

**COMMONWEALTH OF KENTUCKY**  
**BEFORE THE PUBLIC SERVICE COMMISSION**

**In the Matter of:**

<b>THE APPLICATION OF BLUE GRASS ENERGY</b>	)	
<b>COOPERATIVE CORPORATION FOR A CERTIFICATE</b>	)	
<b>OF PUBLIC CONVENIENCE AND NECESSITY TO</b>	)	<b>CASE NO.</b>
<b>CONSTRUCT FACILITIES ACCORDING TO THE</b>	)	<b>2011-00007</b>
<b>APPLICANT'S 11/01/2010 ~ 10/31/2013 CONSTRUCTION</b>	)	
<b>WORK PLAN</b>	)	

**APPLICATION**

Blue Grass Energy Cooperative Corporation, hereinafter called the Applicant, respectfully 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 Anderson, Bourbon, Bracken, Estill, Fayette, Franklin, Garrard, Grant, Harrison, Henry, Jackson, Jessamine, Madison, Mercer, Nelson, Nicholas, Pendleton, Robertson, Scott, Shelby, Spencer, Washington and Woodford.

2. The name of the Applicant is Blue Grass Energy Cooperative Corporation, with a business address of P. O. Box 990, 1201 Lexington Road, Nicholasville, Kentucky, 40340-0990. {807 KAR 5:001, Section 8(1)}

3. Applicant is a consolidated cooperative corporation whose consolidation was approved in Case No. 2001-246 before the Kentucky Public Service Commission.

The consolidation consisted of Blue Grass Energy Cooperative Corporation and Harrison County Rural Electric Cooperative Corporation.

4. The Articles of Consolidation of the Applicant are filed in Case No. 2001-246 of the Kentucky Public Service Commission and incorporated by reference herein. {807 KAR 5:001, Section 8(3)}

5. This application is for a Certificate of Public Convenience and Necessity ("CPCN") to construct electric distribution facilities as set out in the attached 11/01/2010 ~ 10/31/2013 Construction Work Plan, hereinafter referred to as the CWP.

6. 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.

7. The CWP covers the period of three years between November 1, 2010 and October 31, 2013, and was prepared by the firm of Patterson & Dewar Engineers, Inc., PO Box 2808, Norcross, GA and the Applicant's staff. A copy of the CWP is filed herein and made a part hereof as Exhibit 1 (BGE\_cwp\_022211.pdf). The CWP was submitted to the Rural Utility Service ("RUS"), for approval, which was granted January 03, 2011; said approval is filed herein and made a part hereof within Exhibit 1.

8. The CWP was approved by the Applicant's Board of Directors on November 18, 2010. Said approval is filed herein and made a part hereof within Exhibit 1.

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

10. 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.

11. Total projected expenditures for the three-year CWP are estimated to be \$37,991,700 and summarized as follows:

- a) \$12,285,000 ~ New Member Construction Totaling 152 Miles
- b) \$5,118,900 ~ Transformers and Meters
- c) \$778,050 ~ Service Changes and Upgrades
- d) \$300,000 ~ Sectionalizing Equipment and Activities
- e) \$119,800 ~ Capacitor Bank Appurtenances and Controls
- f) \$181,000 ~ Voltage Regulators
- g) \$4,500,000 ~ Pole Replacements
- h) \$2,352,000 ~ Aged Conductor Replacement
- i) \$688,750 ~ Security Light Installations
- j) \$9,113,200 ~ System Improvement Projects
- k) \$200,000 ~ Two-Way Communication
- l) \$2,355,000 ~ DA Backbone

12. The anticipated annual cost of operations, excluding the cost of power, of the proposed facilities is \$4,773,027. Said anticipated cost of operation is filed herein and made a part hereof as Exhibit 2 (BGE\_costofoperation\_022211.pdf).

13. 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

14. 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 consumers-members 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 22<sup>nd</sup> day of February, 2011, by its authorized representative.

**BLUE GRASS ENERGY  
COOPERATIVE CORPORATION**

BY: R. Chris Brewer  
R. CHRIS BREWER, PE  
Vice President, Engineering

BY: Ralph K. Combs  
RALPH K. COMBS  
Attorney for Applicant  
100 United Drive, Suite 4B  
Versailles, Kentucky 40383  
(859) 873-5427

STATE OF KENTUCKY

COUNTY OF WOODFORD

Subscribed, sworn to and acknowledged before me by R. CHRIS BREWER, as Vice President, Engineering of BLUE GRASS ENERGY COOPERATIVE CORPORATION this 22nd day of February, 2011.

  
\_\_\_\_\_  
NOTARY PUBLIC, STATE AT LARGE, KY

MY COMMISSION EXPIRES: 06/2011

STATE OF KENTUCKY

COUNTY OF WOODFORD

Subscribed, sworn to and acknowledged before me by RALPH K. COMBS, as Attorney for BLUE GRASS ENERGY COOPERATIVE CORPORATION this 22nd day of February, 2011.

  
\_\_\_\_\_  
NOTARY PUBLIC, STATE AT LARGE, KY

MY COMMISSION EXPIRES: 12/16/2011

**BLUE GRASS ENERGY  
COOPERATIVE CORPORATION**

**A Touchstone Energy Cooperative**



**KENTUCKY 64 JESSAMINE  
NICHOLASVILLE, KENTUCKY**

**CONSTRUCTION WORK PLAN**  
November 1, 2010 ~ October 31, 2013

November 2010

by:

**Gary Grubbs, PE**

**Patterson & Dewar Engineers, Inc.**

P.O. Box 2808, Norcross, Georgia 30091-2808  
850 Center Way, Norcross, Georgia 30071-4844  
Phone: 770-453-1410      FAX: 770-453-1411

[www.pd-engineers.com](http://www.pd-engineers.com)

**BLUE GRASS  
ENERGY COOPERATIVE CORPORATION**

**KENTUCKY 64  
NICHOLASVILLE, KENTUCKY**

**CONSTRUCTION WORK PLAN (CWP)**  
November 1, 2010 – October 31, 2013

**ENGINEERING CERTIFICATION**

Upon completion of the construction proposed herein, the above indicated electric distribution system can provide adequate and dependable service to approximately 58,528 customers with residential using a monthly average of 1,257 kilowatt-hours per consumer. The peak demand (normal 50%) is estimated to be approximately 289,500 kW in the summer of 2013 and 391,000 kW in the winter of 2013-2014.

I certify that this 2010-2013 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 the State of Kentucky.

Patterson & Dewar Engineers, Inc.



Gary Grubbs  
Kentucky P.E. No. 13008

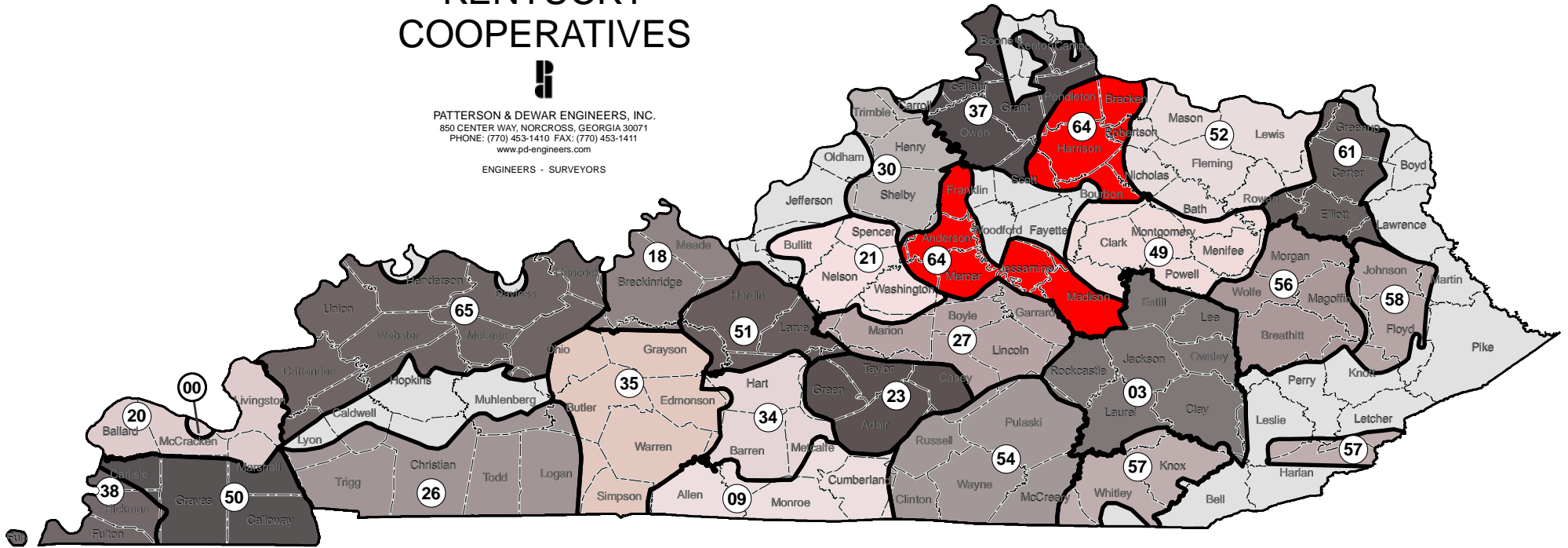


# KENTUCKY COOPERATIVES



PATTERSON & DEWAR ENGINEERS, INC.  
850 CENTER WAY, NORCROSS, GEORGIA 30071  
PHONE: (770) 453-1410 FAX: (770) 453-1411  
www.pd-engineers.com

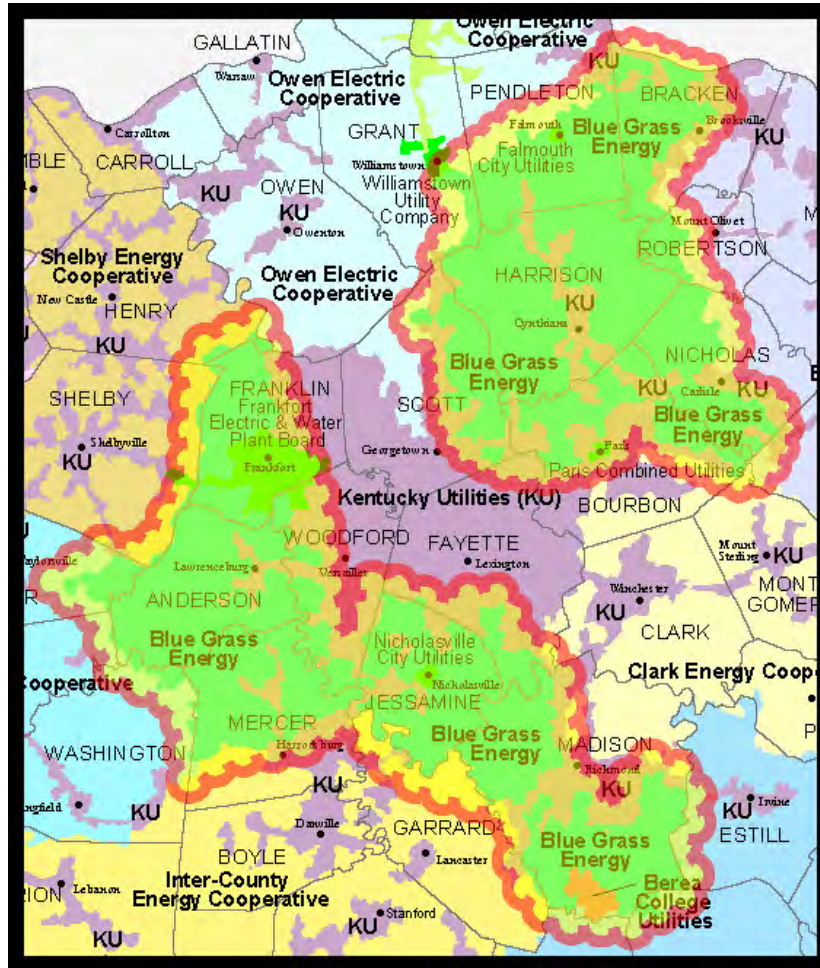
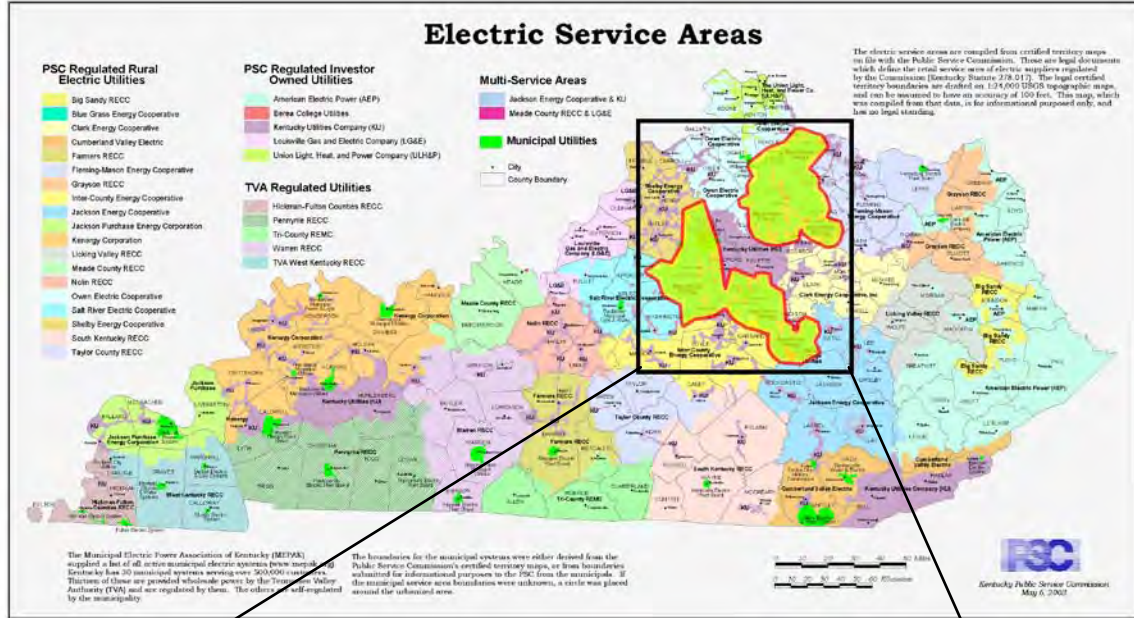
ENGINEERS - SURVEYORS



99 Cooperative  
  Municipal

- |  |   |
|--|---|
| 0 Paducah Power System - Paducah       | 38 Hickman-Fulton RECC - Hickman                |
| 3 Jackson EC - McKee                   | 49 Clark EC - Winchester                        |
| 18 Meade County RECC - Brandenburg     | 50 West Kentucky RECC - Mayfield                |
| 20 Jackson Purchase EC - Paducah       | 51 Nolin RECC - Elizabethtown                   |
| 21 Salt River ECC - Bardstown          | 52 Fleming-Mason EC - Flemingsburg              |
| 23 Taylor County RECC - Campbellsville | 54 South Kentucky RECC - Somerset               |
| 26 Pennyryle Electric - Hopkinsville   | 56 Licking Valley RECC - West Liberty           |
| 27 Inter-County Energy CC - Danville   | 57 Cumberland Valley Electric - Gray            |
| 30 Shelby EC - Shelbyville             | 58 Big Sandy RECC - Paintsville                 |
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**BLUE GRASS ENERGY COOPERATIVE CORPORATION**

**Kentucky 64 Jessamine  
Nicholasville, Kentucky**

**11/10 ~ 10/13 CONSTRUCTION WORK PLAN**

**November 1, 2010**

**I. EXECUTIVE SUMMARY**

**A. Purpose, Results and General Basis of Study**

This report documents the Winter 2009-2010 system engineering analysis, and summarizes the proposed construction for Blue Grass Energy Cooperative Corporation's (BGE's) electric distribution system for the three-year period of November 1, 2010 through October 31, 2013.

The proposed construction program is to be financed by the Rural Utilities Service, (RUS) ~ formerly the Rural Electrification Administration (REA), and/or a supplemental lender. This report provides engineering support, in the form of descriptions, costs, and the justification of required new facilities, as required for an RUS loan application.

Upon construction completion of the proposed facilities, the BGE distribution system can provide adequate and dependable service to following approximate customer count:

<b>Classification</b>	<b>Count</b>	<b>Usage kWh/ Month</b>
Residential	55,690	1,257
Small Commercial	2,748	3,666
Large commercial	29	968,166
Total	58,467	~

The 2013 projected number of consumers and total peak system load were taken directly from the Cooperative's 2010 Load Forecast Report (LFR) as approved by RUS. The 20% probability winter extreme highest KW demand was used for the loading conditions for the next three years. This loading level was agreed to by BGE management and the RUS General Field Representative (GFR).

A review of BGE's 2004 Long Range System Study (LRSS), finds the load projections and recommendations to be adequate for the three-year planning period.

The cooperative's Operations and Maintenance Survey (Review Rating Summary - RUS Form 300), was completed on October 21<sup>st</sup>, 2008. Several items were identified for improvements but no recommendations requiring capital funds were listed.

An analysis of thermal loading, voltage drops, physical conditions and reliability, has been performed on all substations, distribution lines, and major equipment of the existing and base system subjected to the peak winter 2009-2010 conditions. The existing base system model has also been grown to the projected winter 2013-2014 loading to develop a future system model.

The projected future loading is in agreement with the currently approved 2010 LF. The basis of the system analysis is the RUS guidelines and BGE's system design and operating criteria.

The summer 2010 system was also reviewed as portions of BGE's system peak in the summer and not in the winter.

The analyses indicated above utilized Milsoft Utility Solution's (MUS's) WindMil (WM)® software, and the results were used as the basis for determining the capital needs for BGE's electric distribution system. The base system computer model was validated using actual line voltage readings made in the field.

## **B. Service Area, Distribution System and Power Supply**

The corporate office of Blue Grass Energy Cooperative Corporation is located in Nicholasville, KY. BGE consists of four operating districts: Nicholasville, Madison, Fox Creek and Harrison. Electric service is supplied to major portions of the rural areas of the following counties grouped by each district.

The *Nicholasville District* and *Madison District* serve much of the rural area to the south of Lexington, Kentucky and include portions of Fayette, Jessamine and Madison Counties. The Kentucky River divides the service territory. Much of BGE's growth in this area can be contributed to its close proximity to Lexington, which is easily accessible by Highways 68 and 27, and Interstate 75.

The *Fox Creek District* is located to the west of Lexington and around the state capitol of Frankfort. In this district BGE serves most of the rural areas of Anderson County and portions of Woodford, Mercer and Franklin Counties. Much of the growth in this area is attributed to its close proximity to the cities of Lawrenceburg, Versailles and Frankfort; and the Blue Grass Parkway lends easy access to Lexington. Interstate 64 runs along the northern portion of the Fox Creek District and the Blue Grass Parkway traverses the southern portion of the district.

The *Harrison District* is located to the northwest of Lexington. In this district, BGE serves most of the rural areas of Harrison County and portions of Scott, Bourbon, Nicholas, Bracken, Pendleton, Robertson and Grant Counties. Much of the present growth in this district lies east of the city of Georgetown, which has a new residential subdivision and industrial park that will be served by BGE. The local economy is somewhat dependent upon the automotive manufacturing industry present in Georgetown. Highway 27 and 62 intersect in the center of this district.

BGE operates over 4,600 miles of line within the aforementioned four districts. The primary voltage is 7.2/12.47 kV grounded wye for the Nicholasville, Madison and Harrison Districts. The Fox Creek primary system operates presently at two primary voltages: 7.2/12.47 kV and 14.4/25 kV grounded wye. There are a total of 36 distribution substations presently serving the entire BGE system. Six of the substations/transformers are dedicated primarily to industrial with a few small commercial loads.

The following data was taken, or derived, from Blue Grass Energy Cooperative Corporation's December 2009 RUS Form 7:

Number of Consumers	=	54,816
KWh Purchased	=	1,232,818,537
KWh Sold	=	1,173,229,591
KWh Used by Company	=	1,534,430
KWh Unaccounted for	=	58,054,516
KWh losses (%)	=	4.7%
Max. NCP kW Demand	=	362.3
Total Distribution Plant	=	\$172,874,880
Miles of Distribution	=	4,593
Consumers per Mile	=	11.93
Annual Load Factor	=	38.8%

Service is provided to BGE members through 36 delivery points.

BGE's power supplier is East Kentucky Power Cooperative (EKPC); an RUS financed generation and transmission cooperative. EKPC's office headquarters is located in Winchester, Kentucky. As power supplier, EKPC accommodates all the generation, transmission and substation requirements of BGE and other cooperatives located in the central and eastern half of Kentucky.

BGE takes delivery from EKPC at the distribution voltages of 7,200/12,470 and 14,400/24,940-volts.

### **C. System Organization and Operation**

BGE's headquarters as mentioned earlier is located in Nicholasville, Kentucky. The present organization is comprised of the previously separate cooperatives of Blue Grass RECC, Fox Creek RECC and Harrison RECC. Major engineering and management decisions come through the Nicholasville office. The system is operated and maintained under the leadership of a Vice President of Operations and a Vice President of Engineering. Additional support staff of technicians, administrators and aides, compliments the system operations.

BGE utilizes contract staking and construction crews for mainly large system improvement type projects.

BGE's service territory is firmly established by Kentucky statutes. Consumers locating within BGE's territorial boundaries are required to be served by BGE.

### **D. Status of Previous Work Plan Projects**

This CWP summarizes the current status of the previous work plan site-specific projects. The status of each project is identified as follows:

- COMP ~ Complete
- CPC ~ Complete Pending Closeout
- DEL ~ Deleted
- NP ~ No Progress
- IP ~ In Progress



BGE currently has approximately 456<sup>1</sup> miles of aged copper single-phase primary conductors and 2<sup>1</sup> miles of aged copper three-phase primary conductors on their system. In addition to the aged copper lines BGE has 109<sup>1</sup> miles of aged three-phase 4 ACSR and 2,073<sup>1</sup> miles of aged one-phase 4 ACSR lines. Replacement of said conductor is based upon loading and operational criteria. This work plan recommends replacing approximately 160 of these aged lines.

**E. Summary of Construction Program and Costs**

The costs of the recommended distribution plant changes over the next three years have been projected as follows:

2011	\$13,983,850
2012	\$11,024,375
<u>2013</u>	<u>\$12,983,475</u>
Total	\$37,991,700

By comparison, the annual totals for distribution plant additions and replacements during the ten previous years are as follows:

2001	\$6,498,135
2002	\$6,450,032
2003	\$6,740,477
2004	\$10,532,477
2005	\$10,726,097
2006	\$13,918,611
2007	\$10,711,541
2008	\$11,307,921
2009	\$9,697,777
2010	Not Available

This data mentioned above was taken from BGE’s five previous year-end *Financial and Statistical Report*, Line 15, page 3 of the RUS Form 7. Capital expenditures projected for this CWP have increased over past plant expenditures due to material price increases and system improvement increases; however, they remain reasonable.

A further breakdown of the construction program cost is summarized as follows:

	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>Totals</u>
New Construction, etc. =	\$9,960,250	\$ 8,716,775	\$10,201,475	\$28,878,500
System Improvements =	<u>\$ 4,023,600</u>	<u>\$ 2,307,600</u>	<u>\$ 2,782,000</u>	<u>\$9,113,200</u>
CWP Totals =	\$13,983,850	\$11,024,375	\$12,983,475	\$37,991,700

The total amount above is eligible for RUS loan funds. Each capital item recommended herein was reviewed with engineering and management staff prior to inclusion in this CWP. Approximately 76% of the total capital is for new construction and miscellaneous distribution equipment, leaving approximately 24% for system improvements.

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<sup>1</sup> The total mileage of each conductor is continually changing due to ongoing replacements.

## II. BASIS OF STUDY AND PROPOSED CONSTRUCTION

### A. Design and Operational Criteria

Exhibit L presents BGE's System Design and Operational Criteria (SDOC). On November 15, 2010, the Kentucky RUS General Field Representative, (GFR), reviewed and concurred with BGE's criteria. The proposed construction as outlined in this 2010-2013 CWP is necessary for meeting the minimum standards set forth in the system's design and operational criteria.

The criteria presented herein are for use in design and operational guidelines only. System conditions may result in a breach/change of a specific criterion.

### B. Historical Line and Equipment Costs

Exhibit B presents the historical and projected unit cost averages for new services and new construction. The cost calculations utilize data encompassing a 24-month period ending December 31, 2009.

Line Construction projects are grouped by project type and the averages are expressed on a cost per mile basis. Several of the projected conversion costs do not have a historical cost to reference. These estimates are tabulated, but the cost utilized is based on other system experiences.

### C. Analysis of Current System Studies

#### 1. 2010 Load Forecast (LF)

The 2010 Load Forecast Report was approved by BGE's Board in June 2010. The report was prepared by EKPC in cooperation with BGE's management and staff. The report utilized statistical models to forecast future energy and demand requirements. EKPC provided the economic, demographic, and weather information. BGE personnel provided historical information, system specific assumptions, and large commercial and industrial projections. The EKPC staff developed the LF database and forecasting models, and produced the final report.

The LF projected kilowatt-hour sales as well as non-coincident peak kW demands for the period 2010-2030. A 2.5% per year growth in energy sales was projected for the period. Winter and summer peak kW demands were projected to grow approximately 2.1% and 2.3% per year, respectively. The system annual load factor was expected to remain at the 41.0% level with a slight expectation of an increase in the latter years. The LF offers various projection scenarios for planning purposes and they are as follows:

Winter Peaks	Summer Peaks
Mild	
Normal	Normal
Extreme*	Extreme*
Optimistic	Optimistic
Pessimistic	Pessimistic

\*With projections of 20%, 10% and 3% probability of occurrence.

Generally, the normal and mild weather LF scenarios mentioned above are used in the preparation of rate studies and financial forecasts to determine realistic revenue projections. The severe or extreme weather scenarios are used for system capacity planning. This is to

assure that adequate capital expenditures are identified for system capacity in order to provide reliable and quality service to the customer. The extreme winter and summer scenarios with a 20% probability of occurrence were used in this work plan for the future system substation loading conditions.

## 2. 2004 Long Range System Study (LRSS)

Distribution System Solutions, Inc. prepared a ten-year LRSS for BGE's distribution system in April of 2004. RUS's (REA's) approval was granted in the spring of 2004. The system configuration and the loads for the winter of 03/04 form the basis for the LRSS.

The December 2003 non-coincident peak load was 287,722 kW. The LRSS projected the system to grow from the 287,722 kW level in 2003 at the average annual growth rate of approximately 5.7 percent per year to 501,000 kW in the year 2014. Three intermediate load levels were analyzed: Level A ~ The estimated 2006 load of approximately 321 MW, representing a 11.6% increase for the three year growth; Level B ~ The estimated 2010 System load of approximately 401 MW, representing a 39.4% increase for the six year period of growth; and Level C ~ The estimated 2014 System load of approximately 501 MW representing a 74% increase for the 10 year period of growth. These levels were based on projections approved and set by the prior 2002 BGE Power Requirements Study.

A comparison of the currently approved 2010 Load Forecast Report and the LRSS for total consumers and total system kW demands is as follows:

2004 LRSS Load Levels		2010 LF Projections		LRSS	
Level	Year	Consumers	MW*	Consumers	MW
Load Level A	2006	NA	NA		321
Load Level B	2010	55,394	379		401
Load Level C	2014	59,745	418	65,700	501

\*For Extreme winter (20% probability)

The above projected 2010 demand in the LF reflects a system growing slightly less than projected for 2010 in the LRSS. The current LRSS should be valid for recommendations over the next 3 years (2010 ~ 2013 CWP).

The 2010 LF does project a long range kW peak level that is approximately 13.5% lower than the LRSS. This difference is considered acceptable understanding the studies are looking at system conditions more than 10 years in the future. Consideration should be given for a new LRSS prior to next BGE CWP period when the current LRSS will be 10 years old. This time range assumes no other system changes warranting a new study sooner.

The LRSS determined the most economical approach for BGE is to continue voltage conversions in the Fox Creek District and to remain at the 7.2/12.47 kV primary distribution level in the other three districts.

The LRSS also recommends BGE standardize on three-phase line construction using primarily 1/0 ACSR, 336 kcmil and 556 kcmil ACSR conductor sizes. Exhibit N provides a summary of the current Economical Conductor Analysis that agrees with the recommendations of the LRSS.

In summary, the LRSS appears to be valid for the next 3 years including system improvements necessary to satisfy current and projected system needs through the year 2013. Recommendations incorporated in this CWP are in compliance with the current LRSS.

### **3. 2005 Operations and Maintenance Survey (RUS Form 300)**

In October 2008 BEG personnel met with the RUS GFR and conducted a review of BGE's facilities and records. This review included substation monthly reports, monthly outage records, and other equipment maintenance records. This review was used as a basis for completing the RUS Form 300, Review Rating Summary, and is included herein as Exhibit M. This survey is used for identifying maintenance, operational and capital needs necessary for proper operation of the electrical distribution system.

In general, the overhead and underground distribution facilities were found to be in satisfactory condition. Likewise, nearly all of the operations, maintenance and engineering programs were found to be satisfactory with no major capital items identified or recommended.

No items were noted on the O&M Survey which requires corrective action.

Several items were noted for improvement; however, no corrective action was recommended. A summary of those items are given as follows:

- Telephone poles left standing after pole replacement should be removed.
- Cable TV attachments need to be monitored continuously for compliance with the NESC.
- The report of idle services should be reconciled with billing records and report adjusted on the Form 7.
- A more aggressive right-of-way clearing program is recommended. Directional trimming is the recommended approach for yard trees. Trees growing near the transformer pole and non-yard trees in the right-of-way should be removed.

## **D. Historical and Projected System Data**

### **1. Annual Consumer, Load, and Losses Data**

Exhibit A tabulates the annual system data for consumers, system peak demand, losses, and annual load factor. The exhibit provides both data and graphs for the actual conditions for 2000 through 2009 and for the projected years of 2010 through 2019.

The distribution system exhibited a growth in peak demand from 248.4 MW in the winter of 1999 ~ 2000 to 324.8 MW by the winter 2009 ~ 2010. This represents approximately a 2.7 percent per year growth rate.

The system has experienced an annual 1.6% growth in consumers over the last 5 years. There were 50,725 consumers in 2004, increasing to 54,816 in 2009. This growth rate is expected to continue for the long range.

The annual total distribution non-coincident peak (NCP) load factor was 38.8 percent for 2009. BGE's distribution load factor has ranged from a low of 38.8% to a high of 52.1% over the past twenty years depending on the severity of the summer and winter peaks.

The annual distribution system losses were 4.7% for 2009. The 2009 total energy sales for BGE were 1,173,229,591 kWh. With 4,600 miles of distribution line, the 1,000 kWh billed per mile per year ratio calculates to be 255. According to REA Bulletin 45-4, the acceptable loss for this ratio is approximately 8.2 percent. BGE's losses in recent years have averaged 4.6%, which is well within RUS' established guidelines.

## **2. Special Loads**

Several spot loads were accounted for in this Work Plan.

## **3. Substation Load Data**

Exhibit O, pages 1 through 3, summarizes the substation loading and capacities for both existing summer 2010 and winter 2009-2010 system peak conditions. The projected winter 2013-2014 conditions with and without the recommended system improvements are also presented, as well as the peak summer 2013 with and without the recommended system improvements. The exhibit identifies each substation, its voltage levels, winding capacity, percent of full load, percent power factor, and total peak demand. The loading is given in percent of full load rating of the substation transformer as provided by EKPC. All substations are owned and operated by EKPC.

BGE's System Design and Operational Criteria (SDOC), Exhibit L, establishes that a substation's current loading condition is not to exceed 95 percent of its full nameplate KVA capacity without planning its uprating. This criterion also matches EKPC's policy. Currently only one of BGE's substations is loaded over this level.

Adequate and reasonable power factor levels are currently being maintained on all substations on BGE's system. A capacitor study was conducted in conjunction with this Work Plan and projects were developed accordingly.

Specific recommendations concerning substations are presented in Section III D.

## **4. Circuit Loading and Voltage Conditions**

The 2009-2010 non-coincident winter distribution peak for BGE was 305 MW established during January 2010. The corresponding peak kWh consumer billing data was used to develop the base system model for the peak 2009-2010 winter conditions.

During December 2009 the system served approximately 54,823 consumers with each residential consumer averaging 1,250 kilowatt-hours each for the year of 2009.

*Appendix 1* presents the primary analysis for the base Winter 2009-2010 system.

The primary analysis provides the following system parameters.

- Circuit loading by substation and by line section.
- Unregulated voltage drops on 120-volt base (by section and accumulated total).
- Annual primary losses in dollars per section.
- Number consumers served through each section, circuit, and substation.

- Circuit primary conductor size and miles from sub.
- Fault current levels by fault types; maximum three-phase, maximum phase-to-ground, and minimum phase-to-ground.

**Map 1** is a circuit diagram of BGE's primary electric system illustrating voltage conditions of the base winter 2009-2010 system.

Similarly, **Appendix 2** presents the primary analysis of the summer 2009 system. BGE's peak loading has generally occurred in the winter. Portions of the system have however, peaked in the summer. That is why the summer conditions have been included herein and were reviewed.

**Appendix 3** is a primary analysis of the existing 2009-2010 system configuration with the projected future 2013-2014 peak winter conditions. This analysis provides a picture of the system of the future if no system improvements were accomplished. This analysis was the primary basis for most of the system improvements called for in this work plan.

To show that the recommended improvements are valid, **Appendix 4** is given. It reflects the future 2013-2014 winter system after completion of the system improvements. Map 2 is a circuit diagram picture of what the system will be after completion of this CWP.

Through the use of line voltage regulators and capacitors, adequate system voltages are being maintained for current system conditions. In anticipation of future system loading conditions, some line voltage regulator and capacitor changes will be necessary to maintain adequate voltage.

## **5. System Outages and Reliability**

BGE maintains daily outage reports and prepares monthly and annual summaries. A periodic review of those summaries reveals areas requiring system changes or right-of-way maintenance. Exhibit S presents a summary of the consumer outage hours for the five previous years.

The five year (2005-2009) consumer outage average is 1.98 (10.89 including major storms) hours per consumer per year, which is well below RUS's guideline of 5.0 hours per consumer per year. BGE recently completed work on the recommended components of a newly developed Sectionalizing Study.

### **III. REQUIRED CONSTRUCTION ITEMS**

#### **A. Service to New Consumers**

During the 24 month period ending December 31, 2009, BGE added 1,557 underground and overhead services for new consumers. The average line extension cost for each new service is approximately \$5,192 currently. It is estimated that 2,550 new underground and overhead services will be built over the next three years. Extending these costs for underground and overhead services on a per unit basis, it is estimated that over the next three years \$12,285,000 in capital will be required to construct the new lines. This calculates to be an average of \$4,095,000 per year.

Exhibit B summarizes the historical data used in projecting the required capital for the new services. Transformer, meter, and security light quantities and costs are also given in this exhibit. Exhibit D summarizes the costs on an annual basis. Approximately 32.3% of the capital required for this work plan is estimated to be for new consumer services.

#### **B. Service Changes to Existing Customers**

For the 24 month period ending December 31, 2009, BGE increased the service wire capacity of 188 consumers. On this basis BGE is expected to upgrade 285 services during the next three years. The average cost for each service upgrade is approximately \$2,730. This yields a capital requirement of \$778,050 for the CWP period.

#### **C. Distribution Lines - Additions and Changes**

The recommended CWP line changes and improvements are generally for the following reasons:

- Excessive Voltage Drops
- Excessive Load Currents (or Overloaded Lines)
- Poor Service Reliability

Increasing primary line voltage, increasing conductor size, increasing the number of phases, reducing distances of feed, and installing voltage regulators and capacitors are the methods of correction for excessive voltage drops. Excessive load current is an undesirable situation normally corrected by the same methods used for excessive voltage drops; however, the improvement is recommended in most cases to assure proper coordination of line reclosers or sectionalizing devices.

Right-of-way clearing often results in improved service reliability. However, if specific line components are causing outages, then priority is given to rebuilding the line to replace old and worn-out equipment. Rebuilding a line may include conductor, pole or crossarm replacement, replacing defective insulators, etc. Also the construction of tie-capable lines may improve service reliability. Tie lines shorten the circuit feed distance thereby reducing line exposure and also providing loop feed capability. The loop feed capability is very beneficial during outages and line maintenance.

Reviewing the winter 2009-2010 primary analysis of Appendix 1 and considering the load growth estimates of the winter 2013-2014, the distribution line system improvements are as follows. The three year CWP distribution line construction estimate is \$9,113,200 including line conversions and changes (which does not include copper replacement). No new tie-lines are recommended or required.

Each recommendation of the CWP has been reviewed with BGE's staff prior to inclusion in this report. Exhibit F presents a summary of the distribution line construction recommendations. Please note the following explanation for the construction RUS reference numbers:

XXX.ZZ	=	Construction Item Number
X	=	RUS Reference Prefix (2 for tie lines; 3 for line conversions)
YY	=	BGE Substation Number
ZZ	=	Consecutive Number Under Each Substation

Exhibit F also presents construction justification codes for each recommendation. For the sake of brevity, quantitative information regarding the system benefits of each construction item is not presented. The computer model output in the appendices provides this information, (e.g., voltage drop improvements, elimination of overloaded conductor, etc.). Exhibit T also summarizes the justification for each project.

#### **D. Substation and Meter Point Additions and Changes**

System Design and Operational Criteria (SDOC), Exhibit L, establishes that a substation's projected future loading condition is not to exceed 95 percent of its full nameplate KVA capacity without planning its uprating. This criterion also is in agreement with EKPC's loading policy. A review of the future substation loading conditions in Exhibit O without improvements reveals that only one substations is projected to reach or exceed the 95 percent level in the next three years. The projected overloaded substation is Hickory Plains. Recommendations have been included herein to transfer load and/or add fans to relieve future overloading conditions at this substation.

#### **E. Capacitor Equipment - Additions and Changes**

Exhibit I presents the capacitor recommendations for this CWP. They are also included in Map 1 and 2. Recommendations are included to comply with EKPC power factor policy of no less than 90 percent at peak for each cooperative delivery point. Recommendations have been included to maintain approximately 95% during the summer peak conditions if switched banks are not required. If switched banks are required to maintain this level, the power factor is allowed to be lower.

BGE is encouraged to continue the enforcement of its power factor penalty clause in their C&I service contract, hopefully to get C&I to install both fixed and switched capacitor banks to satisfy their needs. If however, this effort is unsuccessful, BGE should install the capacitors on their system to eliminate the penalty charges from EKPC. The monies received from penalizing the C&I customers should be adequate to cover the cost for the capacitor installations.

The cost of the auxiliary equipment (crossarms, cutouts, etc.) and installation costs of the capacitor stations are incurred by BGE. The cost estimate for the new capacitors is \$119,800 with purchases included for the years 2011, 2012 and 2013 (average annual cost of \$39,933). All capacitor recommendations are based on the computer output of the Windmil (WM)® software of Milsoft Utility Solutions, Inc. Capacitor locations and kVAR bank size recommendations were based on circuit loading and minimizing line loss.

The capacitor recommendations included herein conform to the design criteria of Exhibit L.

#### **F. Sectionalizing Equipment - Additions and Changes**



A complete line sectionalizing review evaluating device coordination and fault current duty is to be included under separate cover of this work plan. EKPC provided BGE low-side source impedance data so that available fault currents at each substation and delivery point can be determined. Also, any device overloaded conditions and line configuration changes resulting from the system improvements and revisions included in the work plan are to be included in the study.

Preliminary estimates of this sectionalizing review call for a total cost for the work plan, (RUS Code 603 – sectionalizing equipment) to be \$300,000, or an average annual cost of \$100,000. Please refer to the System Design and Operational Criteria, Exhibit L, for additional details concerning the sectionalizing system design criteria.

#### **G. Line Regulators - Additions and Changes**

Exhibit H and Maps 1 and 2 present the line voltage regulator changes. The cost of line regulator changes is categorized by RUS reference Code 604 and Exhibit H presents the cost estimate.

A number of line regulators are recommended in this CWP. Excessive voltage drops are projected for some areas; therefore, regulators are included herein. The use of said regulators allows management the greatest flexibility in conducting facility upgrades.

Exhibit H itemizes the location of the new regulators and BGE is recommended to add the regulators only as system problems are field measured and verified. The cost estimate for the new regulators is \$181,000 with purchases included for the years 2011, 2012 and 2013 (average annual cost of \$60,333).

#### **H. Pole Replacements**

Numerous system improvements have been made in recent years. However, following the experience of long outages during past severe storms, persistent efforts to locate and replace old and depreciated electric plant is necessary and highly recommended.

BGE's distribution system consists of approximately 80,000 wood poles system wide 4,318 miles of overhead line at approximately 18 poles per mile average). RUS recommends an annual inspection of at least 10 percent of a system's total poles. BGE should therefore have a pole inspection program that includes approximately 8,000 poles annually.

Current estimates for pole replacements can be found in Exhibit B. The present projected cost for pole replacements based on historical data is 1,800 pole change-outs over three years, averaging \$2,500 each for a total cost of \$4,500,000.

## I. Other Distribution Items

BGE has approximately 2,721 miles of aged conductor remaining throughout its system.

Approximately \$2,352,000 has been allocated in this CWP for the deteriorated conductor change-out. This represents approximately 45 miles of aged OH conductor in addition to the approximately 117 miles replaced by the system improvement projects. Please refer to the "Deteriorated Conductor Replacement Plan" included within this CWP.

## J. Two-Way Communication Equipment

BGE is currently in the initial study process for changes to its two-way vehicle communication system which will be required by the FCC re-farming of BGE frequencies during the CWP period. Following is an approximate cost associated with the required conversion.

### 2Way Radio System:

<u>Quantity</u>	<u>Equipment Description</u>	<u>Cost/unit</u>	<u>Total Cost</u>
70	Truck Mobile Radio	\$900	\$63,000
30	Portable handheld Radio	\$800	\$24,000
6	Base Station Repeater	\$10,000	\$60,000
1	Dispatch Center Console	\$20,000	\$20,000
1	System Engineering and FCC Licensing		\$33,000
			<u>\$200,000</u>

## K. DA Backbone Communication

BGE is currently in the process of installing a DA Backbone project for the purpose of precisely controlling switched capacitors, regulating VARs, regulating system voltage, and optimizing system conditions conducive to loss reduction and service quality.

This backbone will cover the entire BGE Distribution System.

### Distribution Automation System:

<u>Quantity</u>	<u>Equipment Description</u>	<u>Cost/unit</u>	<u>Total Cost</u>
10	Base Station Gateway	\$66,000	\$660,000
1	Base Station Gateway License	\$13,000	\$13,000
1	Project Management, Setup and Implem.		\$227,000
900	Voltage Monitors	\$1,300	\$1,170,000
900	Voltage Monitors Installation	\$200	\$180,000
50	Capacitor control communication hardware	\$1,600	\$80,000
50	Capacitor control communication installation	\$500	\$25,000
			<u>\$2,355,000</u>

#### IV. CONCLUSION

The recommendations set forth in this construction work plan will enable *Blue Grass Energy Cooperative Corporation* to serve the projected 2013-2014 peak winter conditions. The construction recommendations are in accordance with RUS prescribed guidelines and other economic criteria established by BGE's Long Range System Study, and related power supply studies. Any questions or comments regarding this report should be directed to Gary Grubbs of Patterson & Dewar Engineers. His email addresses is [ggrubbs@pd-engineers.com](mailto:ggrubbs@pd-engineers.com) and phone number is 270-404-5030.

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# **Exhibit A**

## **System Statistical Data and Growth Charts**

Pages: 7

BLUE GRASS ENERGY

KENTUCKY 64 JESSAMINE  
NICHOLASVILLE, KENTUCKY

SYSTEM STATISTICAL DATA\*

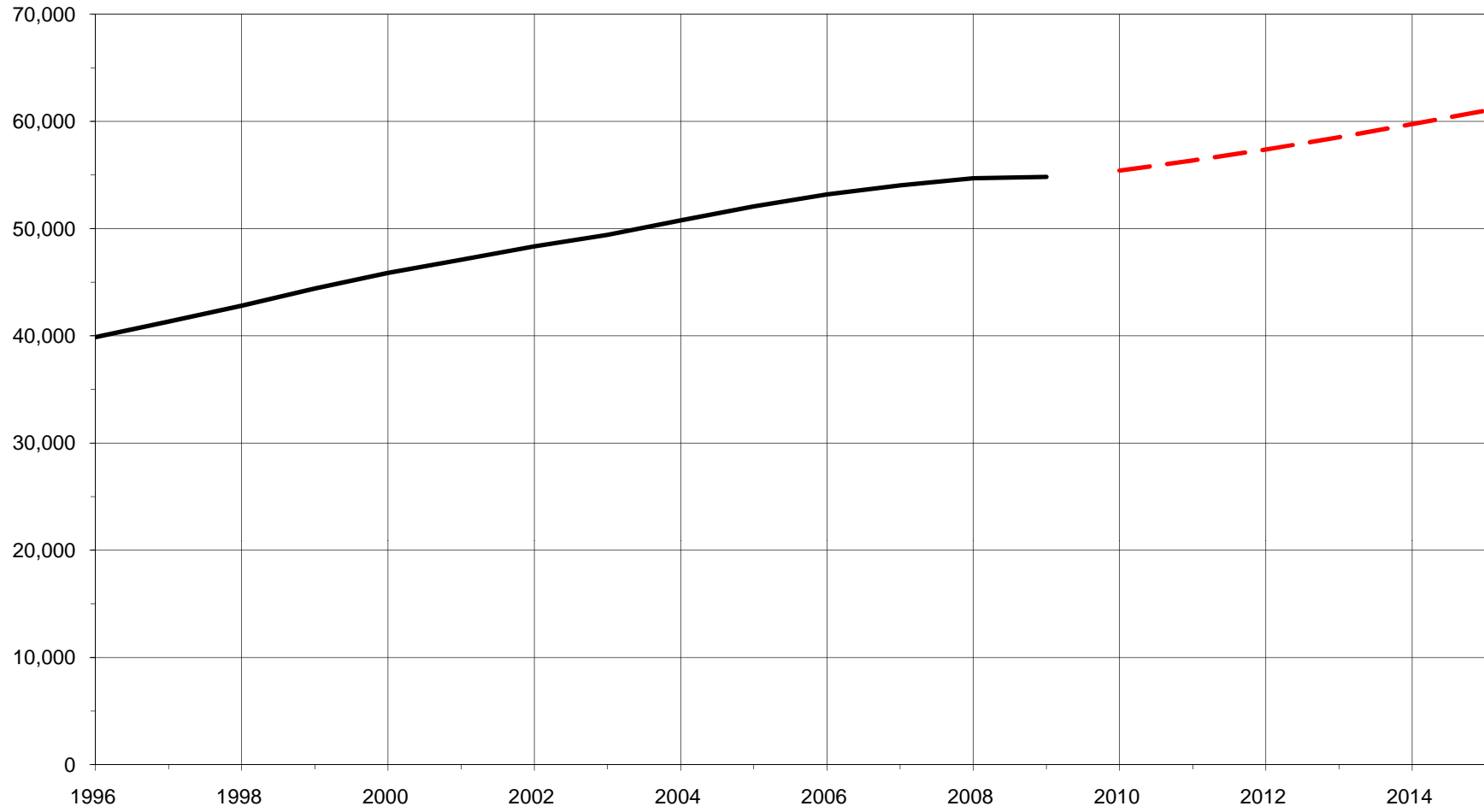
Year	Total Consumers (Annual Average)		kWh per Consumer Residential (Monthly Average)		Net Distribution Plant Investment		Annual System Losses		Annual Load Factor		Total Non-Coincident Peak kW			
	Actual	Projected	Actual	Projected	Actual	Projected**	Actual	Projected	Actual	Projected	Year	Actual	Winter Projections Probable Extreme (20%)	
1996	39,872		1,160		-		4.54%		43.3%		1996-97	225,500		
1997	41,320		1,138		-		5.53%		44.6%		1997-98	204,197		
1998	42,802		1,139		-		5.30%		51.4%		1998-99	233,406		
1999	44,422		1,164		-		4.80%		47.9%		1999-00	248,400		
2000	45,873		1,171		-		6.53%		48.1%		2000-01	266,200		
2001	47,093		1,218		\$109,220,065		3.17%		45.5%		2001-02	249,300		
2002	48,347		1,246		\$114,658,171		5.72%		52.1%		2002-03	296,500		
2003	49,421		1,243		\$120,308,089		4.66%		43.8%		2003-04	295,900		
2004	50,775		1,238		\$129,215,057		5.32%		45.3%		2004-05	300,274		
2005	52,068		1,313		\$138,021,852		4.38%		47.2%		2005-06	285,389		
2006	53,175		1,252		\$148,210,111		3.14%		48.6%		2006-07	334,299		
2007	54,021		1,314		\$162,224,155		5.49%		44.8%		2007-08	346,161		
2008	54,694		1,316		\$176,229,381		4.84%		43.3%		2008-09	362,276		
2009	54,816		1,250		\$190,440,817		4.71%		38.8%		2009-10	324,789		
2010		55,397		1,279		\$204,863,620		4.80%		44.6%	2010-11		362,220	379,202
2011		56,340		1,271		\$218,352,882		4.80%		40.6%	2011-12		370,400	387,672
2012		57,378		1,267		\$232,054,924		4.80%		40.9%	2012-13		381,130	398,718
2013		58,526		1,257		\$245,975,066		4.80%		40.9%	2013-14		390,980	408,918
2014		59,745		1,261		\$260,118,760		4.80%		41.0%	2014-15		400,020	418,329
2015		60,999		1,264		-		4.80%		41.1%	2015-16		410,360	429,050
2016		62,266		1,271		-		4.80%		41.3%	2016-17		420,740	439,815
2017		63,542		1,277		-		4.80%		41.2%	2017-18		430,530	449,992
2018		64,831		1,285		-		4.80%		41.3%	2018-19		440,650	460,503
2019		66,130		1,294		-		4.80%		41.4%	2019-20		449,060	469,307
2020		67,436		1,301		-		4.80%		41.6%	2020-21		459,920	480,563

\* From 2010 Load Forecast

\*\* From May 2004 Long Range Plan

BLUE GRASS ENERGY  
KENTUCKY 64 JESSAMINE  
NICHOLASVILLE, KENTUCKY

Total Consumers

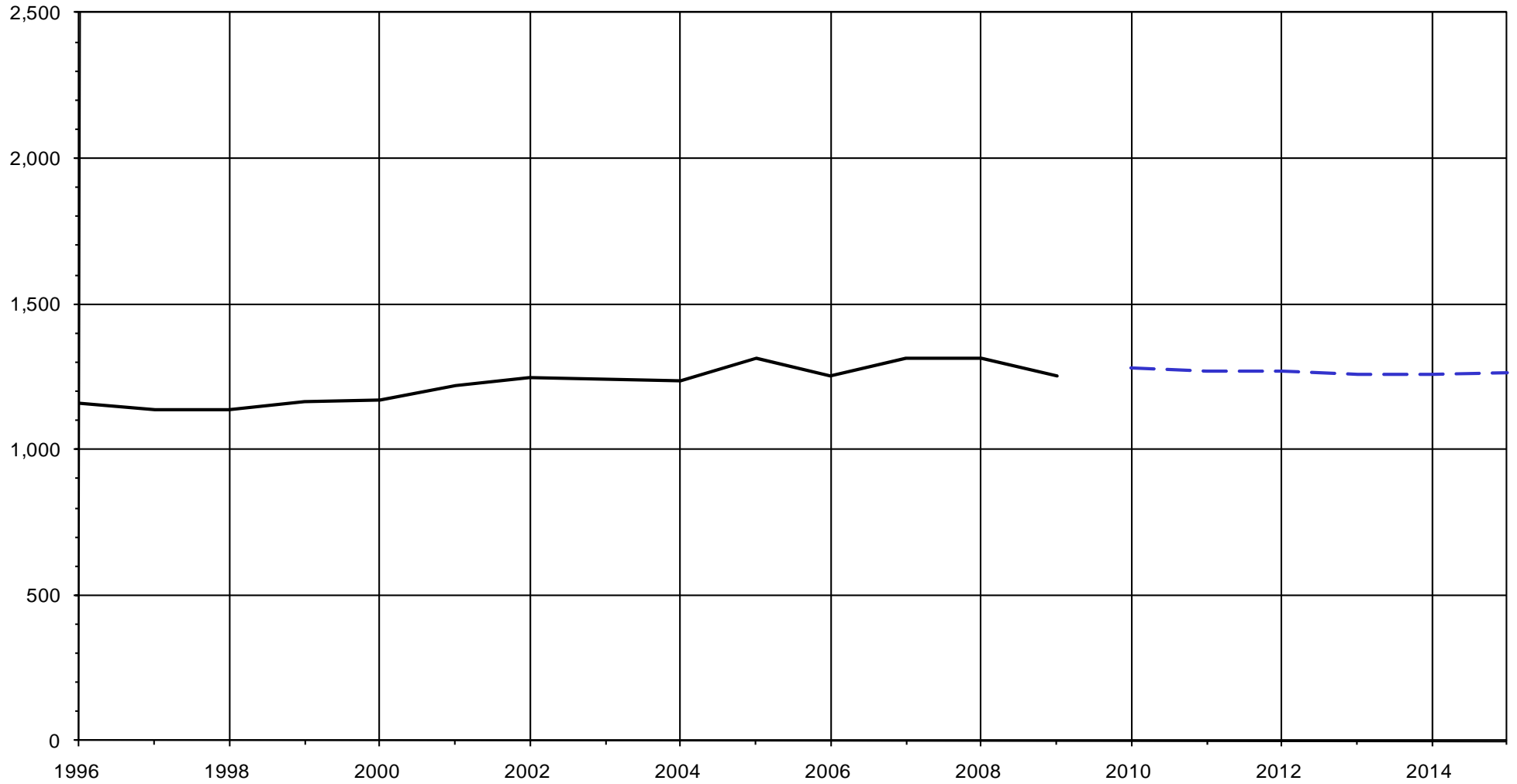


— Total Consumers    - - - Projected Consumers



BLUE GRASS ENERGY  
KENTUCKY 64 JESSAMINE  
NICHOLASVILLE, KENTUCKY

Residential kWh per Consumer (Monthly Average)

