RECEIVED
NOV 22 2023
PUBLIC SERVICE COMMISSION

BRITE & HOPKINS, PLLC
ATTORNEYS AT LAW
107 S. MAIN STREET, P.O. BOX 309
HARDINSBURG, KENTUCKY 40143-0309
PHONE (270) 756-2184, FAX (270) 756-1214

THOMAS C. BRITE
e-mail: tbrite@bbtel.com

STEPHEN G. HOPKINS
e-mail: shopkins@bbtel.com

November 22, 2023

Ms. Linda C. Bridwell, P.E.
Executive Director
Kentucky Public Service Commission
211 Sower Boulevard
Frankfort, KY 40602

RE: Request for Declaratory Order—Construction Work Plan

Dear Ms. Bridwell:

This letter is a request by Meade County RECC ("Meade") for a Kentucky Public Service Commission ("Commission") Declaratory Order that, pursuant to KRS 278.020(1) and 807 KAR 5:001, Section 15(3), its 2024-2027 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. Meade is requesting this Declaratory Order based on the process implemented by the Commission in 2012 with respect to the CWP.

Meade proposes the following construction projects grouped by Rural Utilities Service ("RUS") Codes: 1) New Line Extensions-RUS Code 100 at a projected cost of \$5,002,420; 2) Conversion and Line Changes-RUS Code 300 at a projected cost of \$5,480,360; 3) Substation Changes-RUS Code 500 at a projected cost of \$1,213,900; 5) Miscellaneous Distribution Equipment-RUS Code 600 at a projected cost of \$18,177,863; 6) Other Distribution Items-Code 700 at a projected cost of \$2,157,058. The total estimated cost of all projects contained in Meade's CWP is \$32,031,600.

KRS 278.020(1) exempts from prior approval "retail electric suppliers from obtaining a CPCN for service connections to electric-consuming facilities located within its certified territory" and "ordinary extensions of existing systems in the usual course of business." Ordinary extensions in the usual course of business are fully defined in 807 KAR 5:001, Section 15(3) as those 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."

It is Meade's belief that the projects contained in its CWP meet the exemptions outlined in KRS 278.020(1). On a project by project basis, the items contained in the CWP do not create wasteful duplication of plant, do not involve sufficient capital outlay to materially affect Meade's financial condition, and will not result in increased charges to Meade's members. Accordingly, this CWP should not require a CPCN. Meade would respectfully request that the Commission Staff issue a Declaratory Order to that effect.

Please also be advised that the CWP has been reviewed and approved by the United States Department of Agriculture, Rural Development, Rural Utilities Service (RUS).

Please contact me at your convenience if you have questions or require additional information.

This is to certify that the foregoing electronic filing was transmitted to the Commission on November 22, 2023; and that pursuant to prior Commission Orders, no paper copies of this filing will be made.

Yours very truly,

THOMAS C. BRITE

Attorney for Meade County RECC

TCB: hmk

enclosures

United States Department of Agriculture

Rural Development

Rural Utilities Service

1400 Independence
Ave SW, Room 5135
Stop 1510
Washington, DC
20250

Voice 202.720.9540
Fax 202.720.1725

November 21, 2023

2024-2027 Construction Workplan (CWP)

Martin Littrel, President/CEO
Meade County RECC

I have completed my review of the cooperative's 2024-2027 CWP, and find it to be generally satisfactory for loan contract purposes. Approval to proceed with the proposed distribution system construction is contingent upon RUS's review and approval of an Environmental Report (reference 7 CFR 1970).

You should make a special effort to inform all of the cooperative's employees and contractors, involved in the construction of utility plant of any commitments made in the Environmental Report covering the construction of the facilities recommended in the CWP.

Changes (line improvements, tie lines, extensions, substations, etc.) in the CWP will require RUS approval. The environmental acceptability of any such changes shall also be established in accordance with 7 CFR 1970. The procedure for satisfying these environmental requirements shall be the same as that used in connection with this CWP approval.

It is your responsibility to determine whether or not loan funds and/or general funds are available for the proposed construction. If general funds are used, the requirements as outlined in 7 CFR 1717 need to be followed.

The construction shall be accomplished in accordance with RUS requirements. Specific reference should be made to 7 CFR 1726, Electric System Construction Policies and Procedures.

Mike Norman

Mike Norman
RUS Field Representative

Power System Engineering, Inc.

Full-service consultants

2024-2027 Construction Work Plan

Prepared for:

Meade County RECC
KY 18
Brandenburg, KY

Prepared by:

Power System Engineering, Inc.

November 2023

2024-2027 Construction Work Plan

November 2023

Prepared by:
Power System Engineering, Inc.
9403 Kenwood Road, Suite C200
Blue Ash, OH 45242
317-410-3540
Web Site: www.powersystem.org

2024-2027 WORK PLAN

FOR

MEADE COUNTY RECC

KY0018
BRANDENBURG, KY

Principal Contributors:

Tom Chambers, P.E.

Respectfully Submitted:

Power System Engineering, Inc.
9403 Kenwood Rd Ste C200
Blue Ash, OH 45242
Phone: 317-410-3540

November 17, 2023

I hereby certify that this plan and report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Kentucky.

Thomas R. Chambers, P.E.
Regional Lead System Engineer
Power System Engineering, Inc.

Date: 11/17/23 Reg No. 35055

STATE OF KENTUCKY
THOMAS R.
CHAMBERS
35055
LICENSED
PROFESSIONAL ENGINEER

TABLE OF CONTENTS

LIST OF TABLES

LIST OF EXHIBITS

1 Executive Summary

1.1 Purpose

The purpose of this report is to outline an orderly plan for carrying out construction and other needed improvements from 2024 through 2027 on the Meade County RECC (Meade or Cooperative) electric distribution system. Complementary to this purpose, it is the Engineer's responsibility to ensure that the proposed projects are reasonable and economically justifiable.

The report will provide the most up-to-date forecast possible for financial requirements for the next four years. The cost estimates provided will assist the Cooperative with the data necessary for completion of their annual business work plans and budgets, as well as be a basis for long-term financial forecasts and load applications.

Reliability and quality of service are the foundation of operation for any electric utility. The function of system planning is to evaluate the existing and projected system configuration, voltage levels and load balance in a manner that strives to increase this reliability and quality of service. Therefore, this study provides recommendations for upgrading the system as necessary to provide adequate service to both new and existing customers in accordance with criteria established by Meade, RUS, and Power System Engineering (PSE).

System planning is a continuing effort and, to serve its intended purpose, must change dynamically as the governing conditions change. This Construction Work Plan provides Meade with a current philosophy on those specific improvements which will best meet the present needs of the system. It is recommended that the user of this study periodically compares the actual system load growth and voltage measurements to the projections made before committing to a specific project.

1.2 Financial Results

The proposed distribution plant investment summary can be seen in Table 1-1 for system improvement projects, age and condition projects, member service costs, and miscellaneous distribution equipment.

Table 1-1 Summary of Plant Investments

CONSTRUCTION COST SUMMARY						
	Estimated Cost ($)				2024-2027	Percent of Total
	2024	2025	2026	2027	Total ($)	(%)
100-New Line Extensions	1,035,000	1,166,330	1,316,359	1,484,731	5,002,420	15.62
200-New Tie Lines	0	0	0	0	0	0.00
300-Conversions and Line Changes	913,800	1,679,040	1,198,747	1,688,773	5,480,360	17.11
400-New Substations	0	0	0	0	0	0.00
500-Substation Changes	621,000	0	592,900	0	1,213,900	3.79
600-Misc. Distribution Equipment						
601-Transformers	1,358,489	1,515,198	1,691,959	1,888,920	6,454,567	
601-Meters	275,000	302,500	332,750	366,025	1,276,275	
602-Service Changes	12,235	13,458	14,804	16,285	56,782	
603-Sectionalizing Equipment	177,000	184,700	193,170	202,487	757,357	
604-Voltage Regulators	0	0	0	0	0	
605-Capacitors	0	0	0	0	0	
606-Poles	975,605	1,073,165	1,180,482	1,298,530	4,527,782	
607-Miscellaneous	100,000	110,000	121,000	133,100	464,100	
608-Conductor Replacements	1,000,000	1,100,000	1,210,000	1,331,000	4,641,000	
600-Total	3,898,329	4,299,022	4,744,165	5,236,347	18,177,863	56.75
700-Other Distribution Items						
702-Outdoor Lights	464,783	511,261	562,387	618,626	2,157,058	
700-Total	464,783	511,261	562,387	618,626	2,157,058	6.73
Total Proposed Work	6,932,912	7,655,653	8,414,559	9,028,476	32,031,600	100.00

The proposed total distribution plant from 2024-2027 is projected to increase at an average annual rate of 3.9 percent, which is above the four-year average annual rate of 3.1 percent experienced since 2018. An inflation rate of 10% was assumed for this work plan.

1.3 Design Loads

The methodology for the development of the system and substation design loads is discussed in detail in Section 3 of this report. Overall, the design loads were established by considering the most current Load Forecast, historical demand data, Meade staff perceptions, financial forecasts, and a newly developed small area load forecasting methodology. Individual substation design load represents the 2027/28 winter peak conditions. This Construction Work Plan is designed to accommodate approximately 172 MW of non-coincident peak demand and to serve approximately 32,600 consumers in 2027.

1.4 Recommendations

The following recommendations concern the future expansion of the Meade distribution system.

1.4.1 General

1. Adopt the proposed plan as a general guide for making future system improvements.

2. Before major construction is completed, give careful consideration to the alternatives and recommended contingency projects.

3. Periodically examine the planning criteria and system development to ensure that any dynamic conditions are recognized.

