Commonwealth of Kentucky
Public Service Commission
211 Sower Blvd.
P.O. Box 615
Frankfort, Kentucky 40602-0615
Telephone: (502) 564-3940
psc.ky.gov

July 25, 2023

PSC STAFF OPINION -2023-002

Clayton O. Oswald
1306 W. 5th St., Suite 100
P.O. Box 3440
London, KY 40743-3440
Phone: (606) 878-8844
Fax: (606) 878-8850

Re: Jackson Energy Cooperative Corporation, 2023-2026 Construction Work Plan

Dear Mr. Oswald:

Commission Staff acknowledges receipt of your letter dated June 15, 2023, on behalf of Jackson Energy Cooperative Corporation (Jackson Energy) requesting a staff advisory opinion. Specifically, the letter requests an opinion as to whether any or all projects contained in Jackson Energy's 2023-2026 Construction Work Plan (CWP) require a Certificate of Public Convenience and Necessity (CPCN) or whether the projects fall within the "ordinary course of business" exemption of KRS 278.020(1)(a)2 and 807 KAR 5:001, Section 15(3), and, therefore, do not require a CPCN.

Pursuant to the Commission's decision that each construction project contained in a CWP should be analyzed on an individual basis to determine whether that individual project is exempt from the requirement in KRS 278.020(1) to obtain a CPCN, Commission Staff has reviewed the projects contained in Jackson Energy's 2023-2026 CWP. This letter represents Commission Staff's opinion, which is advisory in nature, and not binding on the Commission should the issues herein be formally presented for Commission resolution.

As with all legal opinions requesting a determination of the exemption from the requirement of a CPCN, Commission Staff's review does not consider the reasonableness or the need for each project. Therefore, because reasonableness and need are not considered herein, or in other non-rate cases, the cost of such a project can be denied recovery in a rate case if found to be unreasonable or unnecessary.

According to its 2023-2026 CWP, Jackson Energy proposes construction identified by the following RUS Codes: New Lines – RUS Code 100 at a projected cost of $15,595,000; 2) Miscellaneous Distribution Equipment – RUS Code 600 at a projected cost of $33,101,249[1]; 3) Outdoor Lights – RUS Code 701 at a projected cost of $6,335,528. The total estimated cost of all projects contained in Jackson Energy's CWP is $55,571,777.

KRS 278.020(1) provides, in relevant part, as follows:

> No person, partnership, public or private corporation, or combination thereof shall commence providing utility service to or for the public or begin the construction of any plant, equipment, property, or facility for furnishing to the public any of the services enumerated in KRS 278.010, except retail electric suppliers for service connections to electric consuming facilities located within its certified territory and ordinary extensions of existing systems in the usual course of business, until that person has obtained from the Public Service Commission a certificate that public convenience and necessity require the service or construction.

Regarding the exception to the CPCN requirement, Administrative Regulation 807 KAR 5:001, Section 15(3) provides, in full, as follows:

> Extensions in the ordinary course of business. A certificate of public convenience and necessity shall not be required for extensions that do not create wasteful duplication of plant, equipment, property, or facilities, or conflict with the existing certificates or service of other utilities operating in the same area and under the jurisdiction of the commission that are in the general or contiguous area in which the utility renders service, and that do not involve sufficient capital outlay to materially affect the existing financial condition of the utility involved, or will not result in increased charges to its customers.

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[1] [1] The estimated cost of each individual Code 600 projects over the four-year CWP period are as follows:

- Code 601 -Transformers/Meters .....……..UG Transformers 292 $2,200,000, OH Transformers 2,556 $3,740,000, Meters 23,050 $5,186,444
- Code 602 - Service Upgrades.....$1,760,253
- Code 603 - Sectionalizing $3,152,252
- Code 604 - Voltage Regulators.....$80,000

Code 605- Capacitors/Controls……..$72,000

- Code 606 - Pole Replacements $13,255,600
- Code 607 - Miscellaneous Replacements.....$600,000
- Code 608 - Conductor Replacement 34.5 $3,594,700

In analyzing whether the proposed projects would materially affect Jackson Energy's financial condition, Commission Staff takes notice of Jackson Energy's 2021 Annual Report, which shows Jackson Energy having net utility plant of approximately $175,043,284.00 as of December 31, 2021. Commission Staff is of the opinion that the individual projects in Jackson Energy's 2023-2026 CWP do not require a CPCN. When reviewed individually, each of those proposed construction project based on its estimated cost would not materially impact Jackson Energy's existing financial condition. Therefore, each construction project is generally considered an extension in the ordinary course of business. Likewise, the cost estimate of each project considered separately in the 2023-2026 CWP will not have an immediate or significant impact on Jackson Energy's rates. Lastly, the individual construction projects would not result in wasteful duplication of facilities or conflict with the service of other utilities. Thus, Commission Staff is of the opinion that each of the proposed projects set out in Jackson Energy's 2023-2026 CWP satisfy the "ordinary course of business" exemption from CPCN requirement.