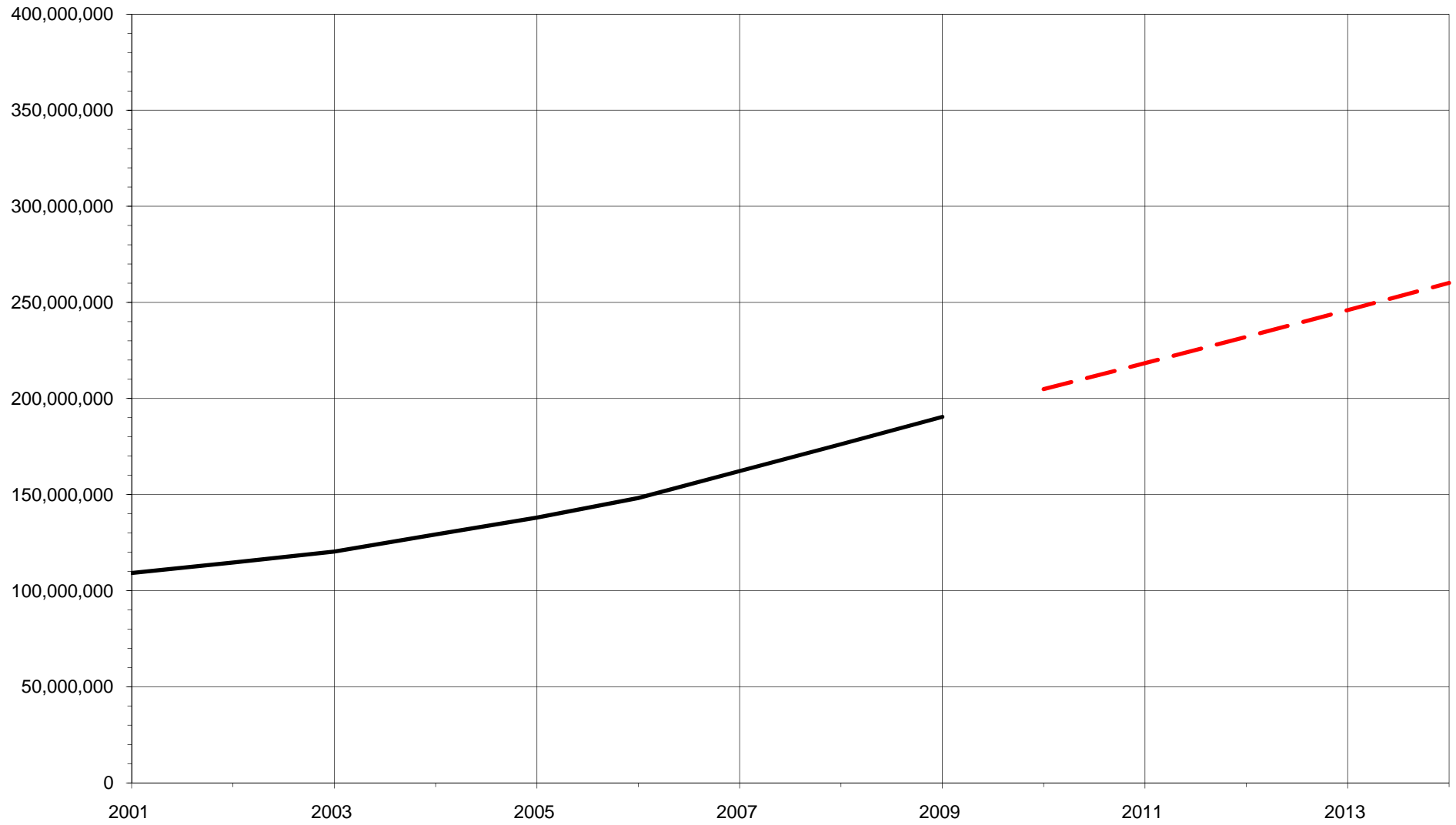


— kWh per Consumer

- - - PRS Projections

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KENTUCKY 64 JESSAMINE  
NICHOLASVILLE, KENTUCKY

Net Distribution Plant (\$ Millions)

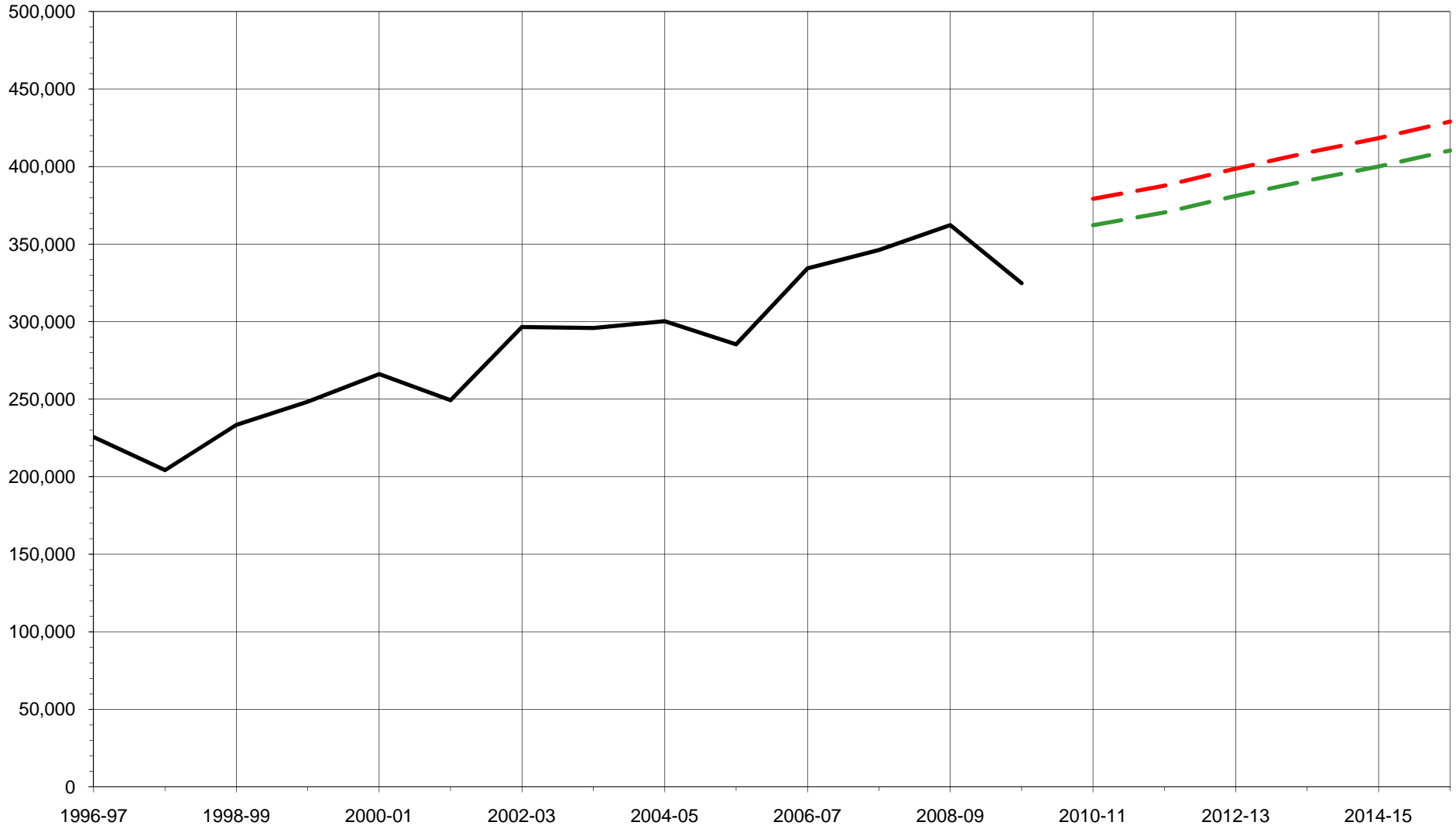


— Net Distribution Plant    - - - Projections

# BLUE GRASS ENERGY

KENTUCKY 64 JESSAMINE  
NICHOLASVILLE, KENTUCKY

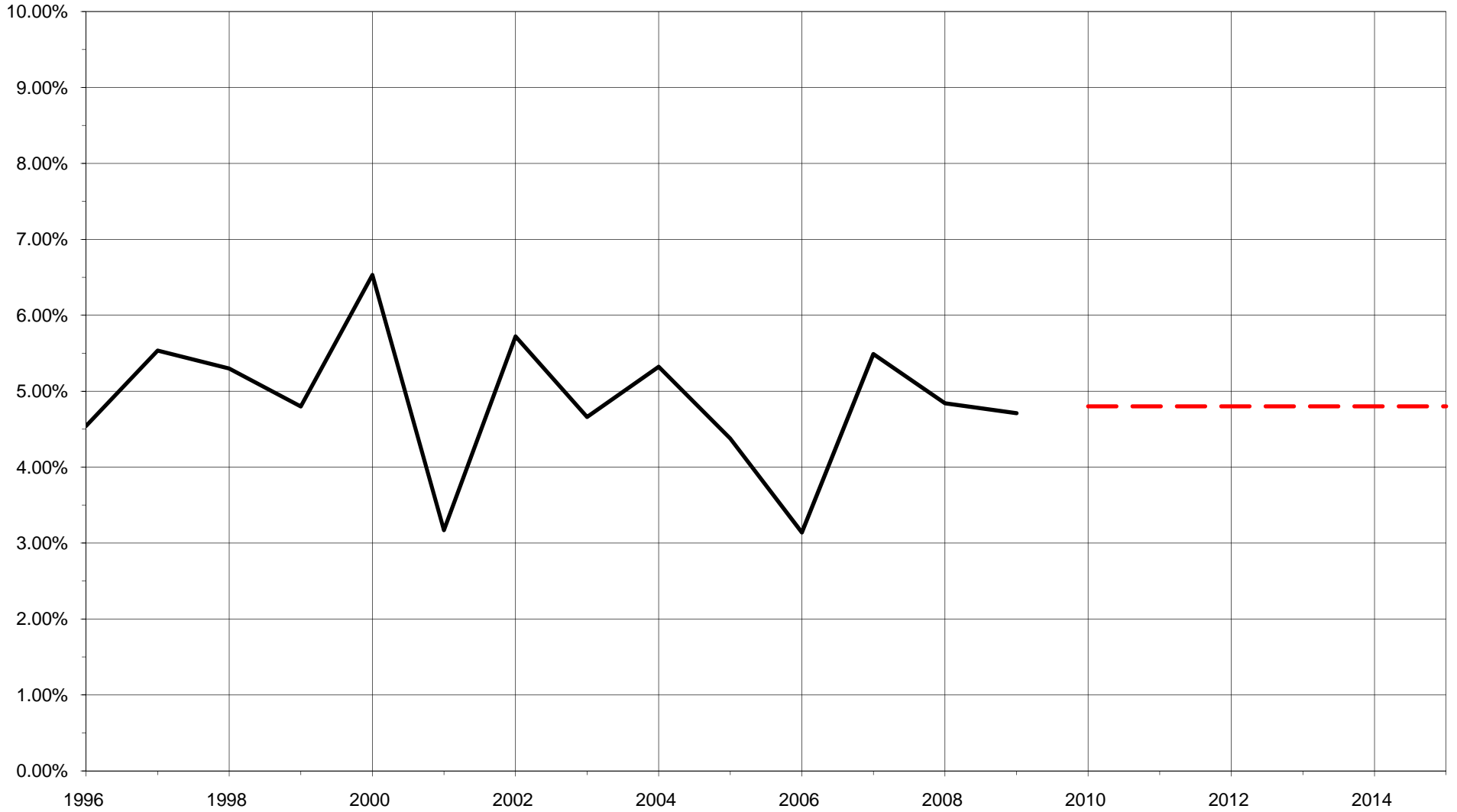
Blue Grass Energy Cooperative Corporation (Kentucky 64)  
Total Non-Coincident Peak kW



— System Peak    - - Most Probable    - - Extreme

BLUE GRASS ENERGY  
KENTUCKY 64 JESSAMINE  
NICHOLASVILLE, KENTUCKY

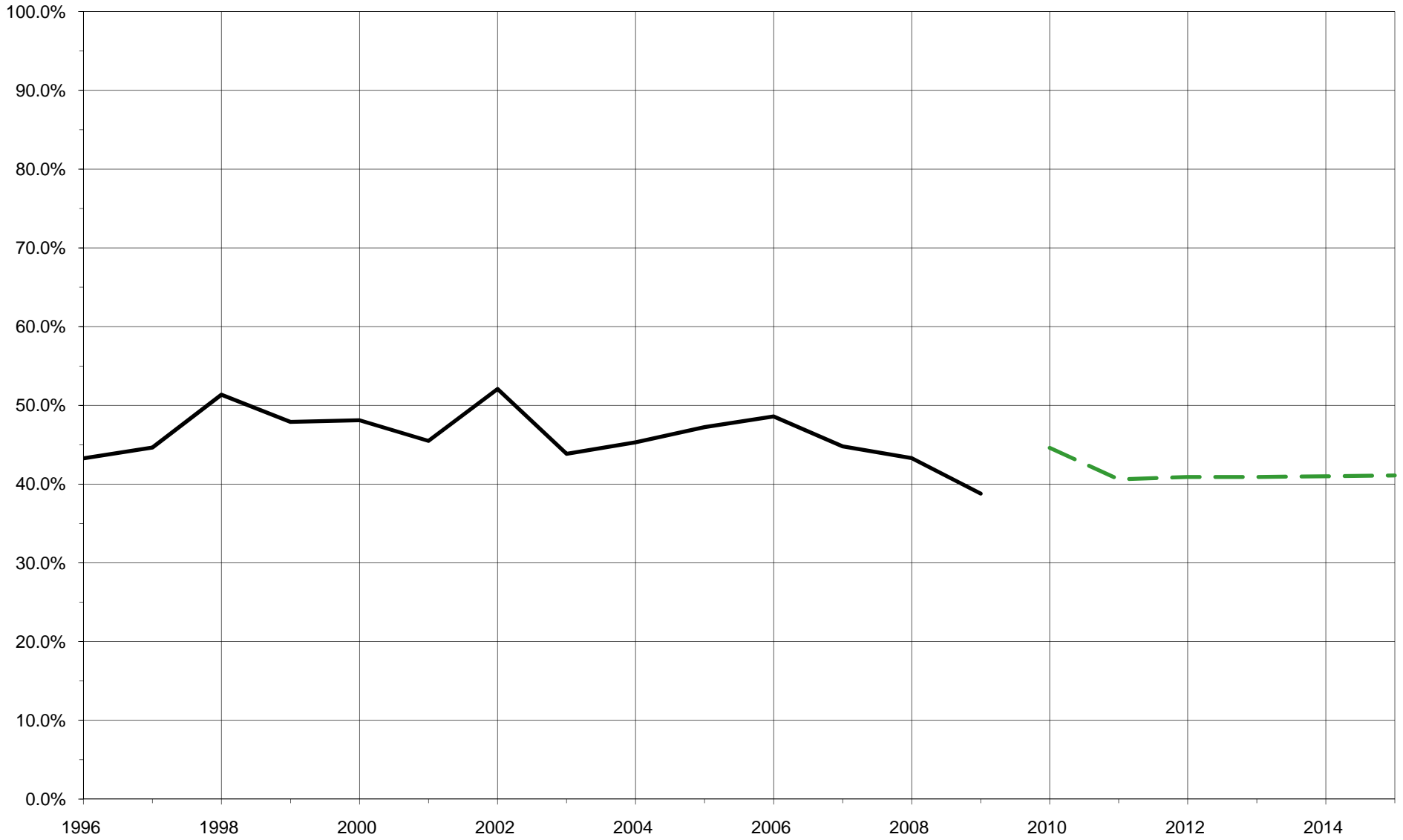
Annual System kWh Losses (%)



— Annual System Losses      - - - PRS Projections

BLUE GRASS ENERGY  
KENTUCKY 64 JESSAMINE  
NICHOLASVILLE, KENTUCKY

Annual Load Factor



— Annual Load Factor    - - - PRS Projections

## **Exhibit B**

**Historical Cost Data Ending December 31, 2010**

Pages: 2

BLUE GRASS ENERGY

KENTUCKY 64 JESSAMINE  
NICHOLASVILLE, KENTUCKY

10/1/10 - 10/1/13 CONSTRUCTION WORK PLAN  
Historical Cost Data Ending December 31, 2009

DISTRIBUTION	12 Months Ending 12/31/07	12 Months Ending 12/31/08	12 Months Ending 12/31/09	Estimated For 10/10 - 10/11	Estimated For 10/11 - 10/12	Estimated For 10/12 - 10/13	Estimated For 36 Months
<b>100 - NEW SERVICES<sup>1</sup></b>							
Overhead and Underground							
Number Services	1,315	940	617	700	850	1,000	2,550
Total Lineal Feet	~	304,811	187,671	219,952	267,084	314,217	801,253
Average Feet Per Service	~	324	304	314	314	314	314
Total Cost	\$5,187,486	\$4,101,670	\$3,203,425	\$3,255,000	\$4,080,000	\$4,950,000	\$12,285,000
Average Cost Per Service	\$3,945	\$4,363	\$5,192	\$4,650	\$4,800	\$4,950	\$4,818
<b>200 - NEW CONSTRUCTION AND TIE LINES (none)</b>				\$0	\$0	\$0	\$0
<b>300 - LINE CONVERSIONS &amp; CHANGES (from Exhibit E)</b>				\$4,023,600	\$2,307,600	\$2,782,000	\$9,113,200
<b>600 - MISCELLANEOUS DISTRIBUTION EQUIPMENT</b>							
601 - Transformers and Meters							
Number of Transformers		1,059	852	800	950	1,100	2,850
Total Cost of Transformers		\$1,392,158	\$1,350,161	\$1,300,000	\$1,591,250	\$1,897,500	\$4,788,750
Average Cost of Trans.		\$1,315	\$1,585	\$1,625	\$1,675	\$1,725	\$1,680
Number of New Meters (AMR)		5,552	20	700	850	1,000	2,550
Total Cost of Meters		\$606,195	\$6,103	\$87,500	\$109,650	\$133,000	\$330,150
Average Cost of Meters		\$109	\$305	\$125	\$129	\$133	\$129
602 - Service Upgrades							
Number Work Orders		99	89	95	95	95	285
Total Cost		\$236,423	\$256,843	\$251,750	\$259,350	\$266,950	\$778,050
Average Cost		\$2,388	\$2,886	\$2,650	\$2,730	\$2,810	\$2,730
603 - Sectionalizing Equipment							
Number Work Orders		2	5	5	5	5	15
Total Cost		\$11,728	\$95,305	\$100,000	\$100,000	\$100,000	\$300,000
Average Cost		\$5,864	\$19,061	\$20,000	\$20,000	\$20,000	\$20,000
604 - Line Regulators							
Number Work Orders		0	0	3	1	1	5
Total Cost		\$0	\$0	\$105,000	\$37,000	\$39,000	\$181,000
Average Cost		\$0	\$0	\$35,000	\$37,000	\$39,000	\$36,200
605 - Capacitors							
Number Work Orders		0	0	30	11	6	47
Total Cost		\$0	\$0	\$75,000	\$28,600	\$16,200	\$119,800
Average Cost (approximately 75% cost to EKPC)		\$0	\$0	\$2,500	\$2,600	\$2,700	\$2,549
606 - Pole Changes - Replacement							
Number of Poles Replaced		501	659	600	600	600	1,800
Total Cost		\$1,412,926	\$1,340,681	\$1,455,000	\$1,500,000	\$1,545,000	\$4,500,000
Average Cost per Pole		\$2,820	\$2,034	\$2,425	\$2,500	\$2,575	\$2,500
607 - Conductor Replacement							
Number Miles of Line	OH	1	10	15	15	15	45
Total Cost	OH	\$134,223	\$403,770	\$577,500	\$592,500	\$615,000	\$1,785,000
Average Cost per Mile	OH	\$0	\$0	\$38,500	\$39,500	\$41,000	\$39,667
Number Miles of Line	URD	~	~	3	3	3	9
Total Cost	URD	~	~	\$180,000	\$189,000	\$198,000	\$567,000
Average Cost per Mile	URD	\$0	\$0	\$60,000	\$63,000	\$66,000	\$63,000
615 - Two Way Communication with AVL		\$0	\$0	\$0	\$0	\$200,000	\$200,000
<b>700 - OTHER DISTRIBUTION</b>							
701 - Security Lights							
Number Work Orders		550	400	475	475	475	1,425
Total Cost		\$202,243	\$175,996	\$218,500	\$229,425	\$240,825	\$688,750
Average Cost		\$368	\$440	\$460	\$483	\$507	\$483
704 - DA Communication Backbone and Volt / VAR Eq.		\$0	\$0	\$2,355,000	\$0	\$0	\$2,355,000
705 - AMR Computer Equipment		\$0	\$0	\$0	\$0	\$0	\$0
<b>TOTAL CWP</b>				\$13,983,850	\$11,024,375	\$12,983,475	\$37,991,700

<sup>1</sup> Elevated cost per consumer is mainly due to the over-head costs associated with this type job.

BLUE GRASS ENERGY  
 KENTUCKY 64 JESSAMINE  
 NICHOLASVILLE, KENTUCKY

**10/1/10 ~ 10/1/13 CONSTRUCTION WORK PLAN**  
**Historical Cost Data Ending December 31, 2009**

**Historical Cost Data Summary of RUS Code 300 Projects**

Construction Type	Costs Per Mile	
	Historical Costs*	Projected Costs
1Ø 2 ACSR	~	\$38,500
1Ø 1/0 ACSR	\$36,700	\$44,000
2Ø 1/0 ACSR	\$56,231	\$62,000
3Ø 1/0 ACSR	\$55,554	\$69,000
3Ø 336 ACSR	\$74,278	\$89,000
3Ø 336 ACSR DC	\$125,914	\$132,000
3Ø 556 ACSR	~	\$125,000
3Ø 336 ACSR DC (Bundled)	\$199,633	~
3Ø 336 ACSR TC (Bundled)	~	~
Add 3Ø 336 ACSR (Bundled)	~	~
1Ø 1/0 UG	~	~
3Ø 1/0 UG	~	~
3Ø 500 MCM UG (Sub Exits	\$103,355	\$150,000
1Ø 14.4kV reinsulate	~	~
3Ø 25kV reinsulate	~	~

\* Based on actual project costs



## **Exhibit C**

**Status of Previous 2007 – 2009 Work Plan Projects**

Pages: 2

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KENTUCKY 64 JESSAMINE  
NICHOLASVILLE, KENTUCKY

10/1/10 - 10/1/13 CONSTRUCTION WORK PLAN  
Status of Previous CWP Projects

CWP Source Legend
1 = 2007-2009 CWP
2 = 2004-2005 CWP
AM(x) = amendment

Status Legend
COM = Completed
DEL = Deleted
IP = In Progress
NP = No Progress
CPC = Complete Pending Close-out

Construction Item No.	CWP Source	Line Section(s)	Construction Description	Length (miles)	CWP	Costs	Actual Costs	% Actual to CWP Costs	Status
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New Construction and Tie Lines (Code 200 Items)

200	None								
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Line Conversions and Changes (Code 300 Items)

302-01	1	1513069	3ø 1/0 ACSR	0.96	\$115,500	\$57,921	50%	COM
302-02	1	1513076 - 1513067	3ø 1/0 ACSR	1.02	\$55,000	\$55,269	100%	COM
302-03	1	1513120 & 1513117	3ø 1/0 ACSR	2.10	\$38,500	\$101,747	264%	COM
302-04	1	1414494	2ø 1/0 ACSR		\$28,000		-	IP
303-01	1	1613053 & 1613054	3ø 1/0 ACSR		\$27,500		-	NP
303-02	1	1514476 - 1514451	Underbuild		\$252,000		-	DEL
304-01	2	Shopping Center	3ø 336 ACSR	0.57	\$80,000	\$59,897	75%	COM
305-01	1	1416036 & 1416022	3ø 1/0 ACSR		\$44,000		-	NP
305-02	2	Sub Exits	(3) 3ø 1000 MCM		\$75,000		-	NP
306-01	2	Sub Exits	(3) 3ø 1000 MCM		\$50,000		-	NP
307-01	1	1717069 & 1717070	3ø 336 ACSR		\$88,000		-	IP
307-02	1	1715052 - 1715053	2ø 1/0 ACSR	3.07	\$92,000	\$201,603	219%	COM
307-03	1	1716080 - 1716085	3ø 1/0 ACSR	2.85	\$82,500	\$222,262	269%	COM
308-01	1		3ø 336 ACSR	2.93	\$216,000	\$260,540	121%	COM
309-01	2	1918264 - 1918265	3ø 336 ACSR	3.07	\$152,000	\$177,056	116%	COM
309-02	2	2018121 - 2018221	3ø 1/0 ACSR		\$44,000		0%	COM
309-03	1	2018114	3ø 1/0 ACSR	1.13	\$38,500	\$57,759	150%	COM
309-04	2	2018198 & 2018200	3ø 1/0 ACSR	1.65	\$27,500	\$121,668	442%	COM
309-05	2	2018184	3ø 1/0 ACSR	1.78	\$115,500	\$123,933	107%	COM
313-01	1	1918238	3ø 1/0 ACSR	0.84	\$38,500	\$59,420	154%	COM
313-02	2	1918270	3ø 336 ACSR		\$160,000		0%	COM
313-03	1	1919096 & 1919097	3ø 1/0 ACSR	1.26	\$55,000	\$118,041	215%	COM
313-04	2	1919061	3ø 1/0 ACSR	1.95	\$82,500	\$90,697	110%	COM
314-01	1	1614172 - 1614174	3ø 336 ACSR	1.90	\$200,000	\$239,236	120%	COM
314-02	1	1714059 - 1714060	3ø 1/0 ACSR		\$44,000		-	NP
314-03	2	1714094 - 1714095	2ø 1/0 ACSR	0.99	\$49,500	\$68,331	138%	COM
314-04	1	1714085 - 1714108	3ø 1/0 ACSR	1.75	\$55,000	\$94,648	172%	COM
314-05	1	1714067 - 1714069	3ø 1/0 ACSR	2.08	\$77,000	\$83,487	108%	COM
314-06	2	1615066 - 1615069	3ø 1/0 ACSR	2.19	\$77,000	\$146,872	191%	COM
314-07	1	1615108 - 1615107	3ø 1/0 ACSR		\$71,500		-	CPC
314-08	1	1614196 - 1614217	3ø 336 ACSR	1.06	\$24,000	\$105,072	438%	COM
314-09	1	sub - 1614154	3ø 336 ACSR DC	2.08	\$220,500	\$415,036	188%	COM
315-01	1	1616132 - 1617045	3ø 336 ACSR		\$216,000		-	IP
315-02	1		3ø 1/0 ACSR	3.42	\$115,500	\$218,093	189%	COM
315-03	AM(3)		3ø 336 ACSR		\$176,000		-	IP
317-01	2	Sub Exits	3ø 336 ACSR TC	4.15	\$154,000	\$241,108	-	DEL
317-02	2	Sub Exits	3ø 336 ACSR DC	0.02	\$75,600	\$32,773	-	DEL
317-03	2	Sub Exits	3ø 500 MCM URD		\$187,500		-	DEL
321-01	1	1009009	3ø 1/0 ACSR		\$110,000		-	IP
321-02	1	1210090	3ø 336 ACSR	0.23	\$16,000	\$16,802	105%	COM
322-01	2	1311034	1ø 2 ACSR 14.4 kV		\$77,000		-	NP
322-02	1	1311046 - 1411119	3ø 336 ACSR		\$416,000		-	IP
322-03	1	1210094 & 1210095	3ø 336 ACSR		\$136,000		0%	COM
323-01	2	1409042 - 1509053	3ø 1/0 ACSR	3.73	\$192,500	\$211,857	110%	COM
323-02	1	1508068	3ø 1/0 ACSR		\$93,500		-	IP
323-03	1	1608022 - 1608057	3ø 1/0 ACSR		\$93,500		-	IP
323-04	1	1608024 - 1608011	3ø 1/0 ACSR		\$93,500		-	IP
323-05	2	1307012	3ø 1/0 ACSR	3.63	\$110,000	\$172,613	157%	COM

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Construction Item No.	CWP Source	Line Section(s)	Construction Description	Length (miles)	CWP	Costs	Actual Costs	% Actual to CWP Costs	Status
323-06	2	1408059 - 1407026	3ø 336 ACSR	5.56		\$336,000	\$486,726	145%	COM
323-07	1	1408069 - 1408070	3ø 1/0 ACSR	0.99		\$33,000	\$55,471	168%	COM
324-01	1	1611043 - 1611044	3ø 1/0 ACSR	3.71		\$181,500	\$180,356	99%	COM
324-02	1	1611046	3ø 1/0 ACSR			\$110,000		-	IP
324-03	1	1711047	3ø 1/0 ACSR	2.49		\$99,000	\$100,740	102%	COM
324-04	1	1610046	3ø 1/0 ACSR			\$55,000		-	NP
324-05	1	1710062	3ø 1/0 ACSR			\$44,000		-	NP
324-06	1	1710063 - 1710065	3ø 1/0 ACSR	1.58		\$44,000	\$90,456	206%	COM
324-07	1	1510058 - 1510078	3ø 1/0 ACSR	4.18		\$209,000	\$208,062	100%	COM
324-08	1	1510089 - 1410070	3ø 1/0 ACSR			\$115,500		-	DEL
324-09	2	1610061 - 1609051	3ø 1/0 ACSR	7.61		\$170,500	\$359,419	211%	COM
324-10	1	1610085	3ø 1/0 ACSR	3.72		\$115,500	\$218,601	189%	COM
326-01	2	1411160 & 1411145	3ø 1/0 ACSR	6.85		\$110,000	\$351,329	319%	COM
326-02	2		2ø 1/0 ACSR	2.14		\$68,000	\$114,909	169%	COM
326-03	1	1512020 & 1512022	3ø 1/0 ACSR			\$137,500		0%	COM
326-04	1	1410049	3ø 1/0 ACSR	2.79		\$115,500	\$194,828	169%	COM
326-05	2	1511085 & 1510103	3ø 1/0 ACSR	2.14		\$88,000	\$129,522	147%	COM
328-01	2	1309036 - 1309038	3ø 1/0 ACSR	2.16		\$110,000	\$116,426	106%	COM
328-02	2	Sub Exits	3ø 500 MCM URD			\$150,000		0%	COM
328-03	2	1309060 - 1309049	3ø 1/0 ACSR	2.14		\$88,000	\$111,897	127%	COM
331-01	2	0318020 - 0319040	2ø 2 ACSR	3.02		\$32,000	\$102,617	321%	COM
331-02	2	0219010	3ø 1/0 ACSR			\$38,500		-	NP
331-03	1	0419047 - 0419040	3ø 336 ACSR			\$144,000		-	IP
332-01	1	0617052 - 0617032	3ø 336 ACSR	2.50		\$352,000	\$378,142	107%	COM
332-02	2	0616047 - 0419040	3ø 336 ACSR	8.70		\$408,000	\$592,280	145%	COM
333-01	1	417065	3ø 1/0 ACSR			\$55,000		-	NP
333-02	1	0517061 - 0618054	3ø 1/0 ACSR	3.62		\$121,000	\$211,019	174%	COM
333-03	2	517073	3ø 1/0 ACSR			\$44,000		-	DEL
333-04	1	0618052 - 0618054	3ø 336 ACSR			\$200,000		-	IP
333-05	AM(4)		3ø 336 ACSR			\$408,000		-	IP
334-01	1	0815064	3ø 1/0 ACSR			\$44,000		-	NP
334-02	2	0815053	3ø 1/0 ACSR			\$55,000		0%	COM
334-03	2	0715046	3ø 1/0 ACSR	7.11		\$104,500	\$461,694	442%	COM
334-04	1	0818066 - 0716049	3ø 336 ACSR	6.21		\$400,000	\$465,810	116%	COM
334-05	1	0916068	3ø 336 ACSR			\$104,000		-	IP
335-01	1	817131	3ø 336 ACSR	0.46		\$75,000	\$53,931	72%	COM
335-02	1	0818056 _ 0818059	3ø 336 ACSR	2.52		\$168,000	\$196,636	117%	COM
335-03	1	0817078 - 0816055	3ø 336 ACSR	7.86		\$264,000	\$358,706	136%	COM
336-01	1	Sub Exits	3ø 336 ACSR	0.49		\$80,000	\$98,476	123%	COM
336-02	1	820035	3ø 1/0 ACSR	0.90		\$49,500		-	NP
336-03	AM(2)		3ø 336 ACSR	2.80		\$82,500	\$154,821	188%	COM
338-01	1	1020066	3ø 336 ACSR	8.89		\$160,000	\$146,133	91%	COM
339-01	1	0916078 - 0916080	3ø 336 ACSR			\$176,000		-	IP
339-02	1	1017038	3ø 336 ACSR	3.94		\$160,000	\$218,770	137%	COM
339-03	1	1017029	3ø 1/0 ACSR			\$44,000		-	DEL
340-01	1	1015106 - 1015078	3ø 336 ACSR	2.97		\$128,000	\$135,010	105%	COM
340-02	1	1015097 - 1015091	3ø 336 ACSR			\$280,000		-	NP

New Substations (Code 400 Items)

400	2	Powell Taylor Substation	11.2 MVA		-	By EKPC	-	COM
400	2	South Point Substation	11.2 MVA		-	By EKPC	-	COM

Substation Changes and Modifications (Code 500 Items)

500	2	West Berea Substation upgrade	Upgrade with West Berea 2 - 11.2 MVA		-	By EKPC	-	ON HOLD
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Miscellaneous Distribution Equipment (Code 600 items)

600	None							
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# **Exhibit D**

## **Summary of Distribution Cost Estimates**

Pages: 1

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KENTUCKY 64 JESSAMINE  
NICHOLASVILLE, KENTUCKY

10/1/10 ~ 10/1/13 CONSTRUCTION WORK PLAN  
Summary of Distribution Cost Estimates

		Cost Year A 2011	Cost Year B 2012	Cost Year C 2013	Total CWP Costs
<b>740c REF 100: Line Construction for New Services</b>		\$3,255,000	\$4,080,000	\$4,950,000	<b>\$12,285,000</b>
<b>740c REF 200: New Construction and Tie Lines</b>		\$0	\$0	\$0	\$0
<b>740c REF 300: Conversions and Line Changes</b>		\$4,023,600	\$2,307,600	\$2,782,000	<b>\$9,113,200</b>
<b>740c REF 400: New Substations, Metering Points, etc</b>		\$0	\$0	\$0	\$0
<b>740c REF 500: Substation and Meter Point Changes</b>		\$0	\$0	\$0	\$0
<b>740c REF 600: Miscellaneous Distribution Equipment</b>					
Code 601	Transformers & Meters	\$1,387,500	\$1,700,900	\$2,030,500	<b>\$5,118,900</b>
Code 602	Increased Service Capacity	\$251,750	\$259,350	\$266,950	<b>\$778,050</b>
Code 603	Sectionalizing Equipment	\$100,000	\$100,000	\$100,000	<b>\$300,000</b>
Code 604	Line Voltage Regulators	\$105,000	\$37,000	\$39,000	<b>\$181,000</b>
Code 605	Line Capacitors	\$75,000	\$28,600	\$16,200	<b>\$119,800</b>
Code 606	Pole Replacement	\$1,455,000	\$1,500,000	\$1,545,000	<b>\$4,500,000</b>
Code 607	Conductor Replacement	\$757,500	\$781,500	\$813,000	<b>\$2,352,000</b>
Code 615	Two Way Communication with AVL	\$0	\$0	\$200,000	<b>\$200,000</b>
<b>740c REF 700: Other Distribution Items</b>					
Code 701	Security Lights	\$218,500	\$229,425	\$240,825	<b>\$688,750</b>
Code 704	Distribution Automation (DA)	\$2,355,000	\$0	\$0	<b>\$2,355,000</b>
Code 705	AMR System and Equipment	\$0	\$0	\$0	<b>\$0</b>
<b>Total CWP Requirements :</b>		<b>\$13,983,850</b>	<b>\$11,024,375</b>	<b>\$12,983,475</b>	<b>\$37,991,700</b>

## **Exhibit E**

### **Cost Estimate Breakdown for RUS Form 740c and Financial Forecast**

Pages: 2

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KENTUCKY 64 JESSAMINE  
NICHOLASVILLE, KENTUCKY

10/1/10 - 10/1/13 CONSTRUCTION WORK PLAN

Cost Estimate Breakdown For Loan Application and Financial Forecast  
(RUS Form 740c Format)

1. DISTRIBUTION

a. 740c Ref. Code 100: New Line (Excluding Tie-Lines)

		Total Consumers	Average Cost	Cost Year A 10/10 - 10/11	Cost Year B 10/11 - 10/12	Cost Year C 10/12 - 10/13
100	OH & URD	2,550	\$4,818	\$3,255,000	\$4,080,000	\$4,950,000
<b>TOTAL CODE 100 COSTS:</b>				<b>\$3,255,000</b>	<b>\$4,080,000</b>	<b>\$4,950,000</b>

b. 740c Ref Code 200: New Construction and Tie-Lines

(No Code 200 Projects in this CWP)

\$0 \$0 \$0

c. 740c Ref Code 300: Line Conversions and Changes

(See Exhibit F for further details)

RUS Ref. Nos.	Priority Code	Miles	Existing Construction	Proposed Construction	\$ / Mile	Cost Year A 10/10 - 10/11	Cost Year B 10/11 - 10/12	Cost Year C 10/12 - 10/13
302-01*	A	0.6	1PH 4 ACSR	2PH 1/0 ACSR	\$62,000	\$37,200		
303-01*	C	0.5	1PH 1/0 ACSR	3PH 1/0 ACSR	\$69,000			\$34,500
303-02	B	1.0	1PH 1/0 ACSR	2PH 1/0 ACSR	\$62,000		\$62,000	
304-01	A	0.1	(1) 3PH 350 MCM	(1) 3PH 500 MCM	\$150,000	\$15,000		
304-02	B	1.1	1PH 2 ACSR	3PH 1/0 ACSR	\$69,000		\$75,900	
304-03	A	0.8	2PH 1/0 URD	2PH 1/0 URD	\$100,000	\$80,000		
305-01*	C	0.7	1PH 4 ACSR	3PH 1/0 ACSR	\$69,000			\$48,300
305-02*	A	0.3	(3) 3PH 350 MCM	(3) 3PH 500 MCM	\$150,000	\$45,000		
306-01*	A	0.4	(4) 3PH 350 MCM	(4) 3PH 500 MCM	\$150,000	\$60,000		
307-01*	A	0.5	3PH 1/0 ACSR	3PH 336 ACSR	\$89,000	\$44,500		
307-02	B	0.1	1PH 1/0 ACSR	2PH 1/0 ACSR	\$62,000		\$6,200	
308-01	C	1.1	3PH 1/0 ACSR	3PH 336 ACSR	\$89,000			\$97,900
309-01	B	1.0	1PH 1/0 ACSR	3PH 1/0 ACSR	\$69,000		\$69,000	
309-02	B	0.1	1PH 4 ACSR	2PH 1/0 ACSR	\$62,000		\$6,200	
309-03	B	1.4	1PH 1/0 ACSR	3PH 1/0 ACSR	\$69,000		\$96,600	
309-04	B	0.1	1PH 1/0 ACSR	3PH 1/0 ACSR	\$69,000		\$6,900	
313-01	C	0.3	1PH 6 CU	3PH 1/0 ACSR	\$69,000			\$20,700
313-02	C	0.1	1PH 1/0 ACSR	3PH 1/0 ACSR	\$69,000			\$6,900
314-01*	A	1.4	1PH 1/0 ACSR	3PH 1/0 ACSR	\$69,000	\$96,600		
315-01*	A	2.3	3PH 1/0 ACSR	3PH 336 ACSR	\$89,000	\$204,700		
315-02†	A	2.2	3PH 1/0 ACSR	3PH 336 ACSR	\$89,000	\$195,800		
315-03	B	1.1	1PH 4 ACSR	3PH 1/0 ACSR	\$69,000		\$75,900	
315-04	C	1.8	3PH 1/0 ACSR	3PH 336 ACSR	\$89,000			\$160,200
321-01*	A	2.0	1PH 4 ACSR	3PH 1/0 ACSR	\$69,000	\$138,000		
322-01*	B	2.9	Various	3PH 1/0 ACSR	\$69,000		\$200,100	
322-02*	A	5.0	3PH 4 ACSR	3PH 336 ACSR	\$89,000	\$445,000		
322-03	B	0.5	1PH 6 CU	2PH 1/0 ACSR	\$62,000		\$31,000	
322-04	B	3.0	1PH 6 CU-7.2kV	1PH 1/0 ACSR-14.4kV	\$44,000		\$132,000	
323-01*	A	2.4	1PH 6 CU	3PH 1/0 ACSR	\$69,000	\$165,600		
323-02*	A	2.2	1PH 8 CU	3PH 1/0 ACSR	\$69,000	\$151,800		
323-03	A	2.3	3PH 2 ACSR	3PH 336 ACSR	\$89,000	\$204,700		
323-04	B	3.0	1PH 6 CU	3PH 1/0 ACSR	\$69,000		\$207,000	
323-05	C	0.3	1PH 4 ACSR	3PH 1/0 ACSR	\$69,000			\$20,700
323-06	A	2.0	1PH 8 CU	3PH 1/0 ACSR	\$69,000	\$134,600		
323-07	B	2.0	3PH 4 ACSR	3PH 1/0 ACSR	\$69,000		\$138,000	
324-01*	A	1.7	1PH 4 ACSR	3PH 1/0 ACSR	\$69,000	\$117,300		
324-02*	A	1.2	1PH 4 ACSR	3PH 1/0 ACSR	\$69,000	\$82,800		
326-01	B	3.3	1PH 4 ACSR	3PH 336 ACSR	\$89,000		\$293,700	
326-02	C	0.6	1PH 6 CU & 4 ACSR	3PH 1/0 ACSR	\$69,000			\$41,400
328-01*	B	0.2	1PH & 2PH 4 ACSR	3PH 1/0 ACSR	\$69,000		\$13,800	
328-02	C	3.8	1PH 6 CU	3PH 1/0 ACSR	\$69,000			\$262,200
331-01	C	9.4	3PH 4 ACSR	3PH 336 ACSR	\$89,000			\$836,600
331-02*	A	0.7	1PH 6 CU	3PH 1/0 ACSR	\$69,000	\$48,300		
331-03*	A	1.8	3PH 4 ACSR	3PH 336 ACSR	\$89,000	\$160,200		
332-01	A	4.0	1PH & 2PH 4 ACSR	3PH 1/0 ACSR	\$69,000	\$276,000		
332-02	A	2.2	1PH & 2PH 4 ACSR	3PH 1/0 ACSR	\$69,000	\$151,800		
333-01*	A	2.5	3PH 4 ACSR	3PH 336 ACSR	\$89,000	\$222,500		
333-02*	A	3.7	3PH 4 ACSR	3PH 336 ACSR	\$89,000	\$329,300		
333-03	C	5.9	3PH 6 CU & 4 ACSR	3PH 1/0 ACSR	\$69,000			\$407,100
334-01*	B	1.1	1PH 4 ACSR	3PH 1/0 ACSR	\$69,000		\$75,900	
334-02*	A	1.3	3PH 4 ACSR	3PH 336 ACSR	\$89,000	\$115,700		
334-03	A	1.1	3PH 3/0 ACSR (DC)	3PH 336 ACSR (DC)	\$132,000	\$145,200		
334-04	A	4.0	3PH 1/0 ACSR	3PH 336 ACSR	\$89,000	\$356,000		
334-05	C	2.9	1PH 4 ACSR	3PH 1/0 ACSR	\$69,000			\$200,100
334-06	C	1.3	1PH 6 & 8 CU	3PH 1/0 ACSR	\$69,000			\$89,700
335-01	B	1.8	1PH 4 ACSR	3PH 1/0 ACSR	\$69,000		\$124,200	
335-02	C	3.3	1PH & 2 PH 4 ACSR	3PH 336 ACSR	\$89,000			\$293,700
336-01*	B	1.5	1PH 4 ACSR	3PH 1/0 ACSR	\$69,000		\$103,500	
336-02	B	4.0	3PH 4 ACSR	3PH 1/0 ACSR	\$69,000		\$278,200	
339-01*	C	2.2	3PH 4 ACSR	3PH 336 ACSR	\$89,000			\$195,800
340-01*	B	3.5	KU Route	3PH 336 ACSR	\$89,000		\$311,500	
340-02	C	0.6	1PH 4 ACSR	3PH 1/0 ACSR	\$69,000			\$41,400
340-03	C	0.4	1PH 1/0 ACSR	2PH 1/0 ACSR	\$62,000			\$24,800
<b>TOTAL CODE 300 COSTS:</b>						<b>\$4,023,600</b>	<b>\$2,307,600</b>	<b>\$2,782,000</b>
112.6								<b>\$9,113,200</b>

BLUE GRASS ENERGY

KENTUCKY 64 JESSAMINE  
NICHOLASVILLE, KENTUCKY

10/1/10 - 10/1/13 CONSTRUCTION WORK PLAN

Cost Estimate Breakdown For Loan Application and Financial Forecast  
(RUS Form 740c Format)

d. 740c Ref Code 400: New Substations, Metering Points (No Code 400 Projects in this CWP) \$0 \$0 \$0

e. 740c Ref Code 500: Substation, Metering Point Changes (No Code 500 Projects in this CWP) \$0 \$0 \$0

f. 740c Ref Code 600: Miscellaneous Distribution Equipment

RUS Ref. Nos.	Miscellaneous Equipment	Total Units	Units Per Year	Average Cost	Costs Year A 10/10 - 10/11	Cost Year B 10/11 - 10/12	Cost Year C 10/12 - 10/13	Total
601	<b>Transformers &amp; Meters (OH &amp; URD)</b>							
	Transformers	2,850	950	\$1,680	\$1,300,000	\$1,591,250	\$1,897,500	\$4,788,750
	Meters	2,550	850	\$129	\$87,500	\$109,650	\$133,000	\$330,150
					\$1,387,500	\$1,700,900	\$2,030,500	\$5,118,900
602	<b>Service Wires for Increased Capacity</b>	285	95	\$2,730	\$251,750	\$259,350	\$266,950	\$778,050
603	<b>Sectionalizing Equipment</b> (See Exhibit J for breakdown)				\$100,000	\$100,000	\$100,000	\$300,000
604	<b>Line Regulators</b> (See Exhibit H for Breakdown)	15	5	\$36,200	\$105,000	\$37,000	\$39,000	\$181,000
605	<b>Line Capacitors</b> (See Exhibit I for Breakdown)	47	16	\$2,549	\$75,000	\$28,600	\$16,200	\$119,800
606	<b>Pole Replacement</b>	1,800	600	\$2,500	\$1,455,000	\$1,500,000	\$1,545,000	\$4,500,000
607	<b>Conductor Replacement ~ OH</b>	45	15	\$38,500	\$577,500	\$592,500	\$615,000	\$1,785,000
	<b>~ URD</b>	9	3	\$60,000	\$180,000	\$189,000	\$198,000	\$567,000
					\$757,500	\$781,500	\$813,000	\$2,352,000
615	<b>Two Way Communication with AVL</b>				\$0	\$0	\$200,000	\$200,000
	<b>TOTAL CODE 600 COSTS:</b>				<b>\$4,131,750</b>	<b>\$4,407,350</b>	<b>\$5,010,650</b>	<b>\$13,549,750</b>
g. 740c Ref Code 700: Other Distribution								
701	<b>Security Lights</b>	1,425	475	\$460	\$218,500	\$229,425	\$240,825	\$688,750
704	<b>Distribution Automation (DA)</b>				\$2,355,000	\$0	\$0	\$2,355,000
705	<b>AMR System and Equipment</b>				\$0	\$0	\$0	\$0
	<b>TOTAL CODE 700 COSTS:</b>				<b>\$2,573,500</b>	<b>\$229,425</b>	<b>\$240,825</b>	<b>\$3,043,750</b>
	<b>TOTAL DISTRIBUTION =</b>				<b>\$13,983,850</b>	<b>\$11,024,375</b>	<b>\$12,983,475</b>	<b>\$37,991,700</b>



## **Exhibit F**

### **Distribution Line Construction and Cost Estimates**

Pages: 4

BLUE GRASS ENERGY

KENTUCKY 64 JESSAMINE  
NICHOLASVILLE, KENTUCKY

10/1/10 - 10/1/13 CONSTRUCTION WORK PLAN  
Distribution Line Construction Recommendations

DC - Denotes double circuit construction  
\* Denotes Construction Items carried-over from previous 2007-2009 work plan.  
† Denotes Construction Items added to CWP by way of Amendment.  
(V) Denotes proposed construction insulated for 25KV

Construction Justification Codes

1. Overload Single-Phase Line	8. Area Voltage Conversion to 25KV
2. Overload Multi-phase Line	9. Aged Conductor Replacement
3. Excessive Voltage Drop	10. Establish Tie Capability Between Subs
4. Balance Phase Loading	11. Highway Relocation Project
5. Improve Service Reliability	12. Economical Conductor Loading
6. New Substation Feeders	13. Deteriated URD (Direct Burial)
7. New Load Development	14. ?

RUS Ref. #	Priority Code	Line Section	Miles	District	Existing Construction	Proposed Construction	\$ / Mile	"A" Cost 10/10 - 10/11	"B" Cost 10/11 - 10/12	"C" Cost 10/12 - 10/13	Construction Justification
<b>Substation 1 - Nicholasville</b>											
N/A											
Subtotals =								\$0	\$0	\$0	
<b>Substation 2 - Holloway</b>											
302-01*	A	PC-112812	0.6	Nicholasville	1PH 4 ACSR	2PH 1/0 ACSR	\$62,000	\$37,200			1, 5
Subtotals =								\$37,200	\$0	\$0	
<b>Substation 3 - West Nicholasville</b>											
303-01*	C	94248	0.5	Nicholasville	1PH 1/0 ACSR	3PH 1/0 ACSR	\$69,000			\$34,500	1, 5
303-02	B	PC-99960	1.0	Nicholasville	1PH 1/0 ACSR	2PH 1/0 ACSR	\$62,000		\$62,000		1, 5
Subtotals =								\$0	\$62,000	\$34,500	
<b>Substation 4 - Davis</b>											
304-01	A	Sub Exit	0.1	Nicholasville	(1) 3PH 350 MCM	(1) 3PH 500 MCM	\$150,000	\$15,000			2, 5
304-02	B	PC-110310	1.1	Nicholasville	1PH 2 ACSR	3PH 1/0 ACSR	\$69,000		\$75,900		1, 5
304-03	A	PC-155760	0.8	Nicholasville	2PH 1/0 URD	2PH 1/0 URD	\$100,000	\$80,000			13, 5
Subtotals =								\$95,000	\$75,900	\$0	
<b>Substation 5 - Fayette # 1</b>											
305-01*	C	PC-157969	0.7	Nicholasville	1PH 4 ACSR	3PH 1/0 ACSR	\$69,000			\$48,300	1, 5
305-02*	A	(3) Sub Exits	0.3	Nicholasville	(3) 3PH 350 MCM	(3) 3PH 500 MCM	\$150,000	\$45,000			2, 5
Subtotals =								\$45,000	\$0	\$48,300	
<b>Substation 6 - Fayette # 2</b>											
306-01*	A	(3) Sub Exits	0.4	Nicholasville	(4) 3PH 350 MCM	(4) 3PH 500 MCM	\$150,000	\$60,000		\$0	2, 5
Subtotals =								\$60,000	\$0	\$0	
<b>Substation 7 - Newby</b>											
307-01*	A	PC-93554	0.5	Madison	3PH 1/0 ACSR	3PH 336 ACSR	\$89,000	\$44,500			2, 5
307-02	B	PC-102046	0.1	Madison	1PH 1/0 ACSR	2PH 1/0 ACSR	\$62,000		\$6,200		1, 5
Subtotals =								\$44,500	\$6,200	\$0	
<b>Substation 8 - West Berea</b>											
308-01	C	PC-182353	1.1	Madison	3PH 1/0 ACSR	3PH 336 ACSR	\$89,000			\$97,900	2, 5
Subtotals =								\$0	\$0	\$97,900	
<b>Substation 9 - Hickory Plains</b>											
309-01	B	PC-101932	1.0	Madison	1PH 1/0 ACSR	3PH 1/0 ACSR	\$69,000		\$69,000		1, 5
309-02	B	PC-181376	0.1	Madison	1PH 4 ACSR	2PH 1/0 ACSR	\$62,000		\$6,200		1, 5
309-03	B	PC-95326	1.4	Madison	1PH 1/0 ACSR	3PH 1/0 ACSR	\$69,000		\$96,600		1, 5
309-04	B	PC-91897	0.1	Madison	1PH 1/0 ACSR	3PH 1/0 ACSR	\$69,000		\$6,900		1, 5
Subtotals =								\$0	\$178,700	\$0	
<b>Substation 10 - Alcan #1 &amp; #2</b>											
No Construction											
Subtotals =								\$0	\$0	\$0	
<b>Substation 11 - PPG</b>											
No Construction											
Subtotals =								\$0	\$0	\$0	

BLUE GRASS ENERGY

KENTUCKY 64 JESSAMINE  
NICHOLASVILLE, KENTUCKY

10/1/10 - 10/1/13 CONSTRUCTION WORK PLAN  
Distribution Line Construction Recommendations

DC - Denotes double circuit construction  
\* Denotes Construction Items carried-over from previous 2007-2009 work plan.  
† Denotes Construction Items added to CWP by way of Amendment.  
(V) Denotes proposed construction insulated for 25KV

Construction Justification Codes

1. Overload Single-Phase Line	8. Area Voltage Conversion to 25KV
2. Overload Multi-phase Line	9. Aged Conductor Replacement
3. Excessive Voltage Drop	10. Establish Tie Capability Between Subs
4. Balance Phase Loading	11. Highway Relocation Project
5. Improve Service Reliability	12. Economical Conductor Loading
6. New Substation Feeders	13. Deteriated URD (Direct Burial)
7. New Load Development	14. ?