4. Periodically review the overall system regarding customer service, reliability, and changing industry requirements.

5. Schedule system improvements by developing construction work plans based on actual prevailing conditions.

6. Review the system's overcurrent protection on a regular basis so that device ratings are adequate.

1.4.2 Financial

1. Incorporate the results of this study into an updated financial forecast.

2. Perform a strategic forecast examining the long range financial alternatives.

This report should provide a valuable guide for future system development, as well as serve as a useful tool in planning future financial requirements. Construction of facilities proposed in this study should be initiated based on load growth conditions as they actually develop. In this manner, the planning report should continue to provide overall coordination for system development, even though local changes in load growth or system conditions may require some departure from the proposed plans.

1.5 Reference Material

The following reports were referenced to assist in the completion of this Construction Work Plan.

- 2019-2029 Long Range Plan prepared by Distribution System Solutions
- 2021-2023 Construction Work Plan prepared by Distribution System Solutions
- 2023 Load Forecast developed by Big Rivers Electric Corporation

2 Existing System Review and Load Analysis

2.1 Service Area

Meade is a rural electric utility with headquarters located in Brandenburg, KY. The service area is located west of Louisville, and includes significant portions of Breckinridge and Meade counties, as well as parts of Hancock, Ohio, Grayson, and Hardin counties not served by other municipal or investor-owned utilities.

The area's economy is based on services, trade and transportation, and manufacturing, primarily. Meade will continue to benefit from commercial and residential growth around the incorporated areas of the service territory. Most of the residential growth is in the southern portion of Breckinridge County, as well as the surrounding the town of Brandenburg.

2.2 Power Supply

Meade purchases its power and energy requirements from Big Rivers Electric Corporation (Big Rivers) with headquarters in Owensboro, KY. Big Rivers is responsible for obtaining the necessary transmission facilities for Meade. The available facilities are limited to those owned and operated only by Big Rivers.

Meade owns 21 substations which receive delivery at 69kV. These are Andyville, Battletown, Brandenburg, Brandenburg West, Buttermilk Falls, Centerview, Cloverport, Custer, Doe Valley, Easton Road, Falls of Rough, Flaherty, Fordsville, Fort Avenue, Garret, Hardinsburg 1, Hardinsburg 2, Harned, Irvington, McDaniels, and Union Star. The substations are served at 69 kV and vary in size from 6,441 kVA to 28,000 kVA.

2.3 Distribution System Performance

As of December 2022, the Meade distribution system had 3,143 miles of overhead conductor and 143 miles of underground cable serving 32,970 services and 31,209 members, which corresponds to 9.5 members per mile. The system is operated at 7.2/12.47 kV grounded wye. Overhead conductor size ranges from 8A to 795 ACSR. Underground conductor size ranges from 1/0Al to 500 MCM.

A review of the 2021 Review Ratings Summary (Form 300) has found the system to be well maintained.

2.3.1 Losses

Estimated energy losses during the past 5 years have averaged 4.73 percent. This percentage in losses is below the guidelines established in RUS Bulletin 45-4 for system load density characteristics similar to Meade. Energy losses are estimated indirectly by subtracting the amount of energy sold from the amount of energy purchased. Some of the year-to-year variation results from differences which occur between the time when billing meters are read at the consumer's location and at the substations.

2.3.2 Power Factor

Big Rivers does not have a power factor policy or penalty in place. Power factor at each substation is generally above 90% however during peak, with the exception of Fordsville during the summer.

2.3.3 Pole Inspections

A pole inspection program is important to identify poles in poor condition, as well as to generally prolong the life of poles by application of proper treatment. RUS 1730B-121 (Wood Pole Inspection and Maintenance) recommends that poles be inspected on a 10 year interval for decay zone 3. Additional guidelines are provided which describe how to spot check and prioritize different areas for pole inspection when initially developing a pole inspection program.

Table 2-1 Pole Inspections

Year	Poles Installed	Poles Inspected	Number Rejected	Percent Inspected	Percent Rejected
2018	67626	45137	730	67%	1.6%
2019	69022	37456	488	54%	1.3%
2020	70361	34653	192	49%	0.6%
2021	71534	44716	264	63%	0.6%
2022	72744	31762	172	44%	0.5%
5 Yr. Avg.	70258	38745	370	55%	1.0%

2.3.4 Reliability

Service reliability is defined in this plan by SAIFI and SAIDI, which are defined in IEEE 1366-2003, Guide for Electric Power Distribution Reliability Indices. SAIFI is defined as the system average number of outages per customer per year. SAIDI represents the system average outage duration per customer per year.

Meade maintains detailed outage records that track outages by time, duration, location, and cause.

Outage records for the Cooperative are kept in accordance with RUS Bulletin 1730A-119. The average minutes per member for the period between January 2018 and December 2022 are illustrated in Table 2-2.

Table 2-2 Annual SAIDI

Year	Power Supply	Major Event	Planned	All Other	Total
2018	1.76	382.52	4.16	112.33	500.77
2019	0	47.81	8.1	77.39	133.3
2020	4.48	4.29	4.09	63.52	76.38
2021	0	109.63	4.49	70.64	184.76
2022	0	42.86	7.7	75.59	126.15
5 Yr. Avg.	1.25	117.42	5.71	79.89	204.27

When subtracting the power supply and major event contributions, service interruptions for the past five years have averaged 86 minutes per consumer per year. Detailed outage records are maintained as recommended in RUS Bulletin 161-1. Several design and planning guidelines have been established for this Work Plan which should aid in achieving a reliable system design and provide further reductions in the number of outage hours per member. These guidelines are discussed in Section 3, Planning Criteria.

It is recommended that Meade continue to monitor and record outages to the best and most accurate extent possible. The following list contains some general recommendations.

1. Record the location of an outage as specifically as possible. An input field should be created on the outage recording tickets and spreadsheet to indicate the location of the nearest member to the fault. Since the SEDC billing database contains a link by account number to the Milsoft software line section number, areas of frequent outages may be determined and used for reliability review. In addition to the nearest member to the fault, the circuit number should be recorded. If this is too difficult, the recorded fault location can be linked to a circuit, as the SEDC database contains a link between member number and circuit derived from the Milsoft software.

2. Hold additional training sessions to discuss outage recording practices to ensure accuracy and consistency. This will lead to more useful remediation efforts.

3. Establish benchmarks for future reliability targets using RUS and IEEE guidelines. Set benchmarks to be much more stringent than current RUS recommendations.

4. Continue to log Power Supplier outages so that Big Rivers can be consulted on transmission reliability issues and policy violations.

2.3.5 System Protection

A full system-wide sectionalizing study has not been completed, though a study of 1-2 substation areas is performed every year.

2.3.6 Construction Program Status

The previous construction work plan identified five different 300 code projects and one 500 code project. Completion status of each project can be seen in Table 2-3 below.

Table 2-3 Previous CWP Project Status

Project Code	Substation	Carryover from Previous CWP	Status
320	Doe Valley	--	Complete
321	Doe Valley	--	Complete
322	Fort Avenue	--	Complete
323	Garrett	--	Complete
324	Garrett	--	Complete
502	Hardinsburg	--	Complete

2.4 Load Analysis Purpose & Procedure

The electric load forecasting process is one of the most critical steps in the planning process. This forecast not only needs to indicate non-coincident peak demand growth for each substation on the system but should also provide an indication of where the growth will occur. The load projections are then used in the various circuit analyses to indicate where there may be planning criteria violations, and therefore needed system improvements, which is the objective of this plan.

Analysis of the present system and the impact of historical loads during periods of peak demand is also a very important step. It is necessary to properly allocate the consumer loads to an engineering model to reflect the most accurate representation of the conditions during a recent substation non-coincident peak. In this planning effort, the load additions and member distributions in each substation area are forecasted through newly developed methodologies, while the load allocation process uses historical, measured values to create a more accurate system model. Therefore, the iterative load allocation process is most important to allow anticipated, but somewhat dynamic, loads to be applied to an accurately modeled system.

The historical load allocation process used a database consisting of each member's monthly energy usage as well as measured peak demands from large power load accounts. Presently, significantly more data is available for each member due to advancements in technology, such as automatic meter infrastructure (AMI). One example of this data is kW demand measurements every 15 minutes, which can be used in new load allocation processes.

The results of the historical and present load allocation processes are compared to actual measured system data. If there are major discrepancies between calculated results and measurements, this step indicates which method produces more accurate results, so that the differences can be investigated and resolved. This allows for verification that a correct engineering model is being used to match the existing system conditions.

Newly developed forecasting methodologies for member and load additions in small geographic planning areas will produce the most accurate system model. Furthermore, the data and results from outside agencies' studies are used in the forecasting process and load distribution to small areas of the system.

2.5 Historical Loads

During the past five years, the average number of members served by Meade has increased by 1.05 percent annually. Energy sales during the past five years have decreased at an annual rate of 1.06 percent. A breakdown of the number of consumers and energy sales for 2022 is shown below.

Table 2-4 2022 Consumers and Energy Sales

Consumer Classification	Dec. 31 No. of Consumers	Percent of Total (%)	Energy Sales (MWH)	Percent of Total (%)
Residential	29,031	93%	355,117	76%
Seasonal	-	0%	-	0%
Irrigation	-	0%	-	0%
Commercial, 1000 kVA or less	2,172	7%	112,533	24%
Commercial, over 1000 kVA	-	0%	-	0%
Public Lighting	6	0%	1,045	0%
Public Authorities	-	0%	-	0%
Sale for Resale	-	0%	-	0%
Total	31,209	100%	468,695	100%

Total energy sales from rural residential and seasonal members account for approximately 100 percent of total sales. The public lighting classification account for a negligible percent of the energy usage.

Table 2-5 is a substation summary indicating substation historical, peak demands experienced during the four-year period of 2019-2022.

