we unleash their superpowers and help to engage our own. Listening to their thoughts and ideas helps us understand their perceptions, which in turn allows us to engage in reasoning regarding our potential for success.

The safety of our crews largely hinges on the ability to apply as much available information as possible to the task at hand. We have evolved to do this in real time. In olden times, the post-job brief — often called a debriefing — was a talk around a campfire. This allowed everyone involved to sort the day's information and apply it to future endeavors. We tend to do this naturally when the perceived risk is high. For example, a complicated project requires more group meetings than a simple project. But if we want to use our superpowers appropriately, we must have more discussions about simpler projects. And where there is a risk of failure, we need to come up with a plan that allows us to fail safely and employ a strategy to improve our odds of success. For instance, if a pickup truck on the job site will be in danger of being hit by motorists, we may want to use an impact attenuator — sometimes referred to as a "crash pillow" — in addition to traffic cones and other mitigation tools. If a risk comes to your mind or the mind of someone else on the crew, we must evaluate the consequences of ignoring it before we move on. A risk that comes to mind is worth the few moments it takes to discuss and evaluate it.

CONCLUSION

The superpowers of reading minds, reasoning and looking into the future can be improved with practice. The more we engage each other in discussion — and make it safe to do so — the stronger our connections to each other become. And those connections are key to unleashing a high-level understanding of situations and team dynamics. We will begin to notice things others don't. We will see risks we didn't consider before. We will have a greater understanding that we need each other to raise our awareness. So, the next time you and your team are facing a challenge, use your superpowers for good. Quiet your mind and try to picture the situation through your teammates' eyes. Visualize what they see, and then compare it to what you see. Listen to everyone's suggestions before offering a response. In time, you will become a force to be reckoned with.

BILL MARTIN, CUSP, NRP, RN, DIMM, currently works in safety and training for Northline Utilities LLC and Northeast Live Line. He has held previous roles as a lineman, line supervisor and safety director.

Special thanks to Incident Prevention for allowing KEC to reprint the article.

THE FUTURE CAN BE IMPROVED WITH PRACTICE.

LANE-SCOTT ELECTRIC ENERGY SALES STATISTICS FOR APRIL 2021

CLASS OF SERVICE	NO. RECEIVING SERVICE		kWh SOLD		AMOUNT BILLED		Y.T.D AVERAGE		SALE PRICE PER kWh
	Y.T.D. AVG.	THIS MONTH	THIS MONTH	Y.T.D.	THIS MONTH	Y.T.D.	kWh USED	AMOUNT	Y.T.D.
Residential Sales	2,229	2,227	1,415,447	7,130,944	$195,501	$897,891	800	$100.73	12.59
Residential Sales-Seasonal	50	51	6,082	31,228	$1,840	$7,878			
Irrigation Sales	331	330	594,562	768,238	$47,838	$63,472			
Small Commercial	1,851	1,854	3,960,051	15,714,160	$449,079	$1,735,346	2,122	$234.38	11.04
Large Commercial	178	177	2,569,970	10,767,013	$334,250	$1,272,707	15,165	$1,792.55	11.82
Public Street Lighting	13	13	35,946	143,784	$4,460	$18,440			
Public Building Sales	49	49	23,786	125,640	$3,554	$17,034			
Non-Domestic	1,055	1,055	139,619	661,815	$30,750	$130,445			
City of Dighton	1	1	604,743	2,710,071	$40,524	$346,164	677,518	$86,541.00	12.77
Idle Services on rate 90	38	37	0	0		$0			
Large Industrial	3	3	3,048,230	10,847,550	$346,545	$1,002,420	903,963	$83,535.00	9.24
Irrigation Horsepower Charges	0	0				$267,015			
Total Energy Sales	5,797	5,797	12,398,436	48,900,443	$1,454,341	$5,758,812			11.78
Other Electric Revenue					$181	($259,525)			
Total					$1,454,522	$5,499,287			

