Rural Electric Cooperative Corporation

A Touchstone Energy® Cooperative

December 20, 2010

MR JEFF DEROUEN
EXECUTIVE DIRECTOR
PSC
PO BOX 615
FRANKFORT KY 40602-0615

RECEIVED
DEC 22 2010
PUBLIC SERVICE COMMISSION

Dear Mr. Derouen:

Per your request, I have enclosed 10 copies of our application for a certificate of convenience and necessity authorizing Nolin RECC to perform its 2011-2013 construction work plan. I have also enclosed an additional copy of our work plan.

If you have any questions or need any additional information please let me know.

Sincerely,

Michael L. Miller
President & CEO

/afc

Enclosures

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

THE APPLICATION OF NOLIN RURAL ELECTRIC COOPERATIVE CORPORATION FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY TO CONSTRUCT FACILITIES ACCORDING TO THE APPLICANT'S 12/01/10 ~ 11/30/13 CONSTRUCTION WORK PLAN	)))))	**CASE NO. 2010 - _____**

APPLICATION

Nolin Rural Cooperative Corporation, hereinafter called the Applicant, respectively advises the Commission that:

1. The applicant is a nonprofit membership cooperative corporation without capital stock, duly organized and existing under K.R.S. Chapter 279, engaged in the sale of electric energy at retail rates to its member-consumers in the Kentucky counties of Bullitt. Breckinridge, Grayson, Green, Hardin, Hart, LaRue, Meade and Taylor.

2. The name of the Applicant is Nolin Rural Electric Cooperative Corporation, with a business address of 411 Ring Road, Elizabethtown, Kentucky, 42701-6767. {807 KAR 5:001, Section 8(1)}

3. This application is for a Certificate of Public Convenience and Necessity ("CPCN") to construct electric distribution facilities as set out in the attached 12/01/10 ~ 11/30/13 Construction Work Plan, hereinafter referred to as the CWP.

4. The CPCN for the CWP will permit the Applicant to construct certain improvements and additions to existing distribution plant necessary to provide adequate and dependable electric service to existing and anticipated new members. System improvements recommended within the CWP will not duplicate existing facilities and are needed to correct voltage problems, improve phase balance, reduce system energy losses and provide for improved service reliability.

5. The CWP covers the period of three years between December 1, 2010 and November 30, 2013, and was prepared by the firm of Envision, 211 Davis Hollow, Berea, KY and the Applicant's staff. A copy of the CWP is filed herein and made a part hereof as Exhibit 1 (NRECC_CWP_120910.pdf). The CWP was submitted to the Rural Utility Service ("RUS"), for approval, which was granted December 8, 2010; said approval is filed herein and made a part hereof within Exhibit 1.

6. The CWP was approved by the Applicant's Board of Directors on December 9, 2010. Said approval is filed herein and made part hereof within Exhibit 1.

7. No CWP construction or extensions will require franchises or permits to be filed with the Commission.

8. The CWP and maps filed with this Application provide a description and location of new construction and extensions. All construction and extensions will provide service to retail consuming facilities located in the territory certified to the Applicant for retail electric service under K.R.S. 278.016~.018.

9. Total projected expenditures for the three-year CWP are estimated to be **$12,916,338** and summarized as follows:
   a. **$4,086,112** ~ New member construction totaling **81.92** miles
   b. **$4,157,538** ~ Transformers and meters
   c. **$ 494,560** ~ Service changes and upgrades
   d. **$ -0-** ~ Sectionalizing equipment and activities
   e. **$ -0-** ~ Capacitor bank appurtenances and controls
   f. **$ -0-** ~ Voltage regulators
   g. **$1,323,540** ~ Pole replacement
   h. **$1,028,924** ~ Aged conductor replacement
   i. **$ 607,068** ~ Security light installations
   j. **$1,218,596** ~ System improvement projects
   k. **$ -0-** ~ AMR equipment

10. The annual fixed charge rate, when applied to the initial plant investment, gives the annual revenue requirement for capital. The annual fixed charge rate components, provided by Applicant, were developed based on three-year average of cost of operation and maintenance, depreciation, insurance, and taxes as a percentage of installed plant cost and the cost of capital as previously developed. The provided depreciation life in years is 27 years for distribution facilities. To determine a real interest rate, historical interest rates were reviewed relative to the rate of inflation. Historically, prime lending rates have been one to three percent greater than inflation. Based on information from the Applicant, the discount rate for economic analysis was 2.0%.

Summary of Assumed Fixed Annual Charge Rates

Item	Distribution Plant
Cost of Capital	5.50%
Depreciation	3.70%
Operation and Maintenance	5.29%
Taxes	0.66%
Insurance	0.05%
TOTAL	**15.20%**

The data contained in this section details the assumptions which were taken from the Electric System Transmission & Distribution Planning Study submitted to the Utilities Commission City of New Smyrna Beach. The study can be viewed in its entirety at: http://www.ucnsb.org/ftp/ElectricalSystemPlanningStudy.pdf.

11. The Applicant is filing an application with RUS to arrange 100% financing of CWP projects with the RUS treasury rate loan program. Contract and force accounts financed with internally generated funds and a short-term line of credit will be used until all loan approvals are granted. Said RUS financing will reimburse the general funds expended for the initial portion of the CWP and finance the balance of the CWP.

12. The current and projected revenues are sufficient to cover any additional operating expenses that may be incurred in relation to the CWP. The addition of new members-consumers should assist in offsetting any additional expenses. The upgraded lines will also reduce system energy losses and assist in offsetting additional expenses.

WHEREFORE, the Applicant now moves the Public Service Commission of the Commonwealth of Kentucky to grant the said Certificate of Public Convenience and Necessity for Applicant's CWP which the Applicant has herein requested and which the Commission has discretion to grant pursuant to KRS 278.020 (1).

WITNESS the hand of the Applicant on this the 15 day of December, 2010, by its authorized representative.

NOLIN RURAL ELECTRIC
COOPERATIVE CORPORATION

BY: _____
Vincent J. Heuser
Vice President System Operations

BY: _____
John J. Scott
Attorney for Applicant
PO Box 389
Elizabethtown, Kentucky 42701
270.765.2179

STATE OF KENTUCKY
COUNTY OF HARDIN

Subscribed, sworn to and acknowledged before me by Vincent J. Heuser, as Vice President System Operations of NOLIN RURAL ELECTRIC COOPERATIVE CORPORATION this 15 day of December, 2010.

_____
NOTARY PUBLIC, STATE AT LARGE, KY

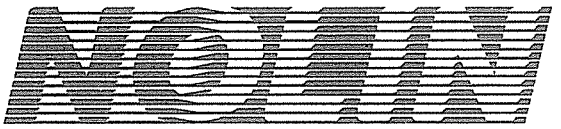
MY COMMISSION EXPIRES: Jan 29, 2011

STATE OF KENTUCKY
COUNTY OF HARDIN

Subscribed, sworn to and acknowledged before me by John J. Scott, as Attorney for NOLIN RURAL ELECTRIC COOPERATIVE CORPORATION this 15 day of December, 2010.