RUS Ref. #	Priority Code	Line Section	Miles	District	Existing Construction	Proposed Construction	\$ / Mile	"A" Cost 10/10 - 10/11	"B" Cost 10/11 - 10/12	"C" Cost 10/12 - 10/13	Construction Justification
<b>Substation 12 - South Elkhorn</b>											
No Construction											
							Subtotals =	\$0	\$0	\$0	
<b>Substation 13 - Crooksville</b>											
313-01	C	PC-182152	0.3	Madison	1PH 6 CU	3PH 1/0 ACSR	\$69,000			\$20,700	1, 5, 9
313-02	C	PC-102889	0.1	Madison	1PH 1/0 ACSR	3PH 1/0 ACSR	\$69,000			\$6,900	1, 5
							Subtotals =	\$0	\$0	\$27,600	
<b>Substation 14 - South Jessamine</b>											
314-01*	A	PC-103212	1.4	Nicholasville	1PH 1/0 ACSR	3PH 1/0 ACSR	\$69,000	\$96,600		\$0	1, 5
							Subtotals =	\$96,600	\$0	\$0	
<b>Substation 15 - North Madison</b>											
315-01*	A	PC-161265	2.3	Headquarters	3PH 1/0 ACSR	3PH 336 ACSR	\$89,000	\$204,700			2, 5
315-02†	A	PC-160649	2.2	Headquarters	3PH 1/0 ACSR	3PH 336 ACSR	\$89,000	\$195,800			2, 5
315-03	B	PC-160956	1.1	Headquarters	1PH 4 ACSR	3PH 1/0 ACSR	\$69,000		\$75,900		1, 5
315-04	C	PC-161609	1.8	Headquarters	3PH 1/0 ACSR	3PH 336 ACSR	\$89,000			\$160,200	2, 5
							Subtotals =	\$400,500	\$75,900	\$160,200	
<b>Substation 17 - Southpoint</b>											
No Construction											
							Subtotals =	\$0	\$0	\$0	
<b>Substation 21 - Bridgeport</b>											
321-01*	A	PC-124196	2.0	Fox Creek	1PH 4 ACSR	3PH 1/0 ACSR	\$69,000	\$138,000		\$0	1, 5
							Subtotals =	\$138,000	\$0	\$0	
<b>Substation 22 - Ninevah</b>											
322-01*	B	PC-181527	2.9	Fox Creek	Various	3PH 1/0 ACSR	\$69,000		\$200,100		1, 5
322-02*	A	PC-118926	5.0	Fox Creek	3PH 4 ACSR	3PH 336 ACSR	\$89,000	\$445,000			2, 5
322-03	B	PC-121782	0.5	Fox Creek	1PH 6 CU	2PH 1/0 ACSR	\$62,000			\$31,000	1, 5, 9
322-04	B	PC-174168	3.0	Fox Creek	1PH 6 CU-7.2kv	1PH 1/0 ACSR-14.4kv	\$44,000			\$132,000	9
							Subtotals =	\$445,000	\$363,100	\$0	
<b>Substation 23 - Sinia</b>											
323-01*	A	PC-108945	2.4	Fox Creek	1PH 6 CU	3PH 1/0 ACSR	\$69,000	\$165,600			1, 5, 9
323-02*	A	PC-172351	2.2	Fox Creek	1PH 8 CU	3PH 1/0 ACSR	\$69,000	\$151,800			1, 5, 9
323-03	A	PC-116977	2.3	Fox Creek	3PH 2 ACSR	3PH 336 ACSR	\$89,000	\$204,700			5
323-04	B	PC-121809	3.0	Fox Creek	1PH 6 CU	3PH 1/0 ACSR	\$69,000		\$207,000		1, 5, 10
323-05	C	PC-116034	0.3	Fox Creek	1PH 4 ACSR	3PH 1/0 ACSR	\$69,000			\$20,700	1, 5
323-06	A	PC-108945	2.0	Fox Creek	1PH 8 CU	3PH 1/0 ACSR	\$69,000	\$134,600			1, 5
323-07	B	PC-118848	2.0	Fox Creek	3PH 4 ACSR	3PH 1/0 ACSR	\$69,000		\$138,000		1, 5
							Subtotals =	\$656,700	\$345,000	\$20,700	
<b>Substation 24 - Van Arsdell</b>											
324-01*	A	PC-152695	1.7	Fox Creek	1PH 4 ACSR	3PH 1/0 ACSR	\$69,000	\$117,300			1, 5
324-02*	A	PC-103077	1.2	Fox Creek	1PH 4 ACSR	3PH 1/0 ACSR	\$69,000	\$82,800			1, 5
							Subtotals =	\$200,100	\$0	\$0	
<b>Substation 25 - Mercer County</b>											
No Construction											
							Subtotals =	\$0	\$0	\$0	
<b>Substation 26 - Clay Lick</b>											
326-01	B	PC-110067	3.3	Fox Creek	1PH 4 ACSR	3PH 336 ACSR	\$89,000		\$293,700		2, 10
326-02	C	PC-112351	0.6	Fox Creek	1PH 6 CU & 4 ACSR	3PH 1/0 ACSR	\$69,000			\$41,400	1, 5, 9
							Subtotals =	\$0	\$293,700	\$41,400	

BLUE GRASS ENERGY

KENTUCKY 64 JESSAMINE  
NICHOLASVILLE, KENTUCKY

10/1/10 - 10/1/13 CONSTRUCTION WORK PLAN  
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Construction Justification Codes

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3. Excessive Voltage Drop	10. Establish Tie Capability Between Subs
4. Balance Phase Loading	11. Highway Relocation Project
5. Improve Service Reliability	12. Economical Conductor Loading
6. New Substation Feeders	13. Deteriated URD (Direct Burial)
7. New Load Development	14. ?

RUS Ref. #	Priority Code	Line Section	Miles	District	Existing Construction	Proposed Construction	\$ / Mile	"A" Cost 10/10 - 10/11	"B" Cost 10/11 - 10/12	"C" Cost 10/12 - 10/13	Construction Justification
<b>Substation 27 - Chaplin</b>											
No Construction											
Subtotals =								\$0	\$0	\$0	
<b>Substation 28 - Powell Taylor</b>											
328-01*	B	PC-162070	0.2	Fox Creek	1PH & 2PH 4 ACSR	3PH 1/0 ACSR	\$69,000		\$13,800		1, 5
328-02	C	PC-122831	3.8	Fox Creek	1PH 6 CU	3PH 1/0 ACSR	\$69,000			\$262,200	1, 5, 9
Subtotals =								\$0	\$13,800	\$262,200	
<b>Substation 31 - Bracken County</b>											
331-01	C	PC-151619	9.4	Harrison	3PH 4 ACSR	3PH 336 ACSR	\$89,000			\$836,600	5, 10
331-02*	A	PC-157753	0.7	Harrison	1PH 6 CU	3PH 1/0 ACSR	\$69,000	\$48,300			1, 5, 9
331-03*	A	PC-154707	1.8	Harrison	3PH 4 ACSR	3PH 336 ACSR	\$89,000	\$160,200			2, 5
Subtotals =								\$208,500	\$0	\$836,600	
<b>Substation 32 - Colemansville</b>											
332-01	A	PC-177337	4.0	Harrison	1PH & 2PH 4 ACSR	3PH 1/0 ACSR	\$69,000	\$276,000			1, 5
332-02	A	PC-141409	2.2	Harrison	1PH & 2PH 4 ACSR	3PH 1/0 ACSR	\$69,000	\$151,800			1, 5, 9
Subtotals =								\$427,800	\$0	\$0	
<b>Substation 33 - Four Oaks</b>											
333-01*	A	PC-171292	2.5	Harrison	3PH 4 ACSR	3PH 336 ACSR	\$89,000	\$222,500			2, 5
333-02*	A	PC-146827	3.7	Harrison	3PH 4 ACSR	3PH 336 ACSR	\$89,000	\$329,300			2, 5
333-03	C	PC-164178	5.9	Harrison	3PH 6 CU & 4 ACSR	3PH 1/0 ACSR	\$69,000			\$407,100	9
Subtotals =								\$551,800	\$0	\$407,100	
<b>Substation 34 - Lees Lick</b>											
334-01*	B	PC-137819	1.1	Harrison	1PH 4 ACSR	3PH 1/0 ACSR	\$69,000		\$75,900		1, 5
334-02*	A	PC-131690	1.3	Harrison	3PH 4 ACSR	3PH 336 ACSR	\$89,000	\$115,700			2, 5
334-03	A	PC-141307	1.1	Harrison	3PH 3/0 ACSR (DC)	3PH 336 ACSR (DC)	\$132,000	\$145,200			2, 5
334-04	A	PC-130158	4.0	Harrison	3PH 1/0 ACSR	3PH 336 ACSR	\$89,000	\$356,000			2, 5
334-05	C	PC-132870	2.9	Harrison	1PH 4 ACSR	3PH 1/0 ACSR	\$69,000			\$200,100	1, 5
334-06	C	PC-134048	1.3	Harrison	1PH 6 & 8 CU	3PH 1/0 ACSR	\$69,000			\$89,700	1, 5, 9
Subtotals =								\$616,900	\$75,900	\$289,800	
<b>Substation 35 - Cynthiana</b>											
335-01	B	PC-167816	1.8	Harrison	1PH 4 ACSR	3PH 1/0 ACSR	\$69,000		\$124,200		1, 5
335-02	C	PC-141942	3.3	Harrison	1PH & 2PH 4 ACSR	3PH 336 ACSR	\$89,000			\$293,700	1, 5
Subtotals =								\$0	\$124,200	\$293,700	
<b>Substation 36 - Headquarters</b>											
336-01*	B	PC-130682	1.5	Harrison	1PH 4 ACSR	3PH 1/0 ACSR	\$69,000		\$103,500		1, 5
336-02	B	PC-131253	4.0	Harrison	3PH 4 ACSR	3PH 1/0 ACSR	\$69,000	\$278,200			2, 5
Subtotals =								\$0	\$381,700	\$0	
<b>Substation 37 - 3M</b>											
No Construction											
Subtotals =								\$0	\$0	\$0	
<b>Substation 38 - Millersburg</b>											
No Construction											
Subtotals =								\$0	\$0	\$0	
<b>Substation 39 - Jacksonville</b>											
339-01*	C	PC-130158	2.2	Harrison	3PH 4 ACSR	3PH 336 ACSR	\$89,000			\$195,800	2, 5
Subtotals =								\$0	\$0	\$195,800	

BLUE GRASS ENERGY

KENTUCKY 64 JESSAMINE  
NICHOLASVILLE, KENTUCKY

10/1/10 - 10/1/13 CONSTRUCTION WORK PLAN  
Distribution Line Construction Recommendations

DC - Denotes double circuit construction  
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(V) Denotes proposed construction insulated for 25KV

**Construction Justification Codes**

1. Overload Single-Phase Line	8. Area Voltage Conversion to 25KV
2. Overload Multi-phase Line	9. Aged Conductor Replacement
3. Excessive Voltage Drop	10. Establish Tie Capability Between Subs
4. Balance Phase Loading	11. Highway Relocation Project
5. Improve Service Reliability	12. Economical Conductor Loading
6. New Substation Feeders	13. Deteriated URD (Direct Burial)
7. New Load Development	14. ?

RUS Ref. #	Priority Code	Line Section	Miles	District	Existing Construction	Proposed Construction	\$ / Mile	"A" Cost 10/10 - 10/11	"B" Cost 10/11 - 10/12	"C" Cost 10/12 - 10/13	Construction Justification
<b>Substation 40 - Oxford</b>											
340-01*	B	PC-159717	3.5	Harrison	KU Route	3PH 336 ACSR	\$89,000		\$311,500		5, 10
340-02	C	PC-175065	0.6	Harrison	1PH 4 ACSR	3PH 1/0 ACSR	\$69,000			\$41,400	1, 5
340-03	C	PC-123699	0.4	Harrison	1PH 1/0 ACSR	2PH 1/0 ACSR	\$62,000			\$24,800	1, 5
Subtotals =								\$0	\$311,500	\$66,200	
Total Miles: 116.6											
								<b>"A" Cost 10/10-10/11</b>	<b>"B" Cost 10/11-10/12</b>	<b>"C" Cost 10/12-10/13</b>	<b>Totals</b>
<b>Distribution Line Construction Totals =</b>								\$4,023,600	\$2,307,600	\$2,782,000	\$9,113,200

# **Exhibit G**

## **Substation and Meter Point Cost Estimates**

Pages: 1

BLUE GRASS ENERGY  
KENTUCKY 64 JESSAMINE  
NICHOLASVILLE, KENTUCKY

**10/1/10 ~ 10/1/13 CONSTRUCTION WORK PLAN  
Substation and Meter Point Cost Estimates**

**CODE 400: NEW SUBSTATIONS AND METER POINTS**

**POWER SUPPLIER CHANGES RECOMMENDED:**

None

**BGE CHANGES RECOMMENDED:**

None

**CODE 500: SUBSTATION AND METER POINT CHANGES**

**POWER SUPPLIER CHANGES RECOMMENDED:**

None

**BGE CHANGES RECOMMENDED:**

None

# **Exhibit H**

## **Voltage Regulator Recommendations and Cost Estimates**

Pages: 1



BLUE GRASS ENERGY

KENTUCKY 64 JESSAMINE  
NICHOLASVILLE, KENTUCKY

**20%r 20% CONSTRUCTION WORK PLAN**  
**Voltage Regulator Recommendations and Cost Estimates**  
**RUS Reference Code 604**

BGE presently uses line voltage regulators to increase voltage on circuits where the combination of conductor size, load current and distance from the substation produce voltage below acceptable limits. The placement of said regulators will be adjusted as system improvement projects are completed. The additional regulators needed through the end of this CWP are as follows:

<b>Substation</b>	<b>Circuit</b>	<b>Regulators Proj #</b>	<b>#</b>	<b>Size (A)</b>
Bracken County	114	604-01	3	150
	114	604-02	1	100
Clay Lick	124	604-03	1	50
Colemansville	104	604-04	3	219
	104	604-05	3	100
	114	604-06	1	50
Headquarters	144	604-07	3	219
Lee's Lick	104	604-08	3	219
	134	604-09	3	150
Millersburg	104	604-10	2	100
Sinai	134	604-11	3	150
Van Arsdell	114	604-12	3	219
	114	604-13	3	219

**RUS Reference Code 604: \$181,000**

# **Exhibit I**

## **Capacitor Recommendations and Cost Estimates**

Pages: 2

BLUE GRASS ENERGY

KENTUCKY 64 JESSAMINE  
NICHOLASVILLE, KENTUCKY

**20%r 20% CONSTRUCTION WORK PLAN**  
**Capacitor Recommendations and Cost Estimates**  
**RUS Reference Code 605**

The capacitor study conducted in conjunction with the primary analysis indicates the need for installation of approximately 30 - 600 KVAR, 28 - 300 KVAR, and 2 - 100 KVAR capacitor banks to improve power factor, lower system losses and improve system voltage. Said capacitors are to be installed as CWP system improvement projects are completed and as the load increases during the Work Plan period.

BGE's G&T (East Kentucky Power Cooperative) supply the actual needed capacitors and racks. BGE must supply the additional equipment and install the units. The estimated cost per installed bank is \$1,997.

**RUS Reference Code 605: \$119,800**

SUB	CKT #	CAPACITOR PROJECT #	#	BANK KVAR	TYPE
Bracken	104	605-01	3	300	F
Clay Lick	124	605-02	3	300	F
	134	605-03	3	300	F
	134	605-04	3	600	S
	144	605-05	3	600	S
Colemansville	114	605-06	3	600	F
	124	605-07	1	100	F
Crooksville	114	605-08	3	600	S
	114	605-09	3	600	S
Cynthiana	164	605-10	3	300	F
Four Oaks	124	605-11	3	300	F
	124	605-12	3	600	S
	134	605-13	3	300	F
	134	605-14	3	600	S
Headquarters	134	605-15	3	300	F
	144	605-16	3	300	F
	144	605-17	3	600	S
Hickory Plains	134	605-18	3	300	F
	134	605-19	3	300	F
	134	605-20	3	300	F
	144	605-21	3	600	F
	154	605-22	3	300	F
Holloway	104	605-23	3	600	F
	104	605-24	3	600	S
	114	605-25	3	300	F
	124	605-26	3	300	F
Jacksonville	114	605-27	3	300	F
	114	605-28	3	600	S
Lee's Lick	104	605-29	3	600	F
	104	605-30	3	300	F
	114	605-31	3	300	F

BLUE GRASS ENERGY

KENTUCKY 64 JESSAMINE  
NICHOLASVILLE, KENTUCKY

SUB	CKT #	CAPACITOR PROJECT #	#	BANK KVAR	TYPE
Lee's Lick (cont)	114	605-32	3	300	F
	134	605-33	3	300	F
Nicholasville	124	605-34	3	300	F
	124	605-35	3	600	S
North Madison	114	605-36	3	600	S
	114	605-37	3	300	F
Oxford	104	605-38	3	600	S
	104	605-39	3	600	S
Powell Taylor	114	605-40	3	600	S
Sinai	114	605-41	3	600	S
South Jessamine	134	605-42	3	300	F
	134	605-43	3	600	S
	134	605-44	3	300	F
	134	605-45	3	600	S
Van Arsdell	114	605-46	3	300	F
	114	605-47	3	600	S
	114	605-48	3	600	S
	124	605-49	3	600	S
	134	605-50	3	600	S
	134	605-51	3	600	S
	144	605-52	3	300	F
West Berea	104	605-53	3	300	F
	124	605-54	3	300	F
	124	605-55	3	600	S
West Nicholasville	124	605-56	3	300	F
	124	605-57	3	600	S
	124	605-58	1	100	F
	134	605-59	3	600	S
	134	605-59	3	600	S

26,600  
KVAR

# **Exhibit J**

## **Sectionalizing Summary and Cost Estimates**

Pages: 1

BLUE GRASS ENERGY

KENTUCKY 64 JESSAMINE  
NICHOLASVILLE, KENTUCKY

**20%r 20% CONSTRUCTION WORK PLAN**  
**Capacitor Recommendations and Cost Estimates**  
**RUS Reference Code 605**

Blue Grass Energy has completed a system wide Sectionalizing Program over the past 24 months and will need only to make changes / additions to it as System Improvement projects, etc are conducted during this CWP. It is estimated that it will cost about \$100,000 per year to make the capital changes needed to keep the Sectionalizing Program up to date.

**RUS Reference Code 605: \$300,000**

# **Exhibit K**

## **Aged Conductor Replacement Summary**

Pages: 1

BLUE GRASS ENERGY

KENTUCKY 64 JESSAMINE  
NICHOLASVILLE, KENTUCKY

2010-2013 CONSTRUCTION WORK PLAN  
Deteriorated Conductor Replacement Plan  
RUS Reference Code 607

**Introduction**

The following table shows the miles of line on the BGE system of conductor that is subject to deterioration and targeted for replacement in the future. It should be noted that a good portion of this conductor has not given problems to date, much of it is not heavily loaded, and it is not expected to be a problem in the near future. BGE's goal is to strategically replace the conductor by using a plan that will target the worst cases first.

<b>Conductor</b>	<b>1PH (mi)</b>	<b>2PH (mi)</b>	<b>3PH (mi)</b>
4 ACSR	2,073	31	109
6A CWC	456	0	2
8A CWC	50	0	0

**Conductor Replacement Plan Guidelines:**

- Review outage and operating reports to determine where aged conductor may be a problem.
- Interview key field employees from all districts who have knowledge of actual field conditions.
- Target changing the conductor via system improvements in CWP's for voltage drop, loading, and other CWP items (Code 300). (Note: Approximately 75% of such items will replace targeted conductor.)
- Target specific areas in each CWP specifically for old conductor replacement (Code 607).
- Adjust the plan on an ongoing basis as needed.

**Specific Plans and Goals:**

- Historically, approximately 30 miles per year is replaced via Code 300 CWP items (system improvements for load, voltage drop, etc.). BGE expects this will continue in future years.
- BGE plans to increase the number of miles in each future CWP which are specifically targeted for old conductor replacement (Code 607). The new goal will be 10-15 miles per year.
- This will be a total of approximately 45 miles per year through CWP items.
- Of the 2,721 miles of conductor identified, we feel that 50% will not give any problems in the next 30 years. Therefore, we will target the other half (1,360 miles) in the first 30 years.
- 45 miles per year for 30 years = 1,350 miles of conductor replaced. This accomplishes the goal, and with targeting the worst conductor first it should keep BGE from experiencing any serious problems.
- BGE also plans on changing out all of the remaining 6A CWC 3-phase conductors in the 2011 ~ 1013 CWP. The only 3-phase lines remaining with old conductor will be 4 ACSR. We expect that the majority of the remaining 3-phase 4 ACSR would be replaced in the next 5 ~ 10 years with the exception being 3-phase lines that serve less than 25 customers which would remain in service unless it is causing significant problems.

**RUS Reference Code 607: \$2,352,000**



# **Exhibit L**

## **System Design and Operational Criteria**

Pages: 1

# BLUE GRASS ENERGY

## KENTUCKY 64 JESSAMINE NICHOLASVILLE, KENTUCKY

### 2010 ~ 2013 CONSTRUCTION WORK PLAN System Design Criteria

Each of the criteria items listed below was reviewed and concurred by the RUS General Field Representative ('GFR') for Blue Grass Energy Cooperative Corporation ('BGE') on November 15<sup>th</sup>, 2010.

Construction proposed in this construction work plan (CWP) is required to meet the following minimum standards of adequacy for voltages, thermal loading, safety and reliability on the system. Note that references to future conditions imply the current CWP projections.

It is further understood that the criteria given herein is considered to be a guideline and not a mandate. Oftentimes system conditions will occur which may result in a breach of a specific criteria. Such a condition is considered to be only temporary and is not intended for long range operations.

#### **I. SYSTEM DESIGN CRITERIA**

1. New primary conductor sizes are to be determined on a case by case basis using the Economic Conductor Analysis computer program along with local input based upon specific system conditions. A minimum of 1/0 ACSR is to be used on main three-phase lines and a minimum of 2 ACSR is to be used on tap lines.
2. Primary conductors are not to be loaded for long periods of time, over 50% of their thermal rating for summer loading, or 65% for winter. Operating capacity is defined as the manufacturer's conductor ratings at the conductor's maximum operating temperature of 75° C (or 167° F), with a 25° C or (77° F) ambient temperature and a 2 mph wind. Major tie lines between substations can be loaded to 100% of operating capacity during back feed or emergency situations.
3. The maximum voltage drop from the substation on primary distribution lines is normally not to exceed 8 volts unregulated, 16 volts with one bank of line voltage regulators, and 24 volts with two banks of line voltage regulators.
4. Single-phase taps will be considered for multi-phasing if conditions are present that meet all of the following criteria:
  - Serve more than 60 consumers @ 7.2/12.47 kV or 120 @ 14.4/5 kV.
  - Have a projected future load over 250 to 360 kW @ 7.2/12.47 kV (35 to 50 amps) or equivalent at 14.4/25 kV.
  - The tap serves an area that is growing.
5. Conductors are to be considered for replacement if found to be in poor condition and have contributed to multiple line outages.

## **Exhibit M**

**Operations and Maintenance Survey (RUS Form 300)**

Pages: 3

October 21, 2008

SUBJECT: OPERATIONS AND MAINTENANCE SURVEY

TO: DAN BREWER, PRESIDENT & CEO  
BLUE GRASS ENERGY COOPERATIVE

In accordance with 7 CFR 1730-1, a review and evaluation of your electric system and facilities as related to system operation and maintenance was made on October 21, 2008.

The objectives of this review are to carry out RUS's responsibility for loan security and to assure that your electric plant is being operated and maintained in a safe and satisfactory condition and that you are providing an acceptable quality of service.

My review has indicated that your facilities are being adequately operated and maintained and you have an effective O & M program supported by proper records. There are several comments and recommendations for further improvements.

We observed several telephone poles left standing next to electric poles which need to be removed. According to your staff cable TV attachments require constant follow-up to ensure code compliance.

The report of idle services should be reconciled with billing records and the report adjusted on the Form 7.

A more aggressive right-of-way clearing program is recommended. Directional trimming is the recommended approach for yard trees. Trees growing on the transformer pole and non-yard trees should be removed.



MIKE NORMAN  
RUS FIELD REPRESENTATIVE

BLUE GRASS ENERGY

KENTUCKY 64 JESSAMINE  
NICHOLASVILLE, KENTUCKY

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0572-0025. The time required to complete this information collection is estimated to average 4 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

UNITED STATES DEPARTMENT OF AGRICULTURE RURAL UTILITIES SERVICE  <b>REVIEW RATING SUMMARY</b>		BORROWER DESIGNATION  KY 64  DATE PREPARED  October 21, 2008																																									
Ratings on form are:                    0: Unsatisfactory -- No Records                    2: Acceptable, but Should be Improved -- See Attached Recommendations NA: Not Applicable                    1: Corrective Action Needed                    3: Satisfactory -- No Additional Action Required at this Time																																											
<b>PART I. TRANSMISSION and DISTRIBUTION FACILITIES</b>																																											
<b>1. Substations (Transmission and Distribution)</b> <span style="float: right;"><i>(Rating)</i></span> a. Safety, Clearance, Code Compliance <span style="float: right;">NA</span> b. Physical Conditions: Structure, Major Equipment, Appearance <span style="float: right;">NA</span> c. Inspection Records - Each Substation <span style="float: right;">NA</span> d. Oil Spill Prevention <span style="float: right;">NA</span>  <b>2. Transmission Lines</b> a. Right-of-Way: Clearing, Erosion, Appearance, Intrusions <span style="float: right;">NA</span> b. Physical Condition: Structure, Conductor, Guying <span style="float: right;">NA</span> c. Inspection Program and Records <span style="float: right;">NA</span>  <b>3. Distribution Lines - Overhead</b> a. Inspection Program and Records <span style="float: right;">3</span> b. Compliance with Safety Codes:                    Clearances <span style="float: right;">3</span> Foreign Structures <span style="float: right;">2</span> Attachments <span style="float: right;">2</span> c. Observed Physical Condition from Field Checking: Right-of-Way <span style="float: right;">2</span> Other <span style="float: right;"></span>	<b>4. Distribution - Underground Cable</b> <span style="float: right;"><i>(Rating)</i></span> a. Grounding and Corrosion Control <span style="float: right;">3</span> b. Surface Grading, Appearance <span style="float: right;">3</span> c. Riser Pole: Hazards, Guying, Condition <span style="float: right;">3</span>  <b>5. Distribution Line Equipment: Conditions and Records</b> a. Voltage Regulators <span style="float: right;">2</span> b. Sectionalizing Equipment <span style="float: right;">2</span> c. Distribution Transformers <span style="float: right;">3</span> d. Pad Mounted Equipment Safety: Locking, Dead Front, Barriers <span style="float: right;">3</span> Appearance: Settlement, Condition <span style="float: right;">3</span> Other <span style="float: right;"></span> e. Kilowatt-hour and Demand Meter Reading and Testing <span style="float: right;">3</span>																																										
<b>PART II. OPERATIONS and MAINTENANCE</b>																																											
<b>6. Line Maintenance and Work Order Procedures</b> <span style="float: right;"><i>(Rating)</i></span> a. Work Planning & Scheduling <span style="float: right;">3</span> b. Work Backlogs:                    Right-of-Way Maintenance <span style="float: right;">3</span> Poles <span style="float: right;">3</span> Retirement of Idle Services <span style="float: right;">2</span> Other <span style="float: right;"></span>  <b>7. Service Interruptions</b> a. Average Annual Hours/Consumer by Cause (Complete for each of the previous 5 years) <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">PREVIOUS 5 YEARS <i>(Year)</i></th> <th style="width: 10%;">POWER SUPPLIER <i>a.</i></th> <th style="width: 10%;">MAJOR STORM <i>b.</i></th> <th style="width: 10%;">SCHEDULED <i>c.</i></th> <th style="width: 10%;">ALL OTHER <i>d.</i></th> <th style="width: 10%;">TOTAL <i>e.</i></th> <th style="width: 10%;"></th> </tr> </thead> <tbody> <tr> <td>2003</td> <td>0.14</td> <td>17.18</td> <td>0.01</td> <td>1.70</td> <td>19.03</td> <td>2</td> </tr> <tr> <td>2004</td> <td>1.16</td> <td>2.45</td> <td>0.02</td> <td>2.05</td> <td>5.68</td> <td>2</td> </tr> <tr> <td>2005</td> <td>0.30</td> <td></td> <td>0.05</td> <td>1.62</td> <td>1.97</td> <td>3</td> </tr> <tr> <td>2006</td> <td>0.01</td> <td></td> <td>0.04</td> <td>2.02</td> <td>2.07</td> <td>3</td> </tr> <tr> <td>2007</td> <td>0.07</td> <td></td> <td>0.14</td> <td>2.19</td> <td>2.40</td> <td>3</td> </tr> </tbody> </table> b. Emergency Restoration Plan <span style="float: right;">3</span>	PREVIOUS 5 YEARS <i>(Year)</i>	POWER SUPPLIER <i>a.</i>	MAJOR STORM <i>b.</i>	SCHEDULED <i>c.</i>	ALL OTHER <i>d.</i>	TOTAL <i>e.</i>		2003	0.14	17.18	0.01	1.70	19.03	2	2004	1.16	2.45	0.02	2.05	5.68	2	2005	0.30		0.05	1.62	1.97	3	2006	0.01		0.04	2.02	2.07	3	2007	0.07		0.14	2.19	2.40	3	<b>8. Power Quality</b> <span style="float: right;"><i>(Rating)</i></span> a. General Freedom from Complaints <span style="float: right;">3</span>  <b>9. Loading and Load Balance</b> a. Distribution Transformer Loading <span style="float: right;">3</span> b. Load Control Apparatus <span style="float: right;">NA</span> c. Substation and Feeder Loading <span style="float: right;">3</span>  <b>10. Maps and Plant Records</b> a. Operating Maps: Accurate and Up-to-Date <span style="float: right;">3</span> b. Circuit Diagrams <span style="float: right;">3</span> c. Staking Sheets <span style="float: right;">3</span>
PREVIOUS 5 YEARS <i>(Year)</i>	POWER SUPPLIER <i>a.</i>	MAJOR STORM <i>b.</i>	SCHEDULED <i>c.</i>	ALL OTHER <i>d.</i>	TOTAL <i>e.</i>																																						
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<b>PART III. ENGINEERING</b>																																											
<b>11. System Load Conditions and Losses</b> <span style="float: right;"><i>(Rating)</i></span> a. Annual System Losses <span style="float: right;">5.50% <span style="float: right;">3</span></span> b. Annual Load Factor <span style="float: right;">44.8% <span style="float: right;">3</span></span> c. Power Factor at Monthly Peak <span style="float: right;">95+% <span style="float: right;">3</span></span> d. Ratios of Individual Substation Annual Peak kW to kVA <span style="float: right;">3</span>  <b>12. Voltage Conditions</b> a. Voltage Surveys <span style="float: right;">3</span> b. Substation Transformer Output Voltage Spread <span style="float: right;">3</span>	<b>13. Load Studies and Planning</b> <span style="float: right;"><i>(Rating)</i></span> a. Long Range Engineering Plan <span style="float: right;">3</span> b. Construction Work Plan <span style="float: right;">3</span> c. Sectionalizing Study <span style="float: right;">3</span> d. Load Data for Engineering Studies <span style="float: right;">3</span> e. Load Forecasting Data <span style="float: right;">3</span>																																										

BLUE GRASS ENERGY

KENTUCKY 64 JESSAMINE  
NICHOLASVILLE, KENTUCKY

PART IV. OPERATION AND MAINTENANCE BUDGETS						
YEAR	For Previous 2 Years		For Present Year	For Future 3 Years		
	2006	2007	2008	2009	2010	2011
	Actual \$ Thousands	Actual \$ Thousands	Budget \$ Thousands	Budget \$ Thousands	Budget \$ Thousands	Budget \$ Thousands
Normal Operation	2,370	2,765	2,742	2,824	2,909	2,996
Normal Maintenance	3,524	4,366	4,735	4,877	5,023	5,174
Additional (Deferred) Maintenance						
Total	5,894	7,131	7,477	7,701	7,932	8,170

14. Budgeting: Adequacy of Budgets for Needed Work 3 (Rating)

15. Date Discussed with Board of Directors 11/13/2008 (Date)

EXPLANATORY NOTES

ITEM NO.	COMMENTS
3b.	There are still some telephone poles left standing next to electric poles which need to be removed. Cable TV attachments require constant monitoring and follow-up to ensure code requirements are met.
3c.	Problem trees were observed in residential and rural areas. A more aggressive tree trimming or removal program is recommended.
5a. 5b.	A maintenance program is being developed.
6b.	The report of idle services should be reconciled with billing records and adjusted.
7a.	There was a severe ice storm in 2003.

		TITLE	DATE
RATED BY:	<i>Chris Breezy</i>	VP ENGINEERING	10/21/08
REVIEWED BY:	<i>Chris Breezy</i>	PRESIDENT & CEO	10/21/08
REVIEWED BY:	<i>Mike Ran</i>	RUS GFR	10/21/08

# **Exhibit N**

## **Economic Conductor Loading**

Pages: 9

BLUE GRASS ENERGY

KENTUCKY 64 JESSAMINE  
NICHOLASVILLE, KENTUCKY

**CONDUCTOR LIFE CYCLE ANALYSIS  
(NEW CONSTRUCTION LEGEND AND INPUT VALUES)**

<u>0.00%</u>	<b>TOTAL</b>	Total fixed cost. This is an optional replacement for O & M + TAX + DEP + INS.
**	<u>5.37%</u>	<b>O &amp; M</b> Operations and Maintenance Expense as a percentage of Average Net Distribution Plant calculated using RUS Bulletin 1724D-101A <b>Electric System Long-Range Planning Guide</b> based on <i>RUS Fixed Charge Calculation Guide</i>
	<u>0.00%</u>	<b>TAX</b> Property tax: annual Form 7, last year Part A, line 13(b) Plant the taxes were paid on: annual Form 7, 2 years ago, Part C, line 5 + line 22 Tax Rate: (Property tax / Plant) x 100, or estimated future tax rate
	<u>3.89%</u>	<b>DEP</b> Most Owners use straight-line depreciation where the depreciation rate is the reciprocal of the asset's life. Use annual rate for Coop, for classes of plant Depreciation rate on RUS Form 7 Part E Lines 5(f) and line 6(f)
	<u>0.00%</u>	<b>INS</b> Insurance as a percentage of Net Distribution Plant. Calculating the cost of insurance as a percentage of investment is difficult, and the result makes little difference; therefore, it can be ignored for most applications.
<u>2.00%</u>	<b>INF</b>	The annual inflation rate.
<u>35</u>	<b>m</b>	The loan amortization period in years.
<u>7.2 &amp; 14.4</u>	<b>KV</b>	Line to ground voltage in kV.
<u>99.00%</u>	<b>PF</b>	Peak month power factor.
<u>7.18%</u>	<b>INT</b>	Cost of Capital (Calculated using <i>RUS Fixed Charge Guide</i> ) used for Present Worth Calculation
<u>3.06%</u>	<b>LGR</b>	The annual rate of growth projected for the peak demand. (Use latest PRS)
<u>30</u>	<b>ULC</b>	Useful Life of Conductor
<u>\$0.00</u>	<b>\$/KW</b>	Monthly demand charge in dollars per kW per month. If \$/KW is zero the following dependant inputs will also be zero:
<u>0.00%</u>	<b>KWI</b>	Demand charge inflation rate.
<u>0.00%</u>	<b>CF</b>	Coincidence factor - This factor represents the coincidence between the non coincident peak for the line and billing demand.
<u>0.000</u>	<b>RMO</b>	The number of months the metered demand exceeds the minimum billing demand.
<u>0.000</u>	<b>RAT</b>	The annual demand ratchet expressed as a decimal.
<u>0.000</u>	<b>N</b>	The ratio of the average of the squares of the monthly kW demands for the months when the metered demand exceeds the minimum billing demand to the square of the peak month demand.
<u>\$0.0508</u>	<b>\$/KWH</b>	Energy charge in dollars per kWh per month.
<u>2.00%</u>	<b>KWHI</b>	Energy charge inflation rate.
<u>47.20%</u>	<b>LF</b>	Annual load factor.



BLUE GRASS ENERGY

KENTUCKY 64 JESSAMINE  
NICHOLASVILLE, KENTUCKY

**CONDUCTOR LIFE CYCLE ANALYSIS  
(NEW CONSTRUCTION LEGEND AND INPUT VALUES)**

<u>0.00%</u>	<b>TOTAL</b>	Total fixed cost. This is an optional replacement for O & M + TAX + DEP + INS.
<u>5.37%</u>	<b>O &amp; M</b>	Operations and Maintenance Expense as a percentage of Average Net Distribution Plant calculated using RUS Bulletin 1724D-101A <b>Electric System Long-Range Planning Guide</b> based on <i>RUS Fixed Charge Calculation Guide</i>
<u>0.00%</u>	<b>TAX</b>	Property tax: annual Form 7, last year Part A, line 13(b) Plant the taxes were paid on: annual Form 7, 2 years ago, Part C, line 5 + line 22 Tax Rate: (Property tax / Plant) x 100, or estimated future tax rate
<u>3.89%</u>	<b>DEP</b>	Most Owners use straight-line depreciation where the depreciation rate is the reciprocal of the asset's life. Use annual rate for Coop, for classes of plant Depreciation rate on RUS Form 7 Part E Lines 5(f) and line 6(f)
<u>0.00%</u>	<b>INS</b>	Insurance as a percentage of Net Distribution Plant. Calculating the cost of insurance as a percentage of investment is difficult, and the result makes little difference, therefore, it can be ignored for most applications.
<u>2.00%</u>	<b>INF</b>	The annual inflation rate.
<u>35</u>	<b>m</b>	The loan amortization period in years.
<u>14.4</u>	<b>KV</b>	Line to ground voltage in kV.
<u>99.00%</u>	<b>PF</b>	Peak month power factor.
<u>7.18%</u>	<b>INT</b>	Cost of Debt (Calculated using <i>RUS Fixed Charge Guide</i> )
<u>3.06%</u>	<b>LGR</b>	The annual rate of growth projected for the peak demand. (Use latest PRS)
<u>30</u>	<b>ULC</b>	Useful Life of Conductor
<u>\$0.00</u>	<b>\$/KW</b>	Monthly demand charge in dollars per kW per month. If \$/KW is zero the following dependant inputs will also be zero:
<u>0.00%</u>	<b>KWI</b>	Demand charge inflation rate.
<u>0.00%</u>	<b>CF</b>	Coincidence factor - This factor represents the coincidence between the non coincident peak for the line and billing demand.
<u>0.000</u>	<b>RMO</b>	The number of months the metered demand exceeds the minimum billing demand.
<u>0.000</u>	<b>RAT</b>	The annual demand ratchet expressed as a decimal.
<u>0.000</u>	<b>N</b>	The ratio of the average of the squares of the monthly kW demands for the months when the metered demand exceeds the minimum billing demand to the square of the peak month demand.
<u>\$0.0508</u>	<b>\$/KWH</b>	Energy charge in dollars per kWh per month.
<u>2.00%</u>	<b>KWHI</b>	Energy charge inflation rate.
<u>47.20%</u>	<b>LF</b>	Annual load factor.

Conductor Size and Cost

	Phases	Size	Cost/Mile
Cond-1	<u>3</u> Ø	1/0 ACSR	\$45,000
Cond-2	<u>3</u> Ø	336 ACSR	\$80,000
Cond-3	<u>3</u> Ø	556 ACSR	\$100,000
Cond-4	<u>0</u> Ø	0	\$0
Cond-5	<u>0</u> Ø	0	\$0
Cond-6	<u>0</u> Ø	0	\$0

BLUE GRASS ENERGY

KENTUCKY 64 JESSAMINE  
NICHOLASVILLE, KENTUCKY

**CONDUCTOR LIFE CYCLE ANALYSIS  
(NEW CONSTRUCTION LEGEND AND INPUT VALUES)**

<u>0.00%</u>	<b>TOTAL</b>	Total fixed cost. This is an optional replacement for O & M + TAX + DEP + INS.
<u>5.37%</u>	<b>O &amp; M</b>	Operations and Maintenance Expense as a percentage of Average Net Distribution Plant calculated using RUS Bulletin 1724D-101A <b>Electric System Long-Range Planning Guide</b> based on <i>RUS Fixed Charge Calculation Guide</i>
<u>0.00%</u>	<b>TAX</b>	Property tax: annual Form 7, last year Part A, line 13(b) Plant the taxes were paid on: annual Form 7, 2 years ago, Part C, line 5 + line 22 Tax Rate: (Property tax / Plant) x 100, or estimated future tax rate
<u>3.89%</u>	<b>DEP</b>	Most Owners use straight-line depreciation where the depreciation rate is the reciprocal of the asset's life. Use annual rate for Coop, for classes of plant Depreciation rate on RUS Form 7 Part E Lines 5(f) and line 6(f)
<u>0.00%</u>	<b>INS</b>	Insurance as a percentage of Net Distribution Plant. Calculating the cost of insurance as a percentage of investment is difficult, and the result makes little difference, therefore, it can be ignored for most applications.
<u>2.00%</u>	<b>INF</b>	The annual inflation rate.
<u>35</u>	<b>m</b>	The loan amortization period in years.
<u>7.2</u>	<b>KV</b>	Line to ground voltage in kV.
<u>99.00%</u>	<b>PF</b>	Peak month power factor.
<u>7.18%</u>	<b>INT</b>	Cost of Debt (Calculated using <i>RUS Fixed Charge Guide</i> )
<u>3.06%</u>	<b>LGR</b>	The annual rate of growth projected for the peak demand. (Use latest PRS)
<u>30</u>	<b>ULC</b>	Useful Life of Conductor
<u>\$0.00</u>	<b>\$/KW</b>	Monthly demand charge in dollars per kW per month. If \$/KW is zero the following dependant inputs will also be zero:
<u>0.00%</u>	<b>KWI</b>	Demand charge inflation rate.
<u>0.00%</u>	<b>CF</b>	Coincidence factor - This factor represents the coincidence between the non coincident peak for the line and billing demand.
<u>0.00%</u>	<b>RMO</b>	The number of months the metered demand exceeds the minimum billing demand.
<u>0.00%</u>	<b>RAT</b>	The annual demand ratchet expressed as a decimal.
<u>0.00%</u>	<b>N</b>	The ratio of the average of the squares of the monthly kW demands for the months when the metered demand exceeds the minimum billing demand to the square of the peak month demand.
<u>\$0.0508</u>	<b>\$/KWH</b>	Energy charge in dollars per kWh per month.
<u>2.00%</u>	<b>KWHI</b>	Energy charge inflation rate.
<u>47.20%</u>	<b>LF</b>	Annual load factor.

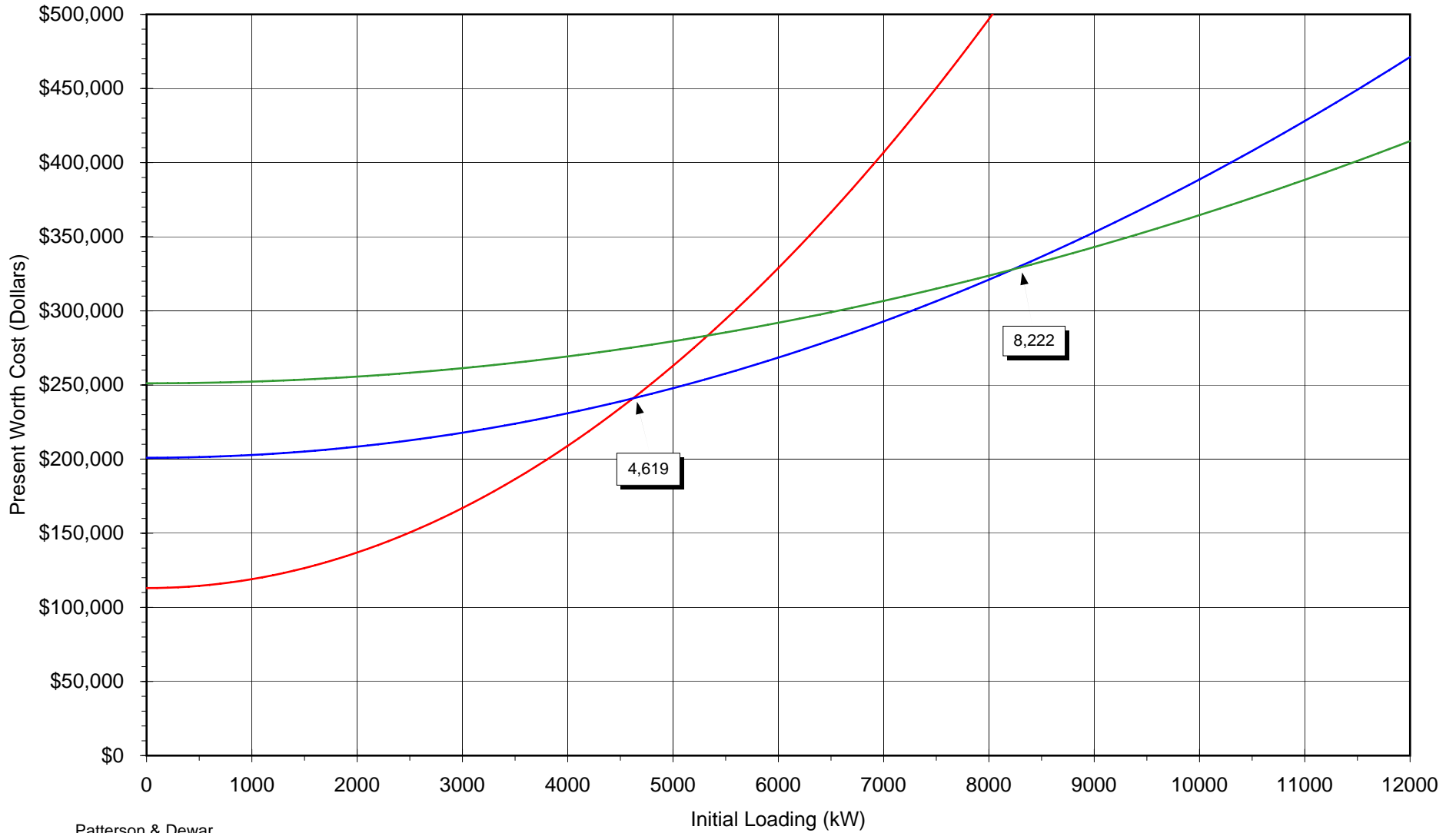
Conductor Size and Cost

	Phases	Size	Cost/Mile
Cond-1	<u>3</u> Ø	<u>1/0 ACSR</u>	<u>\$45,000</u>
Cond-2	<u>3</u> Ø	<u>336 ACSR</u>	<u>\$80,000</u>
Cond-3	<u>3</u> Ø	<u>556 ACSR</u>	<u>\$100,000</u>
Cond-4	<u>0</u> Ø	<u>0</u>	<u>\$0</u>
Cond-5	<u>0</u> Ø	<u>0</u>	<u>\$0</u>
Cond-6	<u>0</u> Ø	<u>0</u>	<u>\$0</u>

BLUE GRASS ENERGY

KENTUCKY 64 JESSAMINE  
NICHOLASVILLE, KENTUCKY

**Conductor Life Cycle Analysis**  
**Total Life Cycle Cost - Three Phase 14.4 kV**



Patterson & Dewar  
Engineers ©

— 1/0 ACSR — 336 ACSR — 556 ACSR

BLUE GRASS ENERGY

KENTUCKY 64 JESSAMINE  
NICHOLASVILLE, KENTUCKY

**Conductor Life Cycle Analysis**

**14.4 kV  
Summary**

	<u>Initial Loading</u>		<u>Future Loading based on a 3.06% LGR for 30 Years</u>		
For loads below	4,619 kW use		1/0 ACSR		kW
For loads between	4,619 kW and	8,222 kW use	336 ACSR	11,409	kW
For loads over	8,222 kW use		556 ACSR	20,309	kW

<u>Conductor</u>	<b>Construction Costs</b>		<b>Conductor Operating Capacity*</b>		
	<u>Cost Per Mile</u>	<u>Ohms Per Mile †</u>	<u>50%</u>	<u>100%</u>	
3 Ø 1/0 ACSR	\$45,000	0.888	4,255	8,511	kW
3 Ø 336 ACSR	\$80,000	0.278	9,024	18,048	kW
3 Ø 556 ACSR	\$100,000	0.168	12,552	25,105	kW

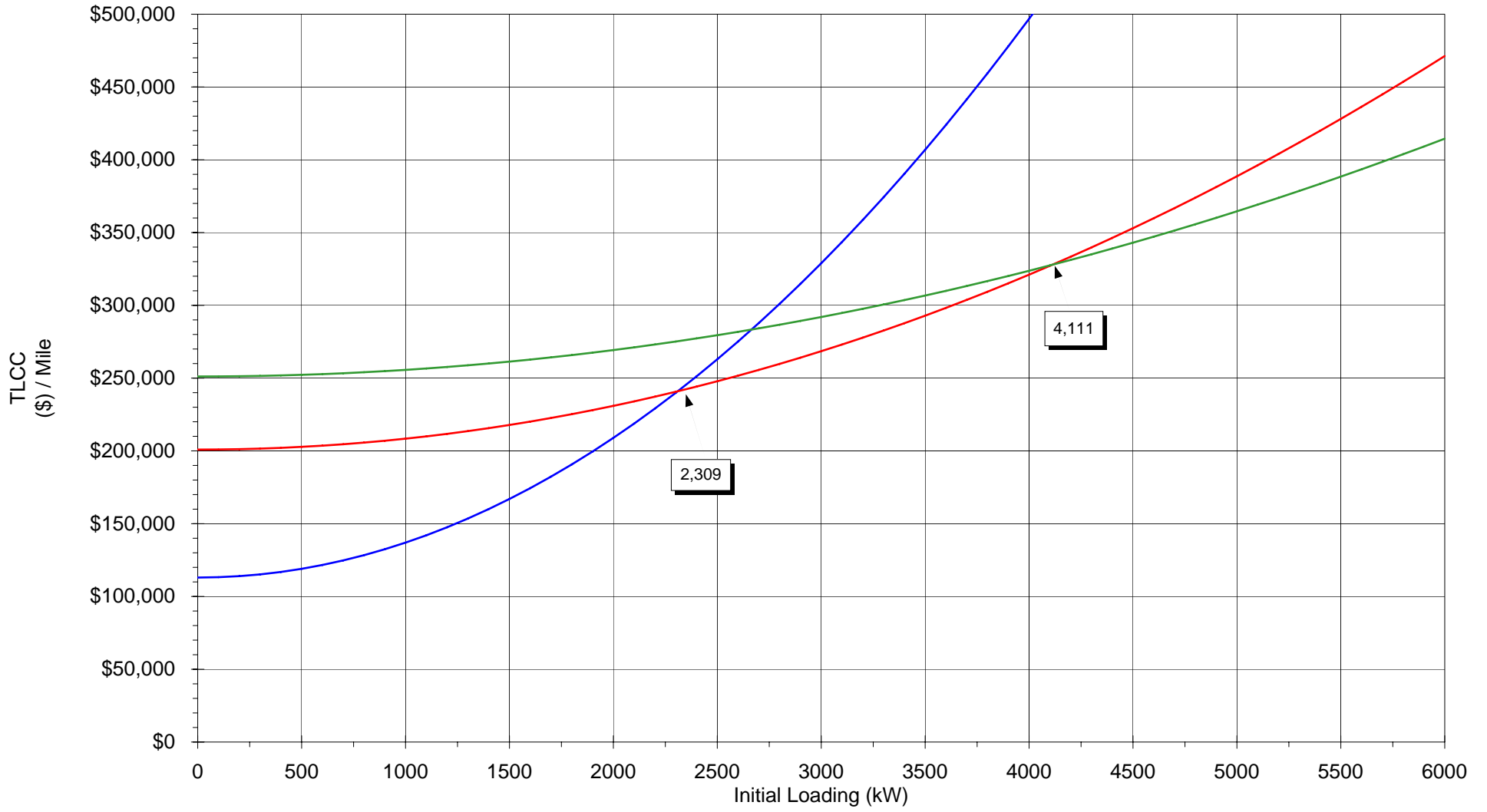
† Resistance based on conductor operating temperature of 75° C (167° F), with a 25° C (77° F) ambient temperature and a 2 ft./sec wind, frequency = 60 Hz. Per Westinghouse T&D Reference Book, East Pittsburg, PA (4th Edition: Eleventh Printing), 1950

\* Operating Capacity is defined as the manufacturer's rating at a maximum recommended continuous operating temperature of 75° C (167° F), with a 40° C (104° F) ambient temperature and a 2 ft./sec wind.