SUBSTATION DATA

Substation	(NCP)KW	kWh Purchased	Cost Per kWh	kWh Sold	Line Loss	Load Factor-P	Load Factor-S
Beeler-Sub 3	6,088	3,827,656		2,998,898	21.65%	87.32%	68.42%
Dighton-Sub 1 - 7200	1,659	945,315		853,614	9.70%	79.14%	71.46%
Dighton-Sub 2 - 14400	4,179	2,544,414		2,487,776	2.23%	84.56%	82.68%
Manning-Sub 4	4,872	2,872,304		2,669,028	7.08%	81.88%	76.09%
LS Seaboard-Sub 5	204	88,081		108,101	-22.73%	59.97%	73.60%
Twin Springs Lo 7.6-Sub 7	248	139,829		127,630	8.72%	78.31%	71.48%
Twin Springs Hi 14.1-Sub 8	223	109,204		98,376	9.92%	68.01%	61.27%
City of Dighton	1,004	515,418	6.7400	515,418	0.00%	71.30%	71.30%
City of Dighton - WAPA	155	89,325	3.1200	89,325	0.00%	80.04%	80.04%
Alexander 115	1,192	705,154		659,473	6.48%	82.16%	76.84%
Ness City 115	2,584	1,391,288		1,790,797	-28.72%	74.78%	96.25%
Total	22,408	13,227,988	5.8400	12,398,436	6.27%	81.99%	76.85%

RUS/CFC LOAN FUND TRANSACTIONS

Gross Obligation to RUS	$	54,111,889
Pymts Applied Against Principal	$	19,362,371
Net Obligation to RUS	$	34,749,518
CFC Line of Credit	$	-
CoBank Line of Credit	$	-
CFC Note #9004-RUS refinance	$	5,786,214
CFC Note #9006-RS Prepymt	$	422,157
CoBank Note-Feb 21 Winter Event	$	2,747,720
PPP Loan	$	619,088.00

MISC.

General Fund Balance	$45,849
MMDA Investments	$710,491
Cash Available at Month End	$756,340
CFC Investments - CP, SN, MTN	$6,546,811
CFC CTC's	$221,958

OTHER STATISTICS

	Y.T.D	M.T.D.
Miles Energized	2043.03	
Density	2.84	
kWh Purchased	52,101,315	13,227,988
kWh Sold (Inc. Office Use)	48,928,481	12,403,970
Percent of Line Loss	6.09%	6.23%
Idle Services	244	
Oper. Revenue Per kWh Sold	11.24	11.73
Expense Per kWh Sold	12.28	13.69
Income Per Mile		711.94
Expense Per Mile		831.38

ACCOUNT AGING

	Current	30-89 Days	90 Plus
Irrigation Accounts Receivable	$7,205	$29	
Electric Accounts Receivable	$1,327,854	$15,003	$3,270
Retail Accounts Receivable	$85,851	$6,065	$1,867

CYBERSECURITY - IT DEPARTMENT

*CYBERSECURITY/IT PROJECTS **COMPLETED** AS OF MAY 2021*

1. Domain and GIS server Veritas Backup Exec version 21.2 upgrade.
2. NRECA CIS Security Controls webinar.
3. Researched NRECA Essence 2.0 cybersecurity tool testing program.
4. ASP iVue server monthly patching and updates.
5. Office 365 threat management daily review and risk mitigation.
6. Desktop Central security management daily review and risk mitigation.
7. Payment Gateway version 1.24 patch 13 upgrade.
8. US Payment KIOSK monthly server patching.
9. Operations and domain server backups and alert warning daily review.
10. AppSuite Mapview TPK imagery and data file monthly update.
11. Applications and windows updates and patching.

*CYBERSECURITY/IT PROJECTS **IN PROGRESS** AS OF MAY 2021*

1. Cyber Detect Intrusion Detection Response software training.

UNITED STATES DEPARTMENT OF AGRICULTURE
RURAL UTILITIES SERVICE

FINANCIAL AND OPERATING REPORT
ELECTRIC DISTRIBUTION

INSTRUCTIONS - See help in the online application.

BORROWER DESIGNATION KS0042

PERIOD ENDED April 2021

BORROWER NAME The Lane-Scott Electric Cooperative, Inc.

This information is analyzed and used to determine the submitter's financial situation and feasibility for loans and guarantees. You are required by contract and applicable regulations to provide the information. The information provided is subject to the Freedom of Information Act (5 U.S.C. 552)

CERTIFICATION

We recognize that statements contained herein concern a matter within the jurisdiction of an agency of the United States and the making of a false, fictitious or fraudulent statement may render the maker subject to prosecution under Title 18, United States Code Section 1001.