_____
NOTARY PUBLIC, STATE AT LARGE, KY

MY COMMISSION EXPIRES: Jan 29, 2011



Rural Electric Cooperative Corporation

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RESOLUTION

WHEREAS, a Three-Year Construction Work Plan dated 2011-2013 in the amount of $12,916,338 has been prepared by Nolin Rural Electric Cooperative Corporation Engineering Department Staff and Envision Energy Services, Roger Wilson, PE.

NOW, THEREFORE, BE IT RESOLVED, that the Board of Directors of Nolin Rural Electric Cooperative Corporation hereby approves the 2011-2013 Work Plan as a plan of action, to be followed, or until amended with approval of RUS.

CERTIFICATION OF SECRETARY

I, A. L. Rosenberger, Secretary of Nolin Rural Electric Cooperative Corporation hereby certify that the foregoing is a full, true, and correct copy of the Resolution duly passed by the Board of Directors of Nolin Rural Electric Cooperative Corporation at the meeting duly called and held in compliance with the By-Laws of the Cooperative on the 9th day of December 2010, at which meeting a quorum was present, and that the Resolution as set out above appears in the minutes of that meeting in the Minute Book of the Cooperative dated this 9th day of December 2010.

A. L. Rosenberger

A. L. Rosenberger, Secretary

411 Ring Road • Elizabethtown, KY 42701-6767 • (270) 765-6153

United States Department of Agriculture | Rural Economic and Community Development | Rural Utilities Service | Washington, DC 20250

December 8, 2010

2011-2013 Construction Workplan (CWP)

Michael Miller, President and CEO
Nolin RECC

I have completed my review of the cooperative's 2011-2013 CWP, which was prepared by the Roger Wilson and the Nolin Engineering Department, 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 1794).

Load management projects will be reviewed/approved by the Northern Regional Division office, as necessary. This action will be taken after their receipt of the CWP and other supporting documents (i.e., appropriate feasibility and engineering studies).

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 1794. 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

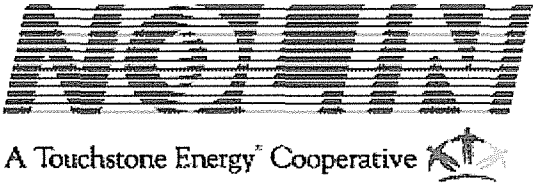
Mike Norman
RUS Field Representative

A Touchstone Energy® Cooperative

2011-2013 CONSTRUCTION WORK PLAN

Prepared by
NOLIN RURAL ELECTRIC COOPERATIVE CORPORATION
&
ENVISION ENERGY SERVICES
Roger Wilson, PE

December 2010



2011-2013 CONSTRUCTION WORK PLAN

FOR

NOLIN RURAL ELECTRIC COOPERATIVE CORPORATION

KENTUCKY 51-HARDIN
ELIZABETHTOWN, KENTUCKY

PREPARED BY:

NOLIN RURAL ELECTRIC COOPERATIVE CORPORATION
&
ENVISION ENERGY SERVICES

December 2010

I hereby certify that this 2011-2013 Construction Work Plan was prepared by me or under my direct supervision and that; I am a duly registered professional engineer under the laws of this State Kentucky.

12-8-10
(Date)

By: Roger Dean Wilson by: Tiffany Snodgrass
(Engineer, P.E.)

TABLE OF CONTENTS

1. **EXECUTIVE SUMMARY**
   - A. Purpose, Results, and General Basis of Study
   - B. Service Area & Power Supply
   - C. Summary of Construction Programs and Cost
   - D. Summary of Construction & Status of 2007-2009

2. **BASIS OF STUDY AND PROPOSED CONSTRUCTION**
   - A. Design Criteria
   - B. Distribution Line and Equipment Costs
   - C. Analysis of Long Range Plan
   - D. Sectionalizing Studies
   - E. Analysis of 2010 Operations & Maintenance Survey
   - F. Historical Summer Peaks & Projections
   - G. Historical Winter Peaks & Projections
   - H. Historical Outage Summary
   - I. Services to New Customers & Comparison to History

3. **REQUIRED CONSTRUCTION ITEMS**
   . (Construction Items & Details By Item)

4. **EXISTING SYSTEM'S WINTER PEAK – EXTREME**
   (By Substation and Feeder)

5. **PROPOSED CHANGES ON SYSTEM AT PEAK**
   (By Substation and Feeder)

6. **MAP OF SYSTEM**
   (Exhibit A)

EXECUTIVE

SUMMARY

PURPOSE OF REPORT

This report documents the January 2010 engineering analysis and summarizes the proposed construction of Nolin Rural Electric Cooperative Corporation's (NRECC) electric distribution system for the three-year planning period of 2011-2013.

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

RESULTS OF PROPOSED CONSTRUCTION

Upon completion of the facilities proposed herein, the system will provide adequate and dependable service to 30,182 residential/farm consumers using an average of 1, 280 KWh per consumer per month, 1,675 commercial and small industrial consumers, and 3 large industrial consumers. The construction proposed will allow the NRECC distribution system to sustain a 226 MW peak demand.

GENERAL BASIS OF STUDY

The 2013 projected number of consumers and total peak system load were interpolated directly from the cooperative's 2010 Power Requirements Study (PRS) as approved by RUS. The peak system load projections were increased slightly to include additional new specific loads that were not anticipated when the PRS was prepared.

The cooperative has an approved Long-Range Plan (LRP) with new load projections and recommendations. NRECC has worked very closely with ENVISON ENERGY SERVICES in developing load projections and assumptions to be made for the construction work plan. All of the construction proposed herein is consistent with the LRP unless otherwise noted and explained.

The cooperative's August 18, 2010 operations and maintenance review, (Review Rating Summary; RUS Form 300), was used to determine construction required to replace physically deteriorated equipment and material, upgrade portions of the system to conform with code or safety requirements, and/or improve reliability or quality of service.

New distribution, transmission, and power supply 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 and approved by the cooperative's power supplier, East Kentucky Power Cooperative (EKPC).

A complete list of the lines and equipment and their estimated cost, (all based on recent historical data), required to serve new members is developed in Section 1-C. A similar list and cost of necessary service upgrades to existing members is in Section 3.

An analysis, using as a basis RUS guidelines and the design criteria herein, of thermal loading, voltages, physical conditions and reliability was performed on all of the substations, distribution lines, and major equipment of the existing system. Milsoft's WINDMIL (version 7) was used to analyze the distribution circuits during the estimated 2013 winter extreme peak loading period of 226MW.

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

SERVICE AREA & POWER SUPPLY

Nolin Rural Electric Cooperative Corporation, whose headquarters are in Elizabethtown, Kentucky, provides service in the rural areas of two counties and small portions of six counties in the central portion of the state as shown on the following map. The service area is comprised mostly of rolling, forested hills and has two small lakes. NRECC's service area surrounds Elizabethtown and Hodgenville, both of which are served by an investor-owned utility.

Most of the economy of the area is based on commercial industries and agriculture. NRECC has and will continue to serve the moderate growth of new commercial, manufacturing, and residential consumers adjacent to Elizabethtown. However, an industrial park is being proposed in the southern portion of the Hardin County area, served by NRECC, which may have dramatic impact on that portion of the system.