This letter represents Commission Staff's interpretation of the law as applied to the facts presented. This opinion is advisory in nature and not binding on the Commission should the issues herein be formally presented for Commission resolution. Questions concerning this opinion should be directed to Andrew Bowker at (502) 782-2580.

Sincerely,

Linda C. Bridwell

Linda Bridwell, PE
Executive Director

TAYLOR, KELLER & OSWALD

ATTORNEYS AT LAW
A PROFESSIONAL LIMITED LIABILITY COMPANY

1306 W. 5th St., Suite 100
P.O. Box 3440
London, KY 40743-3440
Phone: (606) 878-8844
Fax: (606) 878-8850

Hamburg Place Office Park
1795 Alysheba Way, Suite 2201
Lexington, KY 40509
Phone: (859) 543-1613

J. Warren Keller
Clayton O. Oswald

Boyd F. Taylor
(1924 – 2012)

Ashley P. Hoover

Writer's Email: coswald@tkolegal.com

June 15, 2022

Linda C. Bridwell
Executive Director
Kentucky Public Service Commission
211 Sower Boulevard
Frankfort KY 40602-0615

RE: Request for Staff Opinion – Construction Work Plan

Ms. Bridwell:

This letter is a request by Jackson Energy Cooperative Corporation ("Jackson Energy") for a Kentucky Public Service Commission ("Commission") Staff Opinion that, pursuant to KRS 278.020(1) and 807 KAR 5:001, Section 15(3), its 2023-2026 Construction Work Plan ("CWP"), described below and provided herein, does not require the issuance of a Certificate of Public Convenience and Necessity ("CPCN") by the Commission. Jackson Energy is requesting this Staff Opinion based on the process implemented by the Commission in 2012 with respect to the CWP.

Jackson Energy proposes the following construction projects groups by Rural Utilities Service ("RUS") Codes: 1) New Lines – RUS Code 100 at a projected cost of $15,595,000; 2) Miscellaneous Distribution Equipment – RUS Code 600 at a projected cost of $33,101,249; 3) Other Distribution Items – RUS Code 700 at a projected cost of $6,335,528. The total estimated cost of all projects contained in Jackson Energy's CWP is $55,571,777.

It is Jackson Energy's belief that the projects contained in its CWP meet the exemptions outlined in KRS 278.020(1) and should not require a CPCN.

Please find enclosed for filing with the Commission, an electronic copy of Jackson Energy Cooperative Corporation's request for Staff Opinion on its 2023-2026 Construction Work Plan.

Sincerely,

Clayton O. Oswald

Clayton Oswald

Jackson Energy Cooperative Corporation

2023-2026 CONSTRUCTION WORK PLAN

KENTUCKY 03 JACKSON

2023 - 2026
CONSTRUCTION WORK PLAN
JACKSON ENERGY
COOPERATIVE CORPORATION
KENTUCKY 03 JACKSON
115 Jackson Energy Lane
McKEE, KY 40447

PHONE: (606) 364-1000
FAX: (606) 364-1007

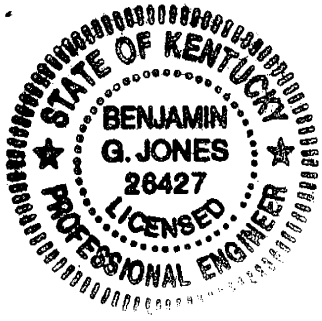
PREPARED BY:

Jackson Energy Cooperative
Engineering Department

April, 2023

Name
Mailing address
City, State Zip Code

I hereby certify that this 2023-2026 Construction Work Plan meets RUS standards and guidelines and that I am a duly registered Professional Engineer under the laws of the State of Kentucky. Registration Number 26427.