BLUE GRASS ENERGY

KENTUCKY 64 JESSAMINE  
NICHOLASVILLE, KENTUCKY

### Conductor Life Cycle Analysis Total Life Cycle Cost - Three Phase 7.2 kV



Patterson & Dewar  
Engineers ©

— 1/0 ACSR — 336 ACSR — 556 ACSR

BLUE GRASS ENERGY

KENTUCKY 64 JESSAMINE  
NICHOLASVILLE, KENTUCKY

**Conductor Life Cycle Analysis**

**7.2 kV  
Summary**

	<u>Initial Loading</u>		<u>Future Loading based on a 3.06% LGR for 30 Years</u>		
For loads below	2,309	kW use	1/0	ACSR	kW
For loads between	2,309	kW and 4,111	336	ACSR	5,703 kW
For loads over	4,111	kW use	556	ACSR	10,154 kW

**Construction Costs**

<u>Conductor</u>	<u>Cost Per Mile</u>	<u>Ohms Per Mile</u>	<u>Conductor Operating Capacity*</u>		
			50%	100%	
3 Ø 1/0 ACSR	\$45,000	0.888	2,128	4,255	kW
3 Ø 336 ACSR	\$80,000	0.278	4,512	9,024	kW
3 Ø 556 ACSR	\$100,000	0.168	6,276	12,552	kW

† Resistance based on conductor operating temperature of 75° C (167° F), with a 25° C (77° F) ambient temperature and a 2 ft./sec wind, frequency = 60 Hz. Per Westinghouse T&D Reference Book, East Pittsburgh, PA (4th Edition: Eleventh Printing), 1950

\* Operating Capacity is defined as the manufacturer's rating at a maximum recommended continuous operating temperature of 75° C (167° F), with a 40° C (104° F) ambient temperature and a 2 ft./sec wind.

# **Exhibit O**

## **Substation Loading Data**

Pages: 3

BLUE GRASS ENERGY

KENTUCKY 64 JESSAMINE  
NICHOLASVILLE, KENTUCKY

Construction Work Plan

Substation Load Data  
Winter 2010 System

Substation		Voltage KV	Winter EKPC Rating (KVA)	% Loaded	Winding Load (KVA)	Power Factor	Total Demand (KW)		
No.	Name								
1	Nicholasville	69-12.5	18,144	45%	8,251	99.0%	8,168		
2	Holloway	69-12.5	18,144	64%	11,611	98.0%	11,379		
3	West Nicholasville #1	69-12.5	31,050	55%	17,121	98.0%	16,779		
4	Davis	69-12.5	15,725	65%	10,143	100.0%	10,143		
5	Fayette #1	69-12.5	15,725	79%	12,401	99.0%	12,277		
6	Fayette #2	69-12.5	18,144	47%	8,605	99.0%	8,519		
7	Newby	69-12.5	15,725	78%	12,286	98.0%	12,040		
8	West Berea	69-12.5	21,060	71%	15,018	99.0%	14,868		
9	Hickory Plains	69-12.5	25,920	81%	21,053	98.0%	20,632		
10	Alcan #1	69-12.5	18,144	25%	4,477	94.0%	4,208		
11	PPG	69-12.5	15,725	33%	5,116	95.0%	4,860		
12	South Elkhorn	69-12.5	25,920	36%	9,434	99.0%	9,340		
13	Crooksville	69-12.5	15,725	59%	9,332	98.0%	9,145		
14	South Jessamine	69-12.5	31,050	57%	17,791	97.0%	17,257		
15	N. Madison	69-12.5	15,720	55%	8,706	98.0%	8,532		
16	Alcan #2	69-12.5	18,144	71%	12,931	89.0%	11,509		
17	South Point	69-12.5	18,144	10%	1,734	96.0%	1,665		
18	West Nicholasville #2	69-12.5	21,060	40%	8,523	95.0%	8,097		
21	Bridgeport	69-25.0	31,050	49%	15,253	100.0%	15,253		
22	Ninevah	69-12.5	15,725	46%	7,210	98.0%	7,066		
23	Sinai	69-12.5	18,144	51%	9,164	99.0%	9,072		
24	Van Arsdell	69-12.5	18,144	73%	13,184	98.0%	12,920		
25	Mercer Co. Ind. Park	69-12.5	15,725	26%	4,035	88.0%	3,551		
26	Clay Lick	69-12.5	15,725	54%	8,516	99.0%	8,431		
27	Chaplin	69-4.2	7,020	17%	1,221	90.0%	1,099		
28	Powell-Taylor	69-12.5	15,725	41%	6,391	98.0%	6,263		
31	Bracken County District	69-12.5	15,725	37%	5,794	99.0%	5,736		
32	Colemansville	69-12.5	18,144	46%	8,360	99.0%	8,276		
33	Four Oaks	69-12.5	15,725	46%	7,247	98.0%	7,102		
34	Lees Lick	69-12.5	18,144	61%	10,981	97.0%	10,652		
35	Cynthiana	69-12.5	18,144	71%	12,864	98.0%	12,607		
36	Headquarters	69-12.5	15,725	37%	5,853	99.0%	5,794		
37	3-M Company	69-12.5	15,725	51%	7,980	86.0%	6,863		
38	Millersburg	69-12.5	7,862	65%	5,136	99.0%	5,085		
39	Jacksonville	138-12.5	24,840	20%	4,879	98.0%	4,781		
40	Oxford	69-12.5	15,725	31%	4,869	99.0%	4,820		
System Totals =							<u>333,470</u>	97.4%	<u>324,789</u>



BLUE GRASS ENERGY

KENTUCKY 64 JESSAMINE  
NICHOLASVILLE, KENTUCKY

**Construction Work Plan**

Substation Load Data  
Winter 2013/14 System ~ Existing System

Substation		Voltage KV	Winter EKPC Rating (KVA)	% Loaded	Winding Load (KVA)	Power Factor	Total Demand (KW)
No.	Name						
1	Nicholasville	69-12.5	18,144	55%	9,903	98.7%	9,771
2	Holloway	69-12.5	18,144	86%	15,629	97.4%	15,221
3	West Nicholasville #1	69-12.5	31,050	68%	21,235	97.6%	20,728
4	Davis	69-12.5	15,725	81%	12,749	100.0%	12,747
5	Fayette #1	69-12.5	15,725	84%	13,233	99.0%	13,105
6	Fayette #2	69-12.5	18,144	50%	9,017	99.0%	8,927
7	Newby	69-12.5	15,725	88%	13,903	97.8%	13,600
8	West Berea #1	69-12.5	21,060	93%	19,652	98.6%	19,380
9	Hickory Plains	69-12.5	25,920	104%	27,005	97.7%	26,395
10	Alcan #1	69-12.5	18,144	29%	5,241	92.3%	4,839
11	PPG	69-12.5	15,725	35%	5,431	95.3%	5,177
12	South Elkhorn	69-12.5	25,920	47%	12,237	98.8%	12,085
13	Crooksville	69-12.5	15,725	76%	11,981	97.8%	11,714
14	South Jessamine	69-12.5	31,050	76%	23,714	96.2%	22,808
15	N. Madison	69-12.5	15,725	76%	11,876	97.6%	11,590
16	Alcan #2	69-12.5	18,144	93%	16,820	88.5%	14,886
17	South Point	69-12.5	18,144	12%	2,229	95.9%	2,137
18	West Nicholasville #2	69-12.5	21,060	52%	11,007	94.9%	10,447
21	Bridgeport	69-25.0	31,050	61%	18,954	100.0%	18,951
22	Ninevah	69-12.5	15,725	68%	10,642	97.2%	10,343
23	Sinai	69-12.5	18,144	62%	11,294	98.7%	11,142
24	Van Arsdell	69-12.5	18,144	94%	17,005	97.4%	16,570
25	Mercer Co. Ind. Park	69-12.5	15,725	31%	4,839	87.3%	4,225
26	Clay Lick	69-12.5	15,725	75%	11,724	98.3%	11,525
27	Chaplin	69-4.2	7,020	23%	1,584	90.6%	1,436
28	Powell-Taylor	69-12.5	15,725	53%	8,272	97.9%	8,099
31	Bracken County District	69-12.5	15,725	47%	7,447	98.7%	7,349
32	Colemansville	69-12.5	18,144	57%	10,385	98.7%	10,252
33	Four Oaks	69-12.5	15,725	59%	9,290	97.3%	9,044
34	Lees Lick	69-12.5	18,144	80%	14,528	96.7%	14,043
35	Cynthiana	69-12.5	18,144	86%	15,565	97.6%	15,188
36	Headquarters	69-12.5	15,725	47%	7,455	98.8%	7,369
37	3-M Company	69-12.5	15,725	61%	9,534	86.8%	8,272
38	Millersburg	69-12.5	7,862	79%	6,207	98.9%	6,140
39	Jacksonville	138-12.5	24,840	26%	6,381	97.4%	6,212
40	Oxford	69-12.5	15,725	43%	6,775	98.5%	6,674
System Totals =					<u>420,744</u>	97.1%	<u>408,387</u>

BLUE GRASS ENERGY

KENTUCKY 64 JESSAMINE  
NICHOLASVILLE, KENTUCKY

**2010 ~ 2013 Construction Work Plan**

Substation Load Data  
Winter 2013/14 System - After Improvements

Substation		Voltage KV	Winter EKPC Rating (KVA)	% Loaded	Winding Load (KVA)	Power Factor	Total Demand (KW)
No.	Name						
1	Nicholasville	69-12.5	18,144	62%	11,184	99.3%	11,109
2	Holloway	69-12.5	18,144	84%	15,246	99.4%	15,159
3	West Nicholasville #1	69-12.5	31,050	68%	21,005	98.9%	20,765
4	Davis	69-12.5	15,725	72%	11,260	100.0%	11,259
5	Fayette #1	69-12.5	15,725	84%	13,233	99.0%	13,105
6	Fayette #2	69-12.5	18,144	50%	9,009	99.0%	8,918
7	Newby	69-12.5	15,725	88%	13,895	97.9%	13,600
8	West Berea <sup>1</sup>	69-12.5	21,060	93%	19,482	99.0%	19,297
9	Hickory Plains <sup>2</sup>	69-12.5	25,920	99%	25,635	99.0%	25,371
10	Alcan #1	69-12.5	18,144	29%	5,241	92.3%	4,839
11	PPG	69-12.5	15,725	35%	5,431	95.3%	5,177
12	South Elkhorn	69-12.5	25,920	47%	12,237	98.8%	12,085
13	Crooksville	69-12.5	15,725	83%	13,053	99.0%	12,927
14	South Jessamine	69-12.5	31,050	75%	23,245	97.8%	22,741
15	N. Madison	69-12.5	15,725	73%	11,405	99.0%	11,287
16	Alcan #2 <sup>3</sup>	69-12.5	18,144	93%	16,821	88.5%	14,886
17	South Point	69-12.5	18,144	12%	2,230	95.9%	2,137
18	West Nicholasville #2	69-12.5	21,060	52%	11,007	94.9%	10,447
21	Bridgeport	69-25.0	31,050	61%	18,953	100.0%	18,950
22	Ninevah	69-12.5	15,725	67%	10,611	97.2%	10,314
23	Sinai	69-12.5	18,144	62%	11,288	99.3%	11,213
24	Van Arsdell <sup>4</sup>	69-12.5	18,144	93%	16,803	100.0%	16,797
25	Mercer Co. Ind. Park	69-12.5	15,725	31%	4,840	87.3%	4,225
26	Clay Lick	69-12.5	15,725	75%	11,717	99.8%	11,688
27	Chaplin	69-4.2	7,020	23%	1,585	90.6%	1,436
28	Powell-Taylor	69-12.5	15,725	52%	8,166	99.0%	8,087
31	Bracken County District	69-12.5	15,725	47%	7,322	99.6%	7,295
32	Colemansville	69-12.5	18,144	62%	11,173	99.5%	11,115
33	Four Oaks	69-12.5	15,725	55%	8,572	99.9%	8,564
34	Lees Lick	69-12.5	18,144	66%	11,978	99.7%	11,940
35	Cynthiana	69-12.5	18,144	81%	14,765	98.1%	14,488
36	Headquarters	69-12.5	15,725	52%	8,106	100.0%	8,103
37	3-M Company	69-12.5	15,725	61%	9,534	86.8%	8,272
38	Millersburg	69-12.5	7,862	76%	5,967	99.5%	5,935
39	Jacksonville	138-12.5	24,840	25%	6,129	99.5%	6,100
40	Oxford	69-12.5	15,725	52%	8,218	99.8%	8,205
System Totals =					<u>416,346</u>	98.0%	<u>407,837</u>

<sup>1</sup> Fans can be installed to achieve 24.00/31.05 MVA S/W rating.

<sup>2</sup> Fans can be installed to achieve 24.00/31.05 MVA S/W rating.

<sup>3</sup> Loading will be monitored monthly to better develop load projections..... Will most likely not grow to this level.

<sup>4</sup> Load transfer to the Mercer County sub can be considered pending industrial loads.

## **Exhibit P**

**"NOT USED IN THIS CWP PACKAGE"**

## **Exhibit Q**

**"NOT USED IN THIS CWP PACKAGE"**

# **Exhibit R**

**Large Power Loads (January 200 Data)**

Pages: 1

BLUE GRASS ENERGY

KENTUCKY 64 JESSAMINE  
NICHOLASVILLE, KENTUCKY

10/1/10 - 10/1/13 CONSTRUCTION WORK PLAN  
Large Power Loads

Name	Business Type	Location #	Winter 2010	
			KW	kWh
3M	Factory	1603004	6,592	3,528,000
Tokico	Factory	23230070	6,221	3,290,400
Novelis	Alum. Recycler	23230064	6,091	2,800,800
PPG	Factory	23230050	4,860	2,826,000
McKechnie	Factory	9160057	3,727	1,922,400
Adcom	Factory	3860001	3,346	1,483,200
NACCO	Factory	23230049	2,725	925,200
Bay West	Factory	120768015	2,639	1,688,400
Jackson Plast.	Factory	9260251	1,288	364,800
Donaldson	Factory	3850301	1,262	403,200
Madison Sthrn.	School campus	23340083	1,138	432,000
Marathon	Oil Pump	110663018	1,099	676,800
Harr. Hosp.	Hospital	1284005	898	492,000
KI-USA	Factory	23130069	886	356,400
McClane	Food Distr.	3670007	822	380,160
South. Chr. Ch.	Church campus	3250369	751	210,000
Jessamine Co.	School campus	227348001	615	140,400
Jessamine Co.	School campus	3970040	598	234,000
Sarg. & Green	Factory	9160017	589	188,160
Wal-Mart	Retail store	3770050	564	360,576
Wal-Mart	Retail store	280243001	554	336,240
Jessamine Co.	School campus	3840013	515	189,600
Jessamine Co.	School campus	3840060	506	187,800
Lowe's	Home Ctr.	231336007	465	202,368
Anderson Co.	School campus	284242001	365	64,512
King middle	School campus	120778013	362	108,288
Hammer Co.	Factory	472030	358	81,600
Kroger	Grocery	3151143	356	216,800
P K Tool	Factory	17340003	319	77,184
Berea Municipal Utilities	Main Plant	23140031	317	136,320
Richmond Sew.	Sewer plant	10890226	307	165,888
Jessamine Co.	School campus	3850302	283	76,800
Harrison Co.	School campus	1294015	264	87,120
North. Lex. Health	Health Care Ctr.	4231999	246	118,464
Act Inc.	Factory	9160063	236	44,687
St. Joseph Jessamine	Hospital	231339011	229	124,032
Cedar Ridge	Health Care Ctr.	1274030	190	84,320
Richmond Sew.	Sewer plant	17830021	184	96,000
Scott Co. BOE	School campus	2012001	183	52,320
Food Lion	Grocery	1293005	180	104,800
St. Elizabeth	Church/school	4241022	177	68,640
Arcadian Assisted Living	Health Care Ctr.	162426003	176	57,920
The Grand Theater	Movie Theater	251353003	161	69,120
Fayette Co.	School campus	4240854	160	61,080
Silver Creek School	School campus	23250639	152	33,600

# **Exhibit S**

## **Five-Year Outage Report**

Pages: 1

# **Exhibit T**

## **System Improvement Justification Summaries**

Pages:



**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **302.01\***

Estimated Cost: **\$37,200**

**Description of Proposed Construction:**

Re-conductor 0.6 miles of single phase 4 ACSR with two phase 1/0 ACSR. Replace poles and equipment as necessary

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Holloway</b>	<b>PC-112812</b>	<b>0.6</b>	<b>1PH 4 ACSR</b>	<b>2PH 1/0 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 1 and 5)

**Alternate Corrective Plans Investigated:**

Since 1/0 ACSR is the minimum conductor used for multiphase lines, no other conductor size was evaluated.

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **303-01\***

Estimated Cost: **\$34,500**

**Description of Proposed Construction:**

Upgrade 0.5 miles of single phase 1/0 ACSR to three phase 1/0 ACSR. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>W Nicholasville</b>	<b>94248</b>	<b>0.5</b>	<b>1PH 1/0 ACSR</b>	<b>3PH 1/0 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 1 and 5)

**Alternate Corrective Plans Investigated:**

Since 1/0 ACSR is the minimum conductor used for multiphase lines, no other conductor size was evaluated.

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **303-02**

Estimated Cost: **\$62,000**

**Description of Proposed Construction:**

Upgrade 1.0 miles of single phase 1/0 ACSR to two phase 1/0 ACSR. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>W Nicholasville</b>	<b>PC-99960</b>	<b>1.0</b>	<b>1PH 1/0 ACSR</b>	<b>2PH 1/0ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 1 and 5)

**Alternate Corrective Plans Investigated:**

Since 1/0 ACSR is the minimum conductor used for multiphase lines, no other conductor size was evaluated.

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **304-01**

Estimated Cost: **\$15,000**

**Description of Proposed Construction:**

Re-conductor 0.1 miles of three phase underground from 350 MCM to three phase 3PH 500 MCM.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Davis</b>	<b>Sub Exit</b>	<b>0.1</b>	<b>(1) 3PH 350 MCM</b>	<b>(1) 3PH 500 MCM</b>

**Reason for Proposed Construction:**

(Justification Codes 2 and 5)

**Alternate Corrective Plans Investigated:**

No other alternatives were considered.

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **304-02**

Estimated Cost: **\$75,000**

**Description of Proposed Construction:**

Re-conductor 1.1 miles of single phase 2 ACSR with three phase 1/0 ACSR. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Davis</b>	<b>PC-110310</b>	<b>1.1</b>	<b>1PH 2 ACSR</b>	<b>3PH 1/0 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 1 and 5)

**Alternate Corrective Plans Investigated:**

Since 1/0 ACSR is the minimum conductor used for multiphase lines, no other conductor size was evaluated.

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **304-03**

Estimated Cost: **\$80,000**

**Description of Proposed Construction:**

Replace 0.8 miles of failing underground primary cable.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Davis</b>	<b>PC-155760</b>	<b>0.8</b>	<b>2PH 1/0 URD</b>	<b>2PH 1/0 URD</b>

**Reason for Proposed Construction:**

Failing underground primary cable

**Alternate Corrective Plans Investigated:**

No other alternatives were considered.

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **305-01\***

Estimated Cost: **\$48,300**

**Description of Proposed Construction:**

Re-conductor 0.7 miles of single phase 4 ACSR with three phase 1/0 ACSR. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Fayette #1</b>	<b>PC-157969</b>	<b>0.7</b>	<b>1PH 4 ACSR</b>	<b>3PH 1/0 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 1 and 5)

**Alternate Corrective Plans Investigated:**

Since 1/0 ACSR is the minimum conductor used for multiphase lines, no other conductor size was evaluated.

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **305-02\***

Estimated Cost: **\$60,000**

**Description of Proposed Construction:**

Re-conductor four underground substation exits totaling 0.4 miles from three phase 350 MCM to three phase 500 MCM conductor.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Fayette #1</b>	<b>(4) Sub Exits</b>	<b>0.4</b>	<b>(4) 3PH 350 MCM</b>	<b>(4) 3PH 500 MCM</b>

**Reason for Proposed Construction:**

(Justification Codes 2 and 5)

**Alternate Corrective Plans Investigated:**

No other alternatives were considered.



**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **306-01\***

Estimated Cost: **\$45,000**

**Description of Proposed Construction:**

Re-conductor three underground substation exits totaling 0.3 miles from three phase 350 MCM to three phase 500 MCM conductor.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Fayette #2</b>	<b>(3) Sub Exits</b>	<b>0.3</b>	<b>3PH 350 MCM</b>	<b>3PH 500 MCM</b>

**Reason for Proposed Construction:**

(Justification Codes 2 and 5)

**Alternate Corrective Plans Investigated:**

No other alternatives were considered.

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **307-01\***

Estimated Cost: **\$44,500**

**Description of Proposed Construction:**

Re-conductor 0.5 miles of three phase 1/0 ACSR to three phase 336 ACSR. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Newby</b>	<b>PC-93554</b>	<b>0.5</b>	<b>3PH 1/0 ACSR</b>	<b>3PH 336 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 2 and 5)

**Alternate Corrective Plans Investigated:**

No other alternatives were considered.

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **307-02**

Estimated Cost: **\$6,200**

**Description of Proposed Construction:**

Convert 0.1 miles of single phase 1/0 ACSR to two phase 1/0 ACSR. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Newby</b>	<b>PC-102046</b>	<b>0.1</b>	<b>1PH 1/0 ACSR</b>	<b>2PH 1/0 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 1 and 5)

**Alternate Corrective Plans Investigated:**

No other alternatives were considered.

2010 ~ 2013 CONSTRUCTION WORK PLAN

DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW

CFR Code and CWP Item Number: **308-01**

Estimated Cost: **\$97,900**

**Description of Proposed Construction:**

Re-conductor 1.1 miles of three phase 1/0 ACSR to three phase 336 ACSR. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>West Berea</b>	<b>PC-182353</b>	<b>1.1</b>	<b>3PH 1/0 ACSR</b>	<b>3PH 336 ACSR</b>

**Reason for Proposed Construction:**

(Justificaion Codes 2 and 5)

**Alternate Corrective Plans Investigated:**

No other alternatives were considered.

2010 ~ 2013 CONSTRUCTION WORK PLAN

DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW

CFR Code and CWP Item Number: **309-01**

Estimated Cost: **\$69,000**

**Description of Proposed Construction:**

Convert 1.0 miles of single phase 1/0 ACSR to three phase 1/0 ACSR. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Hickory Plains</b>	<b>PC-101932</b>	<b>1.0</b>	<b>1PH 1/0 ACSR</b>	<b>3PH 1/0 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 1 and 5)

**Alternate Corrective Plans Investigated:**

No other alternatives were considered.

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **309-02**

Estimated Cost: **\$6,200**

**Description of Proposed Construction:**

Re-conductor 0.1 miles of single phase 4 ACSR with two phase 1/0 ACSR. Change poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Hickory Plains</b>	<b>PC-181376</b>	<b>0.1</b>	<b>1PH 4 ACSR</b>	<b>2PH 1/0 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 1 and 5)

**Alternate Corrective Plans Investigated:**

Since 1/0 ACSR is the minimum conductor used for multiphase lines, no other conductor size was evaluated.

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **309-03**

Estimated Cost: **\$96,600**

**Description of Proposed Construction:**

Convert 1.4 miles of single phase 1/0 ACSR to three phase 1/0 ACSR. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Hickory Plains</b>	<b>PC-95326</b>	<b>1.4</b>	<b>1PH 1/0 ACSR</b>	<b>3PH 1/0 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 1 and 5)

**Alternate Corrective Plans Investigated:**

Since 1/0 ACSR is the minimum conductor used for multiphase lines, no other conductor size was evaluated.

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **309-04**

Estimated Cost: **\$6,900**

**Description of Proposed Construction:**

Convert 0.1 miles of single phase 1/0 ACSR to three phase 1/0 ACSR. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Hickory Plains</b>	<b>PC-91897</b>	<b>0.1</b>	<b>1PH 1/0 ACSR</b>	<b>3PH 1/0 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 1 and 5)

**Alternate Corrective Plans Investigated:**

Since 1/0 ACSR is the minimum conductor used for multiphase lines, no other conductor size was evaluated.



**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **313-01**

Estimated Cost: **\$20,700**

**Description of Proposed Construction:**

Re-conductor 0.3 miles of single phase 6 CU to three phase 1/0 ACSR. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Crooksville</b>	<b>PC-182152</b>	<b>0.3</b>	<b>1PH 6CU</b>	<b>3PH 1/0 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 1,5, and 9)

**Alternate Corrective Plans Investigated:**

Since 1/0 ACSR is the minimum conductor used for multiphase lines, no other conductor size was evaluated.

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **313-02**

Estimated Cost: **\$6,900**

**Description of Proposed Construction:**

Convert 0.1 miles of single phase 1/0 ACSR to three phase 1/0 ACSR. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Crooksville</b>	<b>PC-102889</b>	<b>0.1</b>	<b>1PH 1/0 ACSR</b>	<b>3PH 1/0 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 1 and 5)

**Alternate Corrective Plans Investigated:**

Since 1/0 ACSR is the minimum conductor used for multiphase lines, no other conductor size was evaluated.

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **314-01\***

Estimated Cost: **\$96,600**

**Description of Proposed Construction:**

Convert 1.4 miles of single phase 1/0 ACSR to three phase 1/0 ACSR. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>S Jessamine</b>	<b>PC-103212</b>	<b>1.4</b>	<b>1PH 1/0 ACSR</b>	<b>3PH 1/0 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 1 and 5)

**Alternate Corrective Plans Investigated:**

Since 1/0 ACSR is the minimum conductor used for multiphase lines, no other conductor size was evaluated.

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **315-01\***

Estimated Cost: **\$204,700**

**Description of Proposed Construction:**

Re-conductor 2.3 miles of three phase 1/0 ACSR to three phase 336 ACSR. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>North Madison</b>	<b>PC-161265</b>	<b>2.3</b>	<b>3PH 1/0 ACSR</b>	<b>3PH 336 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 2 and 5)

**Alternate Corrective Plans Investigated:**

No other alternatives were considered.

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **315-02†**

Estimated Cost: **\$195,800**

**Description of Proposed Construction:**

Re-conductor 2.2 miles of three phase 1/0 ACSR with three phase 336 ACSR. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>North Madison</b>	<b>PC-160649</b>	<b>2.2</b>	<b>3PH 1/0 ACSR</b>	<b>3PH 336ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 2 and 5)

**Alternate Corrective Plans Investigated:**

No other alternatives were considered.

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **315-03**

Estimated Cost: **\$75,900**

**Description of Proposed Construction:**

Re-conductor 1.1 miles of single phase 4 ACSR with three phase 1/0 ACSR. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>North Madison</b>	<b>PC-160956</b>	<b>1.1</b>	<b>1PH 4ACSR</b>	<b>3PH 1/0 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 1 and 5)

**Alternate Corrective Plans Investigated:**

Since 1/0 ACSR is the minimum conductor used for multiphase lines, no other conductor size was evaluated.

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **315-04**

Estimated Cost: **\$160,200**

**Description of Proposed Construction:**

Re-conductor 1.8 miles of three phase 1/0 ACSR with three phase 336 ACSR. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>North Madison</b>	<b>PC-161609</b>	<b>1.8</b>	<b>3PH 1/0 ACSR</b>	<b>3PH 336 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 2 and 5)

**Alternate Corrective Plans Investigated:**

No other alternatives were considered.

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **321-01\***

Estimated Cost: **\$138,000**

**Description of Proposed Construction:**

Re-conductor 2.0 Miles of single phase 4 ACSR with three phase 1/0 ACSR. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Bridgeport</b>	<b>PC-124196</b>	<b>2.0</b>	<b>1PH 4 ACSR</b>	<b>3PH 1/0 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 1 and 5)

**Alternate Corrective Plans Investigated:**

Since 1/0 ACSR is the minimum conductor used for multiphase lines, no other conductor size was evaluated.



**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **322-01\***

Estimated Cost: **\$200,100**

**Description of Proposed Construction:**

Re-conductor 2.9 miles of various conductors with three phase 1/0 ACSR. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Ninevah</b>	<b>PC-181527</b>	<b>2.9</b>	<b>Various</b>	<b>3PH 1/0 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 1 and 5)

**Alternate Corrective Plans Investigated:**

Since 1/0 ACSR is the minimum conductor used for multiphase lines, no other conductor size was evaluated.

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **322-02\***

Estimated Cost: **\$445,000**

**Description of Proposed Construction:**

Reconductor 5.0 miles of three phase 4 ACSR with 3 Phase 336 ACSR. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Ninevah</b>	<b>PC-118926</b>	<b>5.0</b>	<b>3PH 4 ACSR</b>	<b>3PH 336 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 2 and 5)

**Alternate Corrective Plans Investigated:**

No other alternatives were considered.

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **322-03**

Estimated Cost: **\$34,500**

**Description of Proposed Construction:**

Re-conductor 0.5 miles of single phase 6 CU with three phase 1/0 ACSR.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Ninevah</b>	<b>PC-121782</b>	<b>0.5</b>	<b>1PH 6 CU</b>	<b>3PH 1/0 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 1, 5, and 9)

**Alternate Corrective Plans Investigated:**

Since 1/0 ACSR is the minimum conductor used for multiphase lines, no other conductor size was evaluated.

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **322-04**

Estimated Cost: **\$132,000**

**Description of Proposed Construction:**

Reconductor 3.0 miles of single phase 6 CU to single phase 1/0 ACSR and convert from 7.2 kV to 14.4 kV. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Ninevah</b>	<b>PC-174168</b>	<b>3.0</b>	<b>1PH 6 CU 7.2kV</b>	<b>1PH 1/0 ACSR 14.4 kV</b>

**Reason for Proposed Construction:**

**(Justification Codes 8 and 9)**

**Alternate Corrective Plans Investigated:**

No other alternatives were considered.

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **323-01\***

Estimated Cost: **\$165,600**

**Description of Proposed Construction:**

Re-conductor 2.7 miles of single phase 6 CU with three phase 1/0 ACSR. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Sinia</b>	<b>PC-108945</b>	<b>2.4</b>	<b>1PH 6 CU</b>	<b>3PH 1/0 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 1, 5, and 9)

**Alternate Corrective Plans Investigated:**

Since 1/0 ACSR is the minimum conductor used for multiphase lines, no other conductor size was evaluated.

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **323-02\***

Estimated Cost: **\$172,500**

**Description of Proposed Construction:**

Re-conductor 2.5 miles of single phase 8 CU with three phase 1/0 ACSR. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Sinia</b>	<b>PC-172351</b>	<b>2.5</b>	<b>1PH 8 CU</b>	<b>3PH 1/0 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 1,5, and 9)

**Alternate Corrective Plans Investigated:**

Since 1/0 ACSR is the minimum conductor used for multiphase lines, no other conductor size was evaluated.

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **323-03**

Estimated Cost: **\$204,700**

**Description of Proposed Construction:**

Re-conductor 2.3 miles of three phase 2 ACSR with 3 phase 336 ACSR. Replace poles and equipment as necessary.

<b>Substation</b>	<b>Line Section</b>	<b>Miles</b>	<b>Existing Phase Wire</b>	<b>Proposed Phase Wire</b>
<b>Sinia</b>	<b>PC-116977</b>	<b>2.3</b>	<b>3PH 2 ACSR</b>	<b>3PH 336 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 5 and 10)

**Alternate Corrective Plans Investigated:**

No other alternatives were considered.

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **323-04**

Estimated Cost: **\$207,000**

**Description of Proposed Construction:**

Re-conductor 3.0 miles of single phase 6 CU with 3 phase 1/0 ACSR. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Sinia</b>	<b>PC-121809</b>	<b>3.0</b>	<b>1PH 6 CU</b>	<b>3PH 1/0 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 1,5, and 10)

**Alternate Corrective Plans Investigated:**

Considered the possibility of using a larger conductor since this was a tie between substations.



**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **323-05**

Estimated Cost: **\$20,700**

**Description of Proposed Construction:**

Re-conductor 0.3 miles of single phase 4 ACSR with three phase 1/0 ACSR. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Sinia</b>	<b>PC-116034</b>	<b>0.3</b>	<b>1PH 4 ACSR</b>	<b>3PH 1/0 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 1 and 5)

**Alternate Corrective Plans Investigated:**

Since 1/0 ACSR is the minimum conductor used for multiphase lines, no other conductor size was evaluated.

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **323-06**

Estimated Cost: **\$117,300**

**Description of Proposed Construction:**

Re-conductor 1.7 miles of single phase 8 CU with three phase 1/0 ACSR. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Sinia</b>	<b>PC-108945</b>	<b>1.7</b>	<b>1PH 4 ACSR</b>	<b>3PH 1/0 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 1 and 5)

**Alternate Corrective Plans Investigated:**

Since 1/0 ACSR is the minimum conductor used for multiphase lines, no other conductor size was evaluated.

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **323-07**

Estimated Cost: **\$138,000**

**Description of Proposed Construction:**

Re-conductor 2.0 miles of three phase 4 ACSR with three phase 1/0 ACSR. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Sinia</b>	<b>PC-118848</b>	<b>2.0</b>	<b>3PH 4 ACSR</b>	<b>3PH 1/0 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 3 and 5)

**Alternate Corrective Plans Investigated:**

No other alternatives were considered.

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **324-01\***

Estimated Cost: **\$117,300**

**Description of Proposed Construction:**

Re-conductor 1.7 miles of single phase 4 ACSR with three phase 1/0 ACSR. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Van Arsdell</b>	<b>PC-152695</b>	<b>1.7</b>	<b>1PH 4 ACSR</b>	<b>3PH 1/0 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 1 and 5)

**Alternate Corrective Plans Investigated:**

Since 1/0 ACSR is the minimum conductor used for multiphase lines, no other conductor size was evaluated.

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **324-02\***

Estimated Cost: **\$82,800**

**Description of Proposed Construction:**

Re-conductor 1.2 miles of single phase 4 ACSR with three phase 1/0 ACSR. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Van Arsdell</b>	<b>PC-103077</b>	<b>1.2</b>	<b>1PH 4 ACSR</b>	<b>3PH 1/0 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 1 and 5)

**Alternate Corrective Plans Investigated:**

Since 1/0 ACSR is the minimum conductor used for multiphase lines, no other conductor size was evaluated.

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **326-01**

Estimated Cost: **\$293,700**

**Description of Proposed Construction:**

Re-conductor 3.3 miles of single phase 4 ACSR with three phase 336 ACSR. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Clay Lick</b>	<b>PC-110067</b>	<b>3.3</b>	<b>1PH 4 ACSR</b>	<b>3PH 336 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 1 and 10)

**Alternate Corrective Plans Investigated:**

No other alternatives were considered.

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **326-02**

Estimated Cost: **\$41,400**

**Description of Proposed Construction:**

Re-conductor 0.6 miles of mixed sizes of old single phase conductor with three phase 1/0 ACSR. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Clay Lick</b>	<b>PC-112351</b>	<b>0.6</b>	<b>Mixed 1PH</b>	<b>3PH 1/0 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 1,5, and 9)

**Alternate Corrective Plans Investigated:**

Since 1/0 ACSR is the minimum conductor used for multiphase lines, no other conductor size was evaluated.

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **328-01\***

Estimated Cost: **13,800**

**Description of Proposed Construction:**

Re-conductor 0.2 miles of single phase various conductors with three phase 1/0 ACSR. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Powell Taylor</b>	<b>PC-162070</b>	<b>0.2</b>	<b>Various 1PH</b>	<b>3PH 1/0 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 1 and 5)

**Alternate Corrective Plans Investigated:**

Since 1/0 ACSR is the minimum conductor used for multiphase lines, no other conductor size was evaluated.



**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **328-02**

Estimated Cost: **\$262,200**

**Description of Proposed Construction:**

Re-conductor 3.8 miles of single phase 6 CU with three phase 1/0 ACSR.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Powell Taylor</b>	<b>PC-122831</b>	<b>3.8</b>	<b>1PH 6 CU</b>	<b>3PH 1/0 ACSR</b>

**Alternate Corrective Plans Investigated:**

Since 1/0 ACSR is the minimum conductor used for multiphase lines, no other conductor size was evaluated.

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **331-01**

Estimated Cost: **\$836,600**

**Description of Proposed Construction:**

Re-conductor 9.4 miles of three phase 4 ACSR with three phase 336 ACSR. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Bracken County</b>	<b>PC-151619</b>	<b>9.4</b>	<b>3PH 4 ACSR</b>	<b>3PH 336 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 3,5,9 and 10)

**Alternate Corrective Plans Investigated:**

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **331-02\***

Estimated Cost: **\$48,300**

**Description of Proposed Construction:**

Re-conductor 0.7 miles of single phase 6 CU with three phase 1/0 ACSR. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Bracken County</b>	<b>PC-151753</b>	<b>0.7</b>	<b>1PH 6 CU</b>	<b>3PH 1/0 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 1, 5, and 9)

**Alternate Corrective Plans Investigated:**

Since 1/0 ACSR is the minimum conductor used for multiphase lines, no other conductor size was evaluated.

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **331-03\***

Estimated Cost: **\$160,200**

**Description of Proposed Construction:**

Re-conductor 1.8 miles of three phase 4 ACSR with three phase 1/0 ACSR. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Bracken County</b>	<b>PC-154707</b>	<b>1.8</b>	<b>3PH 4 ACSR</b>	<b>3PH 1/0 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 2 and 5)

**Alternate Corrective Plans Investigated:**

Since 1/0 ACSR is the minimum conductor used for multiphase lines, no other conductor size was evaluated.

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **332-01**

Estimated Cost: **\$276,000**

**Description of Proposed Construction:**

Re-conductor 4.0 miles of mixed single and two phase 4 ACSR with three phase 1/0 ACSR. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Colemansville</b>	<b>PC-177337</b>	<b>4.0</b>	<b>1PH &amp; 2PH 4 ACSR</b>	<b>3PH 1/0 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 1 and 5)

**Alternate Corrective Plans Investigated:**

Since 1/0 ACSR is the minimum conductor used for multiphase lines, no other conductor size was evaluated.

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **332-02**

Estimated Cost: **\$151,800**

**Description of Proposed Construction:**

Re-conductor 2.2 miles of mixed single and two phase 4 ACSR with three phase 1/0 ACSR. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Colemansville</b>	<b>PC-141409</b>	<b>2.2</b>	<b>1PH &amp; 2PH 4 ACSR</b>	<b>3PH 1/0 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 1, 5, and 9)

**Alternate Corrective Plans Investigated:**

Since 1/0 ACSR is the minimum conductor used for multiphase lines, no other conductor size was evaluated.

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **333-01\***

Estimated Cost: **\$222,500**

**Description of Proposed Construction:**

Re-conductor 2.5 miles of three phase 4 ACSR with three phase 336 ACSR. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Four Oaks</b>	<b>PC-171292</b>	<b>2.5</b>	<b>3PH 4 ACSR</b>	<b>3PH 336 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 2 and 5)

**Alternate Corrective Plans Investigated:**

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **333-02\***

Estimated Cost: **\$329,300**

**Description of Proposed Construction:**

Re-conductor 3.7 miles of three phase 4 ACSR with three phase 336 ACSR. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Four Oaks</b>	<b>PC-146827</b>	<b>3.7</b>	<b>3PH 4 ACSR</b>	<b>3PH 336 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 2 and 5)

**Alternate Corrective Plans Investigated:**



**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **333-03**

Estimated Cost: **\$407,100**

**Description of Proposed Construction:**

Re-conductor 5.9 miles of three phase mixed old conductors with three phase 1/0 ACSR. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Four Oaks</b>	<b>PC-164178</b>	<b>5.9</b>	<b>3PH mixed old conductors</b>	<b>3PH 1/0 ACSR</b>

**Reason for Proposed Construction:**

(Justification Code 9)

**Alternate Corrective Plans Investigated:**

Since 1/0 ACSR is the minimum conductor used for multiphase lines, no other conductor size was evaluated.

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **334-01\***

Estimated Cost: **\$75,900**

**Description of Proposed Construction:**

Re-conductor 1.1 miles of single phase 4 ACSR with three phase 1/0 ACSR.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Lees Lick</b>	<b>PC-137819</b>	<b>1.1</b>	<b>1PH 4 ACSR</b>	<b>3PH 1/0 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 1 and 5)

**Alternate Corrective Plans Investigated:**

Since 1/0 ACSR is the minimum conductor used for multiphase lines, no other conductor size was evaluated.

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **334-02\***

Estimated Cost: **\$115,700**

**Description of Proposed Construction:**

Re-conductor 1.3 miles of three phase 4 ACSR with three phase 336 ACSR.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Lees Lick</b>	<b>PC-131690</b>	<b>1.3</b>	<b>3Ph 4 ACSR</b>	<b>3PH 336 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 2 and 5)

**Alternate Corrective Plans Investigated:**

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **334-03**

Estimated Cost: **\$145,200**

**Description of Proposed Construction:**

Reconductor 1.1 miles of three phase 3/0 ACSR Double Circuit with three phase 336 ACSR Double Circuit. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Lees Lick</b>	<b>PC-141307</b>	<b>1.1</b>	<b>3PH 3/0 ACSR DC</b>	<b>3PH 336 ACSR DC</b>

**Reason for Proposed Construction:**

(Justification Codes 2 and 5)

**Alternate Corrective Plans Investigated:**

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **334-04**

Estimated Cost: **\$356,000**

**Description of Proposed Construction:**

Re-conductor 4.0 miles of three phase 1/0 ACSR with three phase 336 ACSR.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Lees Lick</b>	<b>PC-130158</b>	<b>4.0</b>	<b>3PH 1/0 ACSR</b>	<b>3PH 336 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 2 and 5)

**Alternate Corrective Plans Investigated:**

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **334-05**

Estimated Cost: **\$200,100**

**Description of Proposed Construction:**

Re-conductor 2.9 miles of single phase 4 ACSR with three phase 1/0 ACSR. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Lees Lick</b>	<b>PC-132870</b>	<b>2.9</b>	<b>1PH 4 ACSR</b>	<b>3PH 1/0 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 1 and 5)

**Alternate Corrective Plans Investigated:**

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **334-06**

Estimated Cost: **\$89,700**

**Description of Proposed Construction:**

Re-conductor 1.3 miles of single phase 6 & 8 CU with three phase 1/0 ACSR. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Lees Lick</b>	<b>PC-134048</b>	<b>1.3</b>	<b>1PH 6 &amp; 8 CU</b>	<b>3PH 1/0 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 1,5, and 9)

**Alternate Corrective Plans Investigated:**

Since 1/0 ACSR is the minimum conductor used for multiphase lines, no other conductor size was evaluated.

2010 ~ 2013 CONSTRUCTION WORK PLAN

DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW

CFR Code and CWP Item Number: **335-01**

Estimated Cost: **\$124,200**

**Description of Proposed Construction:**

Re-conductor 1.8 miles of single phase 4 ACSR with three phase 1/0 ACSR. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Cynthiana</b>	<b>PC-167816</b>	<b>1.8</b>	<b>1PH 4 ACSR</b>	<b>3PH 1/0 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 1 and 5)

**Alternate Corrective Plans Investigated:**

Since 1/0 ACSR is the minimum conductor used for multiphase lines, no other conductor size was evaluated.



**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **335-02**

Estimated Cost: **\$293,700**

**Description of Proposed Construction:**

Re-conductor 3.5 miles of mixed single phase and two phase 4 ACSR with three phase 336 ACSR.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Cynthiana</b>	<b>PC-141942</b>	<b>3.3</b>	<b>1PH &amp; 2PH 4 ACSR</b>	<b>3PH 336 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 1 and 5)

**Alternate Corrective Plans Investigated:**

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **336-01**

Estimated Cost: **\$103,500**

**Description of Proposed Construction:**

Re-conductor 1.5 miles of single phase 4 ACSR with three phase 1/0 ACSR. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Headquarters</b>	<b>PC-130682</b>	<b>1.5</b>	<b>1PH 4 ACSR</b>	<b>3PH 1/0 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 1 and 5)

**Alternate Corrective Plans Investigated:**

Since 1/0 ACSR is the minimum conductor used for multiphase lines, no other conductor size was evaluated.

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **336-02**

Estimated Cost: **\$276,000**

**Description of Proposed Construction:**

Re-conductor 4.3 miles of three phase 4 ACSR with three phase 1/0 ACSR. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Headquarters</b>	<b>PC-131253</b>	<b>4.0</b>	<b>3PH 4 ACSR</b>	<b>3PH 1/0 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 2 and 5)

**Alternate Corrective Plans Investigated:**

Since 1/0 ACSR is the minimum conductor used for multiphase lines, no other conductor size was evaluated.

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **339-01**

Estimated Cost: **\$195,800**

**Description of Proposed Construction:**

Re-conductor 2.2 miles of three phase 4 ACSR with three phase 336 ACSR.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Jacksonville</b>	<b>PC-130158</b>	<b>2.2</b>	<b>3PH 4 ACSR</b>	<b>3PH 336 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 2 and 5)

**Alternate Corrective Plans Investigated:**

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **340-01**

Estimated Cost: **\$311,500**

**Description of Proposed Construction:**

Build 3.5 miles of 3 phase 336 ACSR.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Oxford</b>	<b>PC-159717</b>	<b>3.5</b>	<b>KU Route</b>	<b>3PH 336 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 5 and 10)

**Alternate Corrective Plans Investigated:**

No other alternatives were considered.

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **340-02**

Estimated Cost: **\$41,400**

**Description of Proposed Construction:**

Re-conductor 0.6 miles of single phase 4 ACSR with three phase 1/0 ACSR.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Oxford</b>	<b>PC-175065</b>	<b>0.6</b>	<b>1PH 4 ACSR</b>	<b>3PH 1/0 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 1 and 5)

**Alternate Corrective Plans Investigated:**

Since 1/0 ACSR is the minimum conductor used for multiphase lines, no other conductor size was evaluated.

**2010 ~ 2013 CONSTRUCTION WORK PLAN  
DISTRIBUTION LINE CONSTRUCTION PROJECT REVIEW**

CFR Code and CWP Item Number: **340-03**

Estimated Cost: **\$24,800**

**Description of Proposed Construction:**

Convert 0.4 miles of single phase 1/0 ACSR to three phase 1/0 ACSR. Replace poles and equipment as necessary.

<u>Substation</u>	<u>Line Section</u>	<u>Miles</u>	<u>Existing Phase Wire</u>	<u>Proposed Phase Wire</u>
<b>Oxford</b>	<b>PC-123699</b>	<b>0.4</b>	<b>1PH 1/0 ACSR</b>	<b>2PH 1/0 ACSR</b>

**Reason for Proposed Construction:**

(Justification Codes 1 and 5)

**Alternate Corrective Plans Investigated:**

Since 1/0 ACSR is the minimum conductor used for multiphase lines, no other conductor size was evaluated.

## **Exhibit U**

**"NOT USED IN THIS CWP PACKAGE"**



# **Exhibit V**

## **Two-Way Vehicle Communication with AVL**

Pages: 1

BLUE GRASS ENERGY

KENTUCKY 64 JESSAMINE  
NICHOLASVILLE, KENTUCKY

**2010-2013 CONSTRUCTION WORK PLAN**  
**Two Way Communication with AVL<sup>1</sup>**  
**RUS Reference Code 615**

BGE is currently undergoing a study of its two-way voice radio communication system due in part to an approaching FCC deadline to vacate the existing licensed frequencies. At present the deadline is in 2014 and the implementation of the new / revised system will begin within this CWP. To allow for such the following estimated costs are being included within this CWP.

2Way Radio System

Quantity	Equipment Description	Cost/unit	Total Cost
70	Truck Mobile Radio	\$900	\$63,000
30	Portable handheld Radio	\$800	\$24,000
6	Base Station Repeater	\$10,000	\$60,000
1	Dispatch Center Console	\$20,000	\$20,000
	System Engineering and FCC Licensing		<u>\$33,000</u>
		Project Total	\$200,000

Chris Brewer, PE  
VP, Engineering  
Blue Grass Energy Cooperative  
1201 Lexington Rd  
Nicholasville, KY 40340

**RUS Reference Code 615: \$200,000**

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<sup>1</sup> Automatic Vehicle Locating

# **Exhibit W**

## **DA Communication Backbone**

Pages: 1

BLUE GRASS ENERGY

KENTUCKY 64 JESSAMINE  
NICHOLASVILLE, KENTUCKY

**2010-2013 CONSTRUCTION WORK PLAN**  
**Distribution Automation (DA) Communication Backbone and Volt / VAR Equipment**  
**RUS Reference Code 704**

BGE is currently in the process of installing a DA Backbone project for the purpose of precisely controlling switched capacitors, regulating VARs, regulating system voltage, and optimizing system conditions conducive to loss reduction and service quality.

This backbone will cover the entire BGE Distribution System.