The following data is from NRECC's 12/2009 RUS Form 7:

Number of Consumers in place:	33,864
MWh Purchased:	725,585
MWh Sold:	696,022
Total Utility Plant:	$90,431,112
Consumers/Mile:	11.84

Eighty-five primary distribution circuits are served from 22 separate distribution transformers and 18 different substation sites. All of the distribution circuits are energized at 7,200/12,470 Volts, grounded WYE. Installed conductor sizes range from #4 ACSR to 366.4 MCM ACSR. Almost all primary construction is overhead with a small percentage of new and existing plants being underground primary. The underground primary ranges in sizes from #2 AL to 500 MCM AL.

East Kentucky Power Cooperative provides all of the power and energy needs to Nolin Rural Electric Cooperative Corporation, plus 15 other distribution cooperatives, by virtue of a standard "all power requirement" contract. EKPC is a RUS financed G&T cooperative with offices in Winchester, Kentucky.

EKPC constructs, owns, operates, and maintains the 23 substations and 69,000-Volt transmission lines, which supply NRECC's distribution system. The substation low-side voltage is 7,200/12,470 Volts, grounded WYE.

SUMMARY OF PROPOSED 3 YEAR CONSTRUCTION WITH COST

CODE	DESCRIPTION	NUMBER OF	AVERAGE	YEAR 1	YEAR 2	YEAR 3	TOTAL
100	**NEW DISTRIBUTION LINES**						
	OVERHEAD *(7.95 miles)*	210	*$1,378*	$92,750	$96,460	$100,170	$289,380
	UNDERGROUND *(73.86 miles)*	1950	*$1,910*	$1,112,400	$1,241,500	$1,376,900	$3,730,800
	COMMERICAL SERVICES *(0.11 miles)*	3	*$21,978*	$21,331	$21,971	$22,630	$65,932
	100 items –SUBTOTAL	***81.92 mi***		$1,226,481	$1,359,931	$1,499,700	**$4,086,112**
327	CWP ITEM 20_2_ABC *(Veterans Way)*	1	*$231,221*			$231,221	
328	CWP ITEM 7_5_B *(Copeland Road to Store)*	0.4	*$38,058*		$15,223		
329	CWP ITEM 7_5_B *(Cash Road off Flint Hill)*	1.4	*$38,058*		$53,281		
330	CWP ITEM 4_2_B *(Keith Road)*	3	*$38,058*	$114,174			
331	CWP ITEM 8_4_C *(Horn Road/Hardinsburg)*	1.8	*$38,058*			$68,504	
332	CWP ITEM 4_3_ABC *(Salem Church Road)*	2.1	*$161,153*		$338,421		
333	CWP ITEM 22-4-A *(Sport Ctr. St. John Rd)*	0.9	*$231,221*	$208,099			
	300 items---SUBTOTAL	***10.6 mi***		$322,273	$406,925	$299,725	**$1,028,924**
601	**TRANSFORMER & METERS**						
	OH TRANSFORMERS	630	*$1,111*	$226,380	$233,310	$240,240	$699,930
	UG TRANSFORMERS	1386	*$2,009*	$898,128	$924,924	$952,644	$2,775,696
	COMMERICAL TRANSFORMERS	15	*$9,255*	$44,915	$46,260	$47,650	$138,825
	METERS- AMR 3 PHASE	321	*$464*	$48,150	$49,648	$51,039	$148,837
	METERS- AMR	2250	*$175*	$119,000	$131,250	$144,000	$394,250
	601 items –SUBTOTAL			$1,336,573	$1,385,392	$1,435,573	**$4,157,538**
602	**SERVICE UP-GRADES WITH WIRE CHANGES**	240	*$2,061*	$160,000	$164,800	$169,760	**$494,560**
603	SECTIONALIZING CONTROLS						-0-
604	VOLTAGE REGULATORS						-0-
605	CAPACITORS						-0-
	POLE REPLACEMENTS						
606	POLES REPLACEMENTS	180	*$2,206*	$132,340	$132,340	$132,340	**$397,020**
609	POLES REPLACED FOR CODE	420	*$2,206*	$308,840	$308,840	$308,840	**$926,520**
	[Continued on next page]						

CODE	DESCRIPTION	NUMBER OF	AVERAGE	YEAR 1	YEAR 2	YEAR 3	TOTAL
	[Continued from previous page]						
610	**ROAD MOVES -SITES SPECIFIED**						
610.1	CWP ITEM 10_2_ABC*(Ditto Lane-HWY313)*	1.4	*$121,216*		$169,702		$169,702
610.2	CWP ITEM 20_2_ABC *(Rineyville Rd Reloc.)*	1.9	*$161,153*	$306,191			$306,191
610.3	CWP ITEM 20_2_ABC *(Rineyville Rd Ext.)*	0.7	*$161,153*			$112,807	$112,807
	610--SUB-TOTAL	*4.0 mi*					$588,700
611	**LINE RELOCATION- SAFETY OR ACCESS**						
611.1	CWP ITEM 9_6_ABC *(Centennial Avenue)*	1.7	*$161,153*			$273,960	$273,960
611.2	CWP ITEM 7_5_B *(Lee School Road)*	2.2	*$38,058*		$83,728		$83,728
611.3	CWP ITEM 4_2&3_ABC *(DC – Hodgenville)*	1.5	*$181,472*	$272,208			$272,208
	611—SUB-TOTAL	*5.4 mi*					$629,896
	610 & 611—SUBTOTAL	***9.4 mi***		$578,399	$253,430	$386,767	**$1,218,596**
615	COMMUNICATIONS						-0-
701	SECURITY LIGHTS	567	*$1,070*	$196,371	$202,230	$208,467	**$607,068**
704	LOAD MANAGEMENT						-0-
	TOTAL WORK PLAN						**$12,916,338**

STATUS OF 2008-2009 WORK PLAN 300'S PROJECTS

CODE	DESCRIPTION	PROGRESS
306	CWP ITEM 20_2_A (Mega Plex) 3 PH-500MCM URD	Delete
307	CWP ITEM 17_4_ A (Chattsworth-Pine Valley) 3PH 336.4 ACSR	Done
308	CWP ITEM 12_4_A (St. Johns-St. Johns Rd)--3PH 336.4 ACSR	Delete
311	CWP ITEM 16_3_A (Locust Grove RD)-3PH 336.4 ACSR	Done
379	CWP ITEM 5_1_O (Mt.Sherman--1PH-3PH 3/0)	Done
312	CWP ITEM 13_3_A (Callie Farm) 4/0 URD	Done
313	CWP ITEM 22_2-2A (Fd From New Sub) Rineyville	Done
314	CWP ITEM 13_4_A (Boone Road) 336.4 ACSR	Done
315	CWP ITEM 3_2_A (Gaither St..Scenic Oak)	Done
316	CWP ITEM 1_2_A (Sub to Stovall) 336.4 ACSR	Done
317	CWP ITEM 13_3_A (Claramont Decker School Road)	Done
318	CWP ITEM 10_3_A (Arlington Woods) URD	Done
320	CWP ITEM 22_1_B (Service Point Flint Ink) URD	Done
321	CWP ITEM 22_1_A (Tharp II to Flint Ink) 336.4 AA	Done
322	CWP ITEM (amendment I Rosenberger Road) 1/0 ACSR 3PH	Done
323	CWP ITEM (amendment II North Miles Road) 336.4 ACSR 3PH	Done
324	CWP ITEM (amendment II Highway 313) 336.4 ACSR 3PH	Done

BASIS OF STUDY AND PROPOSED CONSTRUCTION

DESIGN CRITERIA

Each of the following design criteria items was reviewed by the RUS General Field Representative on June 1, 2010 and his provisional concurrence was attained.