We hereby certify that the entries in this report are in accordance with the accounts and other records of the system and reflect the status of the system to the best of our knowledge and belief.

ALL INSURANCE REQUIRED BY PART 1788 OF 7 CFR CHAPTER XVII, RUS, WAS IN FORCE DURING THE REPORTING PERIOD AND RENEWALS HAVE BEEN OBTAINED FOR ALL POLICIES DURING THE PERIOD COVERED BY THIS REPORT PURSUANT TO PART 1718 OF 7 CFR CHAPTER XVII

(check one of the following)

☒ All of the obligations under the RUS loan documents have been fulfilled in all material respects.

☐ There has been a default in the fulfillment of the obligations under the RUS loan documents. Said default(s) is/are specifically described in Part D of this report.

Richard McLeon

5/21/2021
DATE

PART A. STATEMENT OF OPERATIONS

ITEM	YEAR-TO-DATE			THIS MONTH
	LAST YEAR (*a*)	THIS YEAR (*b*)	BUDGET (*c*)	(*d*)
1. Operating Revenue and Patronage Capital	5,399,712	5,499,287	5,684,494	1,454,522
2. Power Production Expense				
3. Cost of Purchased Power	2,905,494	3,409,624	3,433,687	1,072,394
4. Transmission Expense	802	864	23,243	155
5. Regional Market Expense				
6. Distribution Expense - Operation	479,296	419,439	316,665	112,645
7. Distribution Expense - Maintenance	261,084	435,695	233,332	116,793
8. Customer Accounts Expense	60,899	70,028	60,136	21,047
9. Customer Service and Informational Expense	9,755	26,246	12,482	3,954
10. Sales Expense	19,213	25,659	15,859	3,849
11. Administrative and General Expense	454,843	566,812	396,637	101,642
12. Total Operation & Maintenance Expense (*2 thru 11*)	4,191,386	4,954,367	4,492,041	1,432,479
13. Depreciation and Amortization Expense	538,278	611,255	576,621	153,017
14. Tax Expense - Property & Gross Receipts				
15. Tax Expense - Other				
16. Interest on Long-Term Debt	440,560	441,772	412,806	112,281
17. Interest Charged to Construction - Credit				
18. Interest Expense - Other	678	51	838	12
19. Other Deductions	4,312	3,139	4,200	750
20. Total Cost of Electric Service (*12 thru 19*)	5,175,214	6,010,584	5,486,506	1,698,539
21. Patronage Capital & Operating Margins (*1 minus 20*)	224,498	(511,297)	197,988	(244,017)
22. Non Operating Margins - Interest	70,555	53,144	87,032	2,950
23. Allowance for Funds Used During Construction				
24. Income (Loss) from Equity Investments				
25. Non Operating Margins - Other	(18,168)	(52,476)	9,167	5,820
26. Generation and Transmission Capital Credits				
27. Other Capital Credits and Patronage Dividends	18,198	21,597		
28. Extraordinary Items				
29. Patronage Capital or Margins (*21 thru 28*)	295,083	(489,032)	294,187	(235,247)

UNITED STATES DEPARTMENT OF AGRICULTURE
RURAL UTILITIES SERVICE

FINANCIAL AND OPERATING REPORT
ELECTRIC DISTRIBUTION

INSTRUCTIONS - See help in the online application.

BORROWER DESIGNATION
KS0042

PERIOD ENDED
April 2021

PART B. DATA ON TRANSMISSION AND DISTRIBUTION PLANT

ITEM	YEAR-TO-DATE LAST YEAR (*a*)	YEAR-TO-DATE THIS YEAR (*b*)	ITEM	YEAR-TO-DATE LAST YEAR (*a*)	YEAR-TO-DATE THIS YEAR (*b*)
1. New Services Connected	19	12	5. Miles Transmission		
2. Services Retired	17	13	6. Miles Distribution – Overhead	2,036.59	2,035.37
3. Total Services in Place	6,039	6,041	7. Miles Distribution - Underground	7.53	7.66
4. Idle Services (*Exclude Seasonals*)	250	244	**8. Total Miles Energized** ***(5 + 6 + 7)***	2,044.12	2,043.03