By: Benjamin G Jones

SEAL

Kentucky's Primary Electric Power Distributors

COOPERATIVES

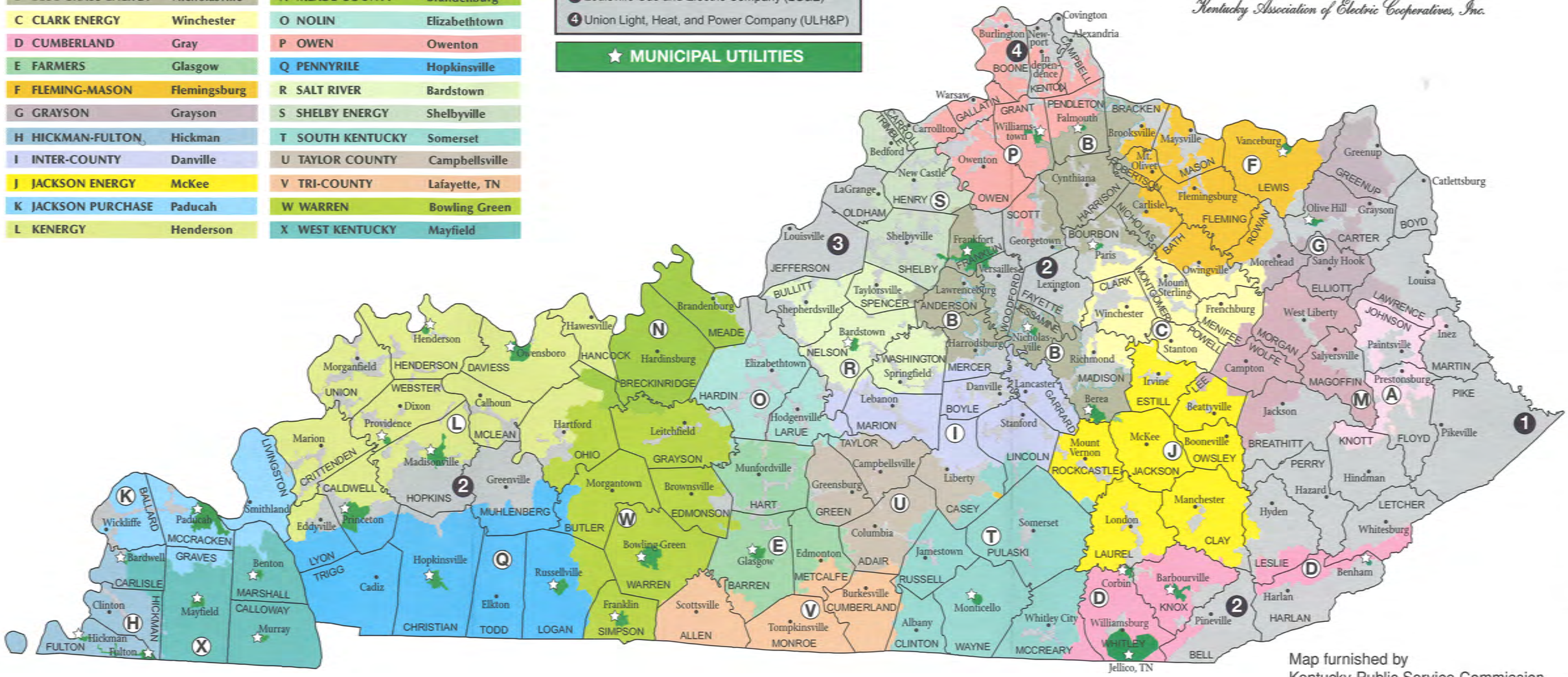
	CO-OP	HEADQUARTERS		CO-OP	HEADQUARTERS
A	BIG SANDY	Paintsville	M	LICKING VALLEY	West Liberty
B	BLUE GRASS ENERGY	Nicholasville	N	MEADE COUNTY	Brandenburg
C	CLARK ENERGY	Winchester	O	NOLIN	Elizabethtown
D	CUMBERLAND	Gray	P	OWEN	Owenton
E	FARMERS	Glasgow	Q	PENNYRILE	Hopkinsville
F	FLEMING-MASON	Flemingsburg	R	SALT RIVER	Bardstown
G	GRAYSON	Grayson	S	SHELBY ENERGY	Shelbyville
H	HICKMAN-FULTON	Hickman	T	SOUTH KENTUCKY	Somerset
I	INTER-COUNTY	Danville	U	TAYLOR COUNTY	Campbellsville
J	JACKSON ENERGY	McKee	V	TRI-COUNTY	Lafayette, TN
K	JACKSON PURCHASE	Paducah	W	WARREN	Bowling Green
L	KENERGY	Henderson	X	WEST KENTUCKY	Mayfield

INVESTOR-OWNED UTILITIES

1. American Electric Power (AEP)
2. Kentucky Utilities Company (KU)
3. Louisville Gas and Electric Company (LG&E)
4. Union Light, Heat, and Power Company (ULH&P)

★ MUNICIPAL UTILITIES

Kentucky Association of Electric Cooperatives, Inc.



Map furnished by
Kentucky Public Service Commission
October 2005

Section One

Executive Summary

PURPOSE OF THE REPORT

This report documents the winter of 2022-2023 engineering analysis and summarizes the proposed construction for Jackson Energy Cooperative Corporation's (JEC's) electric distribution system for the four-year planning period of 2023 through 2026.

The report also provides engineering support, in the form of descriptions, costs and justification of required new and alteration of facilities, for a loan application to RUS to finance the proposed construction program.

RESULTS OF THE PROPOSED CONSTRUCTION

Upon completion of the construction of facilities proposed herein, the system will provide adequate and dependable service to 52,825 consumers consisting of residential 49,039 consumers using an average of 1,166 kWh per consumer per month; 3,775 small commercial consumers, and 11 large consumers which are provided for on an individual basis.

GENERAL BASIS OF THE STUDY

The 2026 projected number of consumers was taken directly from the cooperative's 2022 Load Forecast prepared jointly by East Kentucky Power Cooperative (EKPC) and JEC. The projected total system peak load of 345 MW was agreed upon by the RUS field representative and JEC based upon historical data. The projected load increases were spread based on historical data except for projected high growth areas that were projected individually.

New distribution, transmission, and power supply construction requirements were considered simultaneously as a "one system" approach for the orderly and economical development of the total system. All of the proposed construction and recommendations herein, relative to power supply and delivery, were discussed with the cooperative's power supplier, EKPC.

A complete list of the lines and equipment with their estimated cost (all based on recent historical data) required to serve additional members and service upgrades is listed on the Summary page.