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

1. Voltage levels on primary distribution lines are to fall between 117 and 126 Volts on a 120 base.
2. The following equipment is not to be thermally loaded by more than the percentage shown on its nameplate rating (winter loading)

o Power Transformers	130% Winter ;	100% Summer
o Voltage Regulators	130% Winter ;	100% Summer
o Auto-Transformer	130% Winter ;	100% Summer
o Reclosers	100% Winter or Summer	
o Line Fuses	80% Winter or Summer	

3. Primary conductors are not to be loaded over 75% of their thermal rating. A case-by-case limit is used for the major tie lines between substations to allow for different back feed situations.
4. Poles and/or crossams are to be replaced if found to be physically deteriorated by visual inspection and/or tests.
5. Conductors (and associated poles and hardware as required) will be considered for replacement if found to be poor condition, having excessive sag or in need of being changed out on a systematic basis.
6. Primary distribution lines are to be rebuilt and/or relocated if they are found to be unsafe or fail to meet the applicable National Electrical Safety Code clearances.

7. New lines and line conversions to be built according to the standard primary voltage levels as determined after review of the Long Range Plan, present loading and future load growth projection.
8. New primary conductor sizes to be determined on a case-by-case basis using the Economic Conductor Sizing Computer Program and presently valid constants and variables. The final proposed conductor may be modified to conform to the cooperative's standard sized and recommendations of the Long Range Plan.
9. All new primary construction is to be overhead except where underground is required to comply with governmental or environmental regulations, local restrictions or favorable economics.
10. All new distributions lines are to be designed and built according to RUS standard construction specifications and guidelines.
11. System improvements to correct voltage drop and improve phase balance will be made on single and two-phase lines with loads exceeding 50 amps or 70 consumers (based on Operating and Engineering practices).
12. Power factor correction is to be made when the substation power factor decreases below 95% lagging at peak load or 95% leading at minimum load. Power factor corrections with capacitors are to be located for maximum loss reduction with considerations given for voltage improvements.
13. Due to the increased loading of ice and wind in recent years, Nolin will take into consideration (where appropriate) the changes recommended by the Public Services Commission; which include the shorting of spans, heavier pole classes, and additional guying strengths.

(The preceding criteria are used for design purposes only. It is not meant to be inclusive of all criteria that can or should be used in making recommendations for construction work.)

DISTRIBUTION LINE AND EQUIPMENT COSTS

DESCRIPTION	2007-2009 COST/MILE	2011-2013 PROPOSED
SINGLE PHASE OVHD		
#2 ACSR	$35,904	**$38,058**
SINGLE PHASE URD		
#1/0 STR AL 15KV	$58,869	**$62,401**
THREE PHASE OVHD		
#2 ACSR	$105,864	**$112,216**
#3/0 ACSR	$106,709	**$121,029**
#336.4 MCM ACSR	$142,085	**$161,153**
#336.4 MCM AA MOD.	$140,131	**$158,937**
#336.4 MCM ACSR—D.C.	✓ $160,000	**$181,472**
THREE-PHASE URD		
#1/0 STR AL	$113,512	**$128,745**
#4/0 STR AL	$206,646	**$234,378**
#500 MCM STR AL	$203,863	**$231,221**

NOTES:
The cost/mile provided was obtained from a 24-month historical average cost from data in the 219 forms.

✓ No actual projects available adjusted as new construction of 2009 cost.

Increase criteria for next three year period:

- 6% increase contractor labor
- 6% increase Nolin labor
- 7% increase aluminum wire [separation of cost (30% project cost wire, remainder is hardware & labor)]

ANALYSIS OF LONG RANGE PLAN

Nolin Rural Electric Cooperative Corporation has completed a Long Range Plan in 2000 that projected system improvements and load growth through 2020. The study was performed by Hi-Line Engineering from Marietta, Georgia.

The report planned for the development of Nolin RECC's distribution system to a future configuration with the capacity to serve approximately 1.5 times the winter peak load of 1998-1999. The Long Range Plan for the distribution system called for maintaining the current distribution voltages. Five new substations were recommended to be constructed. Tunnel Hill II, Elizabethtown II, and Rineyville are now completed. Tharp II has been recently completed in the year 2009 and incorporated into the system with additional distribution lines.

The Long Range Plan was conducted with the final loading of the Nolin RECC's distribution system being equal to 289.6 MW. The second five-year loading block anticipated a system of peak of 225.6 MW. The highest actual system loading was in the winter of 2008-2009 peaking at 226MW, indicating a very close tracking to the Long Range Plan's system predictions as well as the individual substations. The system is growing with a strong residential and commercial growth with expectations of continued development. The Power Requirement Study for Nolin RECC mirrors a very similar growth pattern to the actual development model.

The Long Range Plan does indicate a new substation to be place in the Valley Creek Area for support of the Hodgenville and Williams Substations. With the advent of substation loading indicated by the Power Requirement Study in demands, compared to Substation KVA ratings of East Kentucky Power, it will be prudent to evaluate this area for maximum benefit of existing line sectionalizing and/or upgrading substations. The loading percentages are, at the close of the proposed work plan, within the maximum allowable demands. The third block of growth in the Long Range Plan will require an evaluation of substation loading for Hodgenville, Kargle, Tharp, Upton and Williams (as noted in the projected Winter & Summer Substation Loading Table). This evaluation will be done within this work plan period to coordinate an expected completion time of the Valley Creek Area Substation construction before a critical peak will be reached.

It is concluded that the Long Range Plan is adequate for this work plan. With the arrival of growth in particular areas and summer peak loading becoming a concern, it would be advantageous to observe the actual growth patterns in relationship to the characteristics presented in the Long Range Plan's distribution of loads for the second block of five year loading.

SECTIONALIZING STUDIES

Nolin Rural Electric Cooperative Corporation performed a study in 2008 and 2009 on independent circuits, which had prominent changes in loading due to growth or line switching. The practice of annually analyzing the over-current coordination of all new or significant changes in circuits is good engineering practice.

Upon closing of individual Construction Work Plan projects a continuous loading efficiency evaluation and a study performed on the OCRs, fuses, and other devices required to adequately protect the circuits due to changes. NRECC will continue a maintenance program that will provide testing or changing approximately one-fourth of the systems OCRs annually.

ANALYSIS OF 2010 OPERATIONS & MAINTENANCE SURVEY

In August 18, 2010, an Operation and Maintenance Survey (O & M Survey) of the NRECC distribution system was conducted. Line and pole inspection records, voltage and current test records, special equipments records, outage records, and a field survey of the underground distribution system comprised the basis for the system analysis and rating.