PART C. BALANCE SHEET

ASSETS AND OTHER DEBITS		LIABILITIES AND OTHER CREDITS	
1. Total Utility Plant in Service	58,389,067	30. Memberships	0
2. Construction Work in Progress	84,441	31. Patronage Capital	21,708,073
3. Total Utility Plant ***(1 + 2)***	58,473,508	32. Operating Margins - Prior Years	0
4. Accum. Provision for Depreciation and Amort.	18,507,054	33. Operating Margins - Current Year	(511,297)
5. Net Utility Plant ***(3 - 4)***	39,966,454	34. Non-Operating Margins	563,565
6. Non-Utility Property (Net)	0	35. Other Margins and Equities	132,862
7. Investments in Subsidiary Companies	219,889	**36. Total Margins & Equities** ***(30 thru 35)***	21,893,203
8. Invest. in Assoc. Org. - Patronage Capital	10,935,796	37. Long-Term Debt - RUS (Net)	0
9. Invest. in Assoc. Org. - Other - General Funds	445,461	38. Long-Term Debt - FFB - RUS Guaranteed	33,688,179
10. Invest. in Assoc. Org. - Other - Nongeneral Funds	221,958	39. Long-Term Debt - Other - RUS Guaranteed	0
11. Investments in Economic Development Projects	0	40. Long-Term Debt Other (Net)	8,172,652
12. Other Investments	5,501	41. Long-Term Debt - RUS - Econ. Devel. (Net)	0
13. Special Funds	0	42. Payments – Unapplied	4,251,558
14. Total Other Property & Investments ***(6 thru 13)***	11,828,605	**43. Total Long-Term Debt** ***(37 thru 41 - 42)***	37,609,273
15. Cash - General Funds	46,119	44. Obligations Under Capital Leases - Noncurrent	210,097
16. Cash - Construction Funds - Trustee	100	45. Accumulated Operating Provisions and Asset Retirement Obligations	0
17. Special Deposits	25	**46. Total Other Noncurrent Liabilities** ***(44 + 45)***	210,097
18. Temporary Investments	7,257,302	47. Notes Payable	0
19. Notes Receivable (Net)	0	48. Accounts Payable	1,339,799
20. Accounts Receivable - Sales of Energy (Net)	1,441,616	49. Consumers Deposits	110,109
21. Accounts Receivable - Other (Net)	191,898		
22. Renewable Energy Credits	0	50. Current Maturities Long-Term Debt	2,251,673
23. Materials and Supplies - Electric & Other	341,965	51. Current Maturities Long-Term Debt - Economic Development	0
24. Prepayments	81,882	52. Current Maturities Capital Leases	65,724
25. Other Current and Accrued Assets	173,062	53. Other Current and Accrued Liabilities	1,009,864
26. Total Current and Accrued Assets ***(15 thru 25)***	9,533,969	**54. Total Current & Accrued Liabilities** ***(47 thru 53)***	4,777,169
27. Regulatory Assets	0	55. Regulatory Liabilities	0
28. Other Deferred Debits	3,160,714	56. Other Deferred Credits	0
29. Total Assets and Other Debits ***(5+14+26 thru 28)***	64,489,742	**57. Total Liabilities and Other Credits** ***(36 + 43 + 46 + 54 thru 56)***	64,489,742

IT/COMPLIANCE DEPARTMENT

*IT/COMPLIANCE PROJECTS **COMPLETED** AS OF MAY 2021*

1. S&T phone dialing requirements for area code amendments and testing
2. Nex-Tech cellular and technical service options.
3. TriState IT mentor biweekly 1st webinar topics: Discussed IT resources, IT compliance reviews and emergency plans, schedule meeting with TriState IT Client and End User Computing department. 2nd webinar topics: IT Department webinar on IT principles, program management, compliance, service management, and business applications. 3rd webinar topics: IT client end user computer management.
4. Researched server APC battery backup failure and unit replacement to meet voltage demand.
5. Installed color printer and programming.
6. Resolved printer issues with TS printer sharing.
7. Troubleshooting employee software and device issues.