An analysis, using as a basis RUS guidelines and the design criteria herein, for thermal loading, voltages, physical conditions and reliability was performed on all of the substations and distribution lines and major equipment of the existing system. NISC Distribution Engineering Workbench (DEW) Software was used to analyze the distribution circuits during the winter of 2026-2027 peak loading conditions.

For each inadequacy that was determined, alternate solutions were investigated and economically evaluated, so that the most cost effective construction, if required, could be proposed.

SERVICE AREA AND POWER SUPPLY

Jackson Energy Cooperative headquartered in McKee, Kentucky, provides service to seven counties in Southeastern Kentucky. The area is typically rolling hills to mountainous and predominately rural living except for the Laurel County area near the city of London which is suburban and urban in nature. Interstate 75 runs north and south through the western portion of the system. This has allowed that area to experience growth in residential and commercial classifications.

Most of the service area is rural in nature with some industry, tourism, farming, and commercial establishments. The population of our service area is stable. Much of our commercial growth is in the Laurel County area.

The following data is from JEC's December 2022 Form 7:

Number of Consumers:	52,825
KWH Purchased:	1,000,109,716
KWH Sold:	951,067,301
Maximum kW Demand:	335,881
Total Utility Plant:	$292,680,274
Consumers per Mile:	9

We have 29 substations constructed for 69/12.47 kV operation. Two substations are constructed for 161/12.47 KV operation. The Total distribution line mileage is 5,834. Installed conductor sizes range from 8A CW to 795ACSR.

JEC receives the majority of its power from East Kentucky Power Cooperative (EKPC). They provide transmission lines and distribution substations for our supply. EKPC owns, maintains and is responsible for the operation of the substations.

EKPC provides the majority of our power and energy requirements, by virtue of a standard "all requirements" power contract. EKPC is an RUS financed G & T in Winchester KY.

SUMMARY OF PROPOSED 4-YEAR CONSTRUCTION AND COSTS

CODE	DESCRIPTION	Number	Miles	ESTIMATED COSTS TOTAL
100	**NEW SERVICES**	3,712		$15,595,000
200	**NEW DIST LINES**			
300	**DIST LINE CONVERSIONS**			
601	**TRANSFORMERS AND METERS**			
	UG Transformers	292		$2,200,000
	OH Transformers	2,556		$3,740,000
	Meters	23,050		$5,186,444
602	**SERVICE UPGRADES**			$1,760,253
603	**SECTIONALIZING**			$3,152,252
604	**REGULATORS**			$80,000
605	**CAPACITORS/CONTROLS**			$72,000
606	**POLE REPLACEMENTS**			$13,255,600
607	**MISC REPLACEMENTS**			$600,000
608	**CONDUCTOR REPLACEMENT**		34.5	$3,594,700
701	**OUTDOOR LIGHTS**			$6,335,528
TOTAL CONSTRUCTION WORK PLAN				***$55,571,777***

Section Two

Basis of the Study and the Proposed Construction

JACKSON ENERGY COOPERATIVE CORPORATION

DESIGN CRITERIA

Each of the following design criteria items were reviewed by the RUS General Field Representative on April 11, 2023.

Construction proposed in the work plan is required to meet the following minimum standards of adequacy for voltages, thermal loading, safety and reliability on the system.

1. The voltages on primary distribution lines are not to be less than 118 Volts, (120 Volt base, either 124 or 126 Volts at source), after re-regulation.

   NOTE: It is recommended that proposed construction items required for voltage improvements, whose forecasted need is based solely on calculated voltages from computer circuit analysis printouts, not be authorized for construction until such calculated voltages are measured in the field and then compared to calculated values to corroborate that actual voltages are below the minimum design level.

2. The following ratings for equipment loading are recommended for thermal protection. The percentage is of the base plate rating, 55 deg. Rise with a 90% power factor.

Transformers (OA)	140% winter, 99% summer (ANSI C57)
Regulators	120% at 7.5% rise
Reclosers	70%
Line Fuses	70%
Current Limiting Fuses	70%

3. Primary conductors loaded to over 80% of their thermal rating for either existing or projected loading will be subject to further analysis. As will major tie lines loaded to 80% of their thermal ratings.

4. Loading on single-phase lines beyond 40 amps will be subject to further analysis.

5. Pole and/or cross arms are to be replaced if found to be physically deteriorated by visual inspection and/or tests.

6. Capacitor banks will be installed on distribution lines as required to maintain no less than 90% lagging power factor at peak loading conditions. Capacitor switching will be utilized as required to maintain off peak power factor between 90% lagging and 90% leading.

7. All new distribution lines are to be designed and built according to RUS standard construction specifications and guidelines.