Distribution Automation System

Quantity	Equipment Description	<u>Cost/unit</u>	<u>Total Cost</u>
10	Base Station Gateway	\$66,000	\$660,000
1	Base Station Gateway License	\$13,000	\$13,000
	Project Management, Setup and Implementation		\$227,000
900	Voltage Monitors	\$1,300	\$1,170,000
900	Voltage Monitors Installation	\$200	\$180,000
50	Capacitor control communication hardware	\$1,600	\$80,000
50	Capacitor control communication hardware installation	\$500	\$25,000
	<b>Project Total:</b>		<b>\$2,355,000</b>

**RUS Reference Code 704: \$2,355,000**

# **Exhibit X**

## **EKPC Transmission Map of the BGE Area**

Pages: 1

# **Exhibit Y**

## **Various BGE Facility Maps**

Pages:

BLUE GRASS ENERGY

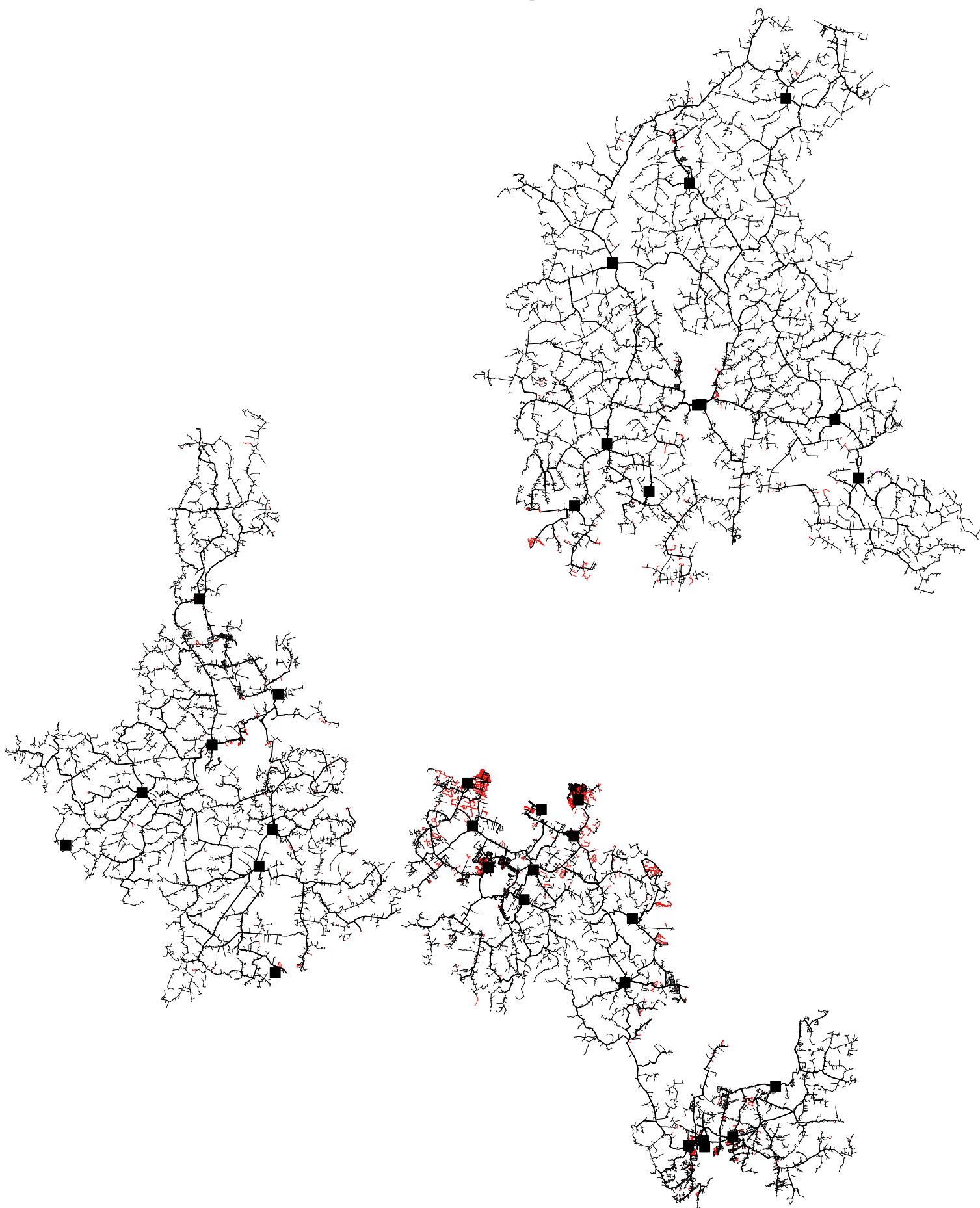
14.4 / 25 KV = RED  
7.2 / 12.47 KV = Black