*IT/COMPLIANCE PROJECTS **IN PROGRESS** AS OF MAY 2021*

1. MDMS project implementation.
2. Server room and security system networking project.

Member Service Board Report 6.7.21

1. Annual Meeting:
    a. Nominating Committee Meeting earlier tonight
    b. Trustee Nominations advertised throughout May.
    c. Working on Annual Meeting Report to be mailed to all members. Also creating a handout brochure for at the meeting which will be similar to the report but will include a tear-out ballot and detailed bylaw revisions.
    d. Employee Awards - We have two 30-year recipients, Dave & Kathy and two 15-year recipients, Chris and Michael.

2. $1500 Scholarships: Winners have been selected, acceptance and rejection letters sent to all applicants, and have been coordinating getting all information from winners and writing articles. Of the 41 applicants, the winners are as follows:
    a. Eli Rupp, Dighton HS Senior – Entering into the HVAC program at Hutchinson.
    b. Patrick O'Toole, Ness City HS Senior– Going to North Central Kansas Technical College in Hays to enter their HVAC program.
    c. Kyle Doll, Finney County, 1st year @ KSU – Majoring in agriculture and technology.
    d. Kaden Bradstreet, Dighton, 1st year @ FHSU – majoring in business and marketing.
    e. Alysson Foos, Ness City – 2nd year @ Tabor College – majoring in social work.
    f. Kiley Whipple, Kalvesta HS Senior – Going to FHSU to major in agriculture and elementary education.

3. Food Drive: The classroom challenge was a huge success! Western Plains Elementary in Ransom & Bazine collected 509 items donated to the Ness County food bank in Ransom. Dighton collected 3,465 items that went to the Lane County food bank. I put on 3 pizza parties for each winning class in Dighton, Ransom & Bazine and each classroom received $100 to go towards school supplies. We also gave everyone treats for their participation. The Ransom winning class decided to donate their $100 back to the food bank! (Look for pictures in our June KCL Newsletter)

4. Sharing Success Program: Deadline was June 1. As of Monday 5/24, we've received 8 applications. The Co-Bank guidelines allow for up to 4 organizations to receive donations. I have moved some funds around in my budget to be able to donate 4, $500 (with Co-Bank match $1000) grants instead of 3.

5. Limestone Sign Update: FINISHED! We are waiting on Commercial Sign Company to install the sign in Ness City, which will be mounted to the building and we are getting a new sign to go above the retail store door.

6. June bill inserts – Capital Credit Allocation Statement included on June bills.

7. Kick-off to Summer Event – We will have a booth at the Kick-off to Summer Event at the Dighton City park on June 19th. We will be giving away old annual meeting items, and have a raffle sign-up to win a swimming pool family pass to one of our local swimming pools. The winners will get to choose their location.

8. New Member Guides – Updated and ordered to have enough to pass out at the annual meeting and get us through October for new members.

9. Normal monthly KCL, social media posts, website updates, new member e-mail series, newsletter e-blast, webinars.

2021-Line 25 - Non-Operating Margins

		January	February	March	April	May	June	July	August	September	October	November	December	TOTAL	
Rev.-Electrician & Mat.	**415.1**	$21,979.30	$33,725.96	$36,603.65	$62,555.37									$154,864.28	**415.1**
Exp.-Electrician & Mat.	**416.1/.11**	$37,455.59	$33,719.44	$58,676.34	$53,497.52									$183,348.89	**416.1**
		($15,476.29)	$6.52	($22,072.69)	$9,057.85	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	($28,484.61)	
Rev.-Appliance Repair	**415.2**	$18,124.45	$16,601.00	$10,552.30	$20,556.46									$65,834.21	**415.2**
Exp.-Appliance Repair	**416.2/.21**	$21,949.19	$25,503.00	$21,943.61	$24,239.04									$93,634.84	**416.2**
		($3,824.74)	($8,902.00)	($11,391.31)	($3,682.58)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	($27,800.63)	
Rev.-Member Damages	**415.3**	$3,088.75	$0.00	$1,386.50	$444.50									$4,919.75	**415.3**
Exp.-Member Damages	**416.3**	$893.06	$0.00	$605.60	$0.00									$1,498.66	**416.3**
		$2,195.69	$0.00	$780.90	$444.50	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$3,421.09	
Finance Charges	**415.5**	$117.64	$87.85	$133.25	$0.00									$338.74	**415.5**
MARGIN-Retail		($16,987.70)	($8,807.63)	($32,549.85)	$5,819.77	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	($52,525.41)	
Misc. Income	**421.0**	$0.00	$0.00	$0.00	$0.00									$0.00	**421.0**
Gain on Disposal	**421.1**	$0.00	$0.00	$50.00	$0.00									$50.00	**421.1**
Loss on Disposal	**421.2**	$0.00	$0.00	$0.00	$0.00									$0.00	**421.2**
NET NON-OP MARGIN		($16,987.70)	($8,807.63)	($32,499.85)	$5,819.77	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	($52,475.41)	