8. Replacement of aged or deteriorated conductors will be continued.
   .

9. Inspect primary underground cable 20 years old or older. Replacement of underground primary cable as warranted.

2023-2026 Distribution Line and Equipment Costs

Estimated Cost per Mile	DISTRIBUTION LINES
	1-PHASE TO 1-PHASE (OH) LINE CONVERSIONS
$90,000	1 - Phase; OH, #1/0 ACSR per mile
	1-PHASE TO 2-PHASE (OH) LINE CONVERSIONS
$100,000	2 - Phase; OH, #1/0 ACSR per mile
	1-PHASE TO 3-PHASE (OH) LINE CONVERSIONS
$121,000	3 - Phase; OH, #1/0 ACSR per mile
$132,000	3 - Phase; OH, 336 MCM ACSR per mile
	3-PHASE TO 3-PHASE (OH) LINE CONVERSIONS
$105,000	With #1/0 ACSR per mile
$116,000	With #336 ACSR per mile
$555,000	Replace 1/0 URD primary with 1/0 URD Primary

NOTE: Above project estimates include estimated engineering and tree trimming costs.

Estimated Labor	LINE REGULATORS
$1,100	Single Phase, 76.2 KVA
$3,200	Three Phase, 76.2 KVA
$3,200	Three Phase, 114.3 KVA
$3,200	Three Phase, 167 KVA
$3,200	Three Phase, 250 KVA
$3,200	Three Phase, 333 KVA

Estimated Labor	OIL CIRCUIT RECLOSERS
$600	Versa Tech Recloser
$500	35 Amp. Tyle L Recloser
$500	50 Amp. Tyle L Recloser
$500	70 Amp. Tyle L Recloser
$500	100 Amp. Tyle L Recloser
$500	140 Amp. Tyle L Recloser
$2,700	560 Amp. Type VWE
	CAPACITORS
$1,100	1 - 300 kVAR Fixed Capacitor Bank
$1,100	1 - 300 kVAR Switched Capacitor Bank
$1,100	1 - 450 kVAR Fixed Capacitor Bank
$1,100	1 - 450 kVAR Switched Capacitor Bank

Status of the Previous Work Plan

There were no Code 200 or Code 300 Projects in the previous work plan.

Code 608, aged conductor, was replaced as needed.

ANALYSIS OF THE 2021 OPERATIONS AND MAINTENANCE SURVEY

In December of 2021, the Operations and Engineering Department of Jackson Energy Cooperative completed the 2021 Operations and Maintenance Survey (Form 300).

The review indicated that Jackson Energy's facilities are being adequately operated and maintained and has an effective O&M program supported by proper records. A few recommendations were noted:

1. Telephone poles left standing next to electric poles need to be removed.

2. Cable TV attachments require constant monitoring and follow-up to ensure code requirements are met.

3. Recent PSC regulation will address these issues.

SECTIONALIZING STUDY

Sectionalizing studies are performed on an ongoing basis. This work will be incorporated in the four-year work plan. As the system is modified, the protection scheme will be reviewed and corrected as required.

The GIS system has a full record of the coordination devices. Jackson Energy line personnel use spreadsheets to track the number of operations on each recloser. As each recloser requires service, it will be replaced by a recloser taken from stock. The recloser removed from service will have maintenance work performed on it and will then be placed in stock for future use.

Maintenance will be established based on the number of load break operations and no device will continue in service more than ten years without maintenance.

	Present Rating	
	Max Summer	Max Winter
Substation	**(KW)**	**(KW)**
Annville	13,620	18,140
Beattyville	19,200	24,840
Big Creek	13,620	18,140
Booneville	13,620	18,140
Brodhead	13,620	18,140
Bush	13,620	18,140
Campground	24,000	31,050
Conway	13,620	18,140
East Bernstadt	19,200	24,840
Eberle	11,070	15,720
Fall Rock	13,620	18,140
Goose Rock	13,620	18,140
Green Hall	19,200	24,840
Greenbriar	13,620	18,140
Hargett	11,070	15,720
Keavy #1	13,620	18,140
Keavy #2	13,620	18,140
Laurel Industrial #1	13,620	18,140
Laurel Industrial #2	13,620	18,140
Maplesville	11,070	15,720
Maretburg	13,620	18,140
McKee	19,200	24,840
Millers Creek	19,200	24,840
Oneida	13,620	18,140
Pine Grove #1	13,620	18,140
Pine Grove #2	13,620	18,140
Rice	13,620	18,140
Sand Gap	13,620	18,140
South Fork	5,530	7,860
Three Links	13,620	18,140
Tyner	13,620	18,140
West London #1	13,620	18,140
West London #2	13,620	18,140