Table 2-5 2020 Substation Load Data

Substation	Season	2019	2020	2021	2022
Andyville	W	4,216	3,560	3,741	5,391
Battletown	W	4,670	3,728	4,177	4,147
Brandenburg	W	14,850	12,157	12,869	11,768
Brandenburg West	W	0	0	4318	6196
Buttermilk Falls	W	2,981	2,718	2,817	5,080
Centerview	W	2,702	2,650	2,469	3,869
Cloverport	W	4,102	4,056	3,985	5,009
Custer	W	5,318	4,532	4,618	6,795
Doe Valley	W	6,808	5,862	5,936	9,534
Easton Road	W	0	0	2,762	3,267
Falls of Rough	W	7,407	7,005	6,474	10,809
Flaherty	W	11,184	8,670	6,908	10,737
Fordsville	W	9,765	8,670	6,908	10,737
Fort Avenue	W	0	4,314	4,091	6,505
Garrett	W	16,517	12,480	11,113	17,762
Hardinsburg 1	S	7,574	7,318	7,721	7,807
Hardinsburg 2	W/S	4,411	3,888	4,082	4,925
Harned	W	4,882	4,199	4,238	5,944
Irvington	W	10,984	9,396	9,403	13,349
McDaniels	W	8,142	7,878	7,069	11,771
Union Star	W	3,622	3,263	3,200	4,641

2.6 Load Forecast

Big Rivers issued a load forecast for Meade in August, 2023. The results indicate that a uniform annual growth rate will occur in the energy usage per member, peak demand, and energy sales per the forecasting methodology used.

The Big Rivers system forecast results consider economy, population trends, industrial development, electric price, household income, weather, and changes to appliance efficiency. This scenario is believed to be the most probable and realistic for system planning purposes. According to the Big Rivers 2023 Load Forecast, Meade is projected to realize a non-coincident peak of approximately 139 MW.

The engineering model uses a much higher demand however. In 2022 a non-coincident system peak of 162 MW was realized. This is believed to be an anomaly and so a growth rate was not applied to this demand over the course of the work plan. It was however used as the basis for capacity planning for this work plan.

Table 2-6 System Load Forecast

	Actual					Annual Increase
	2022	2024	2025	2026	2027	2024-2027
No. of Consumers Served (Average)	30,975	31,836	32,241	32,575	32,636	1.05%
Peak Demand (kW)[1]	162,053	137,765	138,045	138,870	139,318	0.37%
1. Non-coincident sum of rural annual peak						

2.7 Design Load

The design load represents the sum of the yearly non-coincident substation peak demands, independent of month. The design loads for the individual substations are shown in the following table.

Table 2-7 2027 Substation Design Loads

Substation	Season	2022	2023	2024	2025	2026	2027	Growth %	Substation Loading
Andyville	W	5,391	5,446	5,502	5,558	5,615	5,615	1.02%	80%
Battletown	W	3,905	3,945	3,985	4,026	4,067	4,517	3.71%	60%
Brandenburg	W	11,768	11,888	12,010	12,133	12,257	12,890	2.30%	55%
Brandenburg West	W	6,196	6,259	6,323	6,388	6,453	6,818	2.42%	65%
Buttermilk Falls	W	5,080	5,132	5,184	5,237	5,291	5,499	2.00%	39%
Centerview	W	3,869	3,909	3,949	3,989	4,030	4,597	4.40%	33%
Cloverport	W	5,009	5,060	5,112	5,164	5,217	5,346	1.64%	38%
Custer	W	6,795	6,865	6,935	7,006	7,077	7,130	1.21%	76%
Doe Valley	W	9,534	9,632	9,730	9,830	9,930	10,783	3.13%	77%
Easton Road	S	2,965	2,995	3,026	3,057	3,088	3,800	6.40%	27%
Falls of Rough	W	10,809	10,920	11,031	11,144	11,258	12,895	4.51%	92%
Flaherty	W	10,737	10,847	10,958	11,070	11,183	11,443	1.60%	82%
Fordsville	S	2,756	2,784	2,813	2,841	2,871	3,392	5.33%	36%
Fort Avenue	W	6,505	6,572	6,639	6,707	6,775	7,073	2.11%	51%
Garrett	W	17,762	17,944	18,127	18,313	18,500	19,090	1.82%	68%
Hardinsburg 1	S	7,807	7,887	7,968	8,049	8,131	8,008	0.64%	57%
Hardinsburg 2	W	4,925	4,975	5,026	5,078	5,130	5,317	1.93%	57%
Harned	W	5,944	6,005	6,066	6,128	6,191	6,007	0.26%	64%
Irvington	W	13,349	13,486	13,624	13,763	13,904	14,034	1.26%	50%
McDaniels	W	11,771	11,891	12,013	12,136	12,260	13,298	3.10%	95%
Union Star	W	4,641	4,688	4,736	4,785	4,834	4,872	1.22%	78%
System (Sum of Subs)		157,518	159,129	160,757	162,402	164,063	172,424		--
Note: Though Falls of Rough and McDaniels exceed 90% of their rated capacity, much of this load will be shifted to a proposed substation in the Rough River area.									

2.8 Member and Load Distribution

The anticipated member and load additions developed using the previously described processes were distributed throughout the system. Reference studies by outside agencies, historical growth patterns in particular areas, as well as input Meade staff were used to locate areas of load growth.

3 Distribution System Design Criteria

3.1 General

The criteria below were agreed upon between Meade County RECC, Power System Engineering, and the RUS General Field Representative

- The minimum acceptable primary distribution voltage is 118 volts (120 volt base, 126 volts at source).
- Equipment loading should be limited to the following ratings:
    - Distribution Transformers 100%
    - Voltage Regulators 100%
    - Step Transformers 100%
    - Reclosers and Fuses 70%
- Conductors replacement or upgrade will be considered on a case by case basis. Local reliability data and input from engineering and operations will be used to justify any work associated with conductor.
- Single phase lines loaded to greater than 50 amps should be reviewed.
- Aged conductor should continue to be replaced as needed, based upon discussion with Meade engineering and operations personnel.
- New primary conductor should be selected based on a combination of projected growth and capacity of the line, minimum primary voltage realized downline, and an economic evaluation. Generally, new primary overhead conductors will be #2 ACSR, 3/0 ACSR, or 336 ACSR, while new primary underground cable will be 1/0 Al UG, 4/0 Al UG or 500 MCM Al UG.

4 Recommended Plan

4.1 General

The recommended construction identified in this study is based on improving the present distribution system to provide adequate service through 2027 according to forecasted non-coincident peak demands. The reasons for new substations, existing substation capacity upgrades, and distribution primary line improvements are explained in detail.

A three-letter substation identifier followed by a three-digit construction item number identify the items. They are further described by one or more reason codes, to justify their decision (e.g. additional backup capacity, replacement of aged conductor, etc.).

4.2 System Improvements (Code 200 & 300)

This section contains a discussion of recommendations for distribution system improvements required during the next four years. A construction requirements work list and cost estimate including proposed primary line construction by substation and circuit is shown in Sections 5 of this report. Unit construction costs are summarized in Exhibit 6-1.

The following is a discussion of proposed system improvements by substation area.

SYSTEM IMPROVEMENTS – RUS CODE 300

NEW LINE NARRATIVES

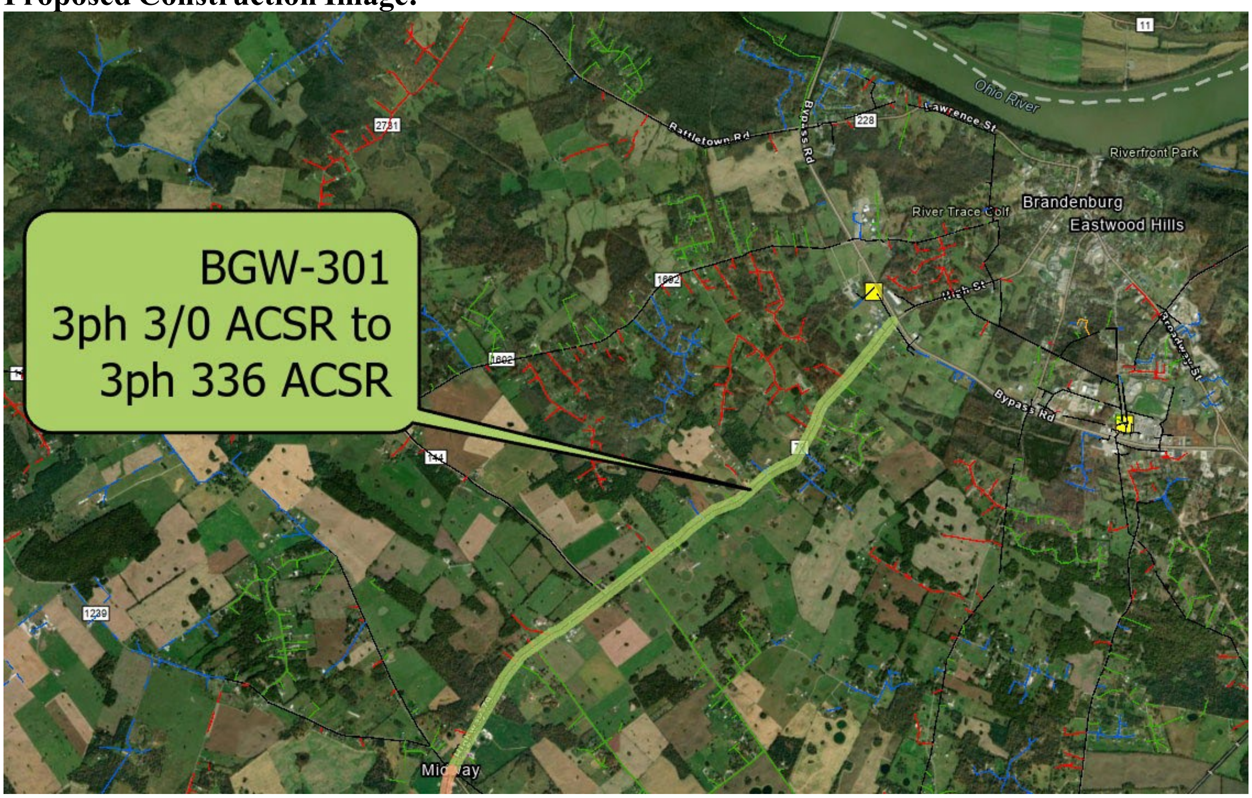
BRANDENBURG WEST

<u>Code BGW-301</u>
Estimated Cost: $609,600
Year: 2024

Description of Proposed Construction:
Project BGW-301 is the upgrade of 3.81 miles of three-phase 3/0 ACSR to three-phase 336 ACSR along Highway 79 between Brandenburg and Irvington.