BLUE GRASS ENERGY

Underground Primary = RED

Overhead Primary = BLACK

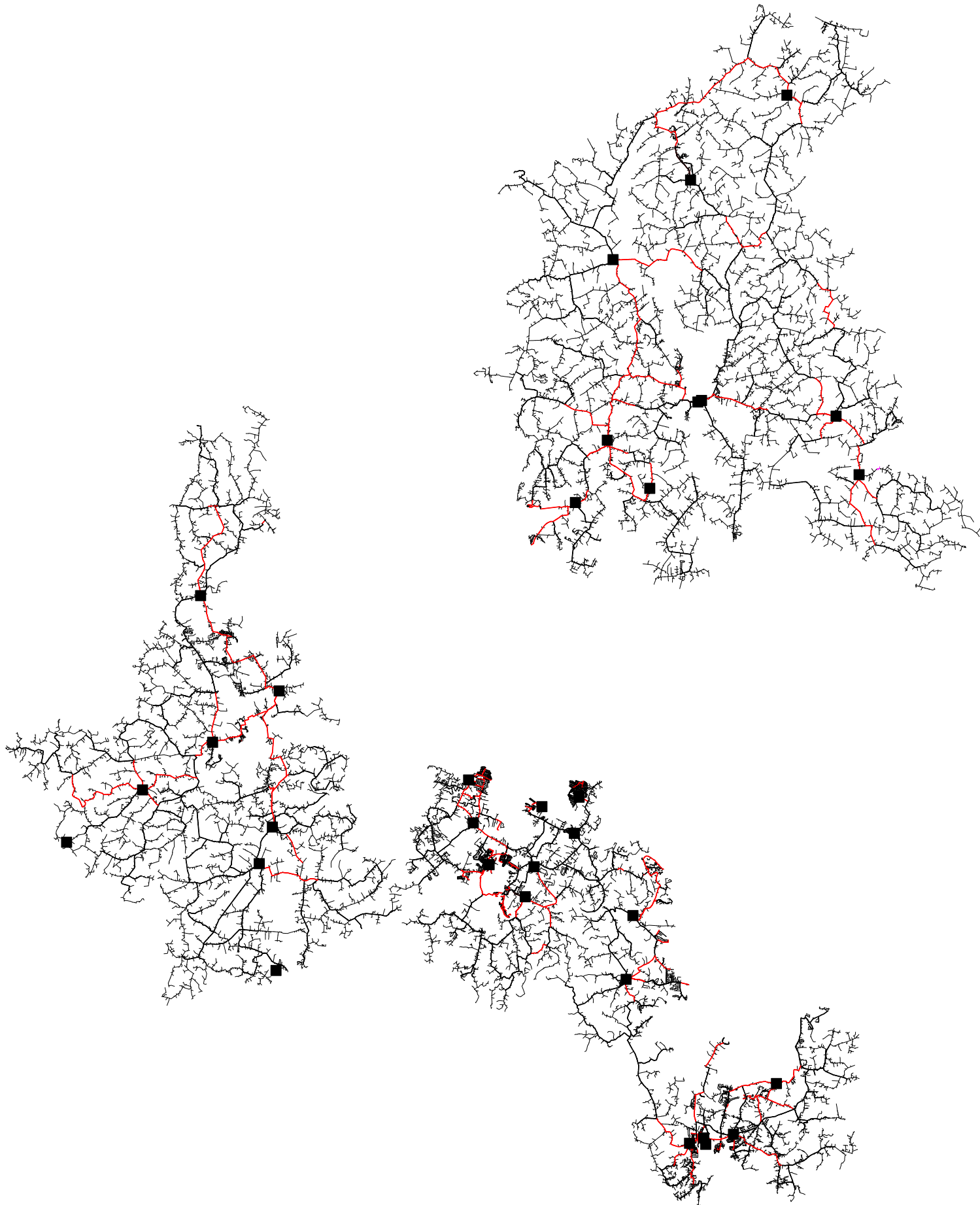




BLUE GRASS ENERGY

Primary Conductor of 336.4 ACSR = RED

Primary Conductor Smaller than 336.4 ACSR = BLACK

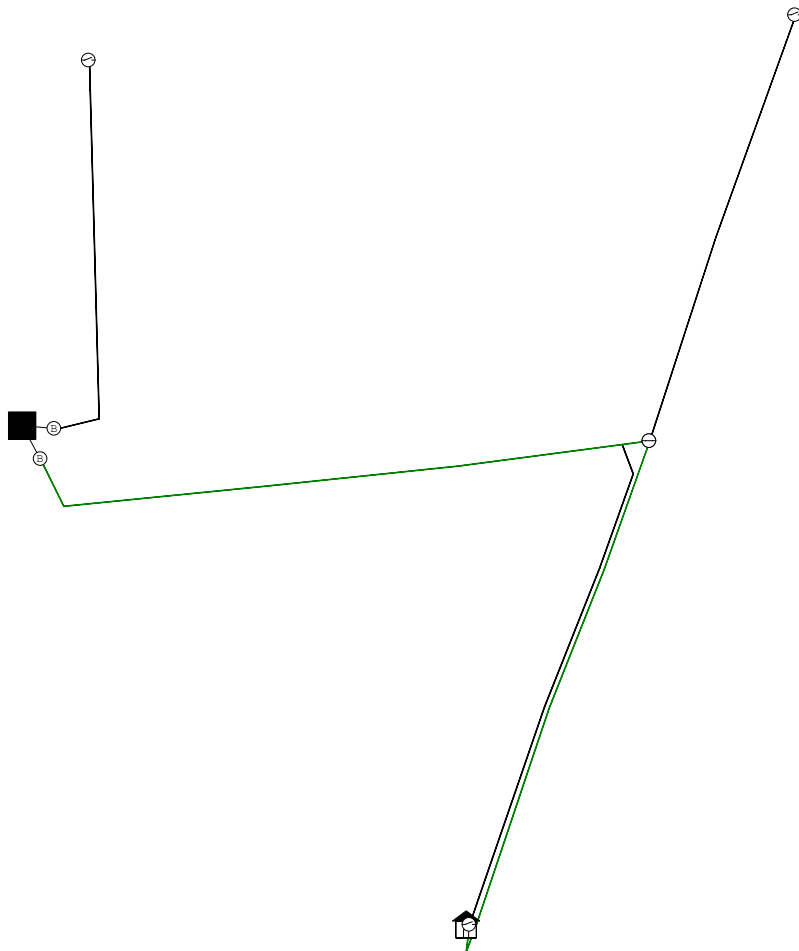


BLUE GRASS ENERGY

Primary Conductor of 6 ACWC 8 ACWC = RED







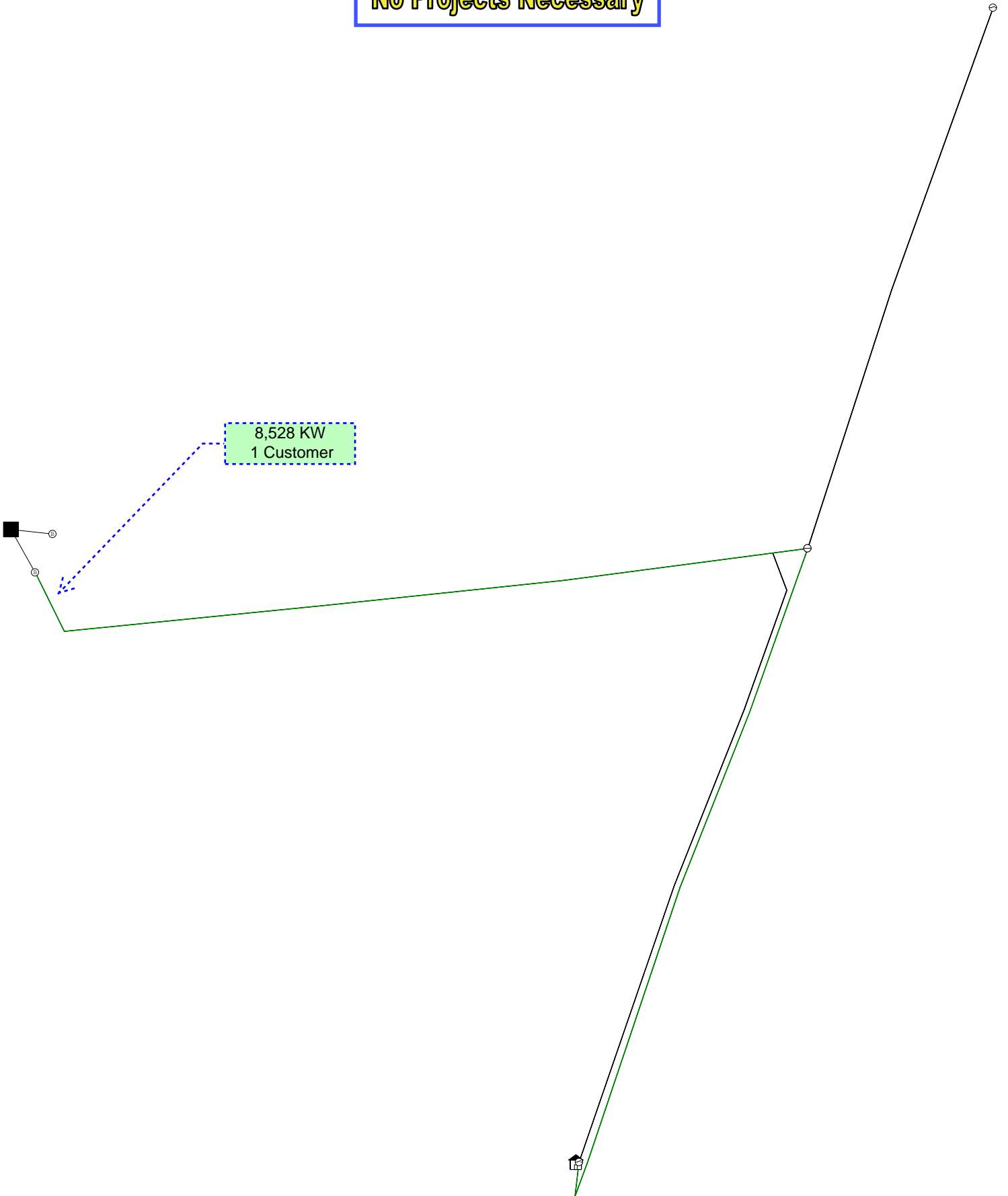
SUB: 3M  
CKT: 104

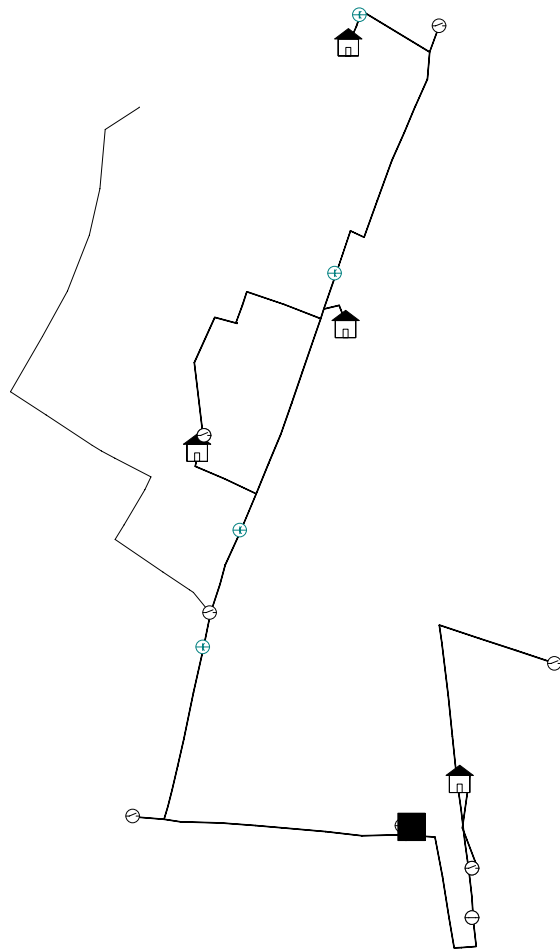
**No Projects Necessary**

0 KW  
0 Customers

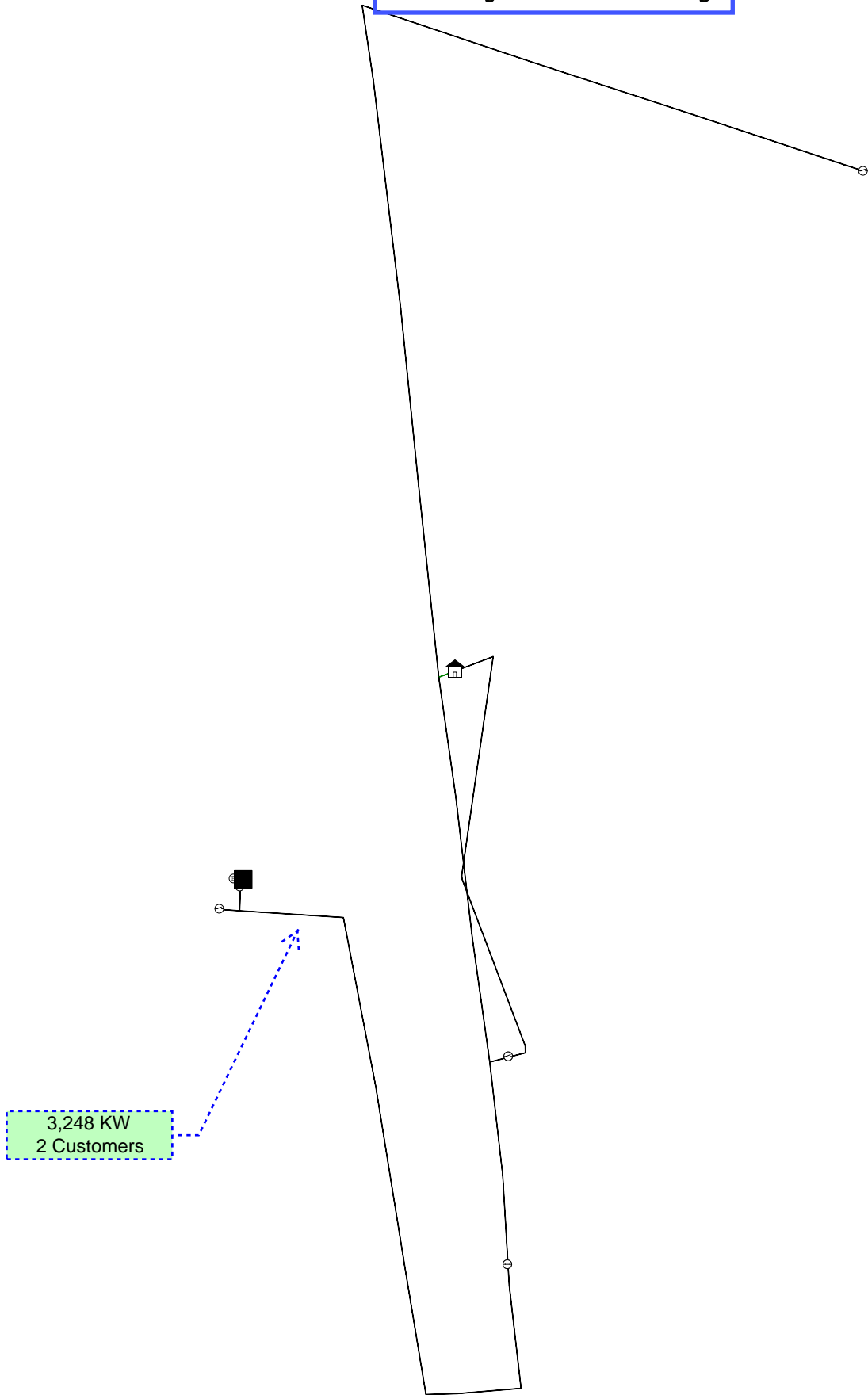


**No Projects Necessary**



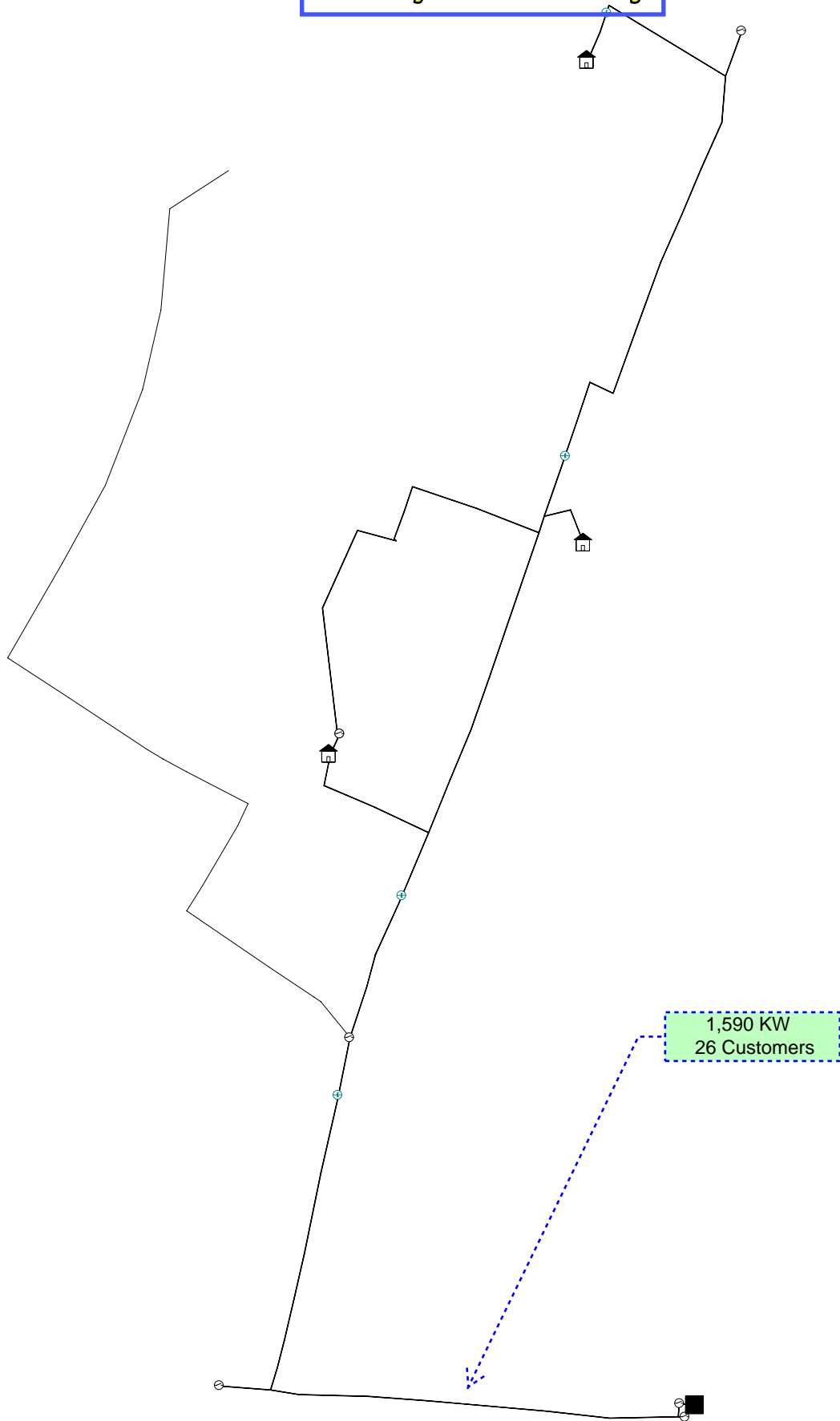


**No Projects Necessary**



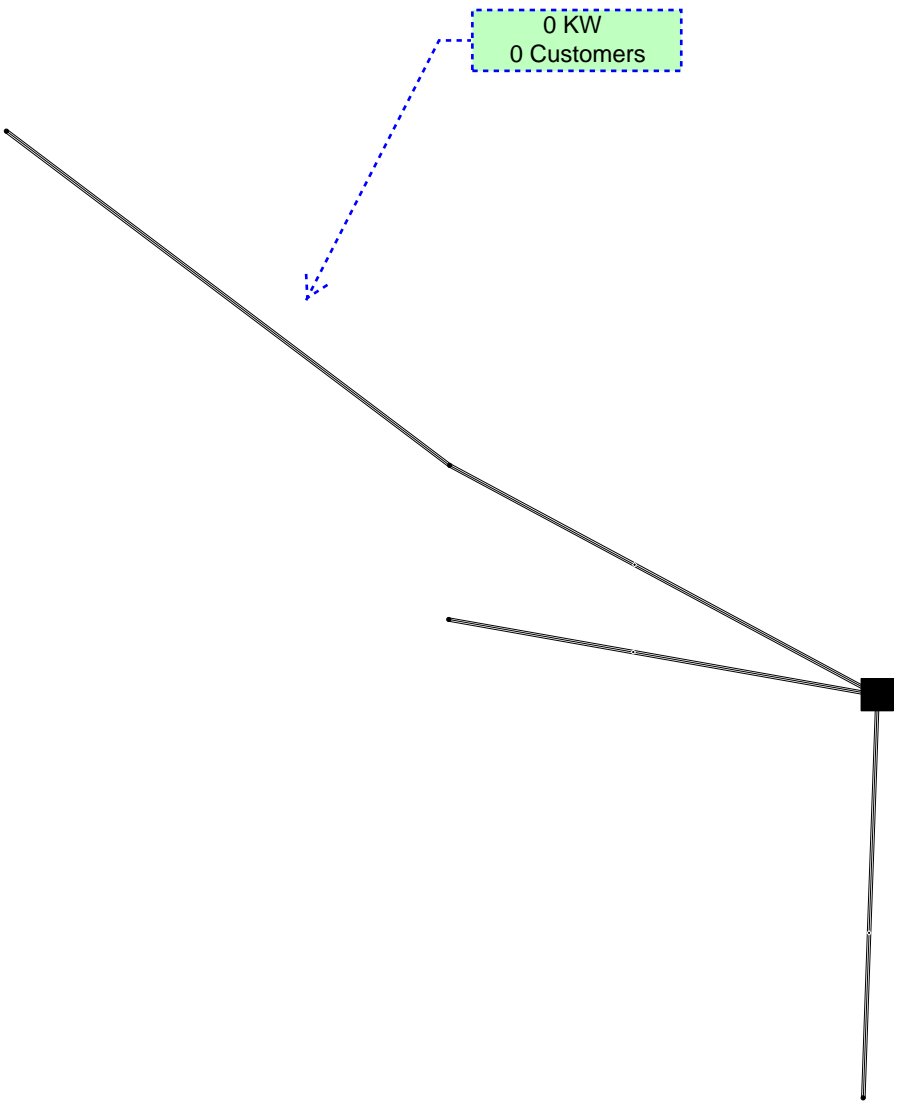


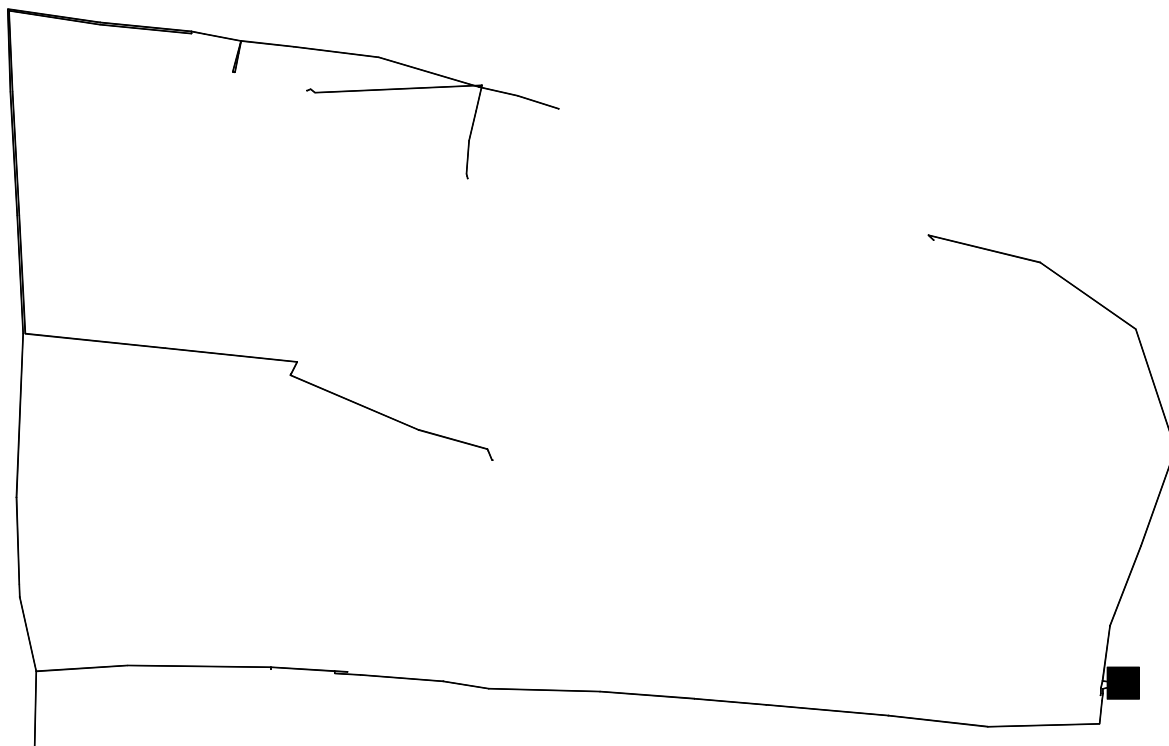
**No Projects Necessary**



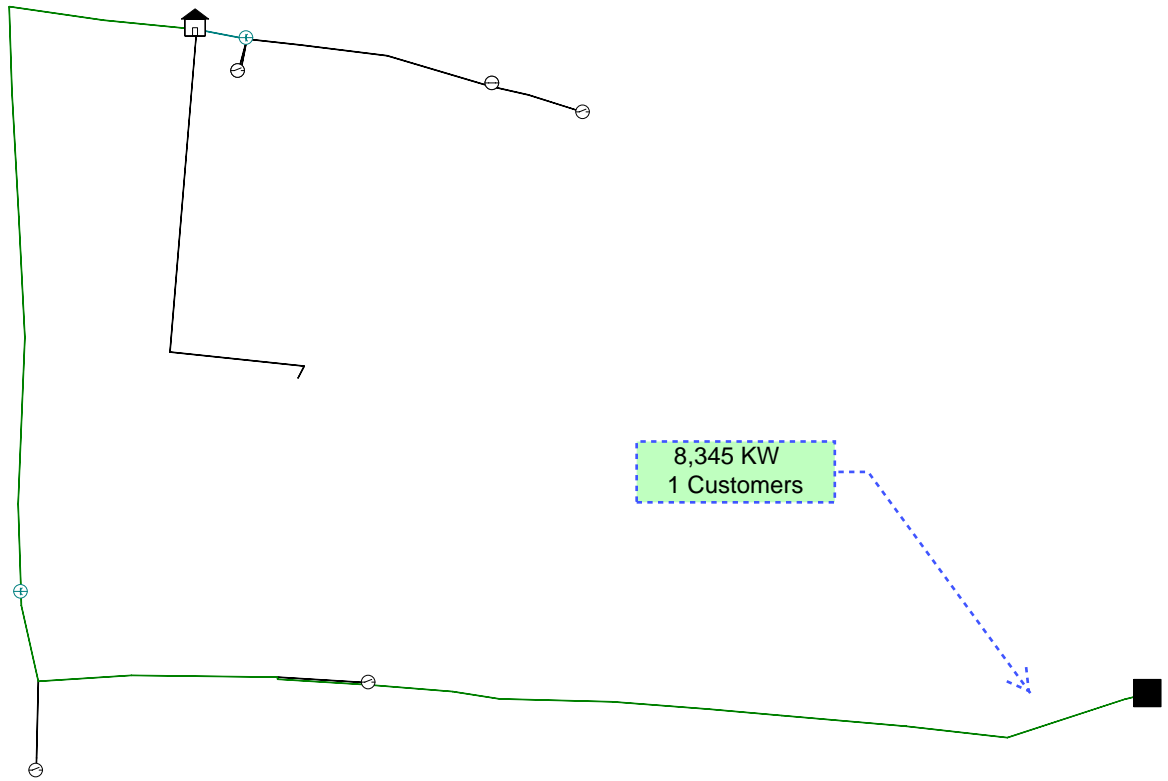
SUB: ALCAN # 1  
CKT: 1241

**No Projects Necessary**



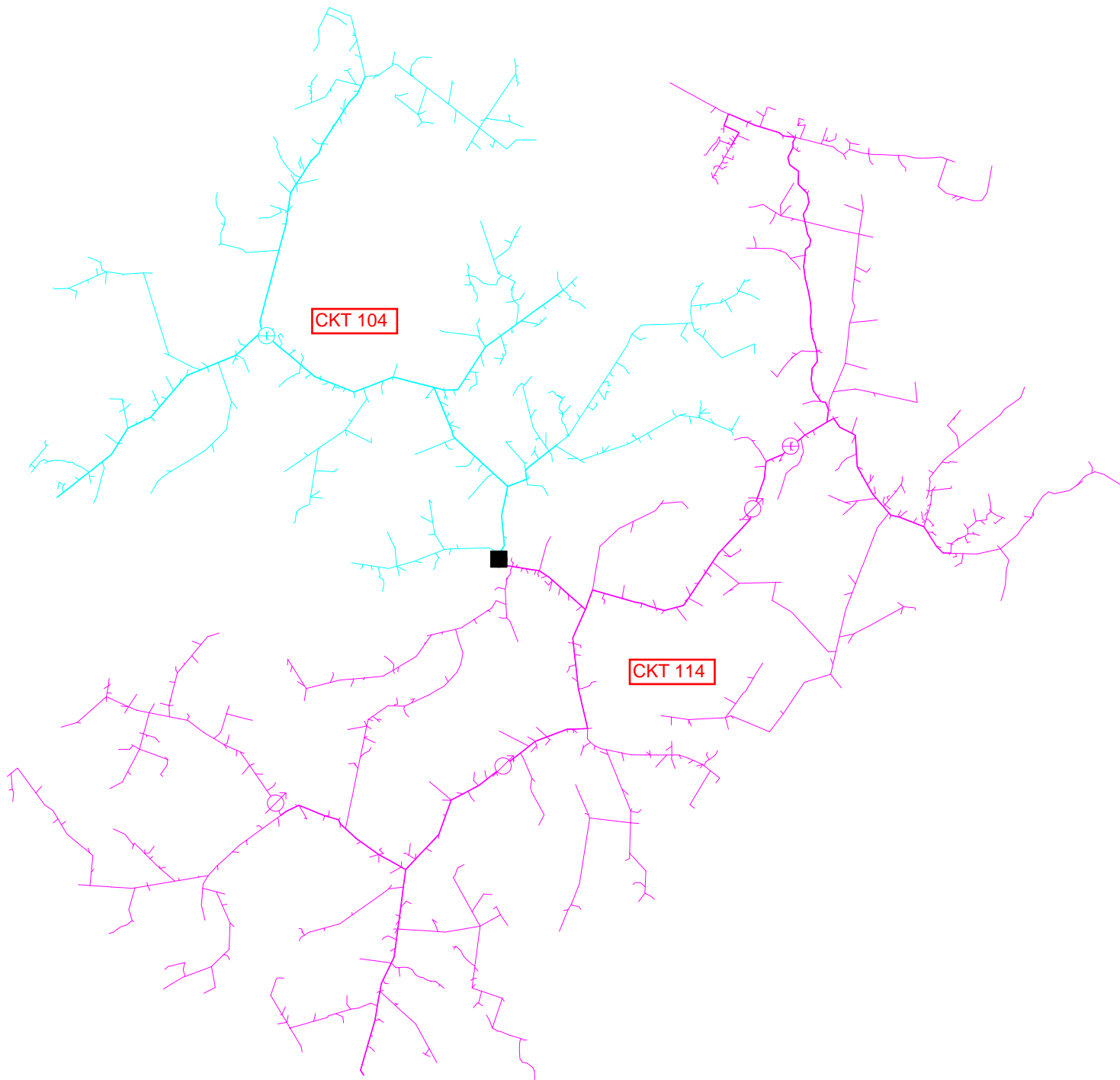


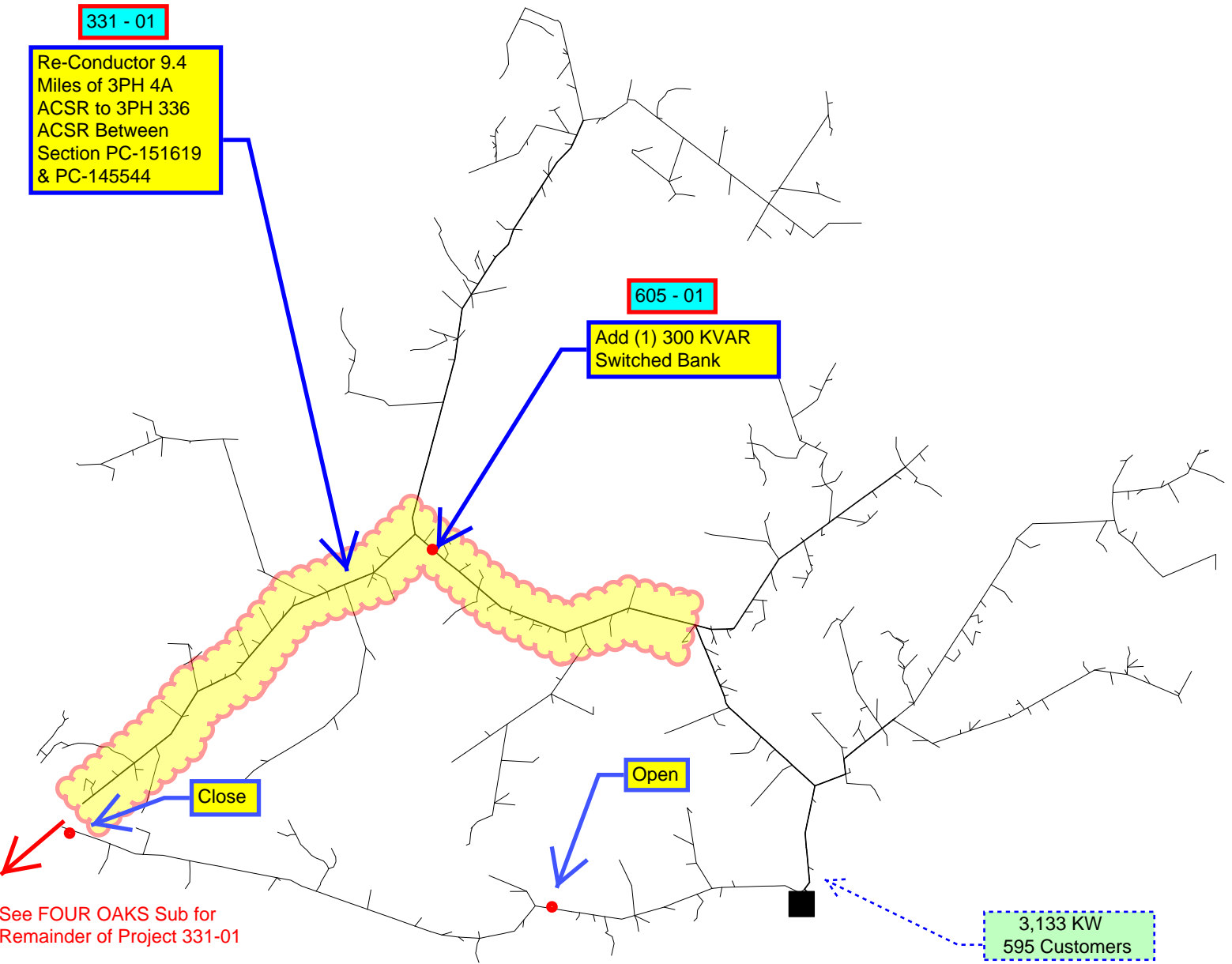
**No Projects Necessary**

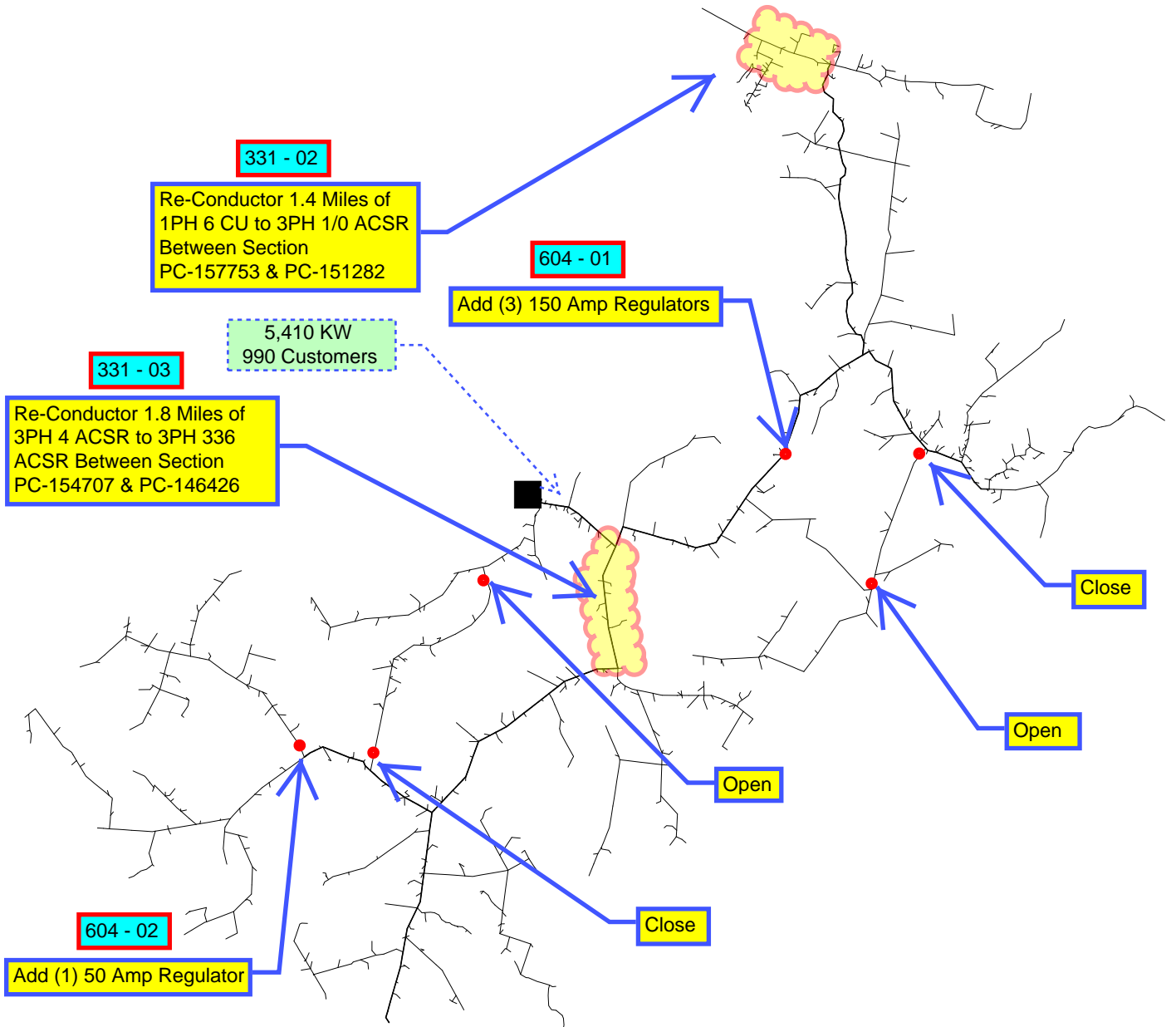


**No Projects Necessary**

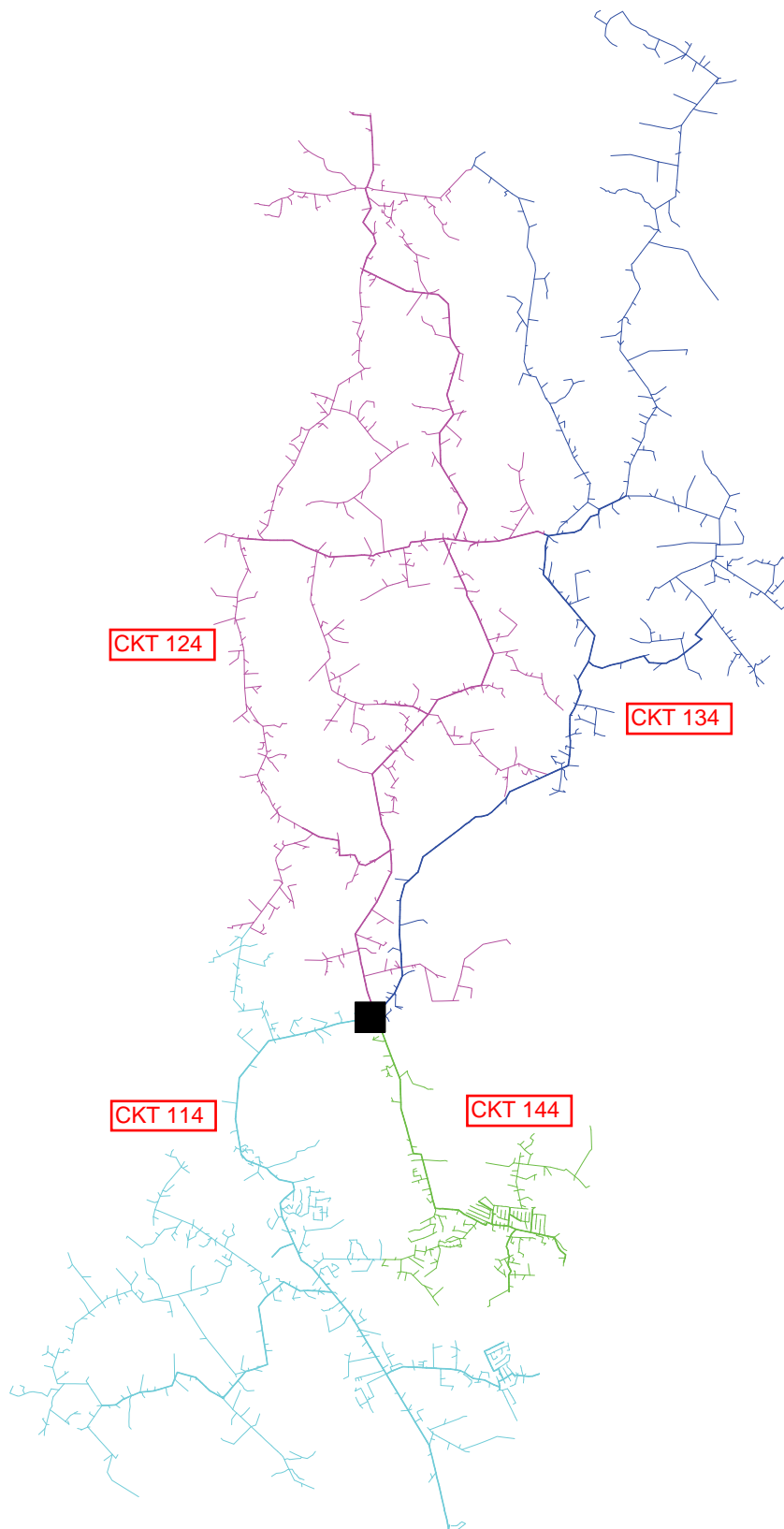


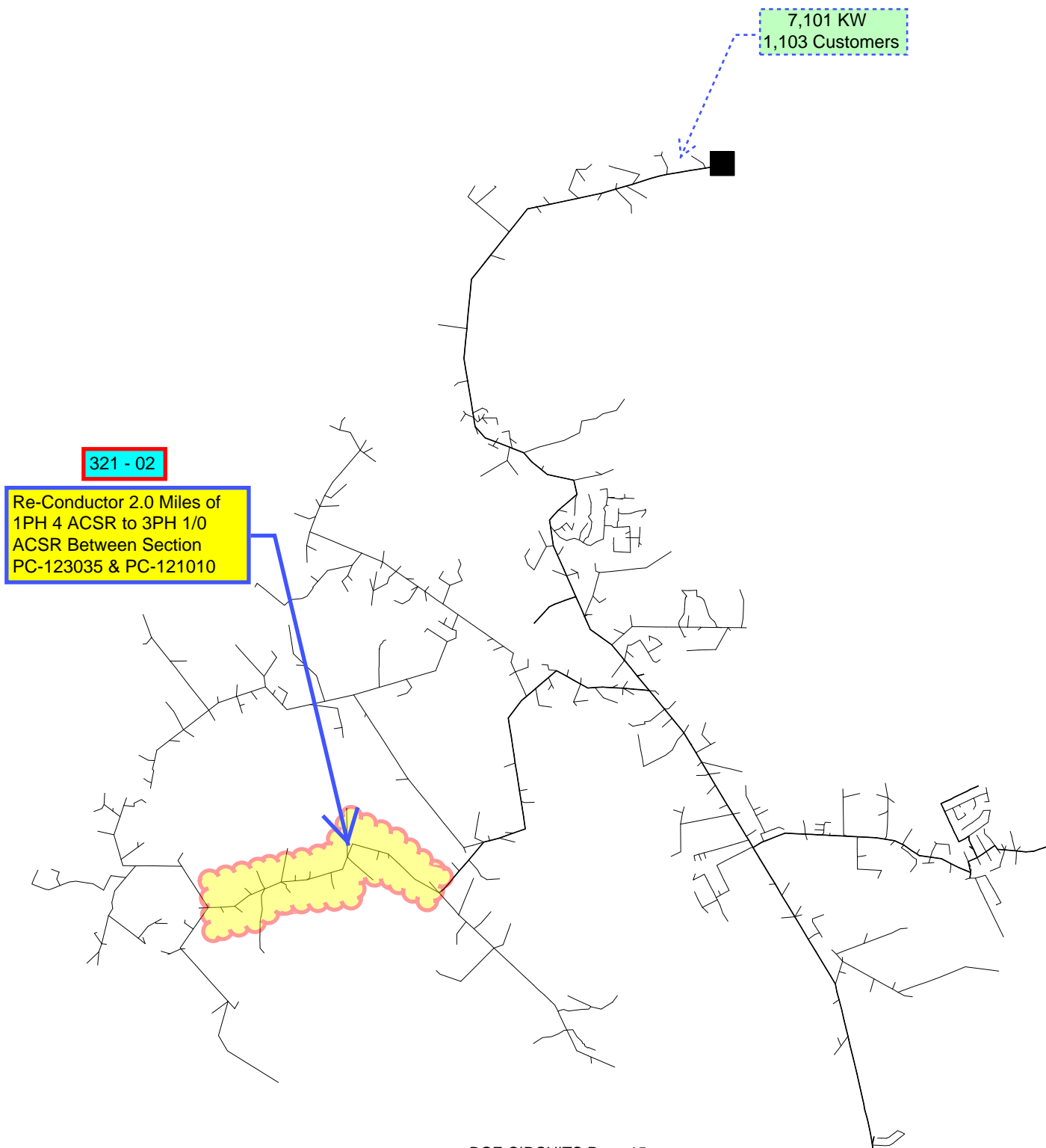


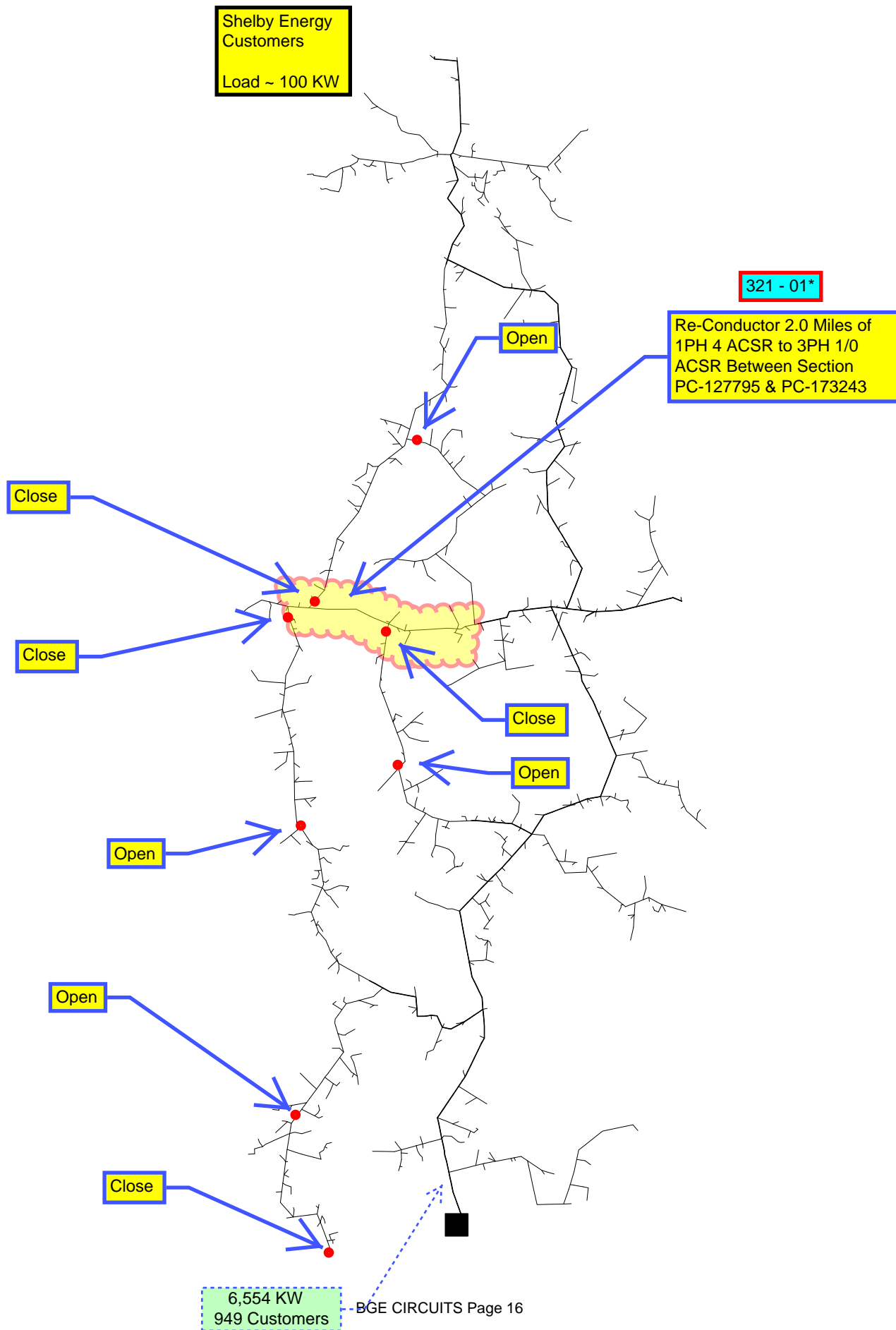




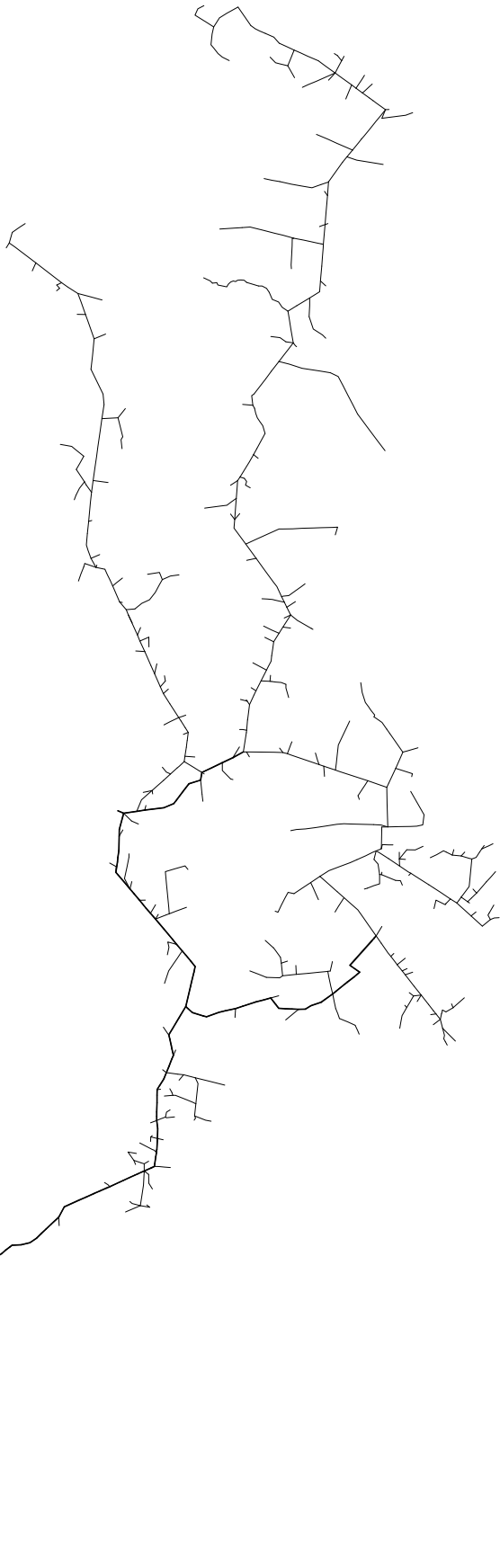








**No Projects Necessary**

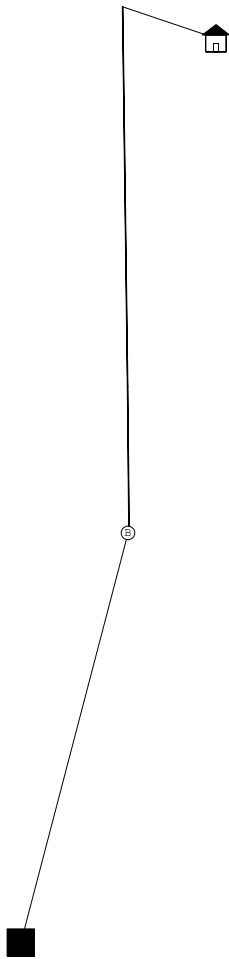


6,147 KW  
1,142 Customers

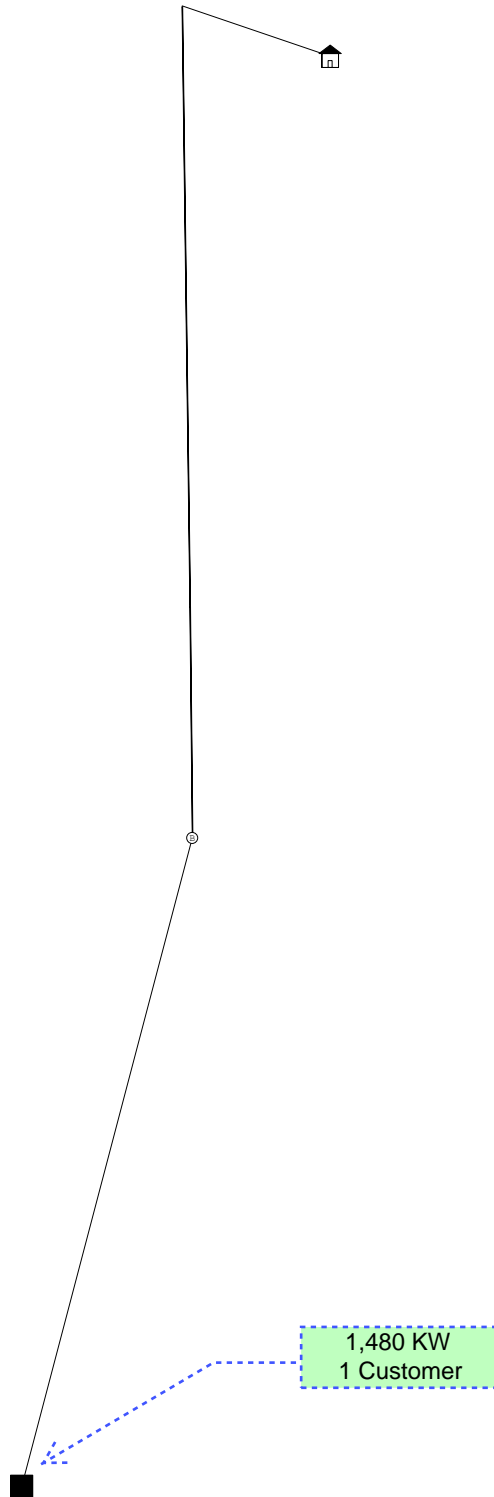
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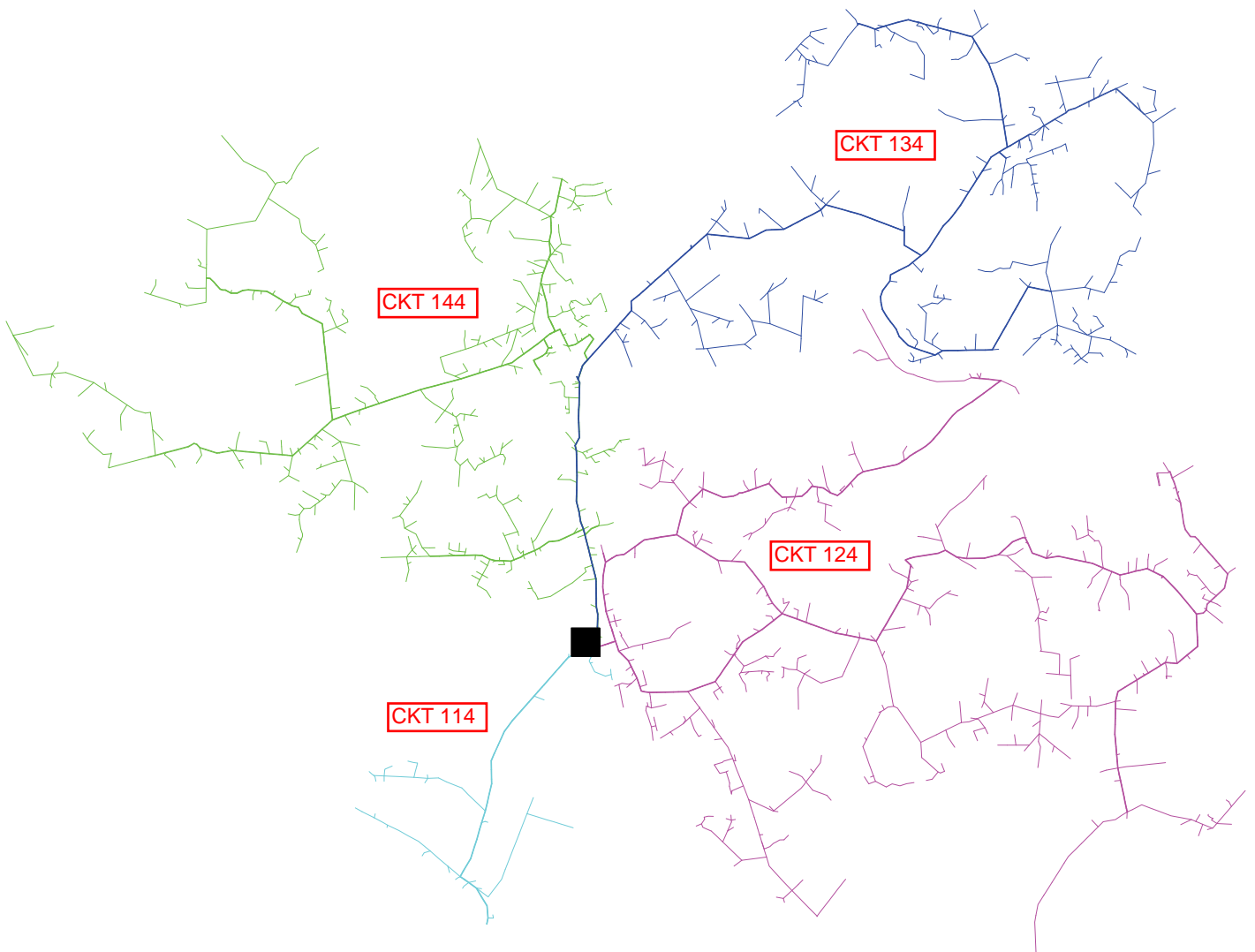