Transmission lines and distribution substations are owned and maintained by East Kentucky Power Cooperative (EKPC) and has been excluded from the rating process.

In general, the overhead and underground distribution facilities were found to be in satisfactory condition. All of the operations and maintenance, and engineering programs were found to be satisfactory.

It is recommended to continue the program of inspecting approximately 8500 poles per year. The method of inspection is ground patrol and utilizing personnel that are working on mapping projects. It is anticipated that approximately 2 percent of the poles will be found to be physically deteriorated and require replacement. The estimated cycle to inspect all of NRECC's distribution poles is 4 years.

Our system, as well as the surrounding electric systems, experienced two events 2009 that tested our construction beyond the normal design criteria. The ice loading was over a half inch with heavy wind and a second event of intense wind. The weather events posed a comprehensive review of the system inspection, tree trimming and building technology for transmission and distribution lines as well as joint use attachments. The results were reviewed by the Public Service Commission of Kentucky.

NRECC has a program to clear its overhead distribution line rights-of-way on a 5-year cycle. This requires clearing of approximately 500 miles each year by contract tree trimming crews. Due to increased growth of shade trees in urban areas, it is recommended that NRECC evaluate increased tree trimming in these urban areas. An alternate program would be a tree replacement plan for danger trees.

NRECC will continue to work with the telephone and cable television companies to remove poles that have been abandon by the cooperative and still have joint-use-attachments to the old poles.

SUBSTATION LOADING TABLE FOR PEAK MONTHS
HISTORICAL & PROJECTED WINTER SEASON

				HISTORICAL		PROJECTED	
	TRANSFORMER		WINTER	PEAK	LOAD AS A %	PEAK	% SUB
SUBSTATION	#	KVA SIZE	RATING	KW	OF MAX	KVA	MAX
COLESBURG	3	5,600	7,900	3,900	49%	4,300	54%
ELIZABETHTOWN I	3	11,200	18,000	10,100	42%	4,400	24%
ELIZABETHTOWN II	1	11,200	15,300	9,400	35%	9,600	63%
GLENDALE	3	10,000	15,700	12,300	72%	11,700	*75%*
HODGENVILLE	1	11,200	15,600	12,500	68%	12,500	*80%*
MAGNOLIA	1	11,200	15,600	10,500	59%	10,600	68%
STEPHENSBURG	3	10,000	15,600	11,600	59%	11,900	*76%*
UPTON	3	4,200	8,300	4,700	57%	5,500	66%
VERTREES	3	10,000	15,700	8,800	49%	8,700	55%
VINEGROVE	3	14,000	18,000	12,400	49%	11,000	61%
RADCLIFF	3	14,000	18,000	12,100	56%	13,000	*72%*
TUNNEL HILL I	3	14,000	18,000	8,300	36%	8,200	46%
TUNNEL HILL II	1	11,200	17,800	11,800	58%	11,800	66%
THARP I	3	11,200	18,000	14,860	83%	11,100	62%
THARP II (#2)	1	14,000	18,000	4200	83%	4,500	25%
SMITHERSVILLE I	1	14,000	18,000	11,900	57%	12,300	68%
SMITHERSVILLE II	1	14,000	18,000	11,600	46%	10,500	58%
FORT KNOX	1	14,000	18,200	11,900	50%	11,100	61%
KARGLE I	1	11,200	16,100	11,700	82%	11,400	*71%*
KARGLE II	1	11,200	16,700	10,500	71%	7,800	47%
WILLIAMS	1	11,200	18,100	14,500	70%	14,600	*81%*
LOGSDON	1	11,200	18,100	6,700	37%	8,700	48%
RINEYVILLE	1	11,200	15,600	9,400	58%	9,800	63%
MAX. PEAK TOTAL				*235,660*			
PEAK TOTAL USED IN CWP FOR SUBSTATIONS						**225,000**	

NOTES:

PROJECTED (extreme) PEAKS FROM THE PRS 2010 DATA . HISTORICAL PEAK ARE FROM THE ACTUAL PEAK WINTER MONTH NON-CP BILLING FROM EKPC IN THE LAST 11 YEARS.

SUBSTATIONS THAT EXCEED 80% IN PROJECTED PEAKS ARE REVIEWED MONTHLY FOR POTENTIAL ISSUES.

SUBSTATION LOADING TABLE FOR PEAK MONTHS
HISTORICAL & PROJECTED SUMMER SEASON

				HISTORICAL		PROJECTED	
	TRANSFORMER		SUMMER	PEAK	LOAD AS A	PEAK	% SUB
SUBSTATION	#	KVA SIZE	RATING	KW	% OF MAX	KW	MAX
COLESBURG	3	5,600	5,400	5,800	107%	2,800	52%
ELIZABETHTOWN I	3	11,200	11,200	11,000	98%	5,100	46%
ELIZABETHTOWN II	1	11,200	10,500	7,900	75%	8,100	77%
GLENDALE	3	10,000	10,000	8,400	84%	7,800	78%
HODGENVILLE	1	11,200	10,500	8,300	79%	8,200	78%
MAGNOLIA	1	11,200	10,800	6,700	62%	6,700	62%
STEPHENSBURG	3	10,000	10,500	7,200	69%	8,100	77%
UPTON	3	4,200	4,200	3,400	81%	3,600	86%
VERTREES	3	10,000	10,900	7,200	66%	5,900	54%
VINEGROVE	3	14,000	12,900	9,900	77%	8,900	69%
RADCLIFF	3	14,000	12,900	9,500	74%	8,000	62%
TUNNEL HILL I	3	14,000	12,900	12,100	94%	9,000	70%
TUNNEL HILL II	1	11,200	11,200	8,500	76%	8,700	78%
THARP (1).	3	11,200	11,200	13,500	121%	10,500	94%
THARP (2)	3	11,200	11,200	2,800	25%	3,100	28%
SMITHERSVILLE I	1	14,000	12,800	7,000	55%	7,800	61%
SMITHERSVILLE II	1	14,000	12,800	7,800	61%	7,400	58%
FORT KNOX	1	14,000	12,800	8,600	67%	8,100	63%
KARGLE I	1	14,000	12,900	12,200	95%	11,400	88%
KARGLE II	1	14,000	12,900	13,200	102%	7,000	54%
WILLIAMS	1	11,200	10,900	9,600	88%	10,000	92%
LOGSDON	1	11,200	10,900	6,900	63%	7,100	65%
RINEYVILLE	1	11,200	10,900	5,100	47%	6,000	55%

MAX. PEAK TOTAL 192,600

PEAK TOTAL USED IN CWP FOR SUBSTATIONS **169,300 KW**

NOTES: PROJECTED (extreme 20%) PEAKS FROM THE PRS 2010 DATA . HISTORICAL PEAK ARE FROM THE ACTUAL PEAK SUMMER MONTH NON-CP BILLING FROM EKPC IN THE LAST 11 YEARS.

SUBSTATIONS THAT EXCEED 80% IN PROJECTED PEAKS ARE REVIEWED MONTHLY FOR POTENTIAL ISSUES.