Reason for Proposed Construction:
This project will improve the reliability and strengthen the tie between Brandenburg West and Irvington substations. This project will be completed along with IRV-305 and IRV-309.

Proposed Construction Image:



SYSTEM IMPROVEMENTS – RUS CODE 300

NEW LINE NARRATIVES

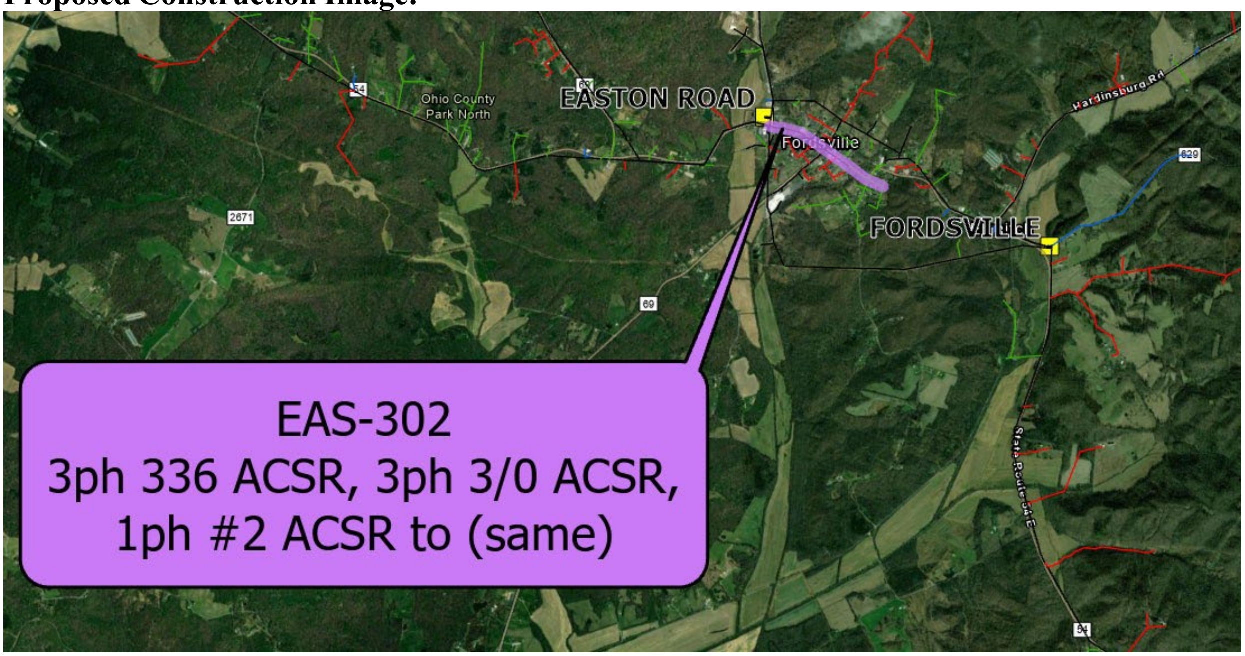
EASTON ROAD

<u>Code EAS-302</u>
Estimated Cost: $163,979
Year: 2027

Description of Proposed Construction:
Project EAS-302 is the conversion of 0.77 miles of three-phase 3/0 ACSR to three-phase 336 ACSR along Highway 54 in Fordsville.

Reason for Proposed Construction:
This project will improve the reliability and strengthen the loop around the city of Fordsville.

Proposed Construction Image:



SYSTEM IMPROVEMENTS – RUS CODE 300

NEW LINE NARRATIVES

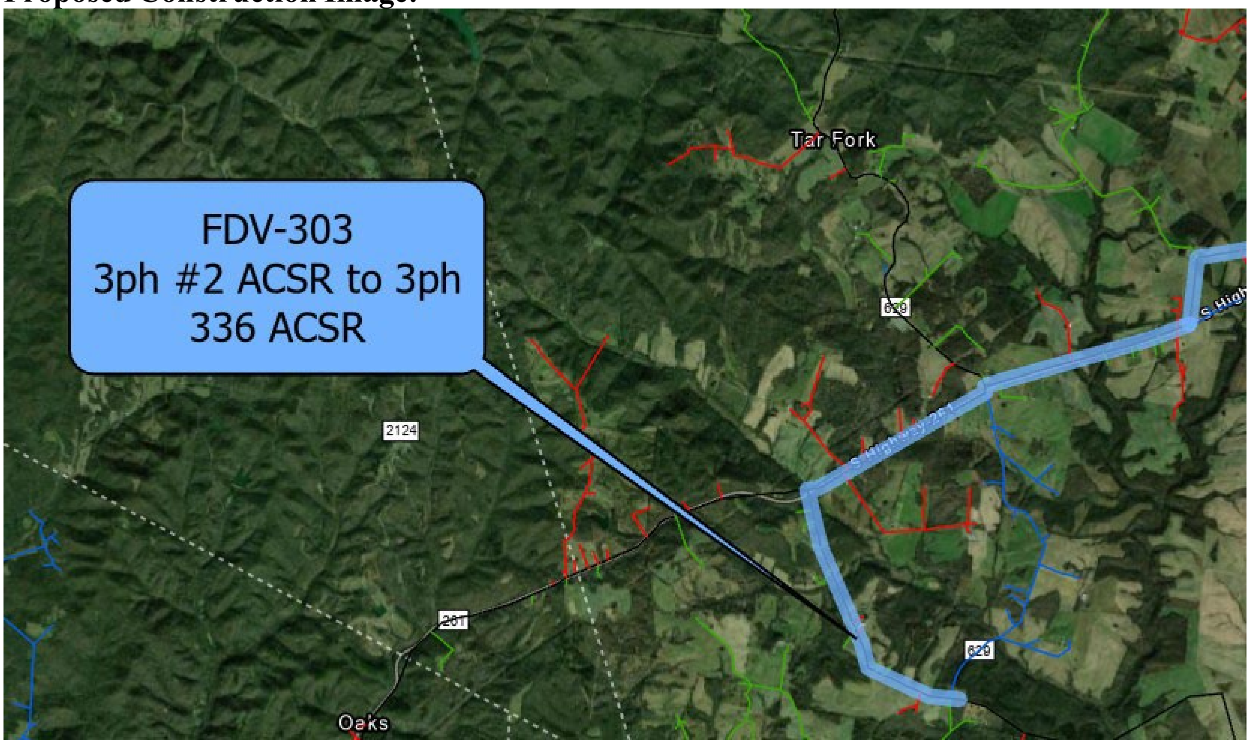
FORDSVILLE

<u>Code FDV-303</u>
Estimated Cost: $851,840
Year: 2025

Description of Proposed Construction:
Project FDV-303 is the upgrade of 4.84 miles of three-phase #2 ACSR to three-phase 336 ACSR, along S Highway 261 near McQuady.

Reason for Proposed Construction:
This project is driven primarily by the desire to replaced aged conductor and to improve the backup capability between Fordsville and Hardinsburg 2 substations.

Proposed Construction Image:



SYSTEM IMPROVEMENTS – RUS CODE 300

LINE CONVERSION NARRATIVES

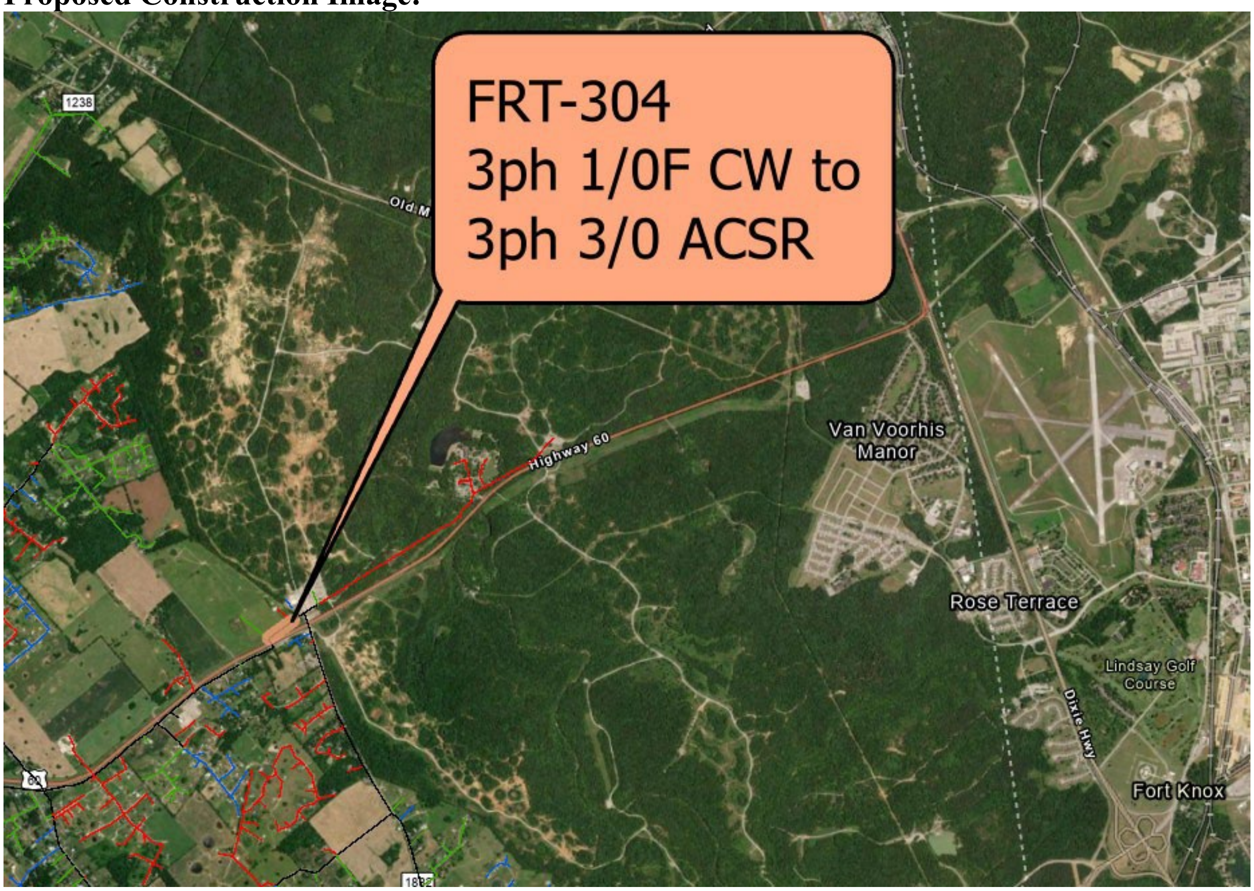
FORT AVENUE

<u>Code FRT-304</u>
Estimated Cost: $23,595
Year: 2026

Description of Proposed Construction:
Project FRT-304 is the upgrade of 0.15 miles of three-phase 1/0F Copperweld to three-phase 336 ACSR along Highway 60.

Reason for Proposed Construction:
This project serves to removed aged three phase copper from the system.

Proposed Construction Image:



SYSTEM IMPROVEMENTS – RUS CODE 300

LINE CONVERSION NARRATIVES

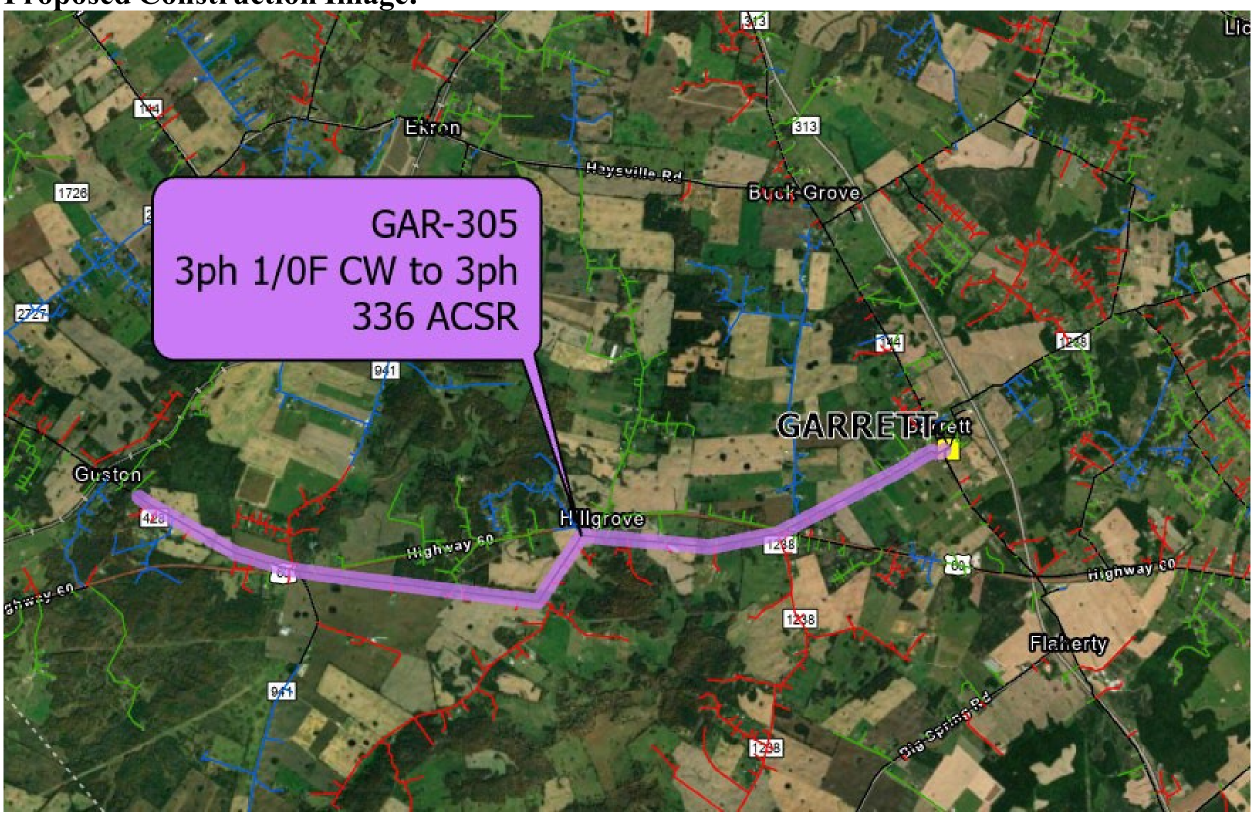
GARRETT

<u>Code GAR-305</u>
Estimated Cost: $1,352,296
Year: 2027

Description of Proposed Construction:
Project GAR-305 is the conversion of 6.34 miles of three-phase 1/0F Copperweld to three-phase 336 ACSR.

Reason for Proposed Construction:
This project is driven primarily by the desire to replaced aged conductor and to improve the backup capability between Irvington and Garrett substations.

Proposed Construction Image:



SYSTEM IMPROVEMENTS – RUS CODE 300

LINE CONVERSION NARRATIVES

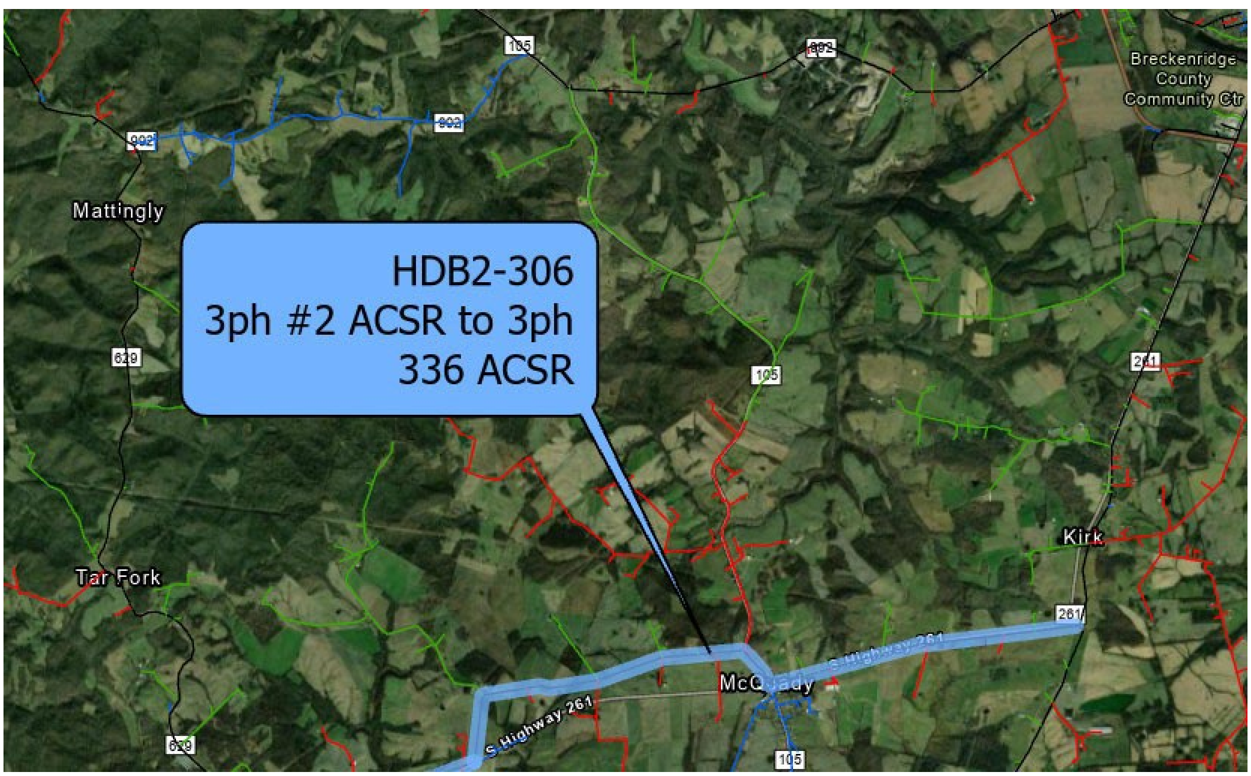
Hardinsburg 2

Code HDB2-306
Estimated Cost: $827,200
Year: 2025

Description of Proposed Construction:
Project HDB2-306 is the conversion of 4.7 miles of three-phase #2 ACSR to three-phase 336 ACSR along Long Branch Fork Rd.

Reason for Proposed Construction:
This project improves voltage and load balance and current carrying capacity.