SUB: Chaplin



**No Projects Necessary**

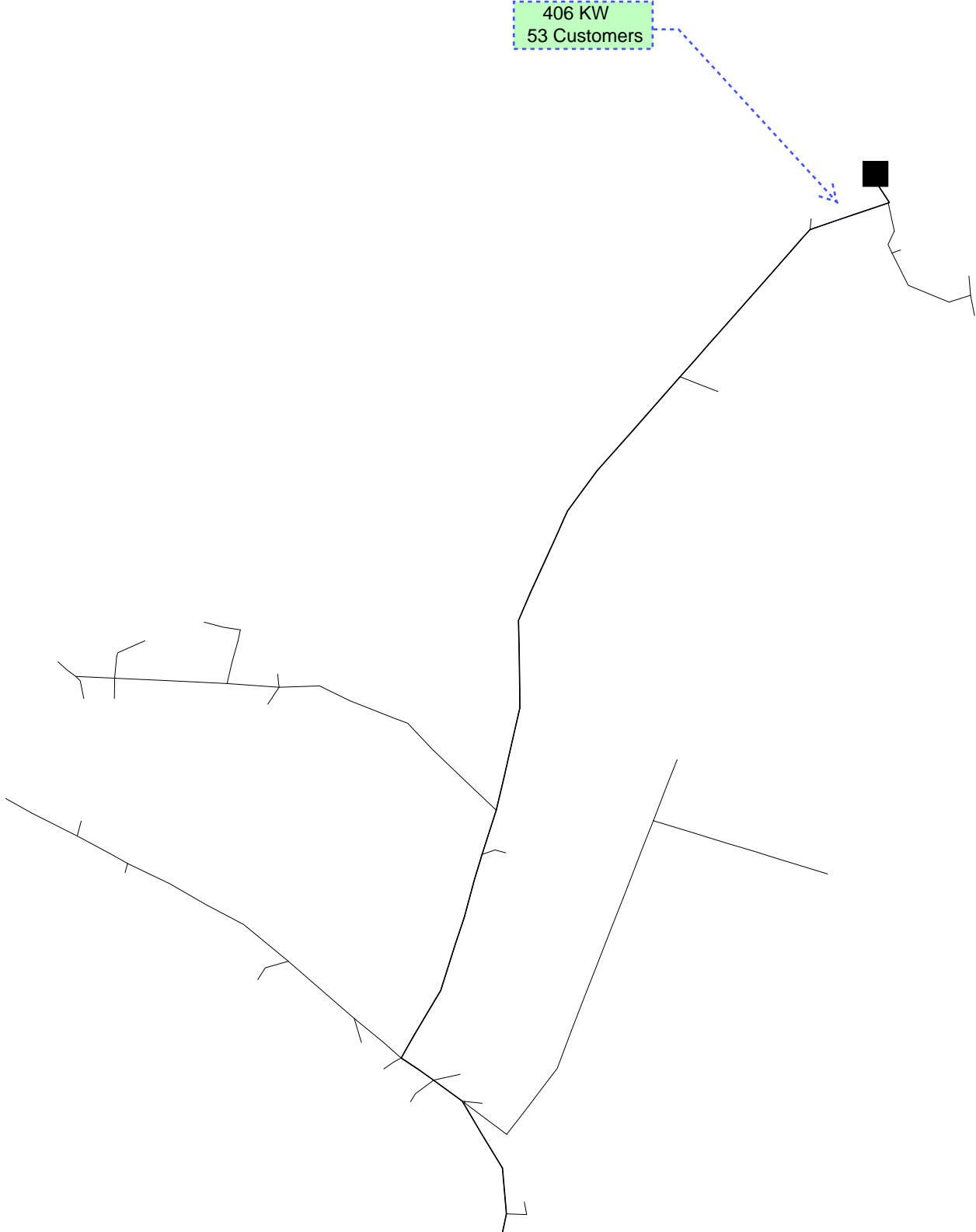


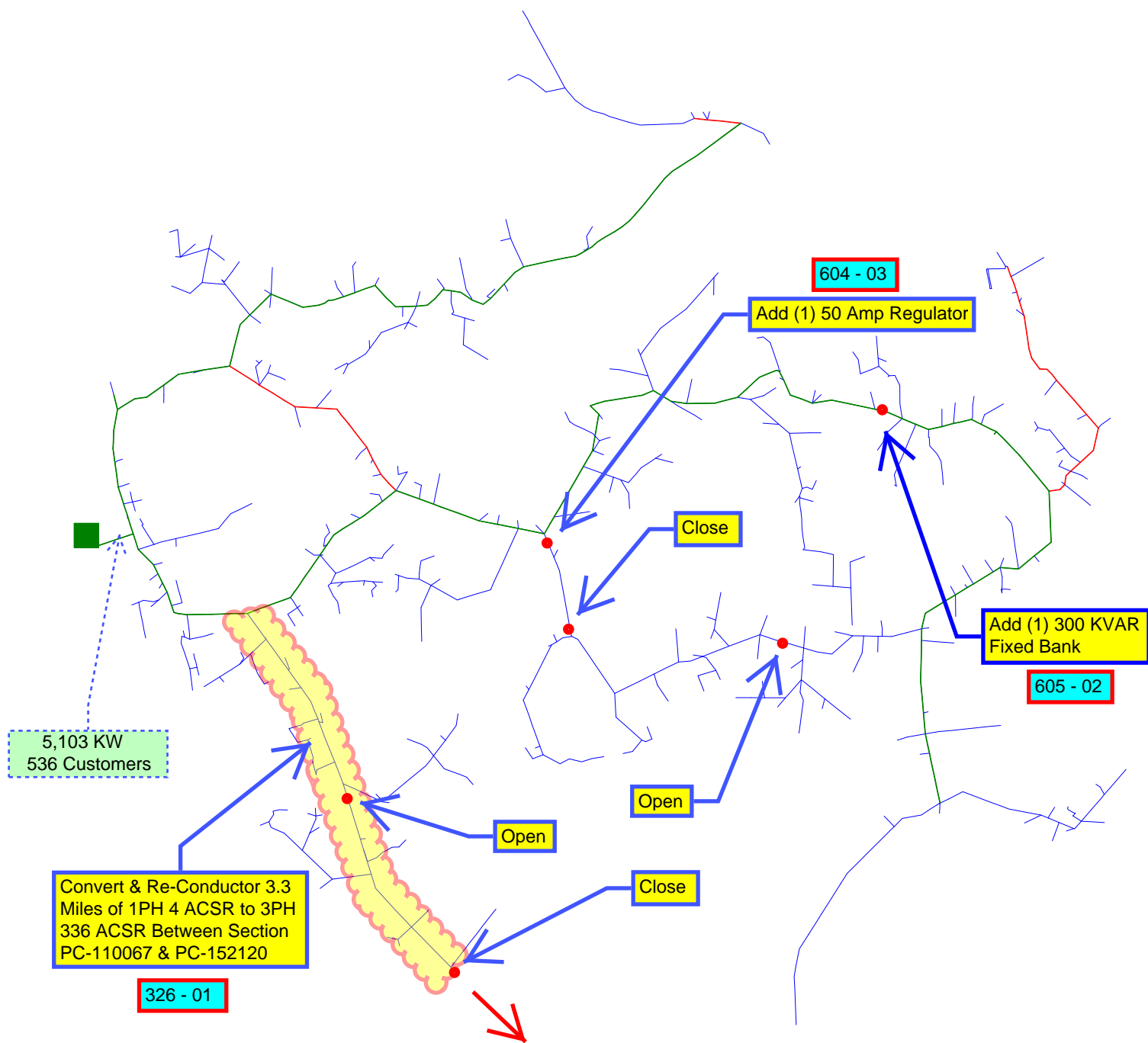




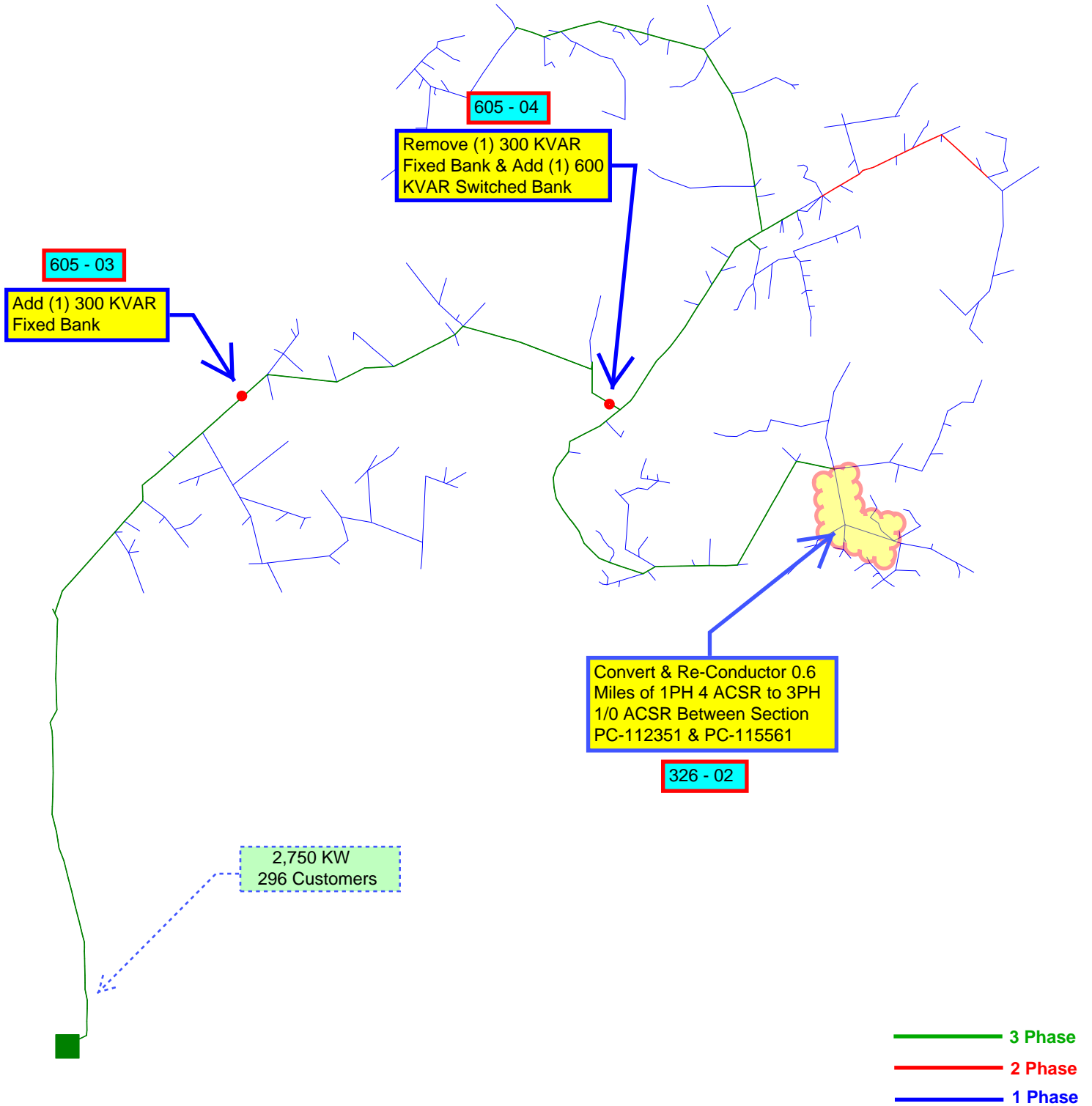
**No Projects Necessary**

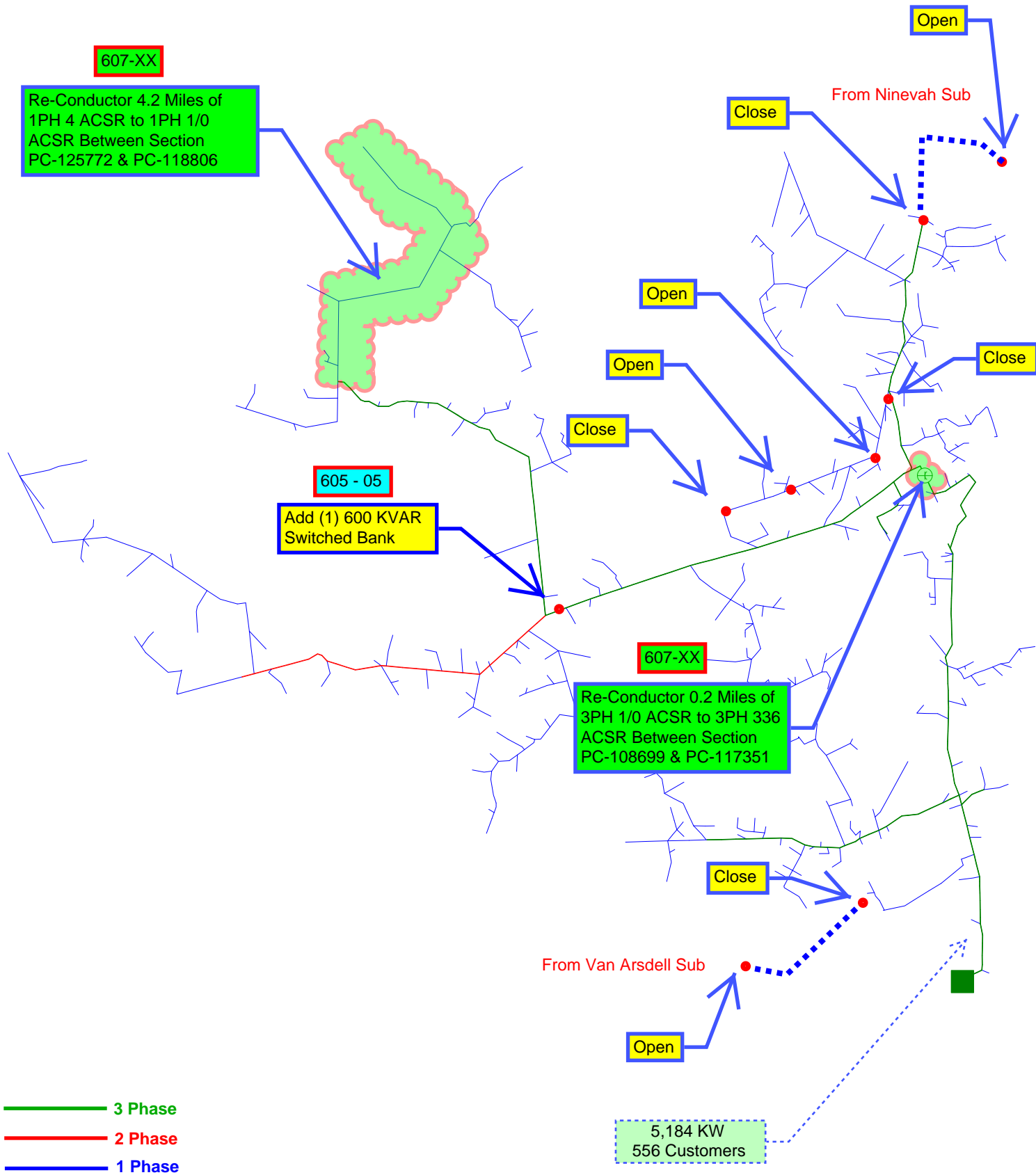
406 KW  
53 Customers

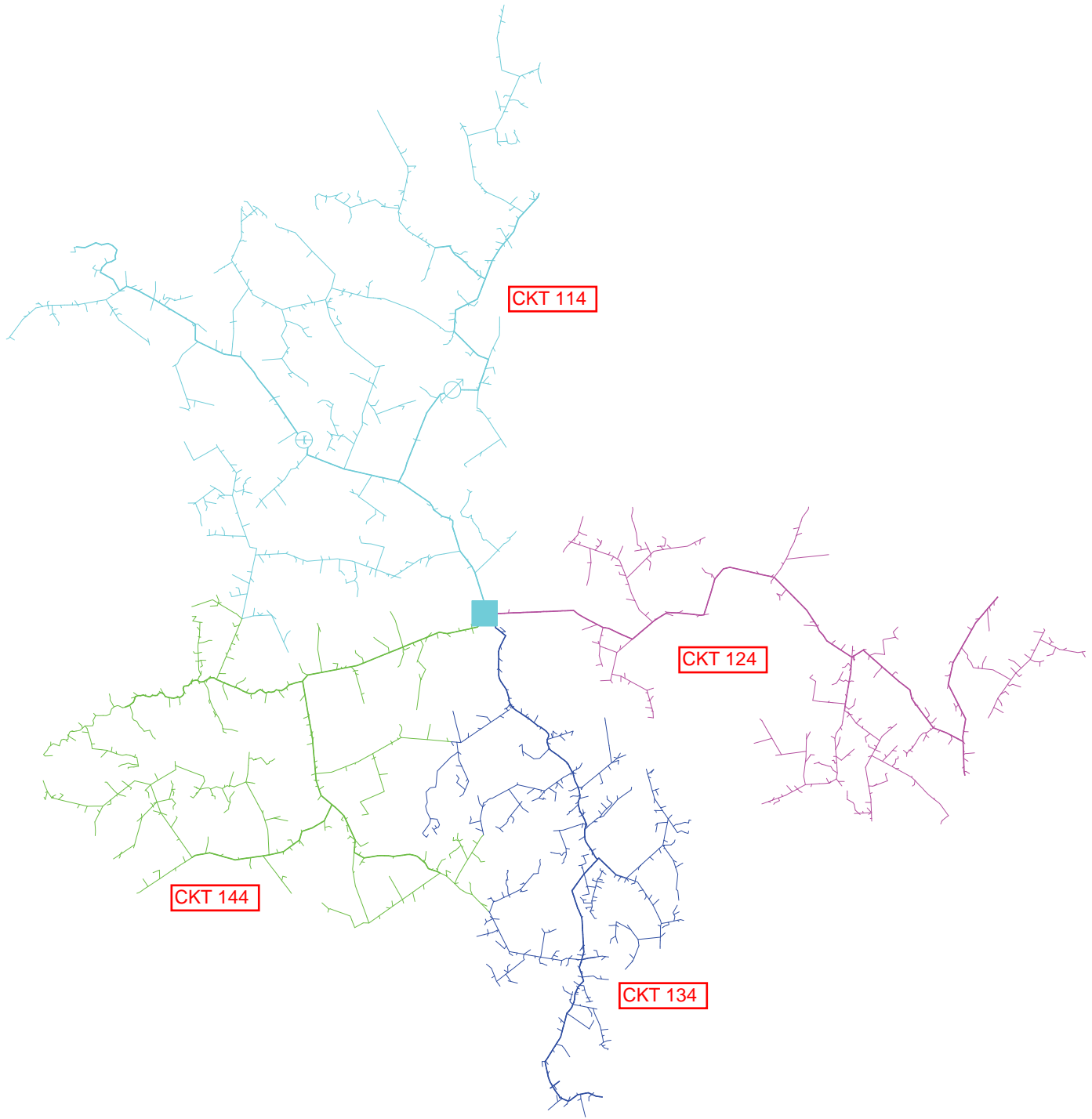


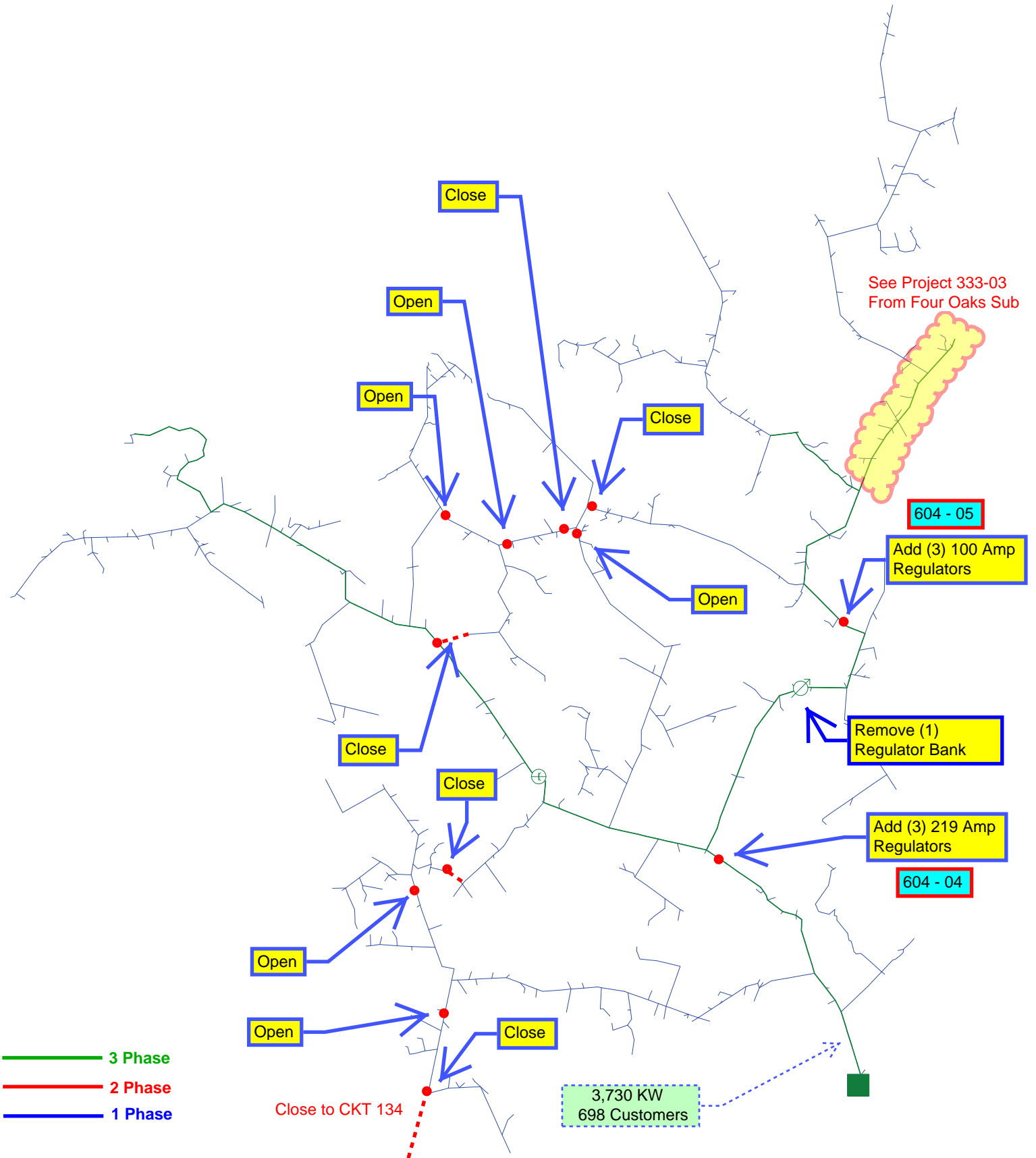


- 3 Phase
- 2 Phase
- 1 Phase









See Project 333-03  
From Four Oaks Sub

604 - 05

Add (3) 100 Amp  
Regulators

Remove (1)  
Regulator Bank

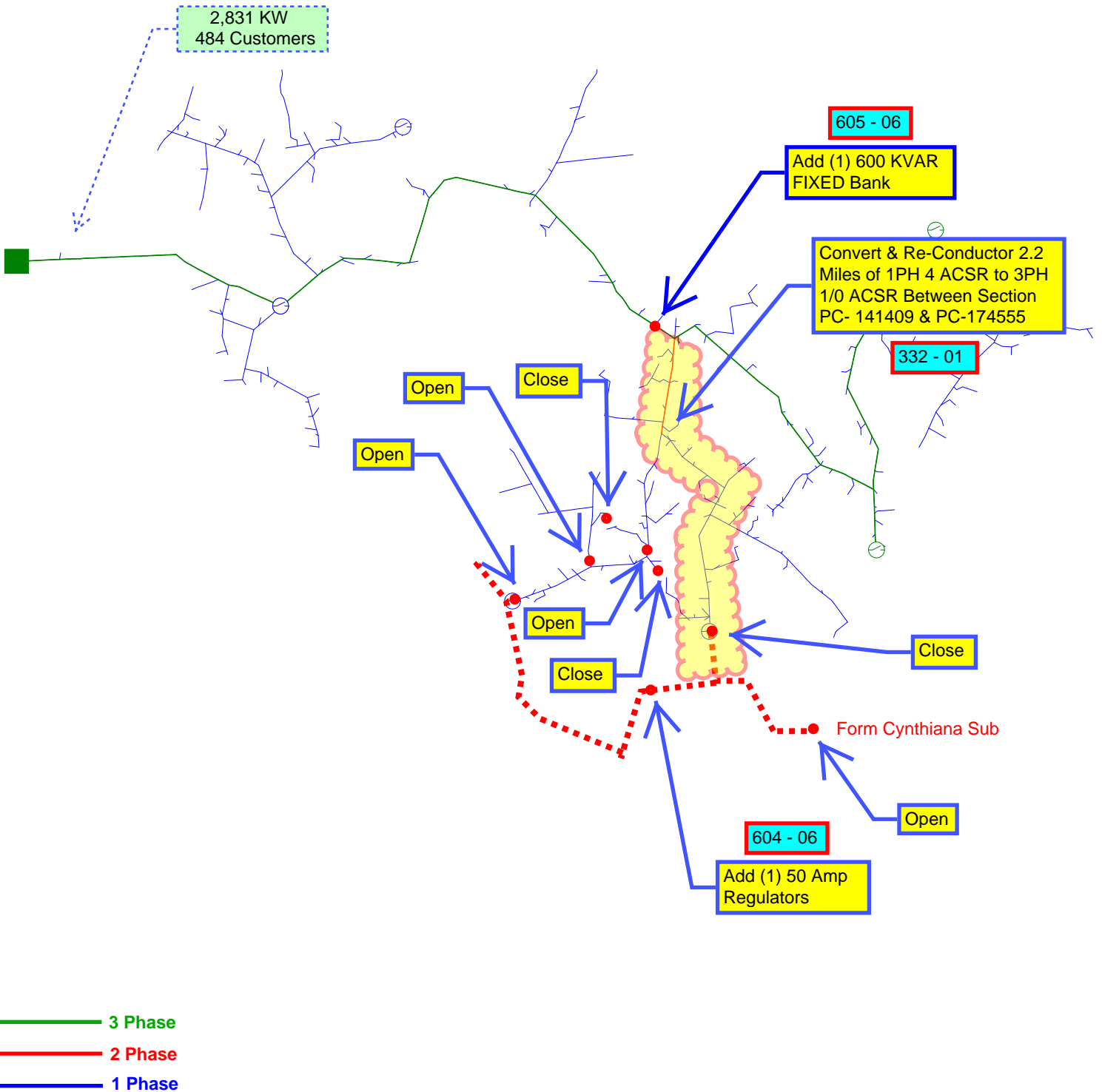
Add (3) 219 Amp  
Regulators

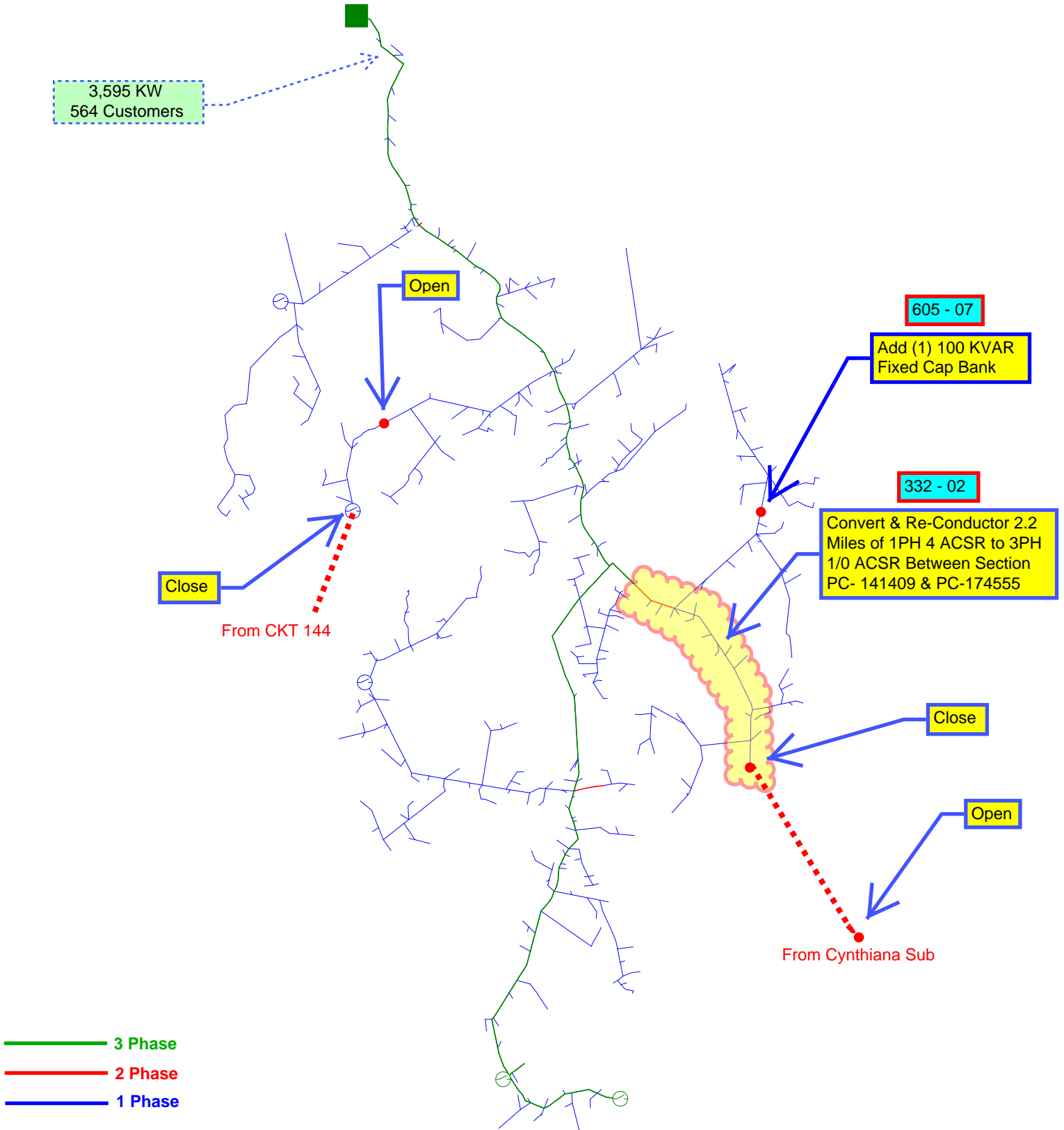
604 - 04

3,730 KW  
698 Customers

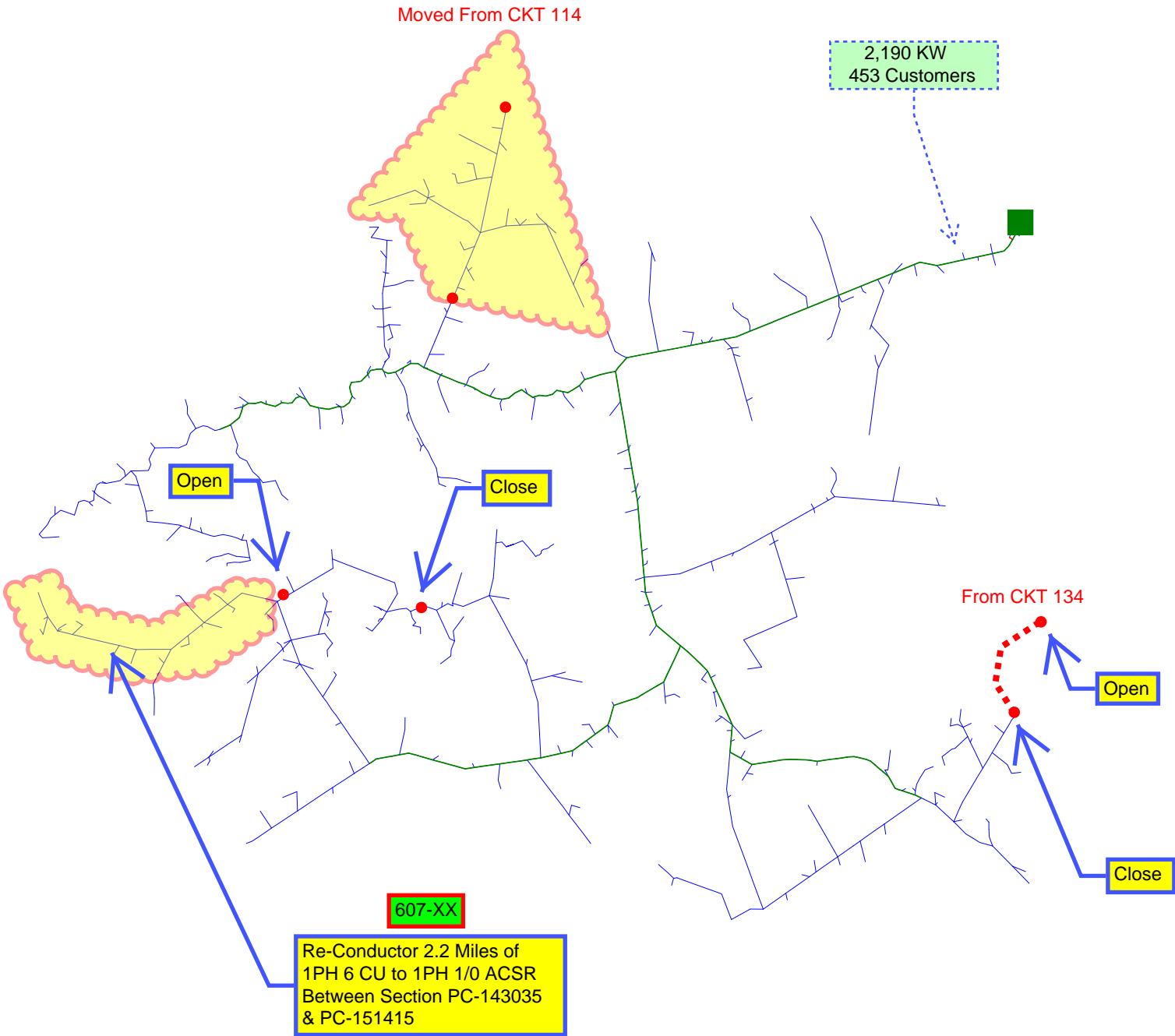
Close to CKT 134

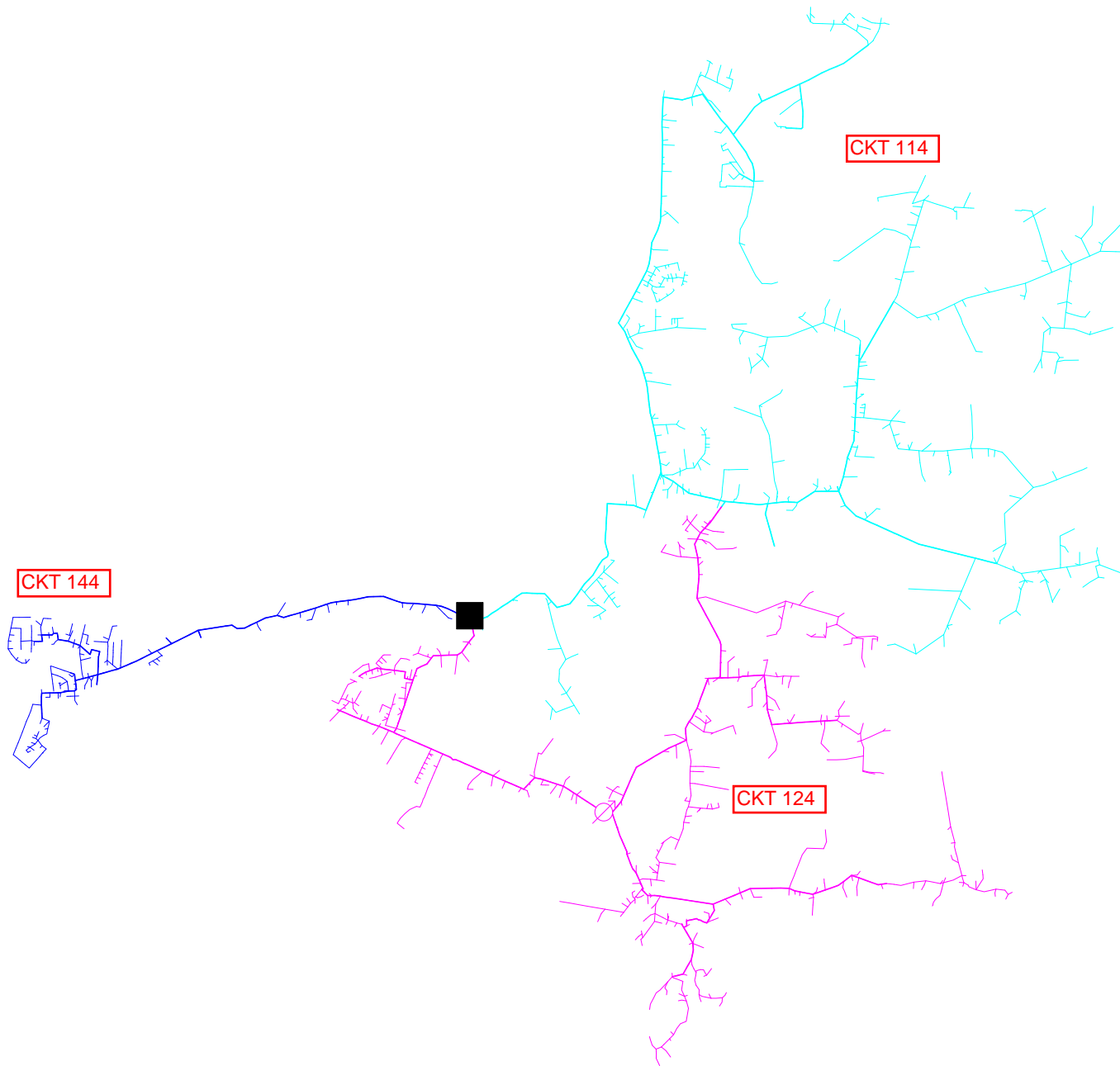
- 3 Phase
- 2 Phase
- 1 Phase

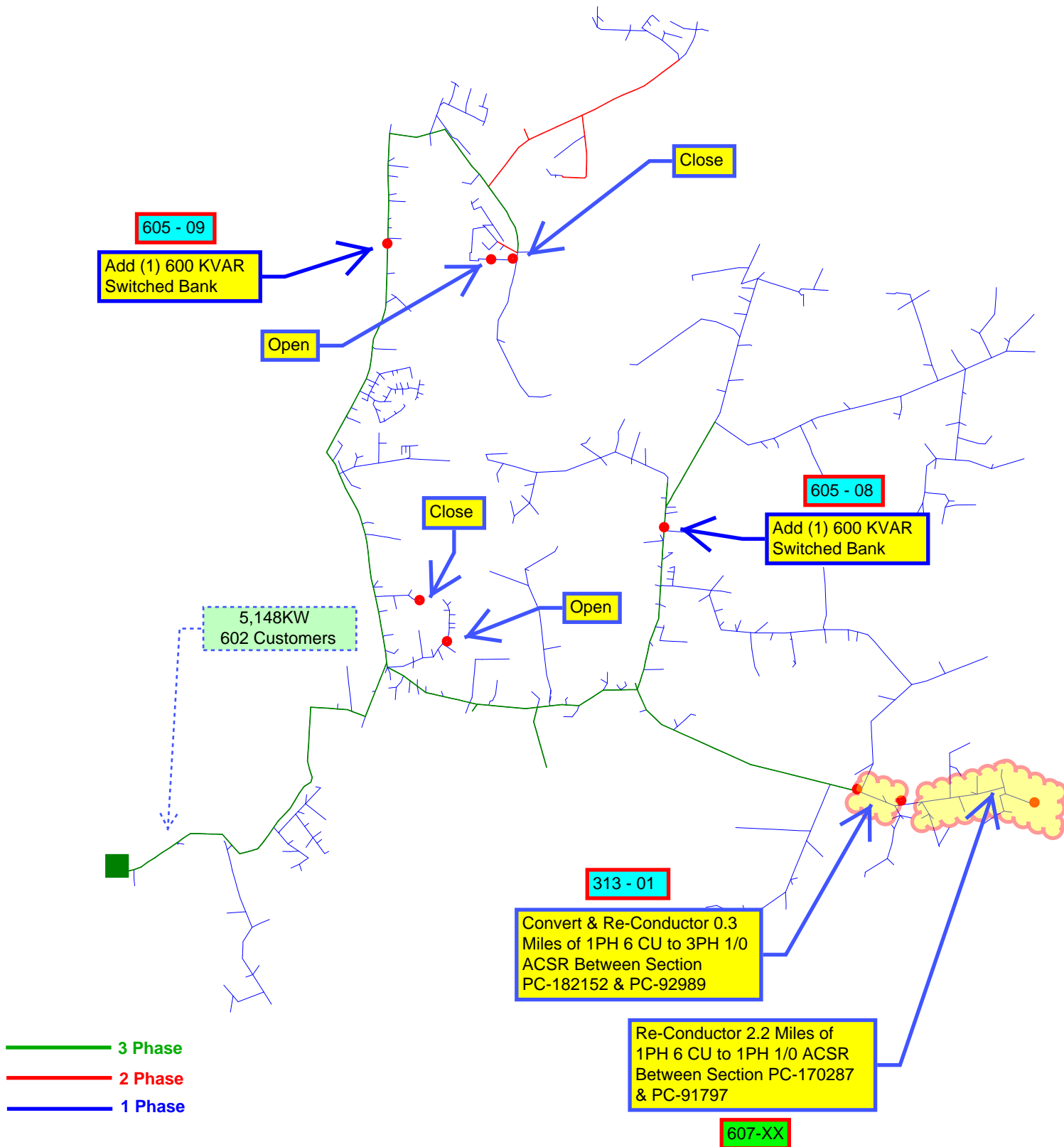




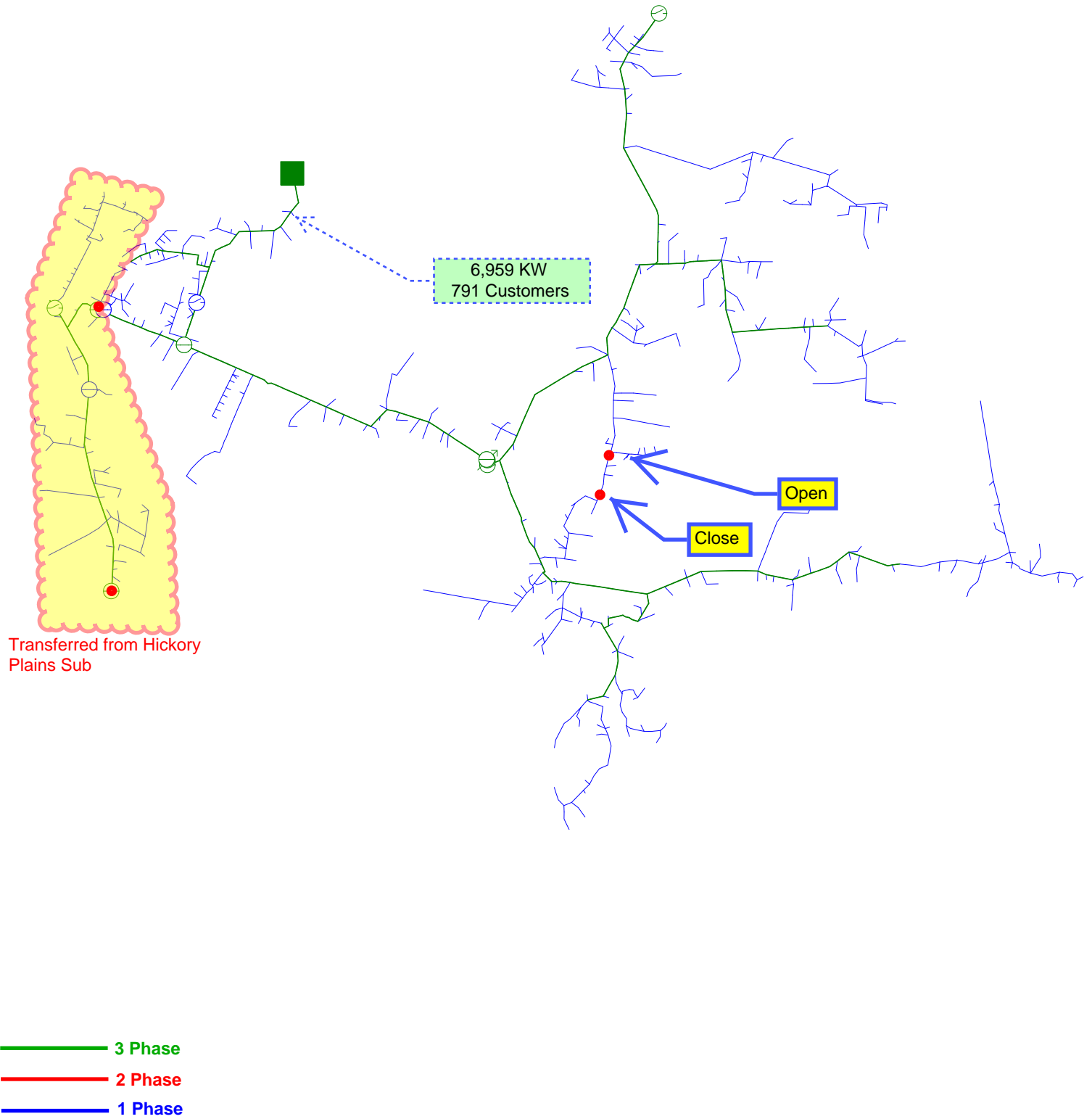




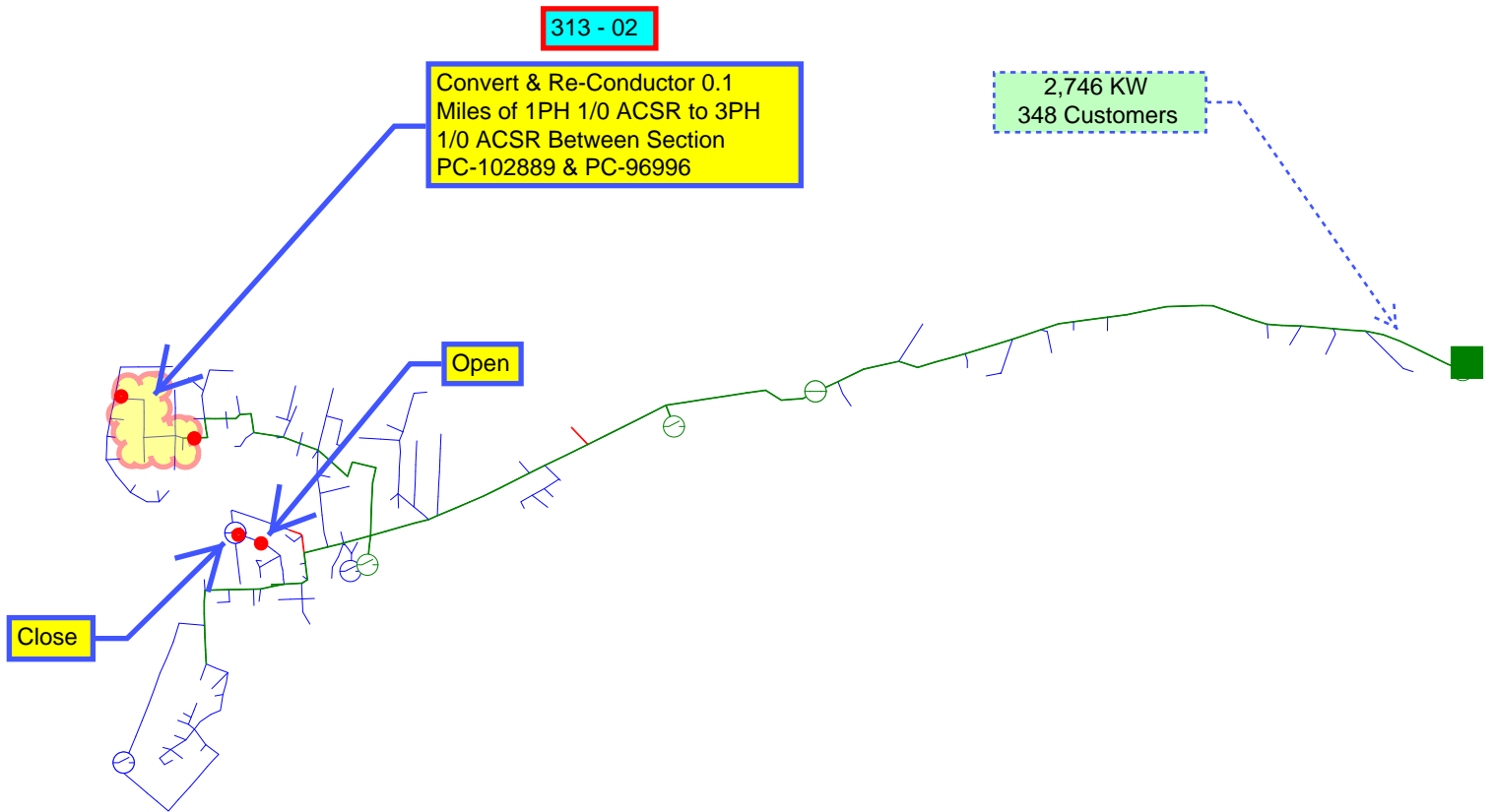




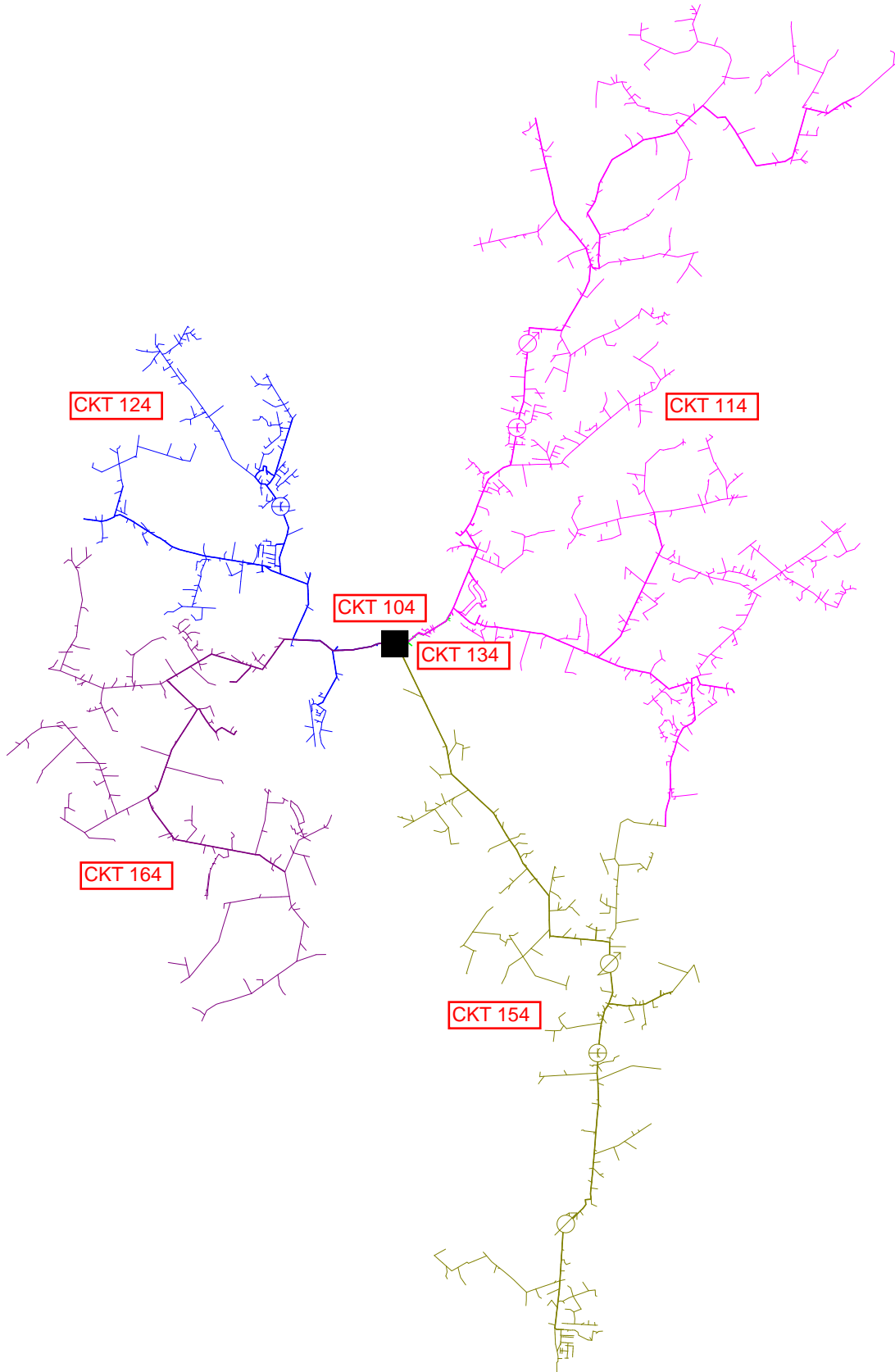
**No Projects Necessary**



**No Projects Necessary**



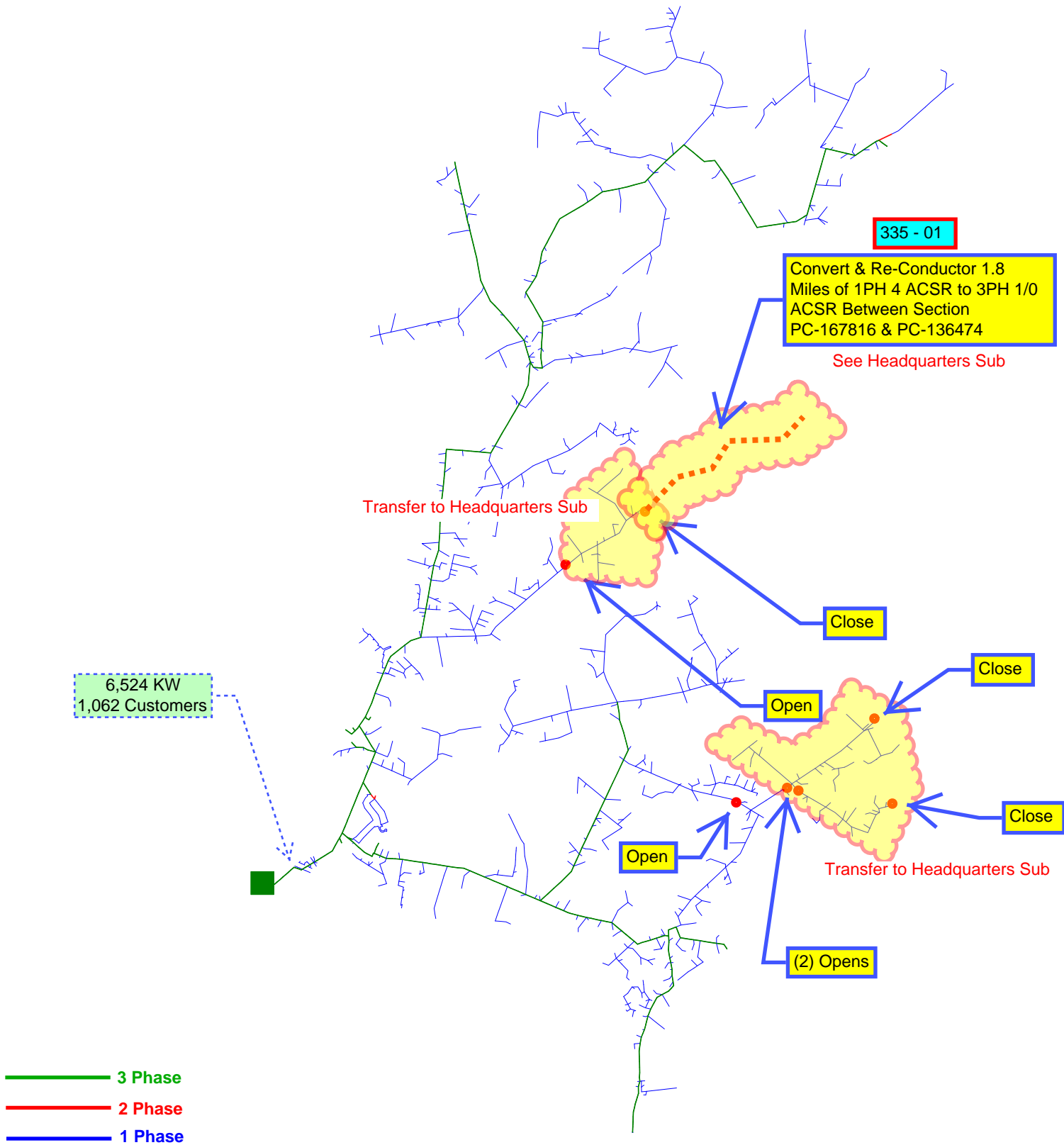
- 3 Phase
- 2 Phase
- 1 Phase



**No Projects Necessary**



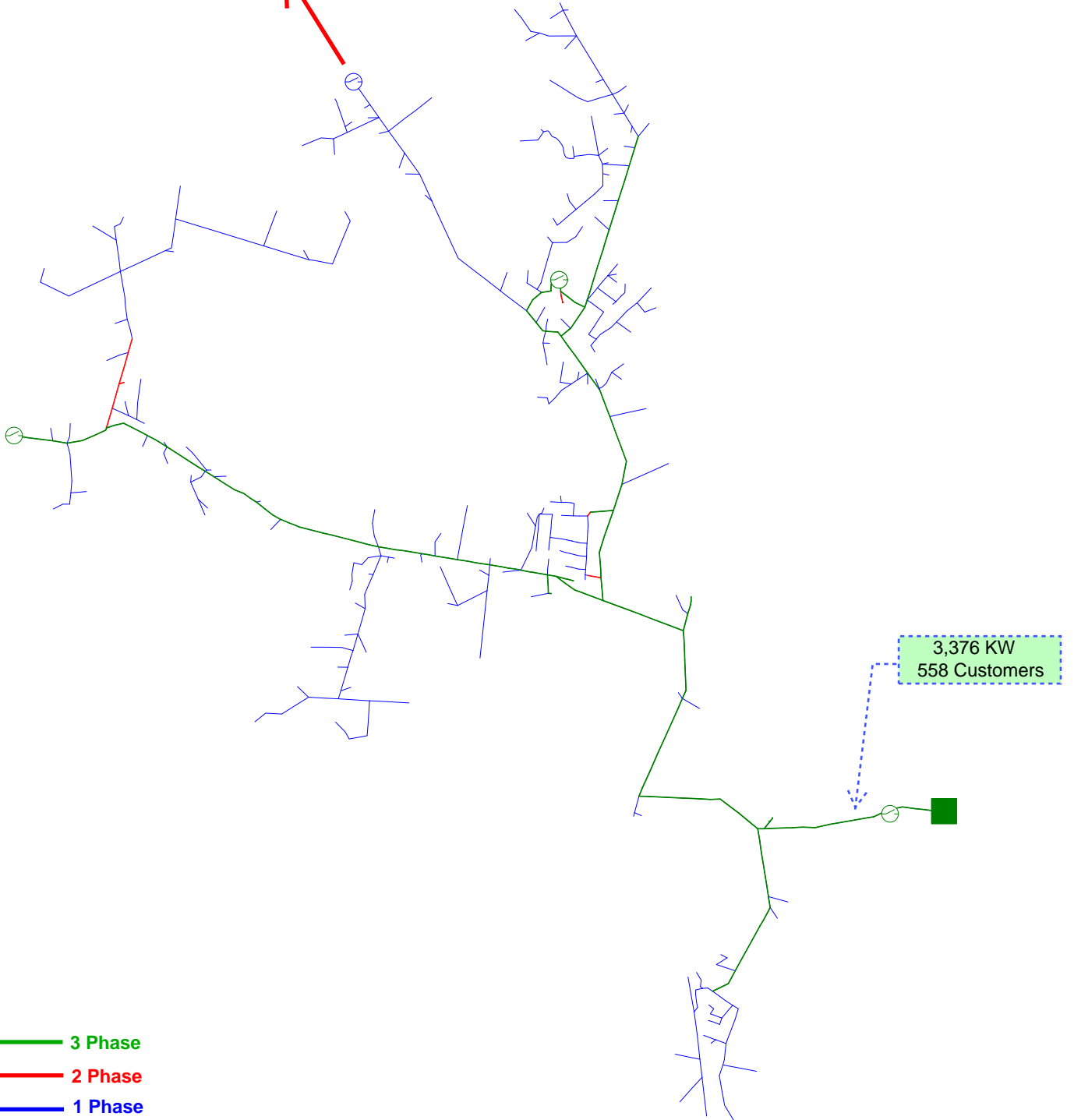
- 3 Phase
- 2 Phase
- 1 Phase





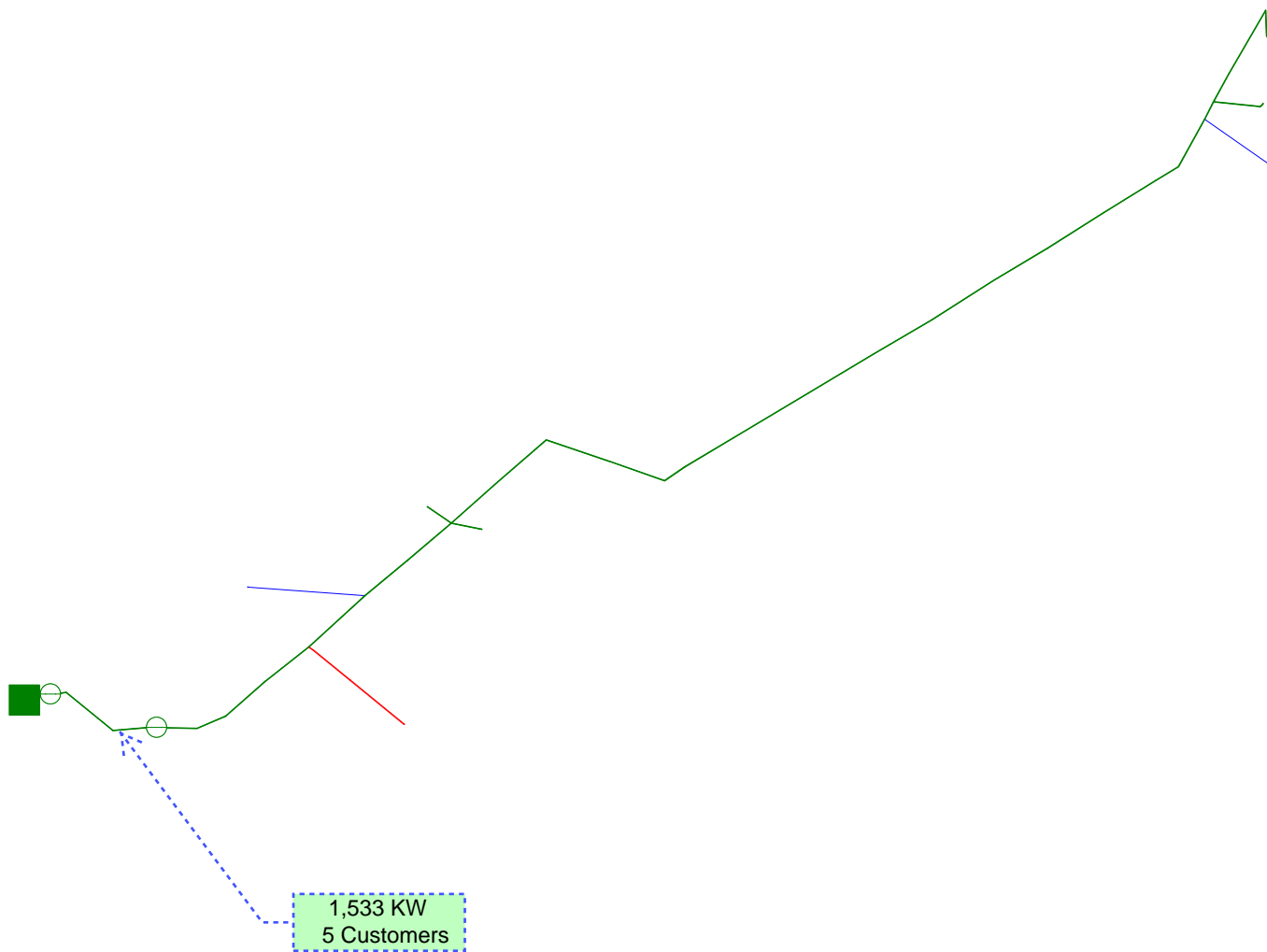
**No Projects Necessary**

Load Transferred to  
Colemansville Sub



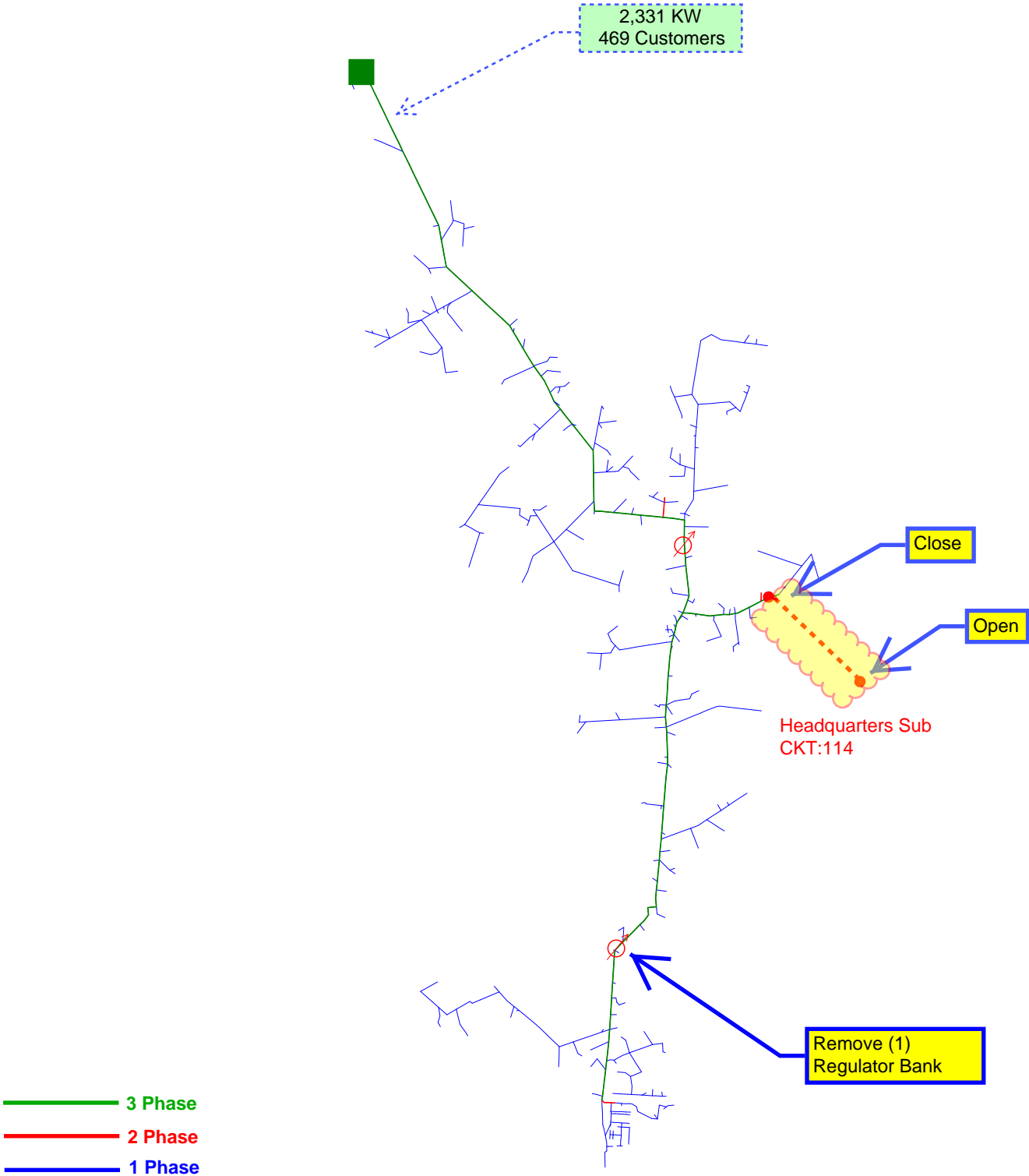
- 3 Phase
- 2 Phase
- 1 Phase

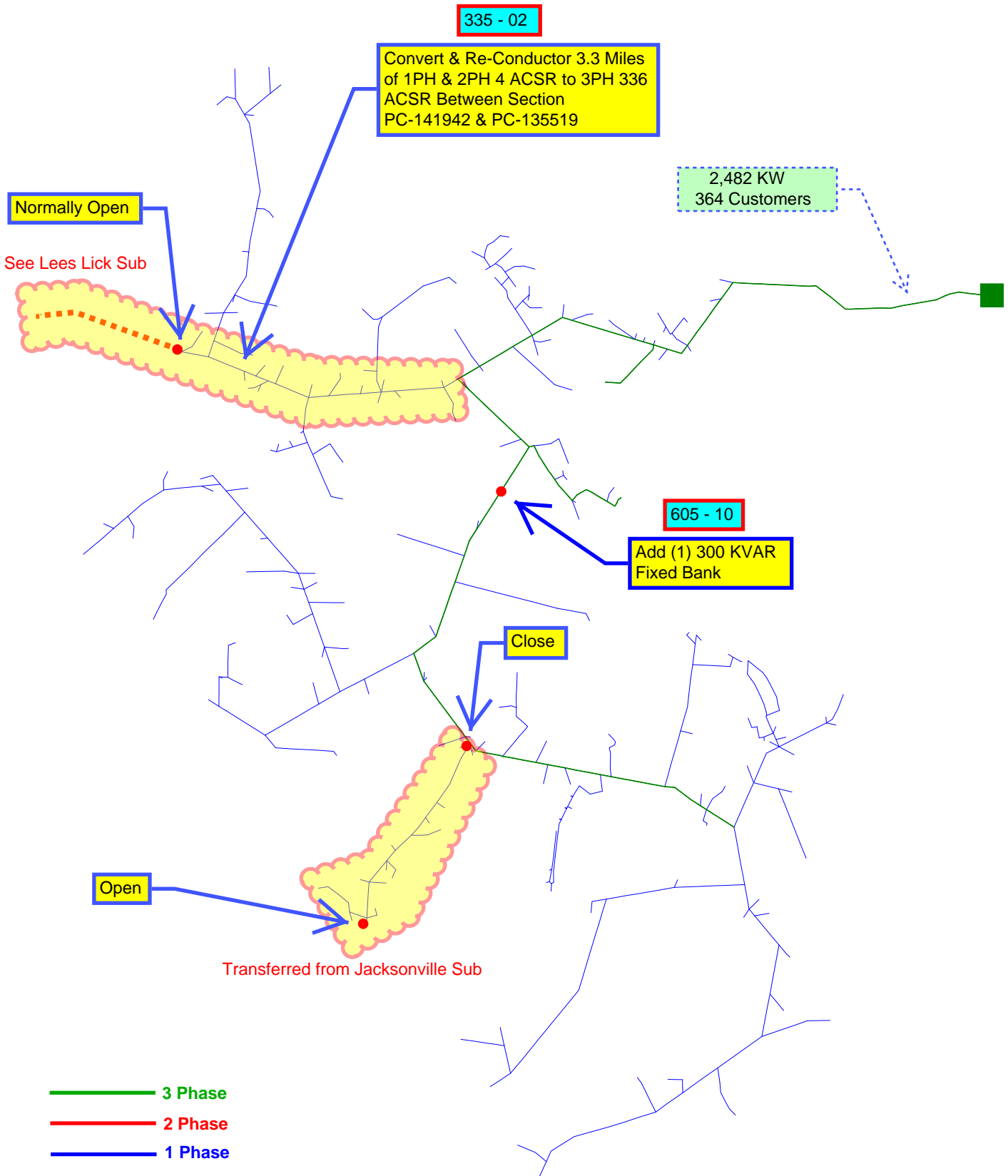
**No Projects Necessary**

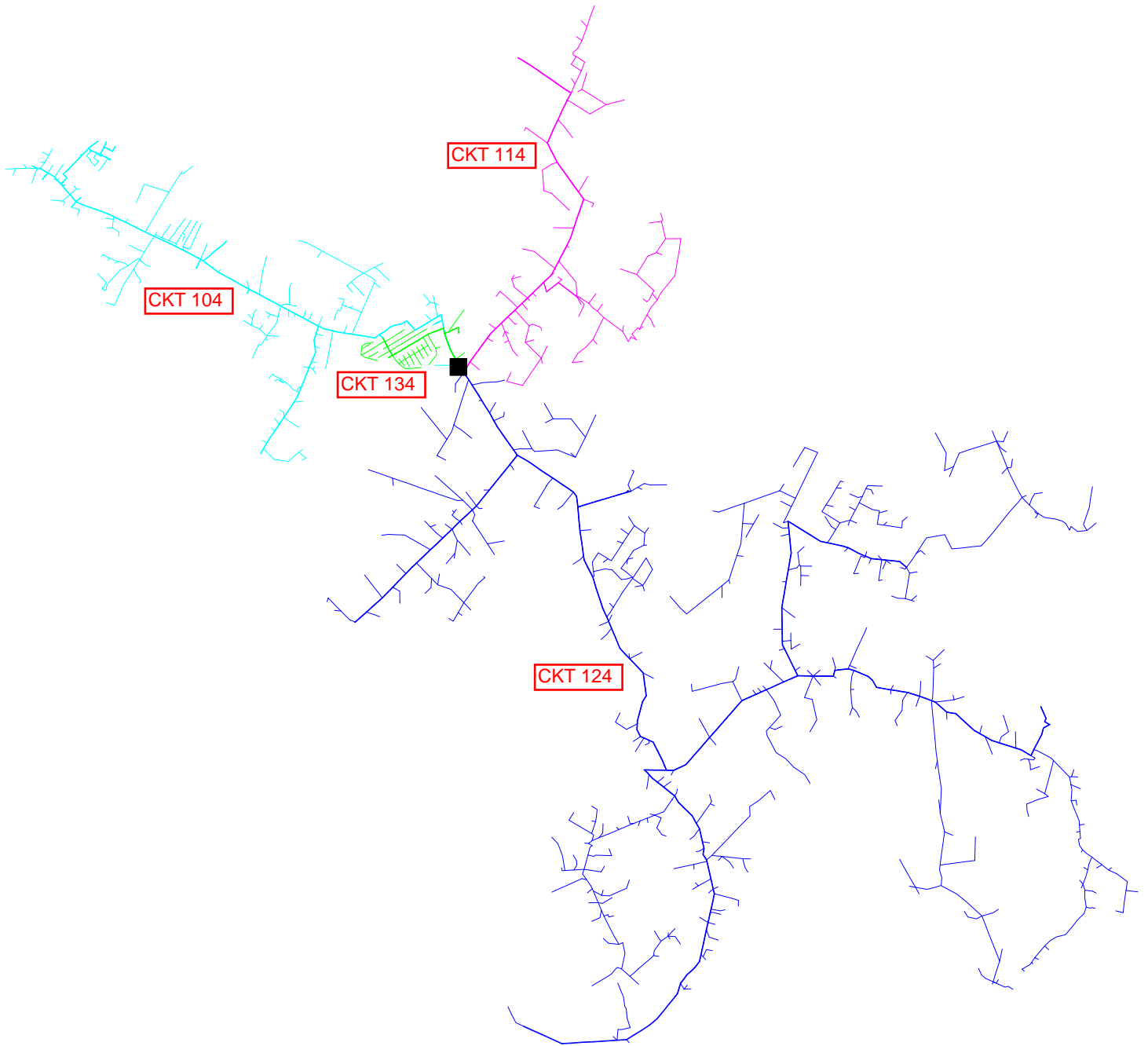


- 3 Phase
- 2 Phase
- 1 Phase

**No Projects Necessary**

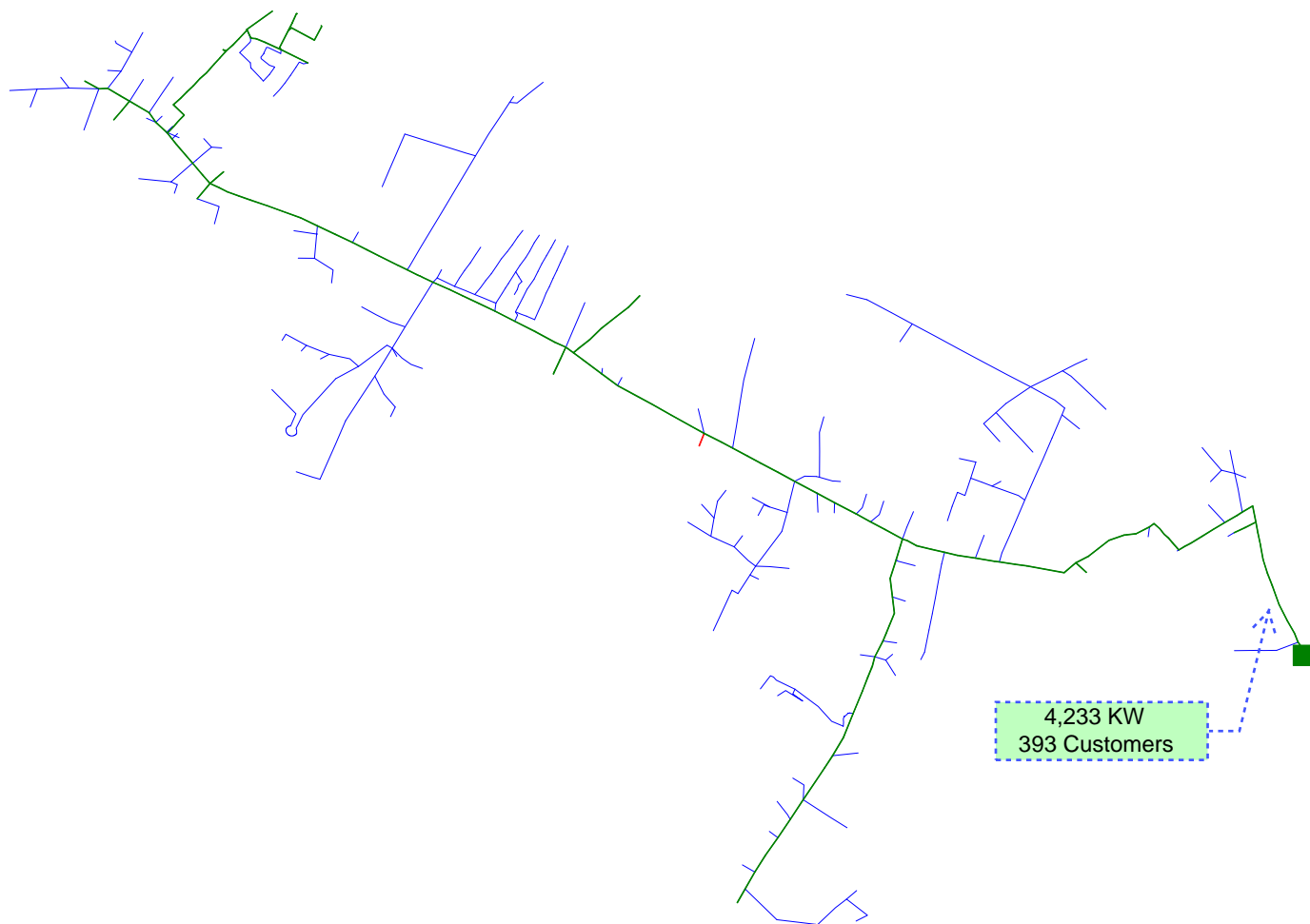






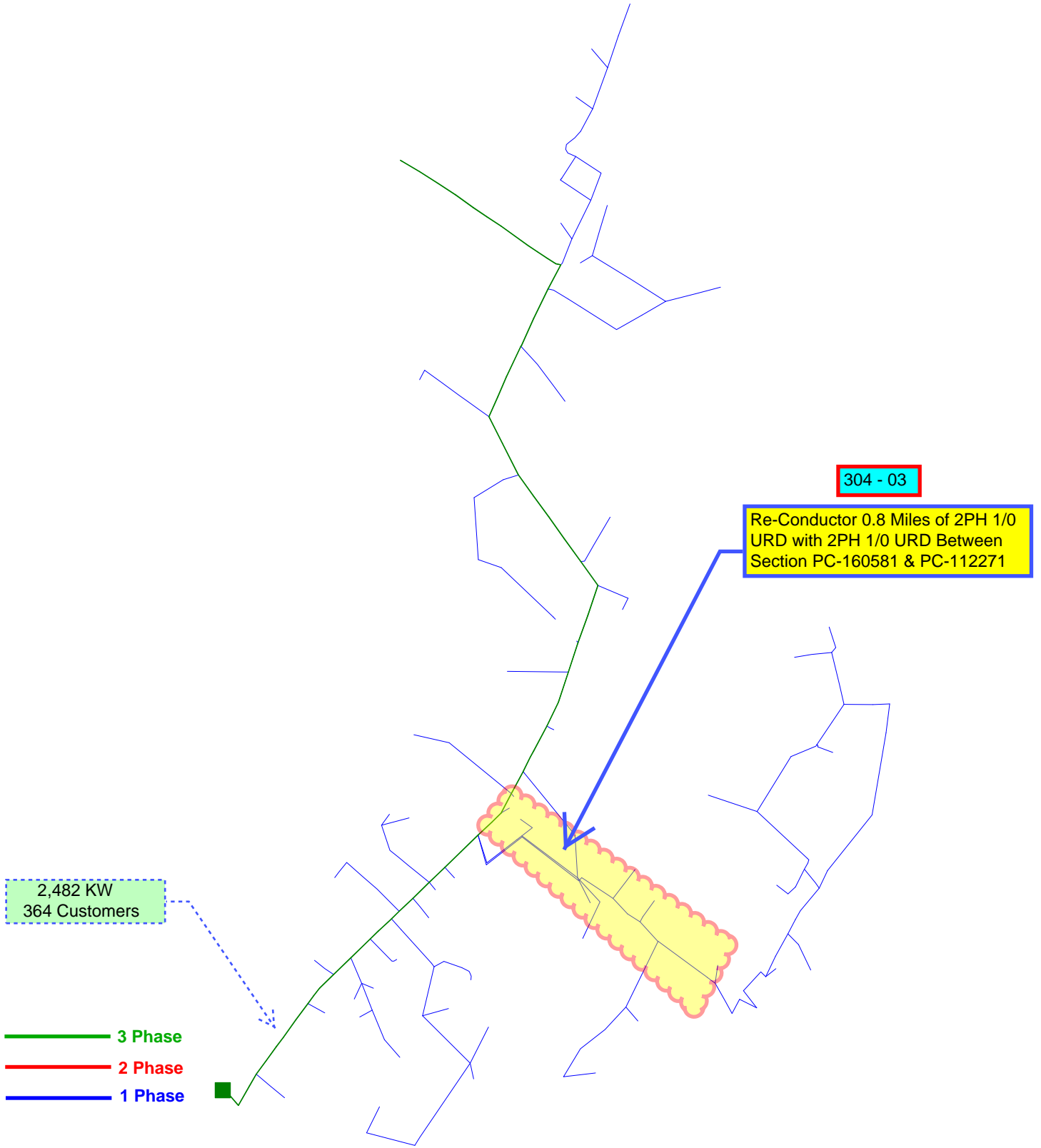
SUB: DAVIS  
CKT: 104

**No Projects Necessary**



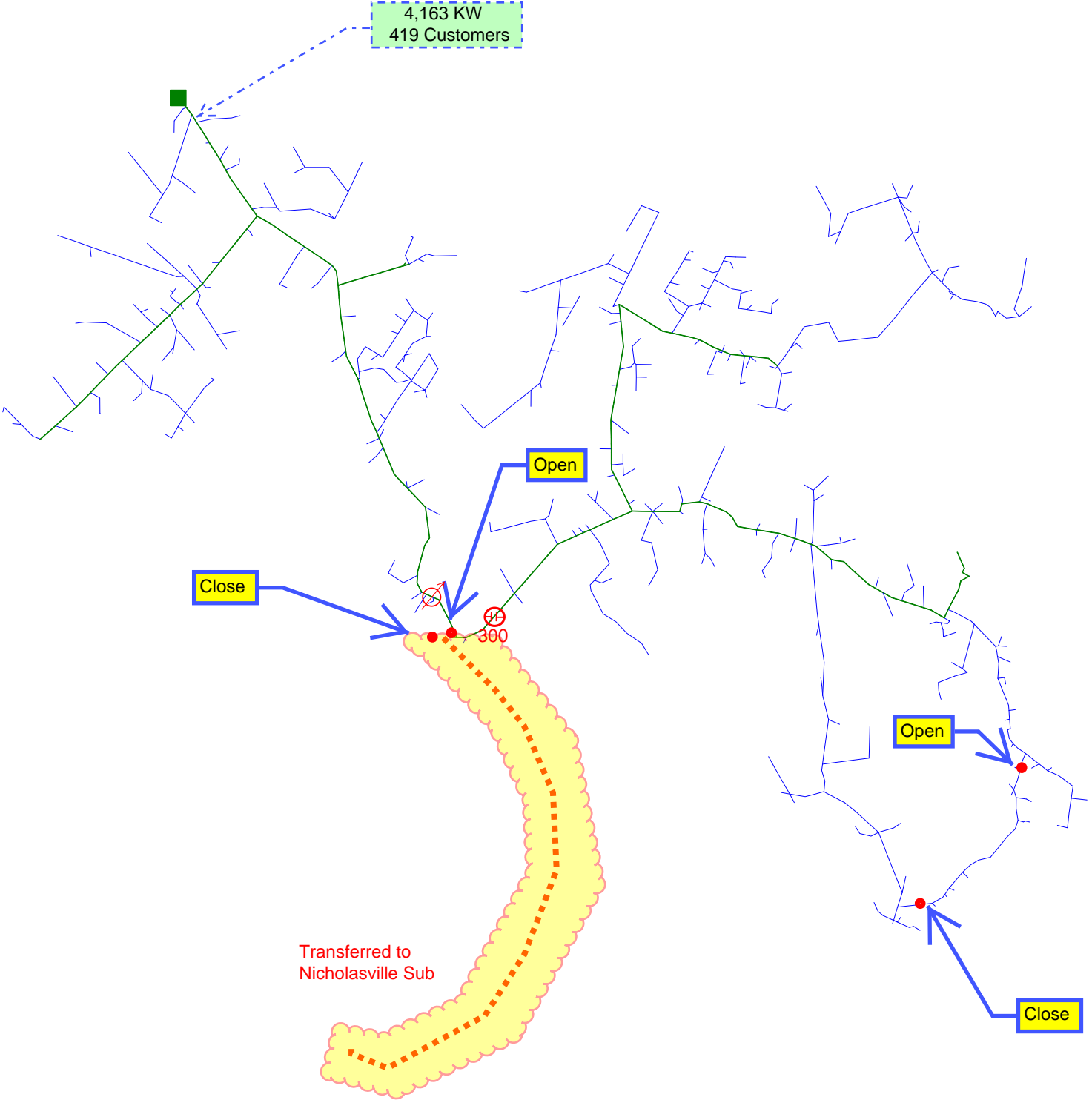
- 3 Phase
- 2 Phase
- 1 Phase

SUB: DAVIS  
CKT: 114



# No Projects Necessary

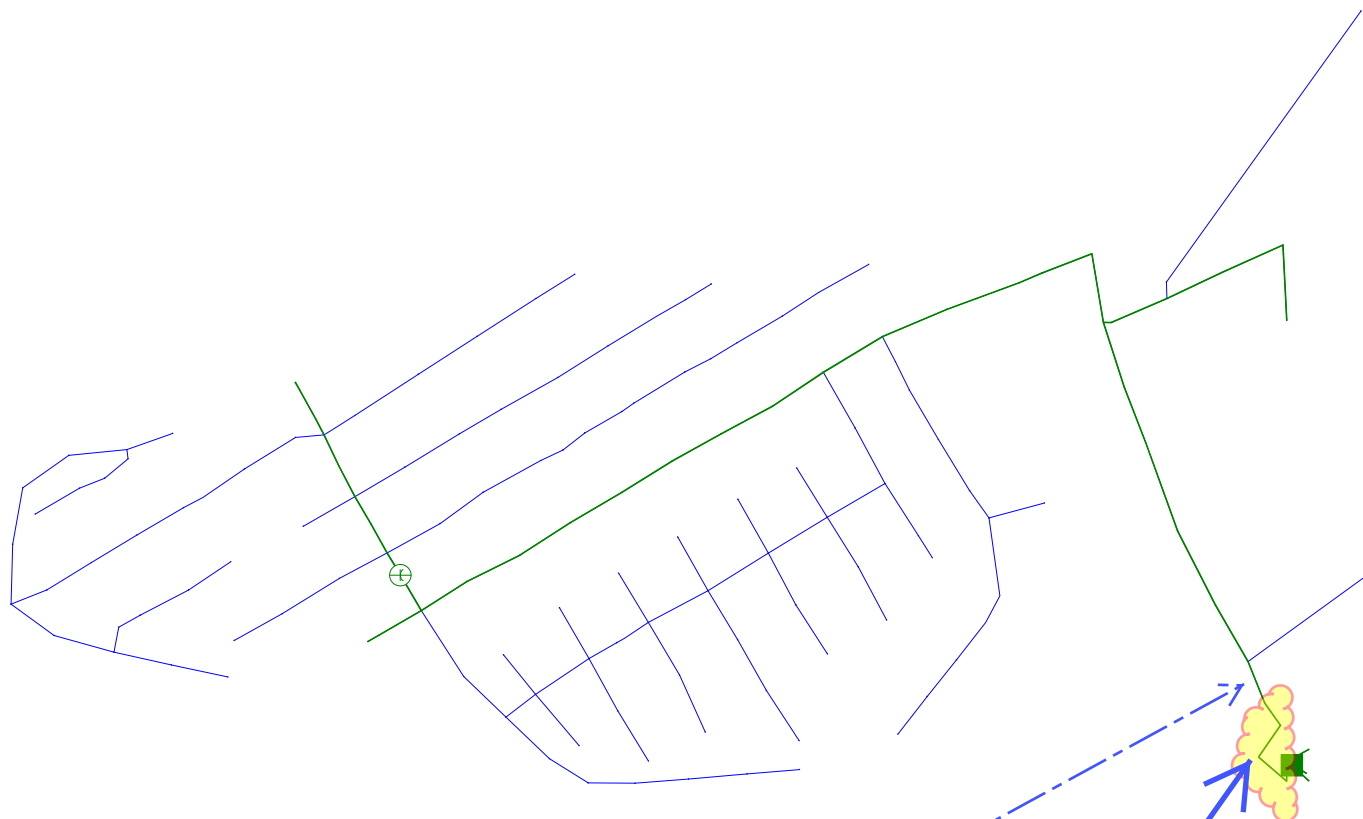
4,163 KW  
419 Customers



- 3 Phase
- 2 Phase
- 1 Phase



SUB: DAVIS  
CKT: 134

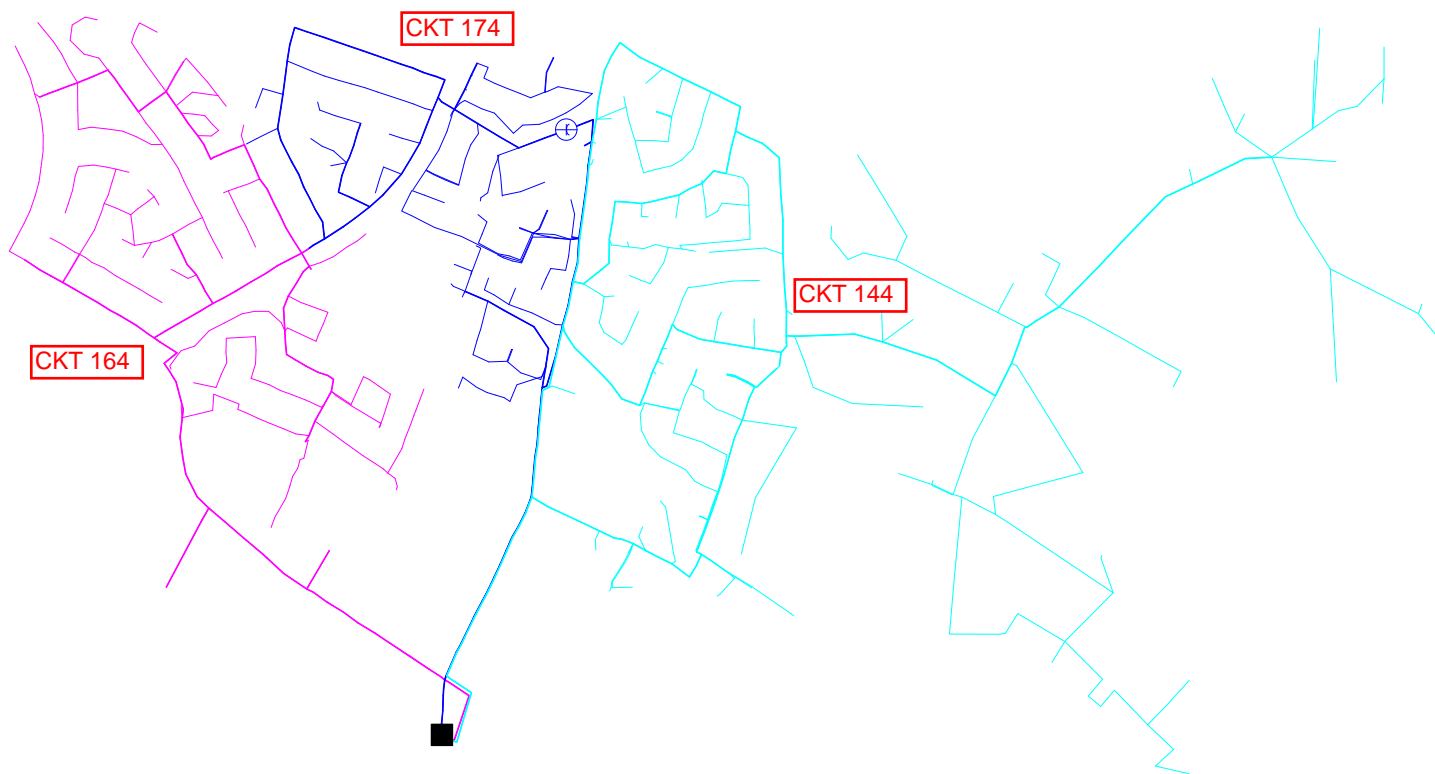


2,988 KW  
303 Customers

Re-Conductor 0.15 Miles of 3PH 4/0  
URD with 3PH 500 MCM URD For  
Substation Exit

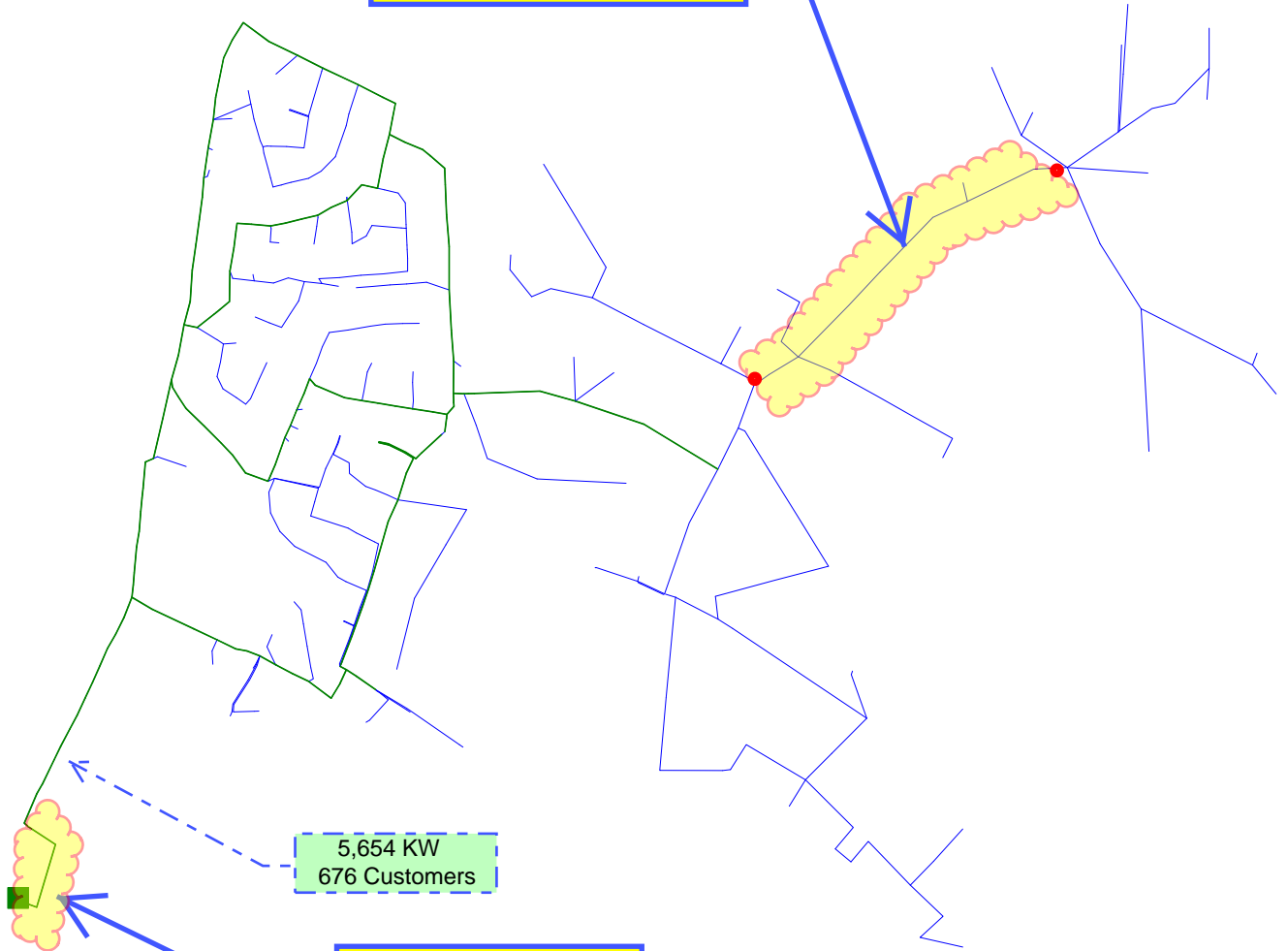
304 - 01

- 3 Phase
- 2 Phase
- 1 Phase



335 - 01\*

Convert & Re-Conductor 0.7 Miles of 1PH 4 ACSR (and some 1/0 URD) to 3PH 1/0 ACSR Between Section PC-157969 & PC-114711