HISTORICAL OUTAGES SUMMARY

YEAR	POWER SUPPLIER	MAJOR STORM	SCHEDULE	ALL OTHER	TOTAL
2005	0.4	40.5	0.2	52.2	**93.3**
2006	0	60.7	0	44	**104.8**
2007	0	0	0.01	20.2	**20.4**
2008	0	166.1	0.2	42.2	**208.5**
2009	1	8636*	0.2	40.6	**8677.8**
5 year ave.	***0.28***	***1780.66***	***0.122***	***39.84***	***1820.96***

Notes:

Data from RUS Form 7 December report and Cooperative records.

*Extreme ice storms in the month of January and a damaging windstorm in the early spring.

HISTORICAL COST REQUIRED TO SERVE NEW MEMBERS & PROJECTIONS FOR FUTURE BY YEAR

	ACTUAL		PROPOSED						
	2007-2009 UNITS	2007-2009 $/UNIT	Units 2011	$/Unit 2011	Units 2012	$/ Unit 2012	Units 2013	$/Unit 2013	TOTAL 3 YEAR PERIOD
NEW SERVICES									
Under-ground	***1460***	***$1,800***	600	$1,854	650	$1,910	700	$1,967	$3,730,800
Commercial	***20***	***$20,710***	1	$21,331	1	$21,971	1	$22,630	$65,932
Over-head	***544***	***$1,205***	70	$1,325	70	$1,378	70	$1,431	$289,380
TRANSFORMER									
OVER-HEAD	***1517***	***$1,047***	210	$1,078	210	$1,111	210	$1,144	$699,930
UNDERGROUND	***285***	***$1,887***	462	$1,944	462	$2,002	462	$2,062	$2,775,696
COMMERICAL 3ph	***49***	***$8,721***	5	$8,983	5	$9,252	5	$9,530	$138,825
INSTALLED METERS									
3 PHASE-MTR	***321***	***$82***	107	$450	107	$464	107	$477	$148,837
SINGLE PH. MTR	***2106***	***$150***	700	$170	750	$175	800	$180	$394,250
SERVICE DROPS									
UPGRADED	***180***	***$1,723***	80	$2,000	80	$2,060	80	$2,122	$494,560
SECURITY LIGHTS									
SECURITY LIGHTS	***518***	***$1,009***	189	$1,039	189	$1,070	189	$1,103	$607,068
Deducted16% of units for street lights									
POLE REPLACEMENTS									
POLE CHANGED AS CODE- 606	***486***	***$1,380***	60	$2,141	60	$2,205	60	$2,271	$397,020
POLE IMPROVED AS CODE 609	***782***	***$1,312***	140	$2,141	140	$2,205	140	$2,271	$926,380
'3' YEAR TOTAL					***This 3 YearTotal excludes 300s, 610s, 611s, & 702 codes that follow this page.***				***$10,668,678***

NOTE:

The costs provided are obtained from 24 months of historical average figures from the 219 forms.
Actual '$/Unit' was inflated by a reasonable amount per year for escalation to the 'Proposed Cost'.
The low physical count of single connections is a reflection of the multi-family units, which had one contact point to service several consumers.

REQUIRED LINE CONSTRUCTION ITEMS IN DETAIL FOR:

300's
610's
611's
&
700's

NEW CONSTRUCTION ITEM—LINE CONVERSION

YEAR:	2013
CFR CODE:	327
CWP ITEM NUMBER:	9_6_ABC
ESTIMATED COST:	$231,221
GENERIC NAME:	Veterans Way URD

DESCRIPTION OF PROPOSED CONSTRUCTION

Conversion of a single phase #4 ACSR line [20_2 starting at PROH13233] to a URD 500mcm feeder for a new development and road relocation named Veterans Way. The length of the construction project is 5000' (1 mile).

REASON FOR PROPOSED CONSTRUCTION

The new development is within the boundary of Elizabethtown and is required to have all new construction underground by city zoning. The #4 ACSR will not be able to carry the expected 5MW load.

RESULTS OF PROPOSED CONSTRUCTION

Project will adequately serve the new development and meet the city zoning requirements of underground facilities.

ALTERNATE CORRECTIVE PLANS INVESTIGATED

The option of upgrading an adjacent line or construction of a substation proved to be too costly.

NEW CONSTRUCTION ITEM—LINE CONVERSION

YEAR:	2012
CFR CODE:	328
CWP ITEM NUMBER:	7_5_B
ESTIMATED COST:	$15,223
GENERIC NAME:	Copeland Road to Store

DESCRIPTION OF PROPOSED CONSTRUCTION

Conductor conversion of a single phase #4 ACSR line [7_5_B starting at PROH200178] to a #2 ACSR. The project will run about 10 spans along Copeland Road from Flint Hill Road. The length of the construction project is 2,300' (.4 mile).

REASON FOR PROPOSED CONSTRUCTION

The line has reflected an area of long outages and frequent conductor failures. The #4 ACSR is deteriorated with long spans and the voltage drop for this area is of minimal standard.

RESULTS OF PROPOSED CONSTRUCTION

This configuration can provide a better balance of phases at the substation level; the voltage is corrected to above 118 Volts; and the line is upgraded to newer poles and wire for improved serve and reliability. The larger wire develops a better capacity of back feed capability and balance of phases.

ALTERNATE CORRECTIVE PLANS INVESTIGATED

No other option of upgrading was investigated because of the terrain and heavy rocky soil would have made the cost to expensive.

NEW CONSTRUCTION ITEM—LINE CONVERSION

YEAR:	2012
CFR CODE:	329
CWP ITEM NUMBER:	7_5_B
ESTIMATED COST:	$53,281
GENERIC NAME:	Cash Road (off Flint Hill)

DESCRIPTION OF PROPOSED CONSTRUCTION

Conductor conversion of a single phase #4 ACSR line [7_5_B starting at PROH200005] to a #2 ACSR. The length of the construction project is 7,500' (1.4 mile).

REASON FOR PROPOSED CONSTRUCTION

The line has reflected an area of long outages and frequent conductor failures. The #2 ACSR will provide additional strength to longer spans and improve the voltage drop for this area..

RESULTS OF PROPOSED CONSTRUCTION

This configuration can provide a better balance of phases at the substation level; the voltage is corrected to above 118 Volts; and the line is upgraded to newer poles and wire for improved serve and reliability. The larger wire develops a better capacity of back feed capability and balance of phases.

ALTERNATE CORRECTIVE PLANS INVESTIGATED

No other option of upgrading was investigated because of the terrain and heavy rocky soil would have made the cost to expensive.

NEW CONSTRUCTION ITEM—LINE CONVERSION

YEAR:	2011
CFR CODE:	330
CWP ITEM NUMBER:	4_2_B
ESTIMATED COST:	$114,174
GENERIC NAME:	Keith Road

DESCRIPTION OF PROPOSED CONSTRUCTION

Conductor conversion of a single phase #4 ACSR line [7_5_B starting at PROH189194] to a #2 ACSR. The length of the construction project is 15,800' (3 mile).

REASON FOR PROPOSED CONSTRUCTION

The line has reflected an area of long outages and frequent conductor failures. The #2 ACSR will provide additional strength to longer spans and improve the voltage drop for this area..