Total	472,000	627,490

Substation	Winter Capacity	Dec 22	Projected Loading	Percent of capacity
Annville	**18,140**	9,524	9,506	52%
Beattyville	**24,840**	12,171	12,149	49%
Big Creek	**18,140**	3,538	3,531	19%
Booneville	**18,140**	8,125	8,110	45%
Brodhead	**18,140**	16,785	16,754	92%
Bush	**18,140**	12,031	12,009	66%
Campground	**31,050**	21,252	21,213	68%
Conway	**18,140**	9,092	9,075	50%
East Bernstadt	**24,840**	19,278	19,243	77%
Eberle	**15,720**	11,156	11,135	71%
Elk Mtn Ind	**24,840**	10,492	10,473	42%
Fall Rock	**18,140**	9,334	9,317	51%
Green Hall	**24,840**	5,393	5,383	22%
Greenbriar	**18,140**	9,854	9,836	54%
Hargett	**18,140**	4,801	4,792	26%
Keavy #1	**18,140**	6,973	6,960	38%
Keavy #2	**18,140**	13,154	13,130	72%
Laurel Industrial #1	**18,140**	11,022	11,002	61%
Laurel Industrial #2	**18,140**	13,719	13,694	75%
Maplesville	**15,720**	12,362	12,339	78%
Maretburg	**18,140**	10,028	10,010	55%
McKee	**24,840**	11,396	17,875	72%
Millers Creek	**24,840**	5,429	5,419	22%
Oneida	**18,140**	2,582	2,577	14%
Pine Grove #1	**18,140**	11,318	11,297	62%
Pine Grove #2	**18,140**	10,273	10,254	57%
Rice Station	**18,140**	15,871	15,842	87%
Sand Gap	**18,140**	6,656	12,644	70%
South Fork	**8,340**	4,712	4,703	56%
Three Links	**18,140**	6,019	6,008	33%
Tyner	**18,140**	9,413	9,396	52%
West London #1	**18,140**	7,980	7,965	44%
West London #2	**18,140**	9,376	9,359	52%

Totals	**637,090**	331,109	343,000	54%

Substation	Summer Capacity	Jun 22	Projected Loading	Percent of capacity	
Annville	**13,620**	4,980	6,198	46%	
Beattyville	**19,200**	8,023	9,985	52%	
Big Creek	**13,620**	2,151	2,677	20%	
Booneville	**13,620**	4,399	5,475	40%	
Brodhead	**13,620**	8,014	9,974	73%	
Bush	**13,620**	6,087	7,575	56%	
Campground	**24,000**	11,085	13,795	57%	
Conway	**13,620**	4,314	5,369	39%	
East Bernstadt	**19,200**	11,621	14,462	75%	
Eberle	**11,070**	5,043	6,276	57%	
Elk Mtn Ind	**19,200**	5,735	7,137	37%	
Fall Rock	**13,620**	5,717	7,115	52%	
Green Hall	**19,200**	2,638	3,283	17%	
Greenbriar	**13,620**	7,822	9,735	71%	
Hargett	**13,620**	2,654	3,303	24%	
Keavy #1	**13,620**	3,908	4,864	36%	
Keavy #2	**13,620**	7,229	8,997	66%	
Laurel Industrial #1	**13,620**	11,542	14,364	105%	{1} {2}
Laurel Industrial #2	**13,620**	8,209	10,216	75%	
Maplesville	**11,070**	5,850	7,280	66%	
Maretburg	**13,620**	5,482	6,822	50%	
McKee	**19,200**	6,653	14,780	77%	
Millers Creek	**19,200**	3,223	4,011	21%	
Oneida	**13,620**	2,458	3,059	22%	
Pine Grove #1	**13,620**	5,538	6,892	51%	
Pine Grove #2	**13,620**	4,586	5,707	42%	
Rice Station	**13,620**	8,841	11,003	81%	
Sand Gap	**13,620**	3,197	9,979	73%	
South Fork	**6,260**	2,535	3,155	50%	
Three Links	**13,620**	3,115	3,877	28%	
Tyner	**13,620**	4,421	5,502	40%	
West London #1	**13,620**	6,647	8,272	61%	
West London #2	**13,620**	4,710	5,862	43%	

Totals	**480,860**	188,427	247,000	51%

{1} EKPC will monitor substation loading and add fans as needed.

{2} County Farm substation will be added in 2024.
It will relieve loading on Laurel Industrial and West London substations.

JACKSON ENERGY COOPERATIVE

SERVICE INTERRUPTIONS

AVERAGE ANNUAL MINUTES PER CONSUMER

BY CAUSE

Year	Power Supply	Major Event	Planned	Other	Total
2018	52	306	10	207	576
2019	55	69	22	151	296
2020	44	123	19	210	396
2021	62	2,492*	16	161	2,731
2022	22	356	21	259	657
5 Year Average	47	669	18	198	931