	Current Month				YTD Total			
	Billed Hours	Unbilled Hours	Hourly Rate	Total Unbilled Rev	Billed Hours	Unbilled Hours	Hourly Rate	Total Unbilled Rev
Kalo	135.5	50.5	$ 85.00	$ 4,292.50	521.5	218.5	$ 85.00	$ 18,572.50
Michael	141.5	52.5	$ 85.00	$ 4,462.50	565.75	174.25	$ 85.00	$ 14,811.25
Mark	133	54	$ 85.00	$ 4,590.00	560	185.5	$ 85.00	$ 15,767.50
	410	157		$ 13,345.00	1647.25	578.25		$ 49,151.25
		72.31%				74.02%		

OUTAGE STATISTICS April 2021

CATEGORY	OCCURRENCES			TOTAL OUTAGE HRS.			# of Meters
	14.4 KVA	7.6 KVA	Total	14.4 KVA	7.6 KVA	Total	
PHASE FLOATER		1	1		186	2	124
BIRDS & ANIMALS		1	1		75	1	75
TREES			0			0	
LIGHTNING\RAIN\WIND			0			0	
ICE & WIND			0			0	
SNOW & WIND			0			0	
OCR OR FUSE FAILURE		1	1		405	3	135
TRANSFORMER FAILURE			0			0	
BROKEN JUMPER			0			0	
PEOPLE CAUSED			0			0	
BROKEN POLE			0			0	
POWER SUPPLY			0			0	
SCHEDULED			0			0	
MAJOR EVENT			0			0	
UNKNOWN			0			0	
TOTALS	0	3	3	0	666	666	334

ANNUAL CONSUMER OUTAGE HOURS

TOTALS	2013	2014	2015	2016	2017	2018
	22,012	27,418	13,498	19,195	39,638	16,319
	2019	2020	2021			
	25,081	14,179	12,898			

LANE-SCOTT ELECTRIC

RESALE OPEN BALANCE (60-90 days)

as of 06/04/2021

NAME	CURRENT AMOUNT DUE	ACTION TAKEN	LAST PAYMENT	
Aaron Torbert	$ 92.23			
Black Dog Restaurant	$ 701.00		$ 400.00	18-May
Araceli Navarro-Perez	$ 112.93	Payment	$ 113.00	13-May
Barry Johnston	$ 53.06			
Marcellus House Moving	$ 2,895.07	Making Pmts	$ 500.00	10-May
V&J Electric	$ 774.98			
Kalo Mann	$ 15.41			
Chad Rupp	$ 20.30			
Joe Schultz	$ 106.58	Transfer to Elec		
Schwartz Family Farms	$ 611.58			
.	$ 5,383.14		$ 1,013.00	

LANE-SCOTT ELECTRIC COOPERATIVE, INC.

Transformer Losses 1995-2020

Voltage	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total
14.4	83	52	56	34	44	40	35	19	16	16	19	22	68	20	36	27	587
7.6	36	14	39	14	21	11	16	23	16	15	13	22	80	35	18	18	391
Totals	**119**	**66**	**95**	**48**	**65**	**51**	**51**	**42**	**32**	**31**	**32**	**44**	**148**	**55**	**54**	**45**	**978**

Voltage	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021						Total
14.4	35	23	32	55	44	43	61	32	38	33	3						399
7.6	17	15	20	30	19	33	34	37	25	29	3						262
Totals	**52**	**38**	**52**	**85**	**63**	**76**	**95**	**69**	**63**	**62**	**6**	**0**	**0**	**0**	**0**	**0**	**661**
														Grand Total			**1639**

2021	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec		Totals
14.4	1	0	1	1										3
7.6	1	0	1	1										3
Totals	**2**	**0**	**2**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**		**6**