RESULTS OF PROPOSED CONSTRUCTION

This configuration can provide a better balance of phases at the substation level; the voltage is corrected to above 118 Volts; and the line is upgraded to newer poles and wire for improved serve and reliability. The larger wire develops a better capacity of back feed capability and balance of phases.

ALTERNATE CORRECTIVE PLANS INVESTIGATED

No other option of upgrading was investigated because of the terrain and heavy rocky soil would have made the cost to expensive.

NEW CONSTRUCTION ITEM—LINE CONVERSION

YEAR:	2013
CFR CODE:	331
CWP ITEM NUMBER:	8_4_C
ESTIMATED COST:	$68,504
GENERIC NAME:	Horn Road *off Hardinsburg Road*

DESCRIPTION OF PROPOSED CONSTRUCTION

Re-conductor of a single phase #2ACSR line [8_4_C starting at PROH189360] to a #2 ACSR. The length of the construction project is 9,500' (1.8 mile).

REASON FOR PROPOSED CONSTRUCTION

Horn Road has multiple long taps feeding the area which has reflected an area of long outages and frequent conductor failures. Consolidating the main feeder will shorten outage time, will provide shorter spans and improve the voltage drop for this area..

RESULTS OF PROPOSED CONSTRUCTION

This configuration can provide a better balance of phases at the substation level; the voltage is corrected to above 118 Volts; and the line is upgraded to newer poles and wire for improved serve and reliability. The configuration develops a better capacity of back feed capability of phases.

ALTERNATE CORRECTIVE PLANS INVESTIGATED

No other option of upgrading was investigated because of the terrain and heavy rocky soil would have made the cost to expensive.

NEW CONSTRUCTION ITEM—LINE CONVERSION

YEAR:	2012
CFR CODE:	332
CWP ITEM NUMBER:	4_3_ABC
ESTIMATED COST:	$338,421
GENERIC NAME:	Salem Church Road Conversion

DESCRIPTION OF PROPOSED CONSTRUCTION

Conversion of a three phase #2 ACSR line [4_3_ABC starting at PROH920] to a #336.4 ACSR. The length of the construction project is 11,500' (2.1 mile).

REASON FOR PROPOSED CONSTRUCTION

The line has reflected an area of long outages and frequent conductor failures. The #4 ACSR will provide additional strength to longer spans and improve the voltage drop for this area..

RESULTS OF PROPOSED CONSTRUCTION

This configuration can provide a better balance of phases at the substation level; the voltage is corrected to above 118 Volts; and the line is upgraded to newer poles and wire for improved serve and reliability. The larger wire develops a better capacity of back feed capability and balance of phases.

ALTERNATE CORRECTIVE PLANS INVESTIGATED

No other option of upgrading was investigated because of the terrain and heavy rocky soil would have made the cost to expensive.

NEW CONSTRUCTION ITEM—LINE CONVERSION

YEAR:	2011
CFR CODE:	333
CWP ITEM NUMBER:	22_4_A
ESTIMATED COST:	$208,099
GENERIC NAME:	Sport Center -St. John Road

DESCRIPTION OF PROPOSED CONSTRUCTION

Convert conductor and conversion of a Single phase #4 ACSR line [22_4_A starting at PROH31041] to a URD #500 MCM Three phase circuit. The length of the construction project is 4,900' (.9 miles).

REASON FOR PROPOSED CONSTRUCTION

The line will serve a new development of complex of several football, baseball, other athletic fields which will have a heavy volume of vehicles and pedestrians traffic. The underground will provide adequate service for the new load and less conflict with high mast lighting installation and maintenance of fields.

RESULTS OF PROPOSED CONSTRUCTION

This configuration can provide a better balance of phases at the substation level and the existing line is upgraded to newer wire for improved serve and reliability. The larger wire develops a better capacity of back feed capability and balance of phases.

ALTERNATE CORRECTIVE PLANS INVESTIGATED

The option of upgrading an adjacent line or construction of a substation proved to be too costly.

CODE **610** SECTION - DETAILS

NEW CONSTRUCTION ITEM—LINE CONVERSION –FOR ROAD MOVE

YEAR:	2012
CFR CODE:	610.1
CWP ITEM NUMBER:	10_2_ABC
ESTIMATED COST:	$169,702
GENERIC NAME:	Ditto Lane Section of Highway 313

DESCRIPTION OF PROPOSED CONSTRUCTION

Re-conductor and conversion of a three phase #3/0 ACSR line [10_2_ABC starting at PROH42261] to a #336.4 MCM ACSR. The length of the construction project is 7,500' (1.4 mile). Environmental evaluation of the project area was completed in the State Transportation Division of Highways, and is on file with the highway road plans.

REASON FOR PROPOSED CONSTRUCTION

The area served by this line has a high density of new homes and is in the high growth area where Highway 313 is being built. The highway construction required modification of the facilities.

NEW CONSTRUCTION ITEM—LINE CONVERSION – FOR ROAD MOVE

YEAR:	2011
CFR CODE:	610.2
CWP ITEM NUMBER:	20_2_ABC
ESTIMATED COST:	$306,191
GENERIC NAME:	Rineyville Road Relocated1600

DESCRIPTION OF PROPOSED CONSTRUCTION

Re-conductor of a three phase #4/0 ACSR line [20_2_ABC starting at PROH29612] to a #336.4 MCM ACSR. The length of the construction project is 10,000' (1.9 mile).). Environmental evaluation of the project area was completed in the State Transportation Division of Highways, and is on file with the highway road plans.

REASON FOR PROPOSED CONSTRUCTION

The #336.4 MCM ACSR will provide additional strength to longer spans and improve the voltage drop for this area. The area served by this line has a high density of new homes and is in the high growth area where Highway #1600 is being built. The highway construction required modification of the facilities.

NEW CONSTRUCTION ITEM—LINE CONVERSION– FOR ROAD MOVE

YEAR:	2013
CFR CODE:	610.3
CWP ITEM NUMBER:	20_2_ABC
ESTIMATED COST:	$112,807
GENERIC NAME:	Rineyville Road Extended 1600

DESCRIPTION OF PROPOSED CONSTRUCTION

Re-conductor and conversion of a three phase #3/0 ACSR line [20_2_ABC starting at PROH195947] to a #336.4 ACSR. The length of the construction project is 3,700' (.7mile). Environmental evaluation of the project area was completed in the State Transportation Division of Highways, and is on file with the highway road plans.

REASON FOR PROPOSED CONSTRUCTION

The area served by this line has a high density of new homes and is in the high growth area where Highway #1600 is being built. The highway construction required modification of some of the facilities.

CODE **611** SECTION DETAILS

NEW CONSTRUCTION ITEM—LINE CONVERSION – FOR RELOCATION

YEAR:	2013
CFR CODE:	611.1
CWP ITEM NUMBER:	14_4_ABC
ESTIMATED COST:	$273,960
GENERIC NAME:	Centennial Avenue

DESCRIPTION OF PROPOSED CONSTRUCTION

An existing three phase #3/0 ACSR line is converted to three phase 336.4 ACSR line identified as starting with PROH196223. The length of the construction project is 9000' (1.7 miles).