*Ice Storm

Historical Annual Energy, Load and Consumer Data

Year	Energy Purchased (mWh)	Energy Sold (mWh)	% Inc.	Energy Loss (mWh)	% Loss	Non Coincident Peak (MW)	% Inc.	% Annual Load Factor	# of Consumers Year End	% Inc.
2007	999,556	946,899		52,657	5.3%	268.1		40.3%	51,460	
2008	1,006,833	965,491	2.0%	41,342	4.1%	282.7	5.4%	39.0%	51,699	0.5%
2009	975,111	922,367	-4.5%	52,744	5.4%	306.1	8.3%	34.4%	51,306	-0.8%
2010	1,051,578	990,474	7.4%	61,104	5.8%	281.7	-8.0%	40.1%	51,257	-0.1%
2011	958,005	897,974	-9.3%	60,031	6.3%	273.9	-2.8%	37.4%	51,257	0.0%
2012	912,831	863,149	-3.9%	49,682	5.4%	225.4	-17.7%	43.7%	51,241	0.0%
2013	952,671	862,064	-0.1%	40,049	4.2%	233.2	3.5%	42.2%	51,340	0.2%
2014	970,662	911,524	5.7%	53,299	5.5%	313.9	34.6%	33.1%	51,443	0.2%
2015	923,471	830,807	-8.9%	91,684	9.9%	335.2	6.8%	28.3%	51,481	0.1%
2016	933,145	885,741	6.6%	46,307	5.0%	252.2	-24.8%	40.1%	51,384	-0.2%
2017	884,343	838,183	-5.4%	45,148	5.1%	245.2	-2.8%	39.0%	51,426	0.1%
2018	964,216	915,474	9.2%	45,149	5.0%	299.7	22.2%	34.9%	51,434	0.0%
2019	931,455	884,646	-3.4%	45,150	4.9%	259.7	-13.3%	38.9%	51,550	0.2%
2020	918,803	872,602	-1.4%	45,151	4.9%	250.4	-3.6%	39.8%	52,296	1.4%
2021	950,420	903,441	3.5%	45,152	4.8%	250.7	0.1%	41.1%	52,667	0.7%
2022	1,000,109	951,067	5.3%	45,153	4.8%	331.1	32.1%	32.8%	52,825	0.3%

Notes: All data above is from Form 7. 2015 Loss amount due to change in billing cycles

PROJECTED ANNUAL ENERGY, LOAD AND CONSUMER DATA

Year	Energy Purchased	Energy Sold	Annual % Inc.	Energy Loss	% Loss	Non Coincident Peak (MW)	Annual % Inc.	% Annual Load Factor	Number of Consumers	Annual % Inc.
2023	1,252,669	1,191,288	25.3%	61,381	4.9%	321	-3.1%	42.4%	52,951	0.24%
2024	1,282,742	1,219,888	2.4%	62,854	4.9%	320	-0.3%	43.5%	53,191	0.45%
2025	1,279,178	1,216,498	-0.3%	62,680	4.9%	320	0.0%	43.4%	53,417	0.42%
2026	1,281,025	1,218,255	0.1%	62,770	4.9%	321	0.3%	43.3%	53,658	0.45%
2027	1,284,364	1,221,430	0.3%	62,934	4.9%	324	0.9%	43.0%	53,891	0.43%

Note: All of the projections above are from the EKPC 2022 Load Forecast.

Analysis of the Long Range Plan

Distribution System Solutions completed the Jackson Energy Cooperative Long Range Work Plan in 2009. It was approved by RUS and the Jackson Energy Cooperative Board of Directors and East Kentucky Power Cooperative. The plan is being utilized as a guide to the development of the Jackson Energy Cooperative System.

The study was based on historical loads and growth patterns. The study also used information from the East Kentucky Power Cooperative Long Range Work Plan.

The Long Range Work Plan recommends that the distribution system continue to be built and operated at 7.2/12.47 kV throughout the entire planning period. Alternative plans were developed, but found not to be the most economical solution to the system development.

The present Long Range Work Plan remains a valid planning document. Revision of this plan is not required at this time.

Section Three

Construction Items

CODE 100 NEW SERVICES	2020	2021	2022	2020-2022 AVG	2023	2024	2025	2026
Number of New Services								
Underground	322	243	255	273	273	273	273	273
Overhead	601	670	693	655	655	655	655	655
Total	923	913	948	928	928	928	928	928
Linear Feet of New Line								
Underground	43,526	37,254	42,468	41,083	41,100	41,100	41,100	41,100
Ave. Length	135	153	167	150				
Overhead	126,840	161,172	187,080	158,364	158,400	158,400	158,400	158,400
Ave. Length	211	241	270	242				
Total Length in Feet	170,366	198,426	229,548	199,447	199,500	199,500	199,500	199,500
Cost of New Line								
Underground	$911,416	$832,306	$949,054	$897,592	$890,000	$895,000	$900,000	$910,000
Ave. Cost	$2,830	$3,425	$3,722	$3,284	$3,260	$3,278	$3,297	$3,333
Overhead	$2,107,808	$2,692,327	$3,302,420	$2,700,852	$2,750,000	$2,900,000	$3,000,000	$3,350,000
Ave. Cost	$3,507	$4,018	$4,765	$4,126	4198.473282	$4,427	$4,580	$5,115
Total Cost New Line	$3,019,224	$3,524,633	$4,251,474	$3,598,444	$3,640,000	$3,795,000	$3,900,000	$4,260,000