Proposed Construction Image:



SYSTEM IMPROVEMENTS – RUS CODE 300

LINE CONVERSION NARRATIVES

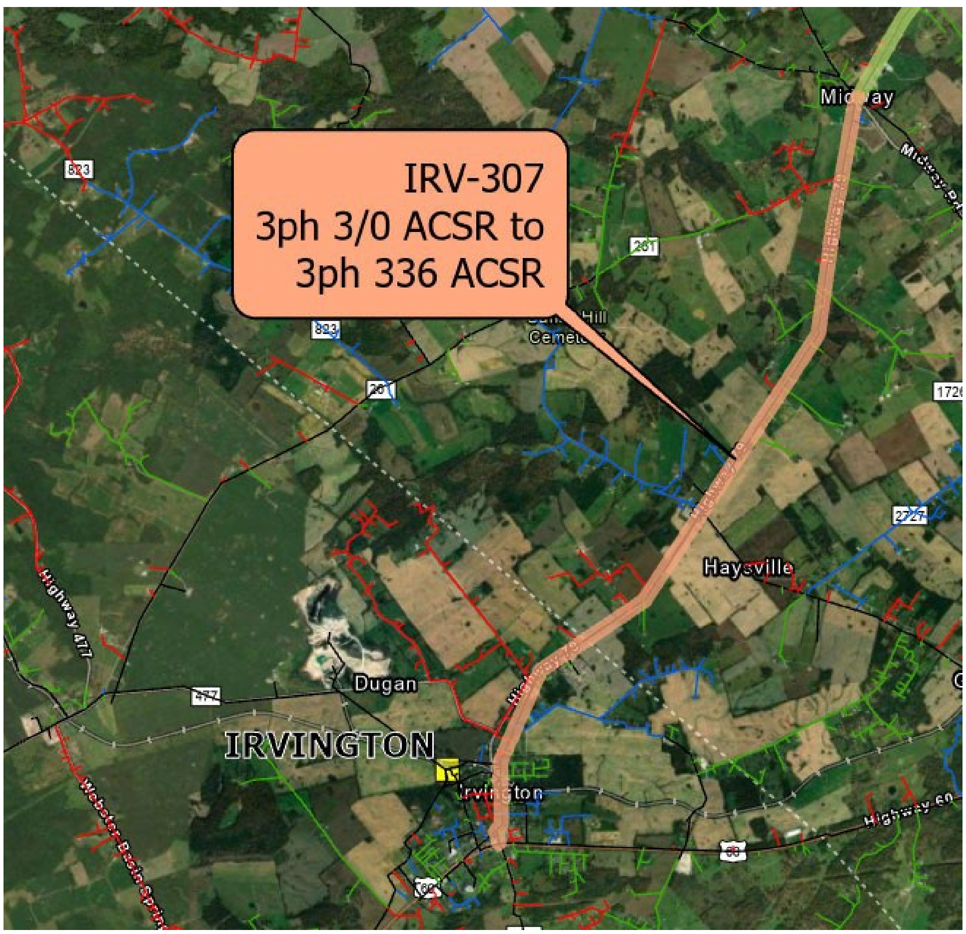
IRVINGTON

<u>Code IRV-307</u>
Estimated Cost: $1,175,152
Year: 2026

Description of Proposed Construction:
Project IRV-307 is the conversion of 6.07 miles of three-phase #3/0 ACSR to three-phase 336 ACSR along Highway 79. Of this, approximately 0.65 miles is currently 1/0F Copperweld underbuild. This will be converted to 3/0 ACSR underbuild.

Reason for Proposed Construction:
This project will strengthen the tie between Brandenburg West and Irvington substations. This will be completed along with BGW-304 and IRV-309.

Proposed Construction Image:



SYSTEM IMPROVEMENTS – RUS CODE 300

LINE CONVERSION NARRATIVES

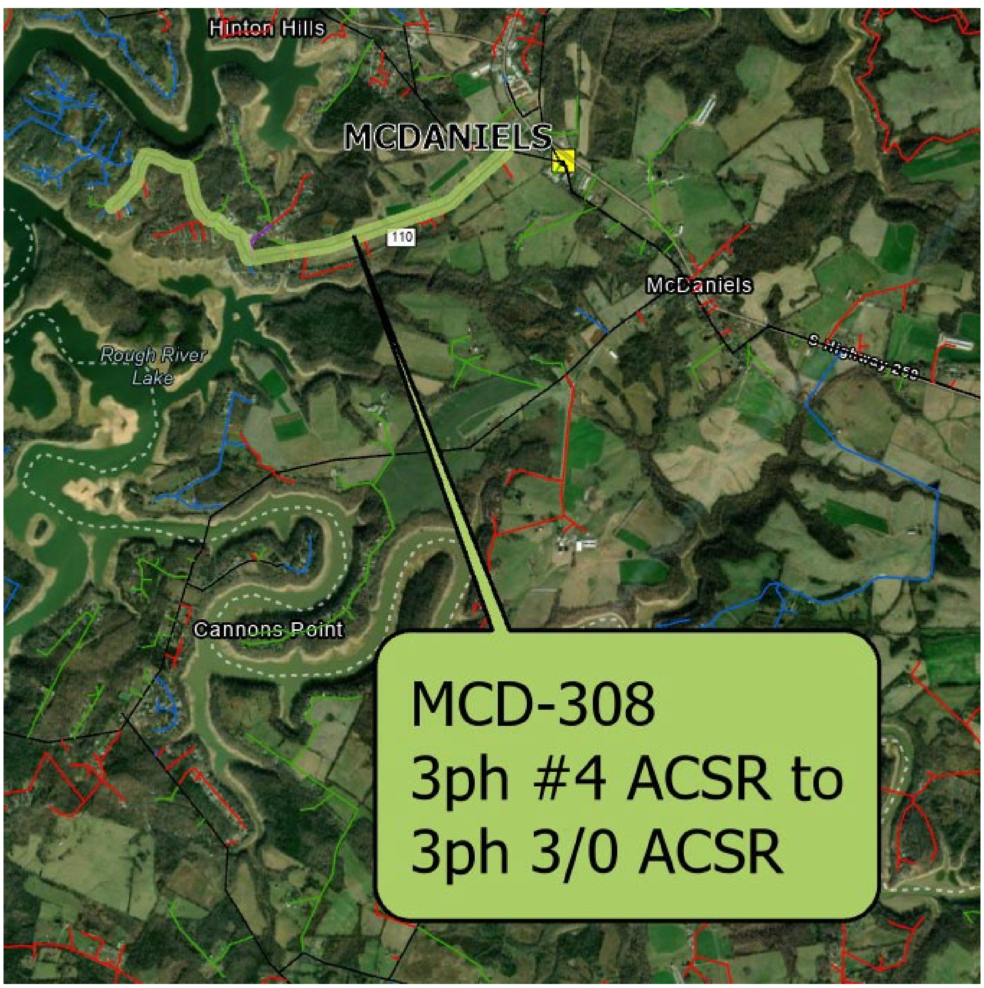
MCDANIELS

<u>Code MCD-308</u>
Estimated Cost: $304,200
Year: 2024

Description of Proposed Construction:
This project MCD-308 is the conversion of 2.34 miles of three-phase #4 ACSR to three-phase 3/0 ACSR along Laurel Branch Road.

Reason for Proposed Construction:
This is some of the last three phase #4 ACSR on the system. Removing this will serve to remove aged conductor from the system, as well as improve service reliability.

Proposed Construction Image:



SYSTEM IMPROVEMENTS – RUS CODE 300

LINE CONVERSION NARRATIVES

HARDINSBURG 2

Code HDB2-309

Estimated Cost: $71,874

Year: 2027

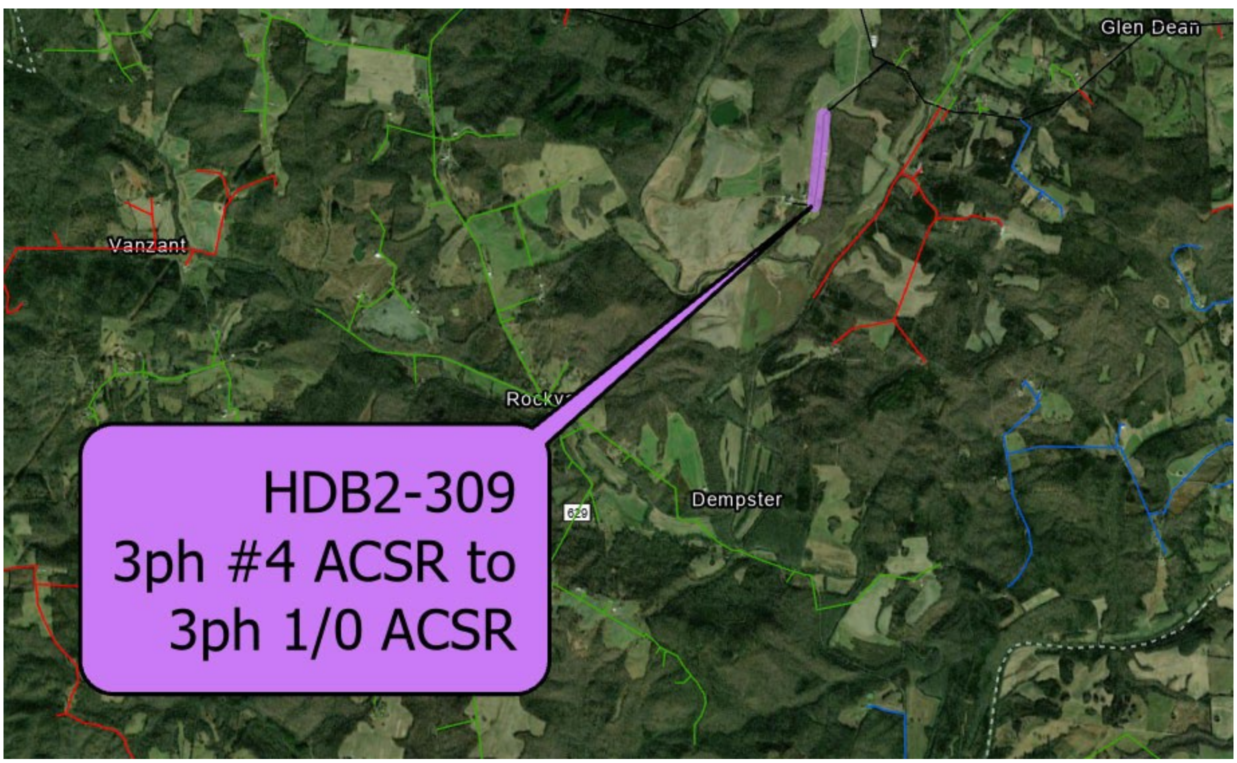
Description of Proposed Construction:

Project HDB2-309 is the conversion of 0.55 miles of three-phase #4 ACSR to three-phase #2 ACSR along Brown Farm Road.