REASON FOR PROPOSED CONSTRUCTION

The voltage drop at the end of the furthest point will be improved as calculated to above 118 Volts at the projected kW growth. The line construction replaces old 3/0 ACSR wire and poles for a new more reliable feed. The line will be relocated out of a dense tree growth area to an easier accessed road right of way and fence line.

RESULTS OF PROPOSED CONSTRUCTION

The three-phase configuration provides a better balance of phases at the substation level; the voltage is corrected to above 118 Volts; and the line is upgraded to newer poles and wire for improved serve and reliability. The larger wire develops a higher capacity of back feed between Vine Grove Substation and Fort Knox Substations.

ALTERNATE CORRECTIVE PLANS INVESTIGATED

The option of upgrading an adjacent line did not provide the same benefits and would have been a longer route.

NEW CONSTRUCTION ITEM—LINE CONVERSION– FOR RELOCATION

YEAR:	2012
CFR CODE:	611.2
CWP ITEM NUMBER:	7_5_B
ESTIMATED COST:	$83,728
GENERIC NAME:	Lee School Road

DESCRIPTION OF PROPOSED CONSTRUCTION

Re-conductor and pole change of a single phase #4 ACSR line [7_5_B starting at PROH196227] to a #2 ACSR. The length of the construction project is 11,200' (2.2 mile).

REASON FOR PROPOSED CONSTRUCTION

The line has reflected an area of long outages and frequent conductor failures. The #2 ACSR will provide additional strength to longer spans and improve the voltage drop for this area. The line will be relocated out of a dense tree growth area to an easier accessed road right of way and fence line.

RESULTS OF PROPOSED CONSTRUCTION

This configuration can provide a better balance of phases at the substation level; the voltage is corrected to above 118 Volts; and the line is upgraded to newer poles and wire for improved service and reliability. The larger wire develops a better capacity of back feed capability and balance of phases.

ALTERNATE CORRECTIVE PLANS INVESTIGATED

No other option of upgrading was investigated because of the terrain and heavy rocky soil would have made the cost to expensive.

NEW CONSTRUCTION ITEM—LINE CONVERSION– FOR RELOCATION

YEAR:	2011
CFR CODE:	611.3
CWP ITEM NUMBER:	4_1_ABC
ESTIMATED COST:	$272,208
GENERIC NAME:	D.C. Hodgenville Sub

DESCRIPTION OF PROPOSED CONSTRUCTION

Conversion of a Single Circuit three phase #3/0 ACSR line [4_1_ABC starting at PROH7482] to a Double Circuit #336.4 ACSR. The length of the construction project is 8,000' (1.5 mile).

REASON FOR PROPOSED CONSTRUCTION

The line has reflected an area of long outages and frequent conductor failures. The wind and ice storms of previous years has demonstrated the cross country route to be troublesome and difficult to maintain. The spacer cable has proved to be a better option for service in this type area.

RESULTS OF PROPOSED CONSTRUCTION

This configuration can provide a better balance of phases at the substation level and line is upgraded to newer poles and wire for improved serve and reliability. The spacer cable wire develops a more reliable back feed capability and balance of phases for substations.

ALTERNATE CORRECTIVE PLANS INVESTIGATED

No other option of upgrading was investigated because of the terrain and heavy rocky soil would have made the cost to expensive.

CODE **704** SECTION DETAILS

NEW CONSTRUCTION ITEM –LOAD MANAGEMENT/SCADA-- SELF-HEALING PROJECT

YEAR:	2011
CFR CODE:	704
CWP ITEM NUMBER:	704.1_ABC
ESTIMATED COST:	$2,999,998
GENERIC NAME:	Load Management (Self – Healing Project)

DESCRIPTION OF PROPOSED CONSTRUCTION
A pilot project utilizing self-healing and self-isolating distribution automation technologies to create a seamless development of available that will interface with the existing Advanced Control Systems (ACS) SCADA system. The evaluation and construction of a fiber communication link between distribution automation equipment will place high priority integration with existing links and flexibility with other distribution automation equipment.

REASON FOR PROPOSED CONSTRUCTION
Today's solutions for outage restoration has limited functionality or require complex third-party engineering software that makes determining fault location(s) difficult. Self-isolating and self-healing technologies have the promise of significantly improving reliability and outage time to fewer people through shorter amounts of time without power, along with a smaller degree of exposure to danger to the general public.

RESULTS OF PROPOSED CONSTRUCTION
The installed distribution automation devices will limit the number of people affected by an outage. The automation system's equipment will respond to sensor devices installed on lines by communicating with one another and isolating the fault, opening and closing automated switches making a feeder change and then the dispatching controller can send notification of the isolated fault area so crews can make necessary repairs. The outage would affect only those members located in the fault area and the other sections of line would maintain normal service.

ALTERNATE CORRECTIVE PLANS INVESTGATED
No viable options are available that would operate breakers as quickly as an automated system. Any distribution automation process would still require some type of communication system and "intelligent" equipment to transfer loading in the field.

DETAILS OF AN APPROACH TO PROPOSED WORK & MAJOR MATERIAL NEEDS
Studies to be developed for each vender

1. Evaluation of self-healing manufactures and equipment.
   - Communication needs
   - Availability of products
   - Coordination of equipment with existing SCADA, NISC & AMI
   - Expansion of system

- Installation procedure
- Computer software and upgrade procedure
- Support documentation
- Material listings for each site and home operation
- Impact on existing system

2. Purchase of equipment
   - Communication links
   - Switches and accessories
   - Software
   - Computer needs
3. Safety Issues Study and Changes
   - Work procedures modification
   - Lock out tag out process
   - Public safety
   - Work procedures changes
   - Environmental
4. Construction Practices
   - New structure limitations
   - Wire changes in backfeeds
   - Changes in OCR uses

COST BREAKDOWN ON PROJECT

1. Cost of study
2. Cost of communication backbone
3. Cost of communication equipment at OCR $2500/unit
4. Cost of converting or adding Main Feeder Control (substation breaker work at sub) $5,000/unit
5. Cost of switches or OCR's down line $20,000/unit
6. Cost of installation
7. Cost of software YFA server, training, support $20,000
8. Cost of training

	UNITS, COST, & CODES			**TOTAL UNITS & COST**		Notes on Total Units
Study and evaluation	*1*	*$45,000*	**704**	**1**	**$45,000**	
Communication fiber route to ea. sub(feet)	*66,000*	*$8.95*	**615**	**170,726**	**$1,527,998**	Route to Substations
Communication links (fiber to radio freq)	*3*	*$1,200*	**615**	**10**	**$12,000**	Links at each substation
Communication equip. every point	*12*	*$2,500*	**615**	**69**	**$172,500**	Points total fdrs+OCR contls.
Converting Main Feeder Control at Sub	*6*	*$5,000*	**603**	**30**	**$150,000**	Substation feeders
Switches or OCRs (down line)	*6*	*$20,000*	**603**	**39**	**$780,000**	Down line switches
Installed $$ at site	*12*	*$2,500*	**704**	**69**	**$172,500**	Install @ site of device

Software YFA server	*1*	*$20,000*	**604**	**1**	**$20,000**	
Training	*3*	*$40,000*	**704**	**3**	**$120,000**	
Total overall Project					**$2,999,998**	