CODE 601 TRANSFORMERS	2020	2021	2022	2020-2022 AVG	2023	2024	2025	2026
# of New Transformers								
Padmounted	120	166	73	120	73	73	73	73
Overhead - 1 Phase	1,027	1,037	628	897	633	633	633	633
Overhead - 3 Phase	1	5	11	6	6	6	6	6
Ave. Cost per Transformers								
Padmounted	$2,556.33	$3,982.61	$7,724.44	$4,266.73	$7,328.77	$7,465.75	$7,602.74	$7,739.73
Overhead - 1 Phase	$1,059.51	$1,126.20	$1,393.85	$1,163.20	$1,421.80	$1,437.60	$1,453.40	$1,469.19
Overhead - 3 Phase	$6,244.00	$3,794.00	$4,835.09	$4,611.76	$3,333.33	$3,333.33	$3,333.33	$3,333.33
Cost of Transformers								
Padmounted	$306,759	$661,113	$563,884	$510,585	$535,000	$545,000	$555,000	$565,000
Overhead - 1 Phase	$1,088,119	$1,167,868	$875,336	$1,043,774	$900,000	$910,000	$920,000	$930,000
Overhead - 3 Phase	$6,244	$18,970	$53,186	$26,133	$20,000	$20,000	$20,000	$20,000
Total Cost of Transformers	$1,401,122.00	$1,847,951.00	$1,492,406.00	$1,580,493.00	$1,455,000.00	$1,475,000.00	$1,495,000.00	$1,515,000.00

CODE 601 METERS	2020	2021	2022	2020-2022 AVG	2023	2024	2025	2026
Number of New Meters	6,134	5,632	6,372	6,046	5,700	5,700	5,700	5,700
Number of New CTs	90	173	9	91	51	52	51	52
Number of New PTs	4	6	23	11	11	11	11	11
Number of New Collars	0	0	0	0				
Number of New LC Trans.	0	0	0	0				
Number of New IHDs	0	0	0	0				
Total Number of meters	6,228	5,811	6,404	6,148	5,762	5,763	5,762	5,763
Ave. Installed Cost	$193.06	$183.14	$211.45	$196.32	$225.00	$225.00	$225.00	$225.00
Cost of Meters	$1,202,373.58	$1,064,199.01	$1,354,131.36	$1,206,901.32	$1,296,611.00	$1,296,611.00	$1,296,611.00	$1,296,611.00
CODE 602 SERVICE UPGRADES	**2020**	**2021**	**2022**	**2020-2022 AVG**	**2023**	**2024**	**2025**	**2026**
Number of Inc. Capacity	229	180	188	199	185	185	185	185
Ave. Installed Cost	$2,026.55	$2,096.06	$2,378.72	$2,158.41	$2,378.72	$2,378.72	$2,378.72	$2,378.72
Cost of Inc. Capacity	$464,081	$377,290	$447,199	429,523	$440,063	$440,063	$440,063	$440,063

CODE 603 SECTIONALIZING	2020	2021	2022	2020-2022 AVG	2023	2024	2025	2026
Sectionalizing Cost	$782,142	$602,440	$788,063	$724,215	$788,063	$788,063	$788,063	$788,063
CODE 604 LINE REGULATORS	**2020**	**2021**	**2022**	**2020-2022 AVG**	**2023**	**2024**	**2025**	**2026**
Line Regulator Cost	$29,203.94	$12,510.51	$12,453.27	$18,056	$20,000	$20,000	$20,000	$20,000
CODE 605 CAPACITORS/ CONTROLS	**2020**	**2021**	**2022**	**2020-2022 AVG**	**2023**	**2024**	**2025**	**2026**
Number of Capacitors/Controls	2	1	6	3	3	3	3	3
Ave. Installed Cost	$8,776.00	$3,482.00	$4,210.50	$5,144.11	$6,000.00	$6,000.00	$6,000.00	$6,000.00
Total	$17,552	$3,482	$25,263	15,432	$18,000	$18,000	$18,000	$18,000

CODE 606 POLE REPLACEMENTS	2020	2021	2022	2020-2022 AVG	2023	2024	2025	2026
Number of Poles	1,058	1,128	1,022	1,069	1,069	1,069	1,069	1,069
Ave. Installed Cost	$3,150.87	$2,637.65	$3,315.75	$3,022.94	$3,100.00	$3,100.00	$3,100.00	$3,100.00
Total	$3,333,621	$2,975,267	$3,388,701	3,232,530	$3,313,900	$3,313,900	$3,313,900	$3,313,900
CODE 607 MISCELLANEOUS REPLACEMENTS	**2020**	**2021**	**2022**	**2020-2022 AVG**	**2023**	**2024**	**2025**	**2026**
Number of Work Orders	91	77	68	79				
Ave. Installed Cost	$1,808.57	$1,642.09	$1,937.54	$1,791.42				
Total	$164,580	$126,441	$131,753	$140,925	$150,000	$150,000	$150,000	$150,000
CODE 701 OUTDOOR LIGHTS	**2020**	**2021**	**2022**	**2020-2022 AVG**	**2023**	**2024**	**2025**	**2026**
Number of Lights	865	1,062	1,891	1,273	1,300	1,300	1,300	1,300
Ave. Installed Cost	$851.25	$937.11	$954.63	$926.34	$1,050.09	$1,155.10	$1,270.61	$1,397.67
Total	$736,333	$995,215	$1,805,206	$1,178,918	$1,365,121	$1,501,634	$1,651,797	$1,816,977

Conductor Replacement - Code 608

The following is a summary of the conductors that will be replaced during this construction work plan:

The total estimated line distance to be replaced is 34.5 miles.

The total estimated cost for conductor replacements is $3,594,700.