Reason for Proposed Construction:

This is some of the last three phase #4 ACSR on the system. Removing this will serve to remove aged conductor from the system, as well as improve service reliability.

Proposed Construction Image:



SYSTEM IMPROVEMENTS – RUS CODE 300

LINE CONVERSION NARRATIVES

MCDANIELS

<u>Code MCD-310</u>
Estimated Cost: $100,624
Year: 2027

Description of Proposed Construction:
Project MCD-310 is the conversion of 0.65 miles of three-phase #4 ACSR to three-phase #2 ACSR along S Highway 259.

Reason for Proposed Construction:
This is some of the last three phase #4 ACSR on the system. Removing this will serve to removed aged conductor from the system, as well as improve service reliability.

Proposed Construction Image:

4.3 Substation Changes (Code 500)

A number of voltage regulator control and recloser replacements are planned over the next four years. A total of 48 voltage regulator controls will be purchased and installed to replace the existing controls. There are also a total of 29 three phase feeder reclosers and controls that will be upgraded and replaced. These upgrades are detailed in the table below.

Table 4-1 Substation Changes (Code 500)

Substation Name	Replacement Qty	
	Voltage Regulator Control	Recloser and Control
Andyville	3	--
Battletown	--	2
Brandenburg	3	--
Brandenburg West	3	--
Buttermilk Falls	--	--
Centerview	3	--
Cloverport	--	6
Custer	3	--
Doe Valley	--	5
Easton Road	--	--
Falls of Rough	3	4
Flaherty	3	4
Fordsville	3	--
Fort Avenue	--	--
Garrett	6	3
Hardinsburg 1	--	--
Hardinsburg 2	3	--
Harned	3	2
Irvington	6	3
McDaniels	3	--
Union Star	3	--

4.4 Sectionalizing

Meade performs a sectionalizing review of 1-2 of their substations per year. Periodic review of system sectionalizing is recommended to ensure that changes in fault current, load current, and system configuration are properly accounted for. As specific protective device review and recommendations are beyond the scope of this construction work plan, cost estimates represent a continuation of past annual expenditure at an appropriate rate of inflation.

4.5 Voltage Regulation

Low voltage is often corrected through the addition of voltage regulators. A general rule is to refrain from using more than two voltage regulators in series. In instances when additional benefits could be realized, low voltage areas will be corrected through alternative means, such as conductor change-outs and system re-structuring.

4.6 New Line Extensions

New line extensions to serve new members (Code 100) were estimated based on a combination of historic annual new members from previous years' Form 7's, extended out over the horizon of this construction work plan.

4.7 Miscellaneous Distribution Equipment

This section describes the various RUS 601-608 Codes.

601 - Transformers and Meters
This category includes new and upgraded (increased capacity) transformers and meters for new or existing overhead and underground services and new transformers for voltage conversion (12 kV to 25 kV, etc.).

602 – Service Changes
This category includes all installations for changes in service capacity to a single consumer, including service conductor, secondary conductor, primary conductor (including single-phase to three-phase), conversion of secondary to primary, and increasing the number of service conductors. This code also includes replacing existing services for change in capacity.

603 – Sectionalizing Equipment
This code includes all assemblies associated with a line sectionalizing installation, including the sectionalizing equipment (breakers, reclosers, sectionalizers, or fuses) and associated equipment such as switches, arrestors, and platforms. Substation breakers, reclosers, etc., should be under Code 500 for additions and changes.

604 – Regulators
This code includes all assemblies associated with initial voltage regulation installations, including regulators or auto-boosters, pole top assemblies, fuses, switches, arrestors, platforms, support

poles, guys, anchors, and grounding assemblies. This includes line regulators only; substation regulators should be under Code 500 for additions and changes.

605 – Capacitors

This code includes all assemblies associated with line capacitor installations, including capacitors, racks, fuses, switches, arrestors, platforms, controls, and cabinets. Substation capacitors should be under Code 500 for additions and changes.

606 – Pole Replacements/Additions

This category includes all costs where the predominant item is related to the pole change-out due to the condition of the pole.

Code 607- Miscellaneous Replacements

Code 607 includes all costs associated with replacement of plant items such as guys, anchors, crossarms, insulator strings, etc. where pole change-out due to the condition of the pole is not the predominant cost involved. This code excludes poles covered under Code 606 and conductor covered under Code 608.

Code 608- Conductor Replacements

This code includes costs associated with construction to replace aged, deteriorating overhead or underground line sections (except service wires) and includes all associated structure changes. These costs can be included as a lump sum on RUS Form 740c, with supporting data included either in the CWP or in a separate report.

4.8 Other Distribution Items

This section describes the various RUS 702-705 Codes.

702 – Outdoor Lights

This category includes costs associated with purchase and installation of lights. This includes line extensions (when required) to service the lights, as well as the cost of installation and material for all associated equipment. Also included are plant replacements, conversions, and improvements necessary in providing outdoor light service.

Code 704- Load Management/SCADA

Feasibility and other support data are to be included under this code.

Code 705 - Automated Meter Reading Equipment

This code includes all costs associated with AMI systems, except meters and retrofits included under Code 601.

5 Construction Costs

This section shows all relevant costs over the planning period, broken down by RUS loan application codes. The following tables provide additional details and support.

5.1 Cost Estimate Summary

A summary of the cost estimate by RUS loan application code for 2024-2027 is found in Table 5-1 below.

Table 5-1 Cost Estimate Summary

CONSTRUCTION COST SUMMARY						
	Estimated Cost ($)				2024-2027	Percent of Total
	2024	2025	2026	2027	Total ($)	(%)
100-New Line Extensions	1,035,000	1,166,330	1,316,359	1,484,731	5,002,420	15.62
200-New Tie Lines	0	0	0	0	0	0.00
300-Conversions and Line Changes	913,800	1,679,040	1,198,747	1,688,773	5,480,360	17.11
400-New Substations	0	0	0	0	0	0.00
500-Substation Changes	621,000	0	592,900	0	1,213,900	3.79
600-Misc. Distribution Equipment						
601-Transformers	1,358,489	1,515,198	1,691,959	1,888,920	6,454,567	
601-Meters	275,000	302,500	332,750	366,025	1,276,275	
602-Service Changes	12,235	13,458	14,804	16,285	56,782	
603-Sectionalizing Equipment	177,000	184,700	193,170	202,487	757,357	
604-Voltage Regulators	0	0	0	0	0	
605-Capacitors	0	0	0	0	0	
606-Poles	975,605	1,073,165	1,180,482	1,298,530	4,527,782	
607-Miscellaneous	100,000	110,000	121,000	133,100	464,100	
608-Conductor Replacements	1,000,000	1,100,000	1,210,000	1,331,000	4,641,000	
600-Total	3,898,329	4,299,022	4,744,165	5,236,347	18,177,863	56.75
700-Other Distribution Items						
702-Outdoor Lights	464,783	511,261	562,387	618,626	2,157,058	
700-Total	464,783	511,261	562,387	618,626	2,157,058	6.73
Total Proposed Work	6,932,912	7,655,653	8,414,559	9,028,476	32,031,600	100.00

5.2 New Line Extensions (Code 100)

Table 5-2 New Line Extensions (Code 100)

NEW LINE EXTENSIONS (Code 100)							
	Actual		Work Plan Estimate				
	2021	2022	2024	2025	2026	2027	Total
Service Extensions for New Members (100)							
1. Number of New Members Connected							
Total	763	814	450	461	473	485	1,869
2. Total Length Built Per Year (mi)							
Total	32.1	37.2	21.0	21.6	22.1	22.7	87.4
3. Average Cost per Build (before CIAC)							
Total	1,881	2,316	2,300	2,530	2,783	3,061	2,669
4. Cost of New Members							
Total Cost (before CIAC)	1,434,900	1,884,823	1,035,000	1,166,330	1,316,359	1,484,731	5,002,420

5.3 New Tie-Lines (Code 200)

Table 5-3 New Tie-Lines (Code 200)

NEW TIE LINES (CODE 200)						
Project Code	Year	Substation-Circuit	Project Description	Reason Code(s)	Miles	Estimated Cost ($)
		None				
		Total for all Years	November 10, 2023		0.00	0
	Cost 200 by Year					
	2024				0.00	0
	2025				0.00	0
	2026				0.00	0
	2027				0.00	0
	Total	Total Cost Code 200 by Year			0.00	0

Reason Code(s)

A	To replace **A**ged and deteriorated overhead line.
B	To improve **B**ackup between circuits and substations.
C	To provide additional **C**apacity.
D	To **D**ivide the load for improved load balance, voltage and reliability.
F	To accommodate **F**uture load.
R	To improve service **R**eliability.
U	To replace old 175 Mil or 220 Mil bare concentric neutral **U**nderground cable
S	**S** ingle-ph current over 40A
Cu	Copper Replacement
V	To improve **V**oltage.

5.4 Conversions and Line Changes (Code 300)

Table 5-4 Conversions and Line Changes (Code 300)

CONVERSION AND LINE CHANGES (CODE 300)						
Project Code	New Year	Substation-Circuit	Project Description	Reason Code(s)	Miles	Estimated Cost ($)
BGW-301	2024	Brandenburg West R-33082	3ph 3/0 ACSR to 3ph 336 ACSR	A	3.81	609,600
EAS-302	2027	Easton Road R-34284	3ph 336 ACSR, 3ph 3/0 ACSR, 1ph #2 ACSR to (same)	A	0.77	163,979
FDV-303	2025	Fordsville RC-1345	3ph #2 ACSR to 3ph 336 ACSR	A, B, R	4.84	851,840
FRT-304	2026	Fort Avenue R-31082	3ph 1/0F CW to 3ph 3/0 ACSR	Cu	0.15	23,595
GAR-305	2027	Garrett R-1399	3ph 1/0F CW to 3ph 336 ACSR	A, Cu	6.35	1,352,296
HDB2-306	2025	Hardinsburg 2 R-1378	3ph #2 ACSR to 3ph 336 ACSR	A, B, R	4.70	827,200
IRV-307	2026	Irvington RC-1375, RC-1376	3ph 3/0 ACSR to 3ph 336 ACSR	A	6.07	1,175,152
MCD-308	2024	McDanielS RC-1387	3ph #4 ACSR to 3ph 3/0 ACSR	R	2.34	304,200
HDB2-309	2027	Hardinsburg 2 R-1378	3ph #4 ACSR to 3ph #2 ACSR	A	0.45	71,874
MCD-310	2027	McDaniels RC-1386	3ph #4 ACSR to 3ph #2 ACSR	A	0.63	100,624
		Total for all Years	November 10, 2023		30.11	5,480,360
	Cost 300 by Year					
	2024				6.15	913,800
	2025				9.54	1,679,040
	2026				6.22	1,198,747
	2027				8.20	1,688,773
	Total	Total Cost Code 300 by Year			30.11	5,480,360

Reason Code(s)	
A	To replace Aged and deteriorated overhead line.
B	To improve Backup between circuits and substations.
C	To provide additional Capacity.
D	To Divide the load for improved load balance, voltage and reliability.
F	To accommodate Future load.
R	To improve service Reliability.
U	To replace old 175 Mil or 220 Mil bare concentric neutral Underground cable
S	Single phase current over 40A.
Cu	Copper (Cu) Replacement.
V	To improve Voltage.

5.5 Substation Changes (Code 500)

Table 5-5 Substation Changes (Code 500)

SUBSTATION CHANGES (CODE 500)				
Project Code	YR	Substation Name	Project Description	Estimated Cost ($)
501	2024	As Listed in Table 4-1	(15) G&W Viper-ST with SEL-651R Controls	$525,000
502	2026	As Listed in Table 4-1	(14) G&W Viper-ST with SEL-651R Controls	$592,900
503	2024	As Listed in Table 4-1	(48) SEL-2431 Voltage Regulator Controls	$96,000

5.6 Code 600 Items

Table 5-6 Miscellaneous Distribution Equipment (Code 601-606)

MISCELLANEOUS DISTRIBUTION EQUIPMENT (Code 601-606)							
	Actual		Work Plan Estimate				
	2021	2022	2024	2025	2026	2027	Total
Transformer Data (601)							
1. Number of New Transformers							
a. Overhead 1 Ph	347	398	410	420	431	442	1,703
b. Padmounted 1 Ph	20	20	30	30	30	30	120
c. Padmounted 3 Ph	0	0	10	10	10	10	40
d. Total	367	418	450	460	471	482	1,863
2. Average Cost per Unit							
a. Overhead 1 Ph	1,055	1,218	1,896	2,086	2,295	2,524	2,200
b. Padmounted 1 Ph	2,281	2,714	2,866	3,152	3,467	3,814	3,325
c. Padmounted 3 Ph	-	-	49,500	54,450	59,895	65,885	57,432
3. Total Cost							
a. Overhead 1 Ph	366,110	484,903	777,524	876,137	988,992	1,115,656	3,758,308
b. Padmounted 1 Ph	45,626	54,289	85,965	94,562	104,018	114,419	398,964
c. Padmounted 3 Ph	0	0	495,000	544,500	598,950	658,845	2,297,295
d. Total Cost	411,736	539,192	1,358,489	1,515,198	1,691,959	1,888,920	6,454,567
Meter Data (601)							
1. Number of Meters	15	13,700	1,000	1,000	1,000	1,000	4,000
2. Average Installed Cost	713	140	275	303	333	366	1,276
3. Total Meter Cost	10,698	1,918,320	275,000	302,500	332,750	366,025	1,276,275
Note: AMI meter project expected to be complete this year							

MISC. DISTRIBUTION EQUIPMENT (Code 601-606) - (Continued)							
	Actual		Work Plan Estimate				
	2021	2022	2024	2025	2026	2027	Total
Service Changes (602)							
1. Number of Increases							
1. Number of New Units	10	8	10	10	10	10	40
2. Average Cost per Unit ($)	1,755	618	1,223	1,346	1,480	1,628	1,420
3. Total Cost ($)	17,549	4,943	12,235	13,458	14,804	16,285	56,782
Line Sectionalizing Equipment (603)							
1. Total Cost ($)	44,645	124,446	177,000	184,700	193,170	202,487	757,357
Line Regulators (604)							
1. Number of New Units	0	0	0	0	0	0	0
2. Average Cost per Unit ($)	0	0	0	0	0	0	0
3. Total Cost ($)	0	0	0	0	0	0	0
Line Capacitors and/or Reactors (605)							
1. Number of New Units	0	0	0	0	0	0	0
2. Average Cost per Unit ($)	0	0	0	0	0	0	0
3. Total Cost ($)	0	0	0	0	0	0	0
Pole Replacements and/or Additions and Associated Hardware (606)							
1. Number of Poles Replaced	192	394	365	365	365	365	1,460
2. Average Installed Cost Per Pole ($)	1,981	2,673	2,673	2,940	3,234	3,558	12,405
3. Total Cost ($)	380,352	1,053,162	975,605	1,073,165	1,180,482	1,298,530	4,527,782
Note: Line Sectionalizing Equipment (603) assumes $100k per year to reflect historic spending on sectionalizing equipment, as well as an additional 20 OCRs per year in preparation for upcoming sectionalizing studies.							

Table 5-7 Miscellaneous Equipment Replacements (Code 607)

MISCELLANEOUS REPLACEMENTS (CODE 607)					
Project Code	Year	Substation-Circuit	Project Description	Miles	Estimated Cost ($)
607.24	2024	System	Miscellaneous Plant Equipment Replacement Work		100,000
607.25	2025	System	Miscellaneous Plant Equipment Replacement Work		110,000
607.26	2026	System	Miscellaneous Plant Equipment Replacement Work		121,000
607.27	2027	System	Miscellaneous Plant Equipment Replacement Work		133,100
		Total Cost Code 607 by Year			464,100
Code 607 - (Excludes Poles covered under Code 606 and Conductor covered under Code 608). Includes all costs associated with replacement of plant items such as guys, anchors, crossarms, insulator strings, etc. where pole change-out due to condition of pole is not the predominant cost involved.					

Table 5-8 Conductor Replacements (Code 608)

CONDUCTOR REPLACEMENTS (CODE 608)					
Project Code	Year	Substation-Circuit	Project Description	Miles	Estimated Cost ($)
Non-Site Specific OH and UG Plant Replacement Work					
608.24	2024	System	Non-Site Specific Plant Replacement Work	10.00	1,000,000
608.25	2025	System	Non-Site Specific Plant Replacement Work	10.00	1,100,000
608.26	2026	System	Non-Site Specific Plant Replacement Work	10.00	1,210,000
608.27	2027	System	Non-Site Specific Plant Replacement Work	10.00	1,331,000
		Total Cost Code 608 by Year for Non-Site Specific Projects		40.00	4,641,000

Code 608 - Includes costs associated with construction to replace aged-deteriorating overhead or underground line sections (except service wires) and includes all associated structure changes.

5.7 Code 700 Items

Table 5-9 Other Distribution Items (Code 700)

OTHER DISTRIBUTION ITEMS (Code 700)							
	Actual		Work Plan Estimate				
	2021	2022	2024	2025	2026	2027	Total
Outdoor Lights (702)							
1. Number of Lights	275	224	310	310	310	310	1,240
2. Average Installed Cost ($)	1,348	1,363	1,499	1,649	1,814	1,996	1,740
3. Total Cost ($)	370,772	305,416	464,783	511,261	562,387	618,626	2,157,058

6 Exhibits

Exhibit 6-1 Unit Cost Estimates

UNIT COST ESTIMATES (1)								
I. Distribution								
Overhead Tie Line (14.4/24.94 kV)								
	Cost Per Mile ($)							
	1ø				**3ø**			
Size (ACSR)	**2024**	**2025**	**2026**	**2027**	**2024**	**2025**	**2026**	**2027**
#2	65,000	71,500	78,650	86,515	100,000	110,000	121,000	133,100
3/0	N/A	N/A	N/A	N/A	120,000	132,000	145,200	159,720
336 KCMIL	N/A	N/A	N/A	N/A	140,000	154,000	169,400	186,340

Overhead to Overhead Conversion (14.4/24.94 kV)					
		Cost Per Mile ($)			
Existing	**New**	**2024**	**2025**	**2026**	**2027**
1ø	1ø-#2 ACSR	70,000	77,000	84,700	93,170
1ø	Vø-#2 ACSR	81,000	89,100	98,010	107,811
1ø	3ø-#2 ACSR	100,000	110,000	121,000	133,100
1ø	3ø-3/0 ACSR	115,000	126,500	139,150	153,065
Vø	Vø-#2 ACSR	90,000	99,000	108,900	119,790
Vø	3ø-#2 ACSR	110,000	121,000	133,100	146,410
Vø	3ø-3/0 ACSR	120,000	132,000	145,200	159,720
3ø	3ø-#2 ACSR	120,000	132,000	145,200	159,720
3ø	3ø-3/0 ACSR	130,000	143,000	157,300	173,030
3ø	3ø-336 KCMIL	160,000	176,000	193,600	212,960

(1) Costs include an allowance for engineering, legal, and overhead expenses.