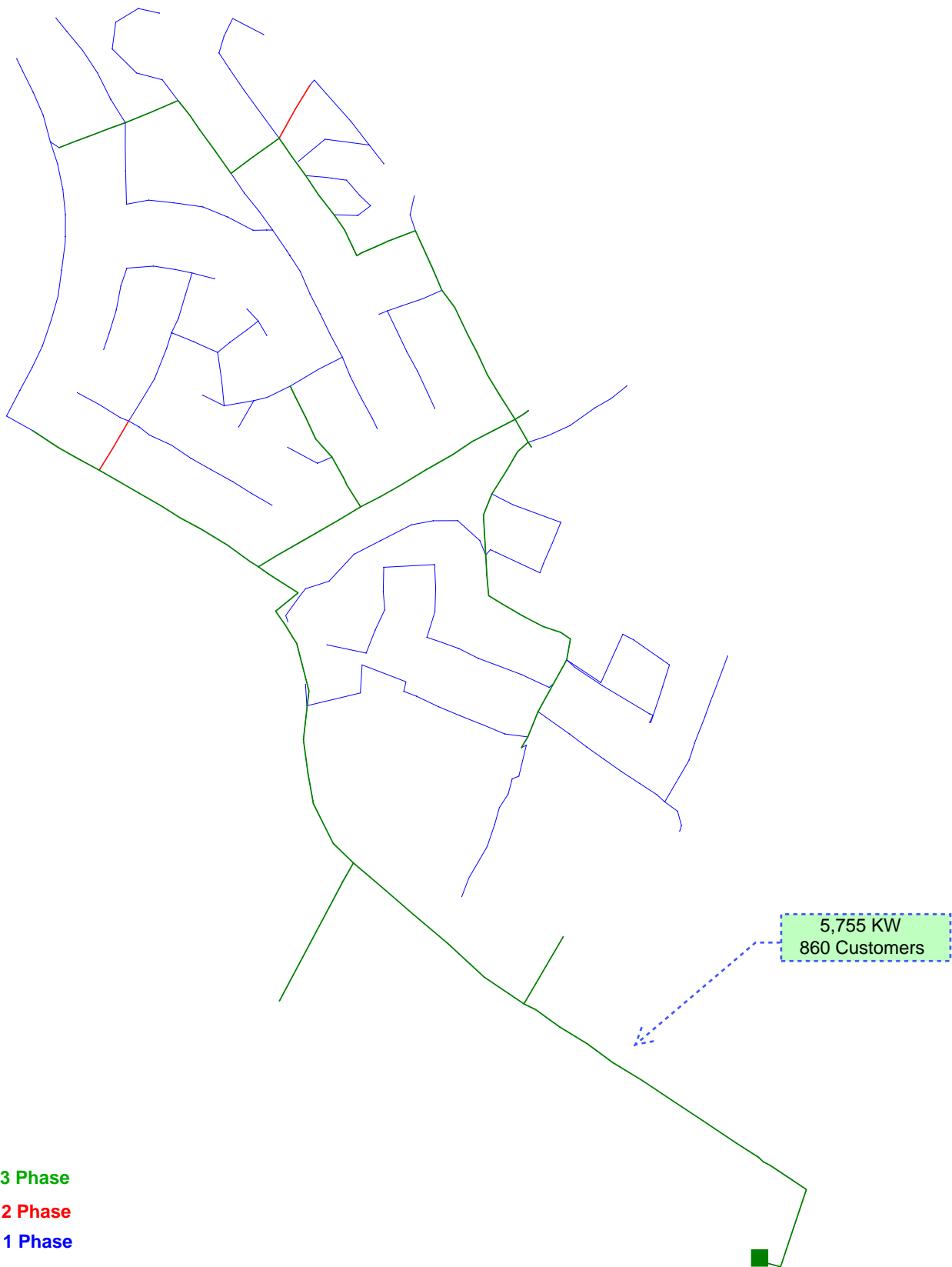
5,654 KW  
676 Customers

Re-Conductor (3) 0.15 Miles 3PH 350 MCM URD to 500 MCM URD Sub Exit

305 - 02

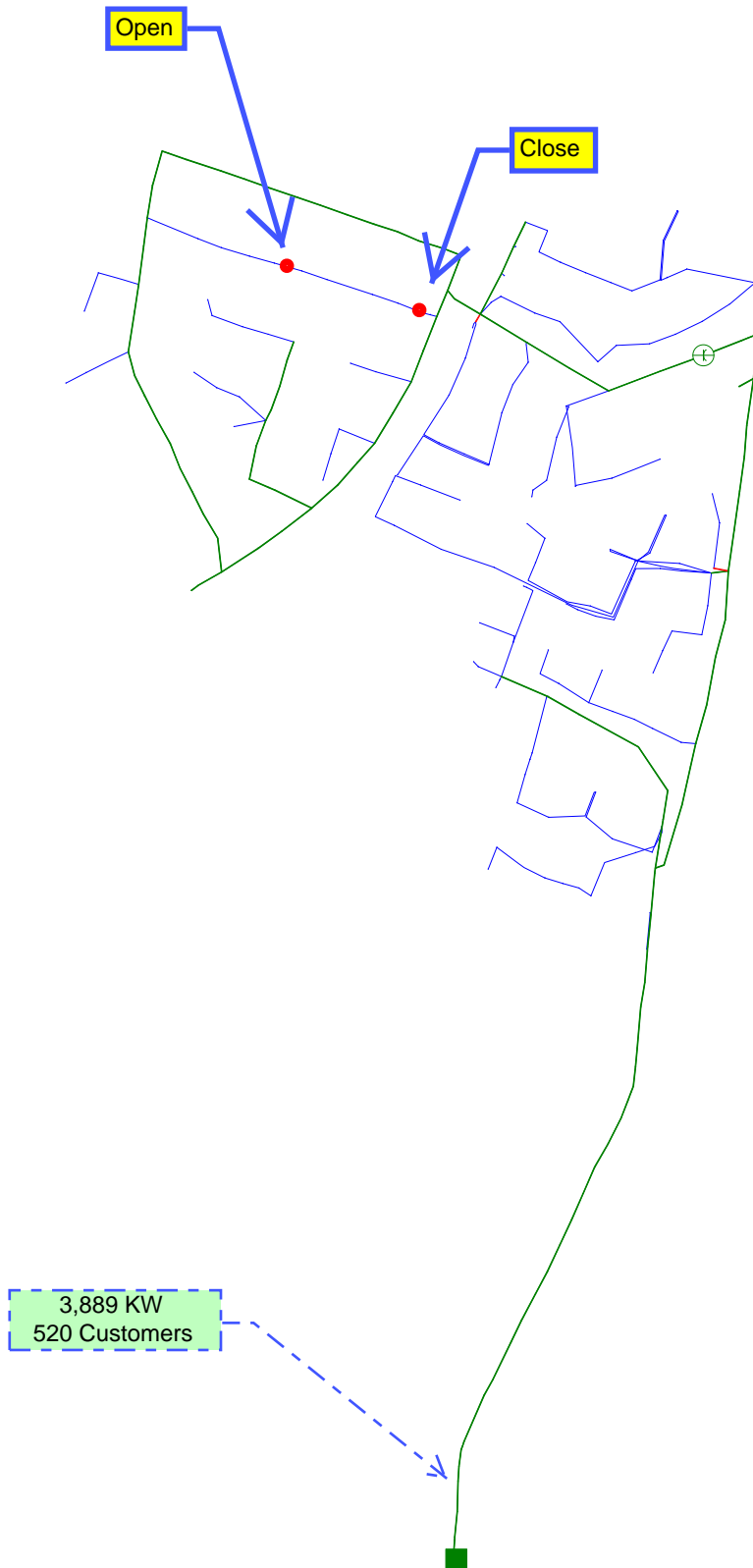
- 3 Phase
- 2 Phase
- 1 Phase

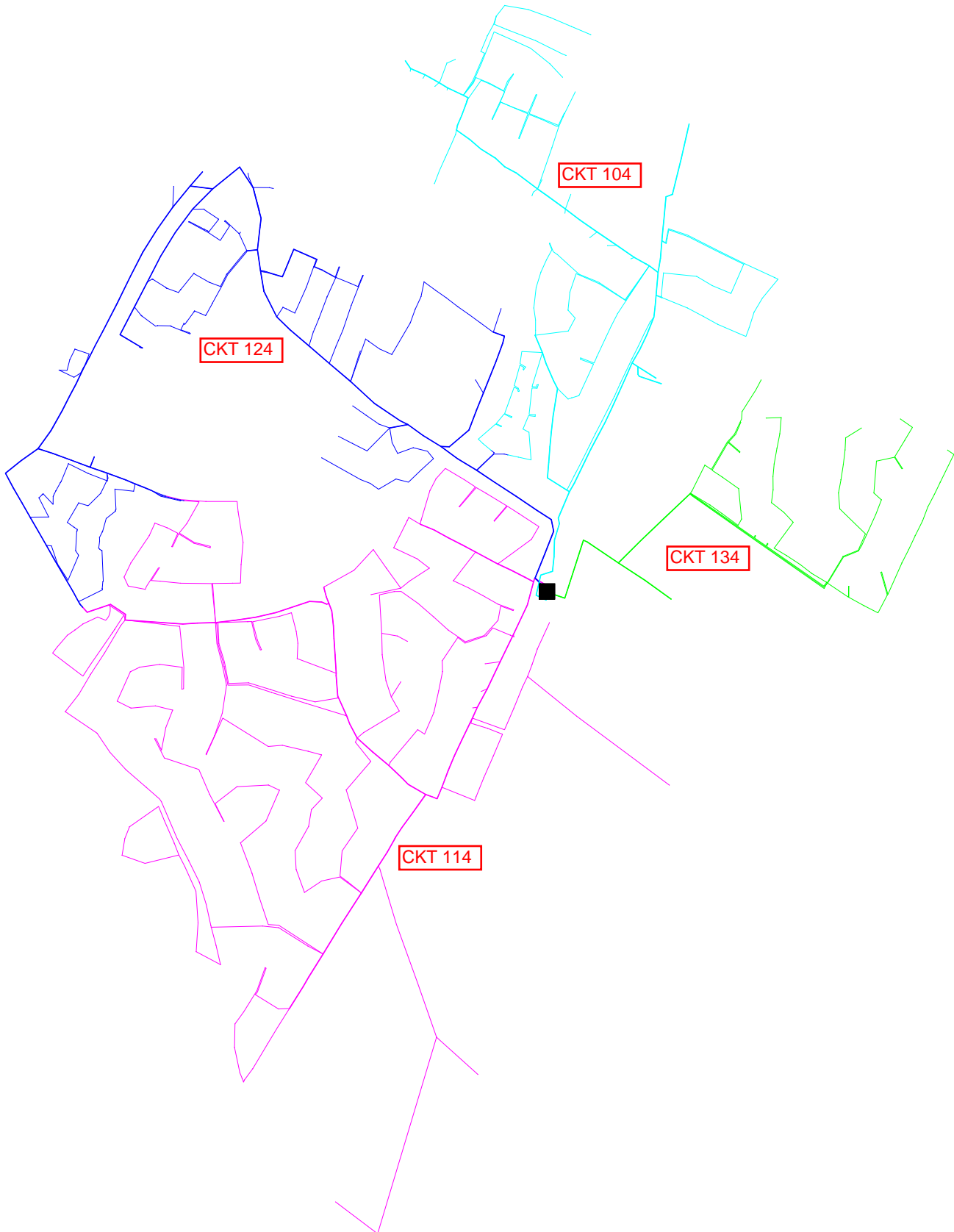
**No Projects Necessary**



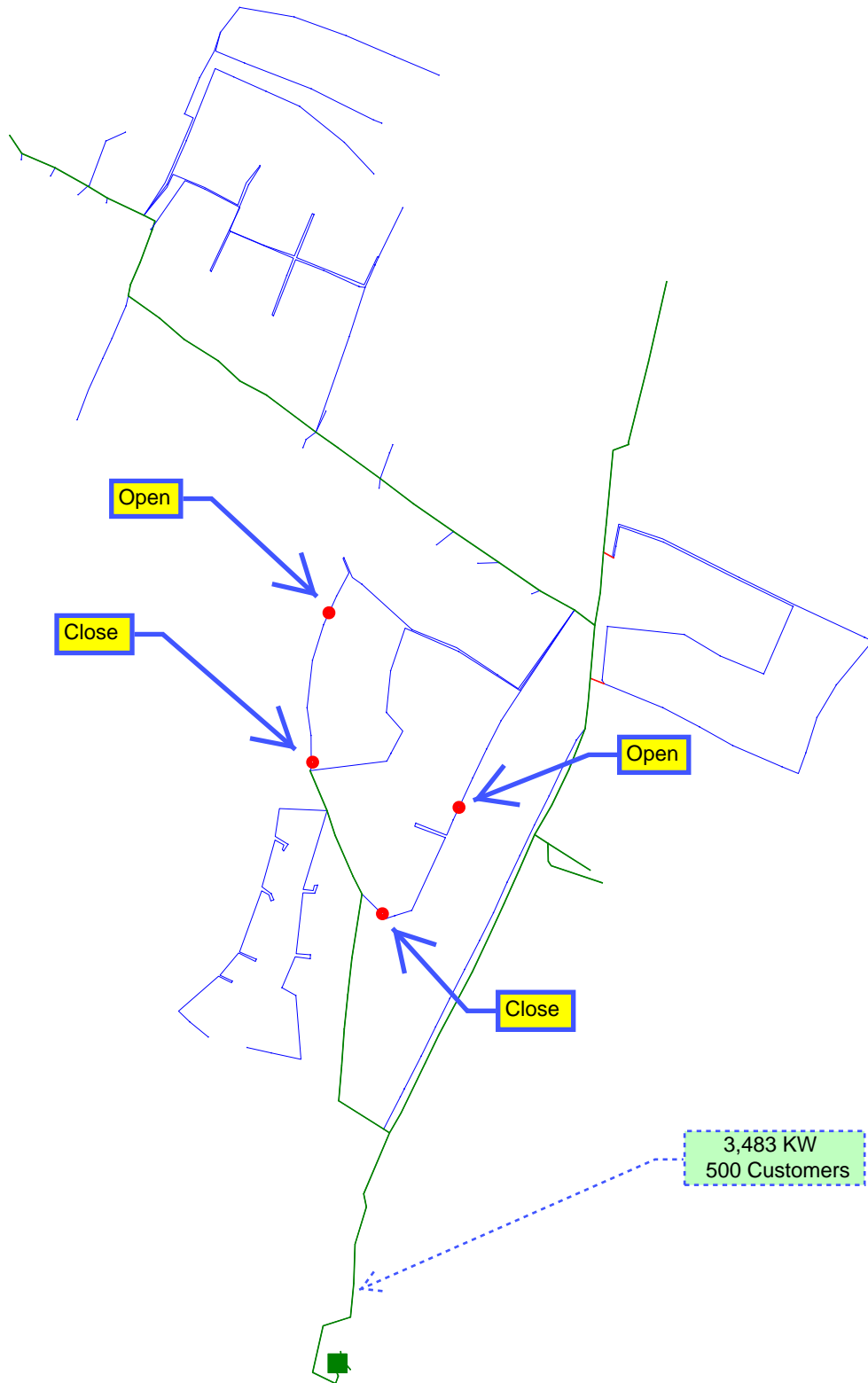
- 3 Phase
- 2 Phase
- 1 Phase

**No Projects Necessary**

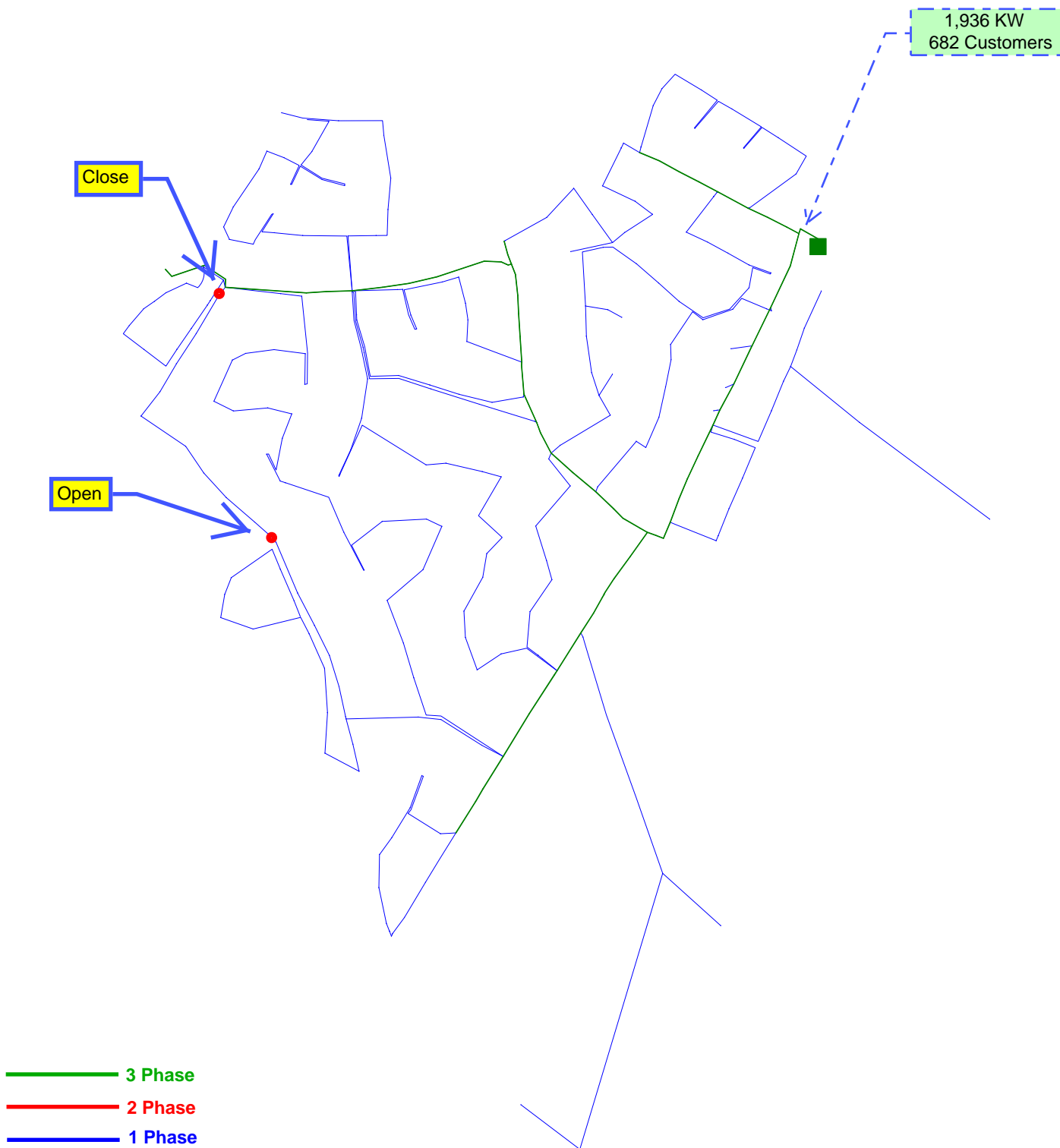




**No Projects Necessary**



- 3 Phase
- 2 Phase
- 1 Phase



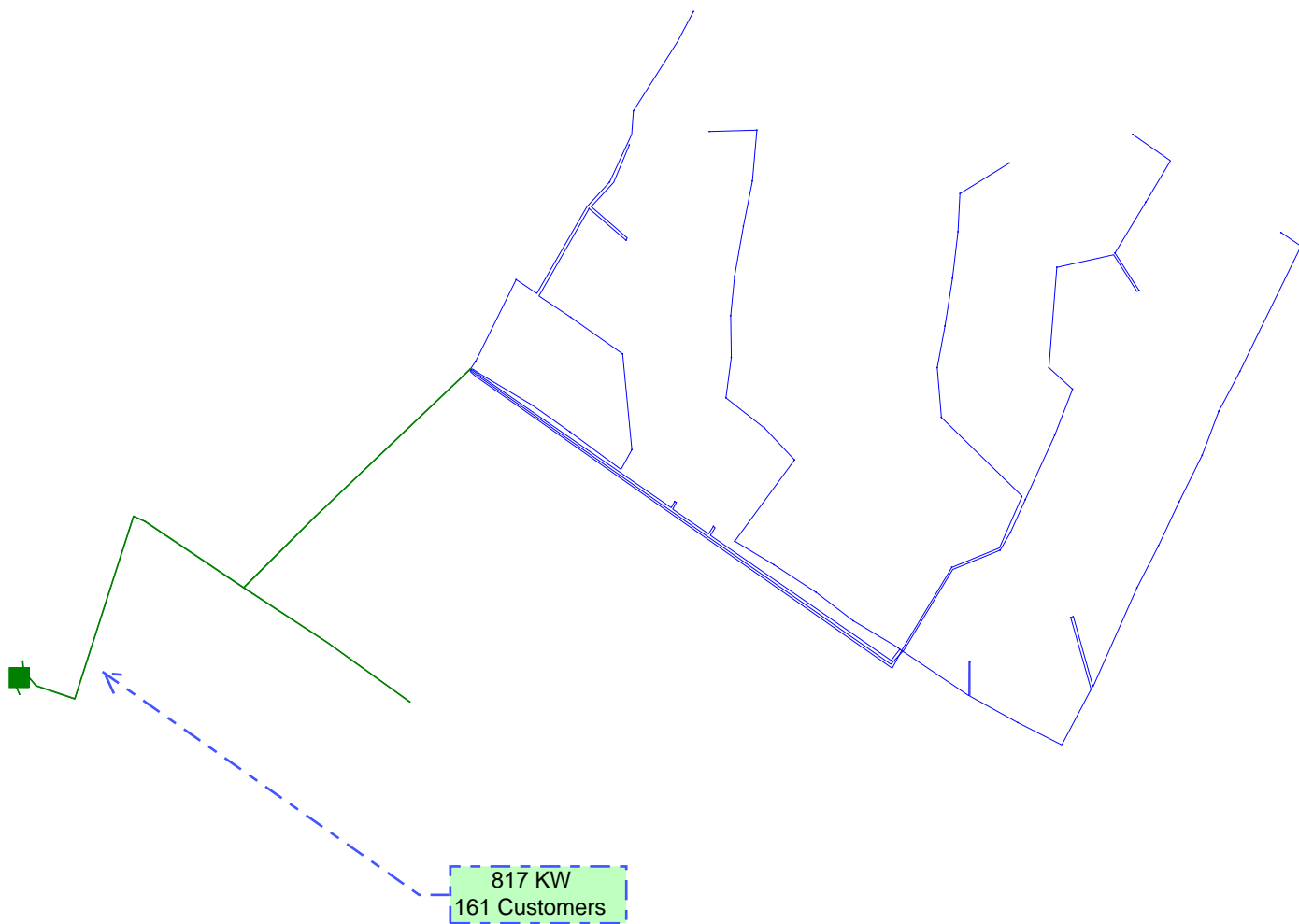


**No Projects Necessary**

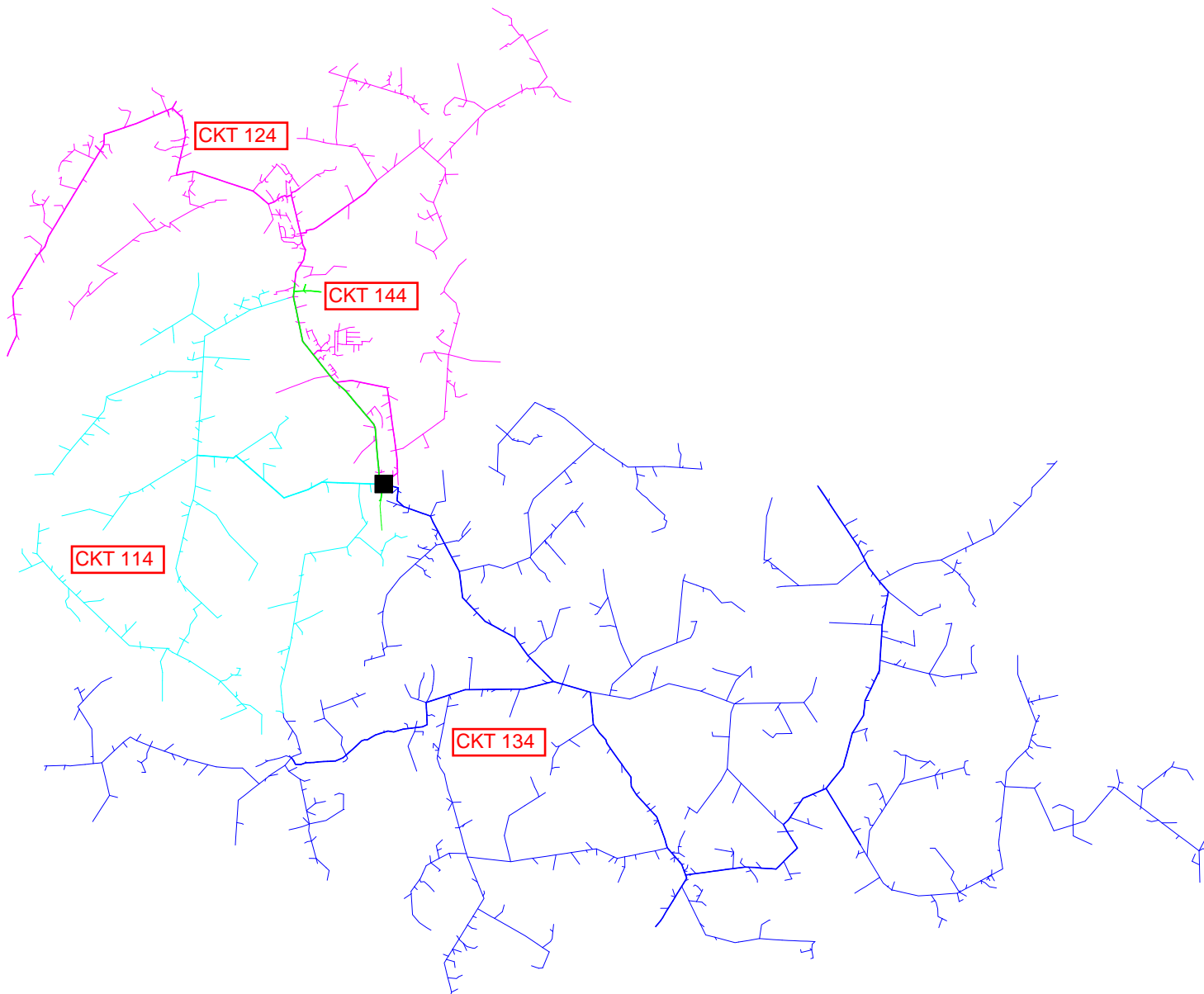


- 3 Phase
- 2 Phase
- 1 Phase

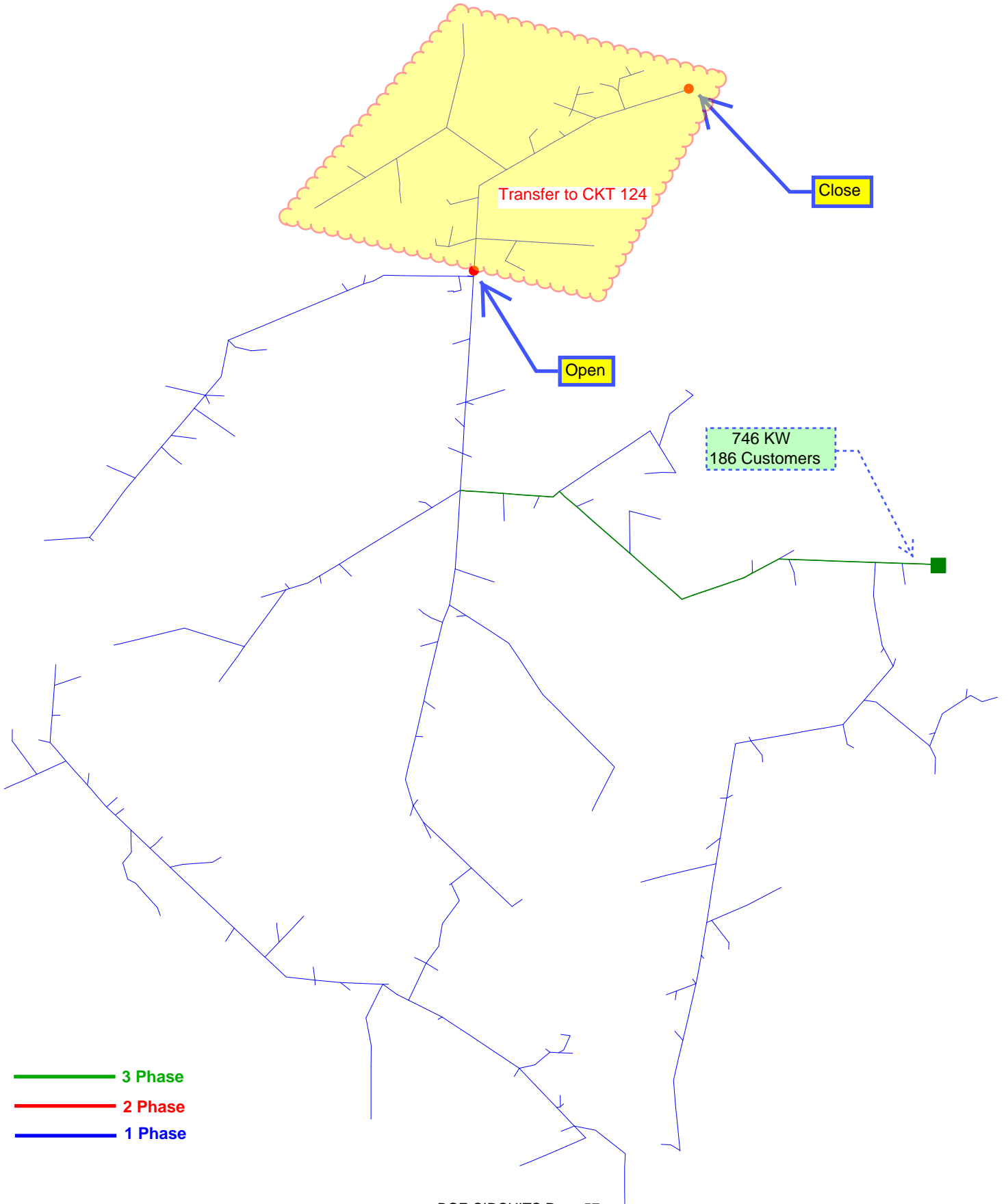
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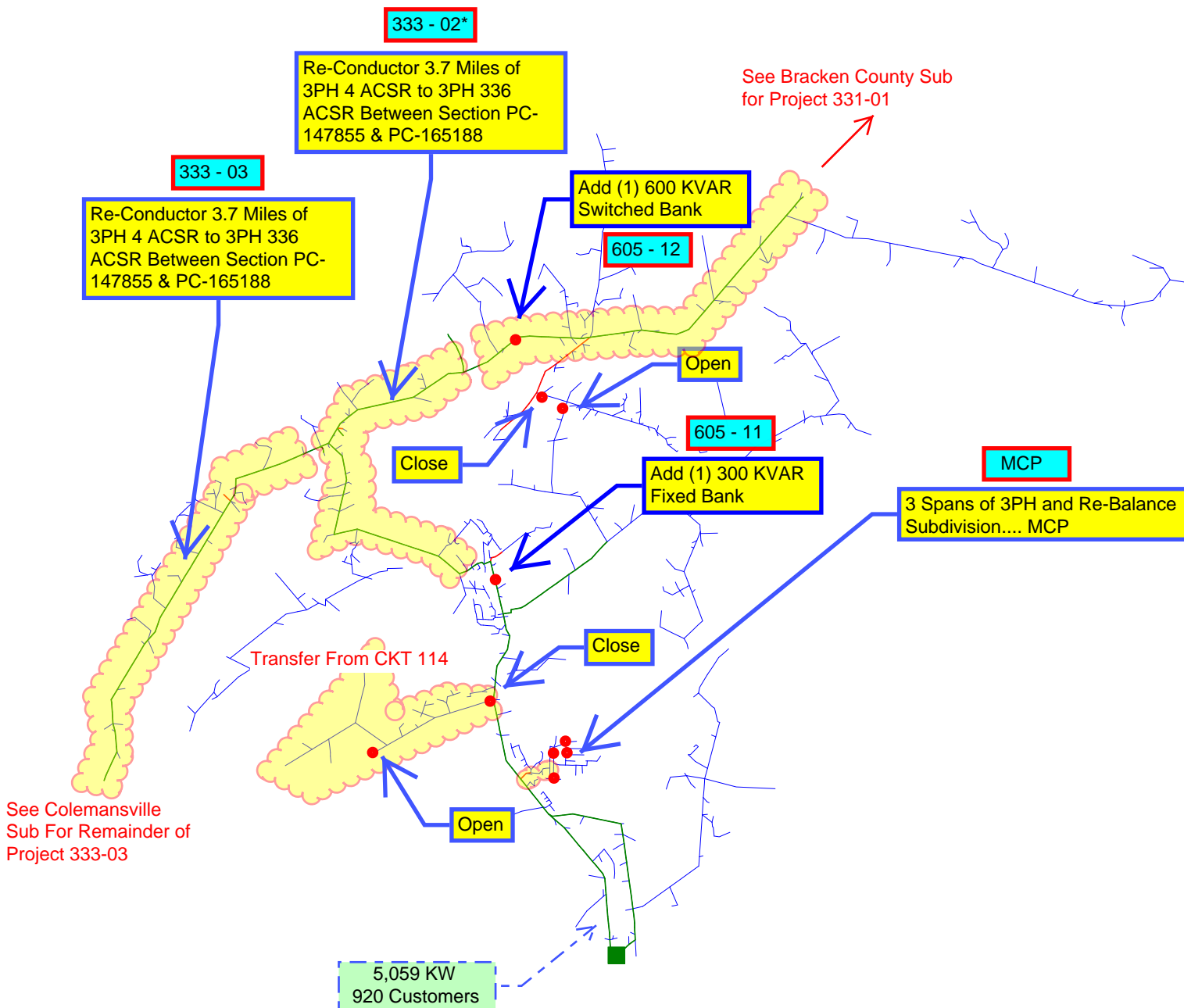


- 3 Phase
- 2 Phase
- 1 Phase

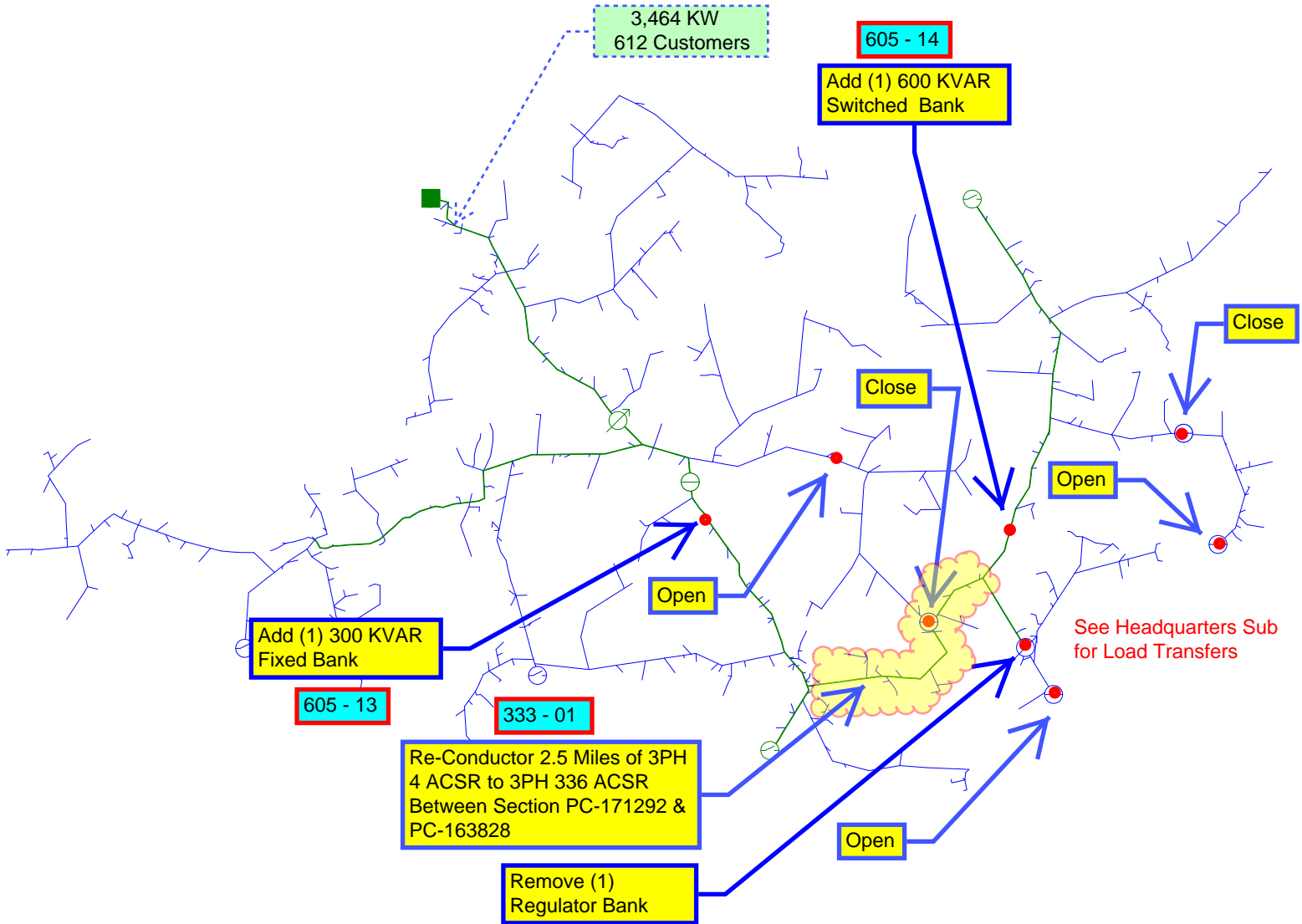


**No Projects Necessary**



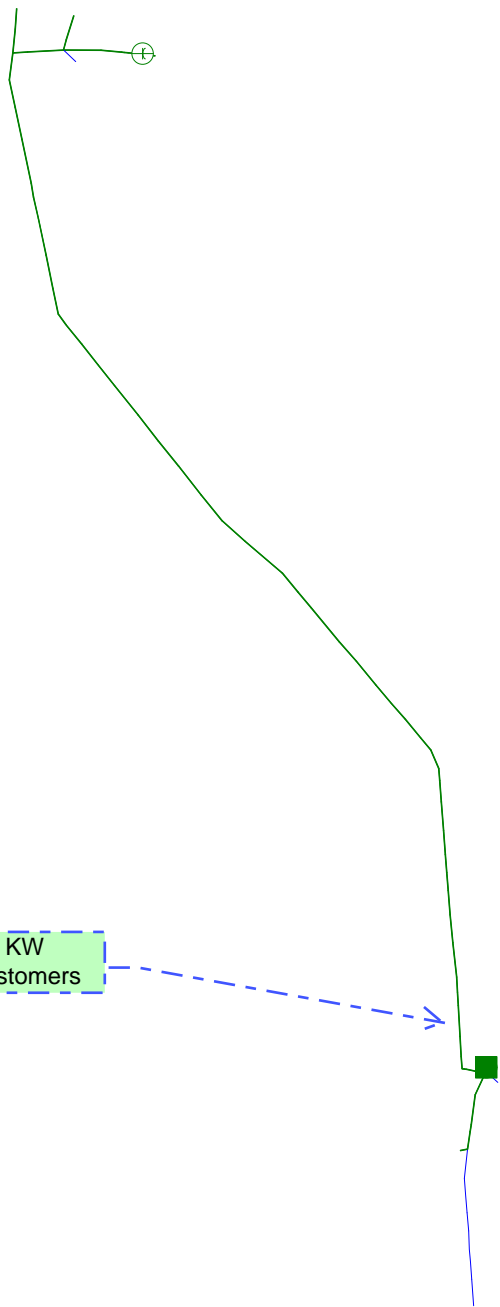


- 3 Phase
- 2 Phase
- 1 Phase

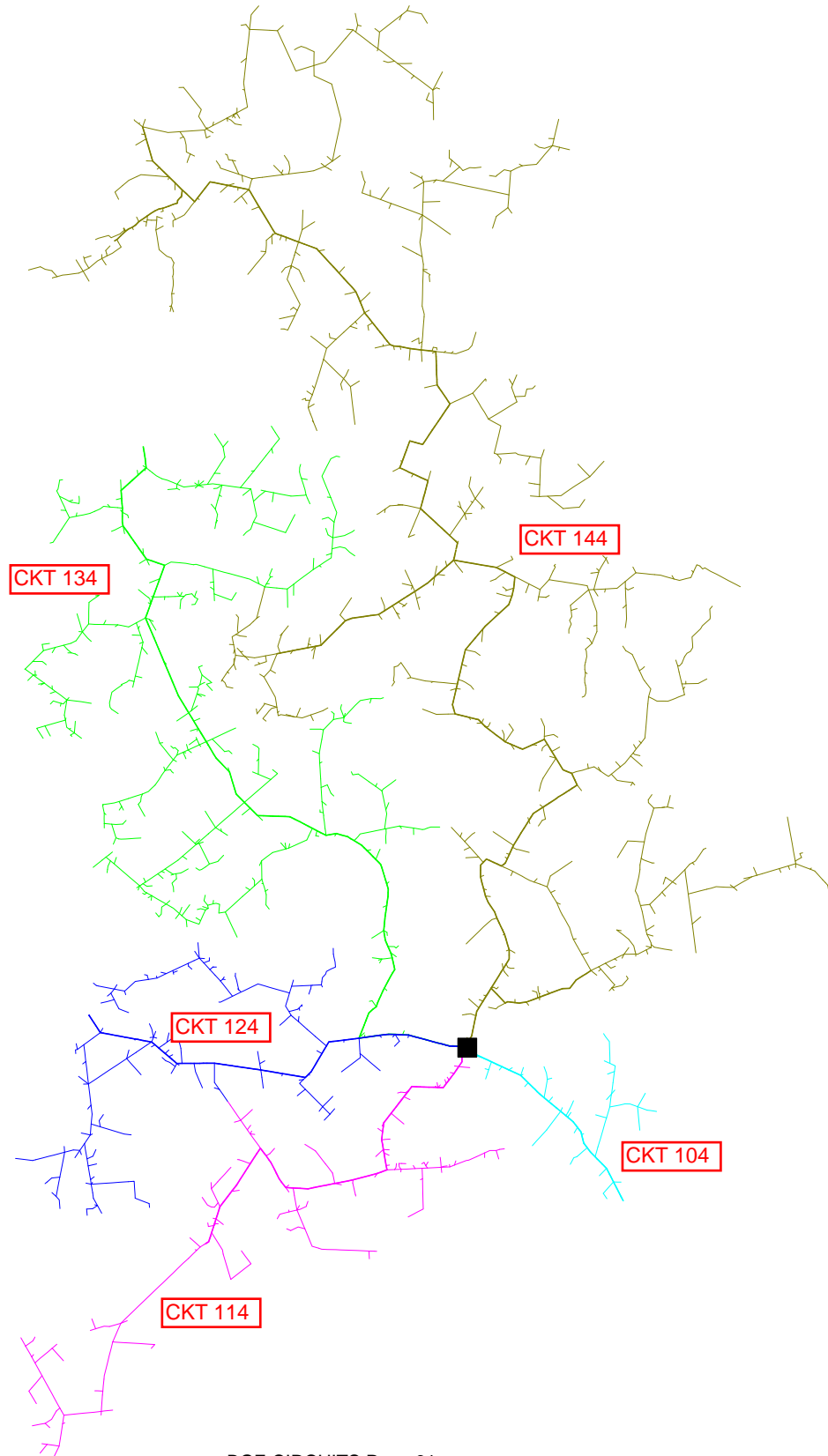


- 3 Phase
- 2 Phase
- 1 Phase

**No Projects Necessary**

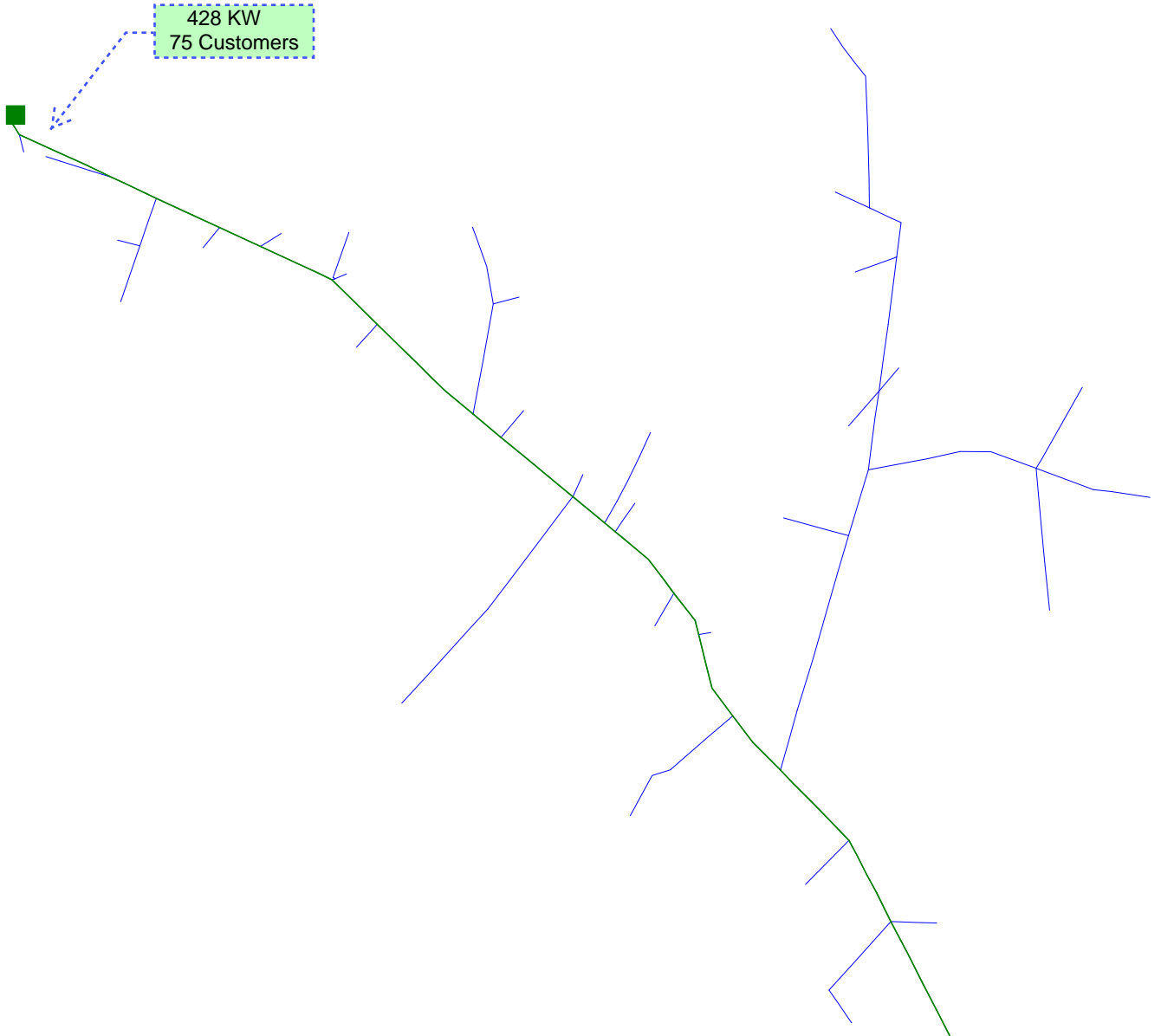


- 3 Phase
- 2 Phase
- 1 Phase





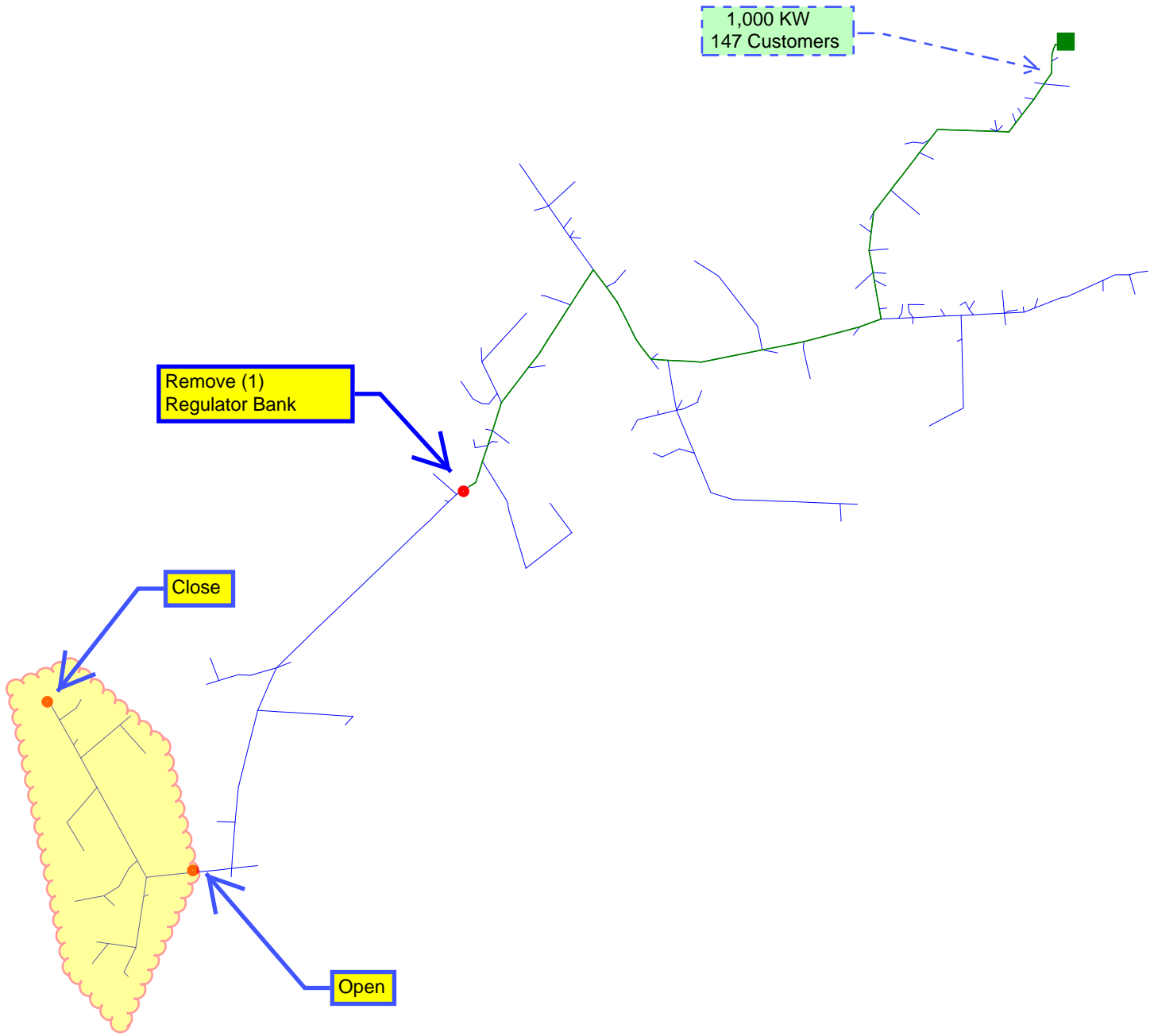
**No Projects Necessary**



428 KW  
75 Customers

- 3 Phase
- 2 Phase
- 1 Phase

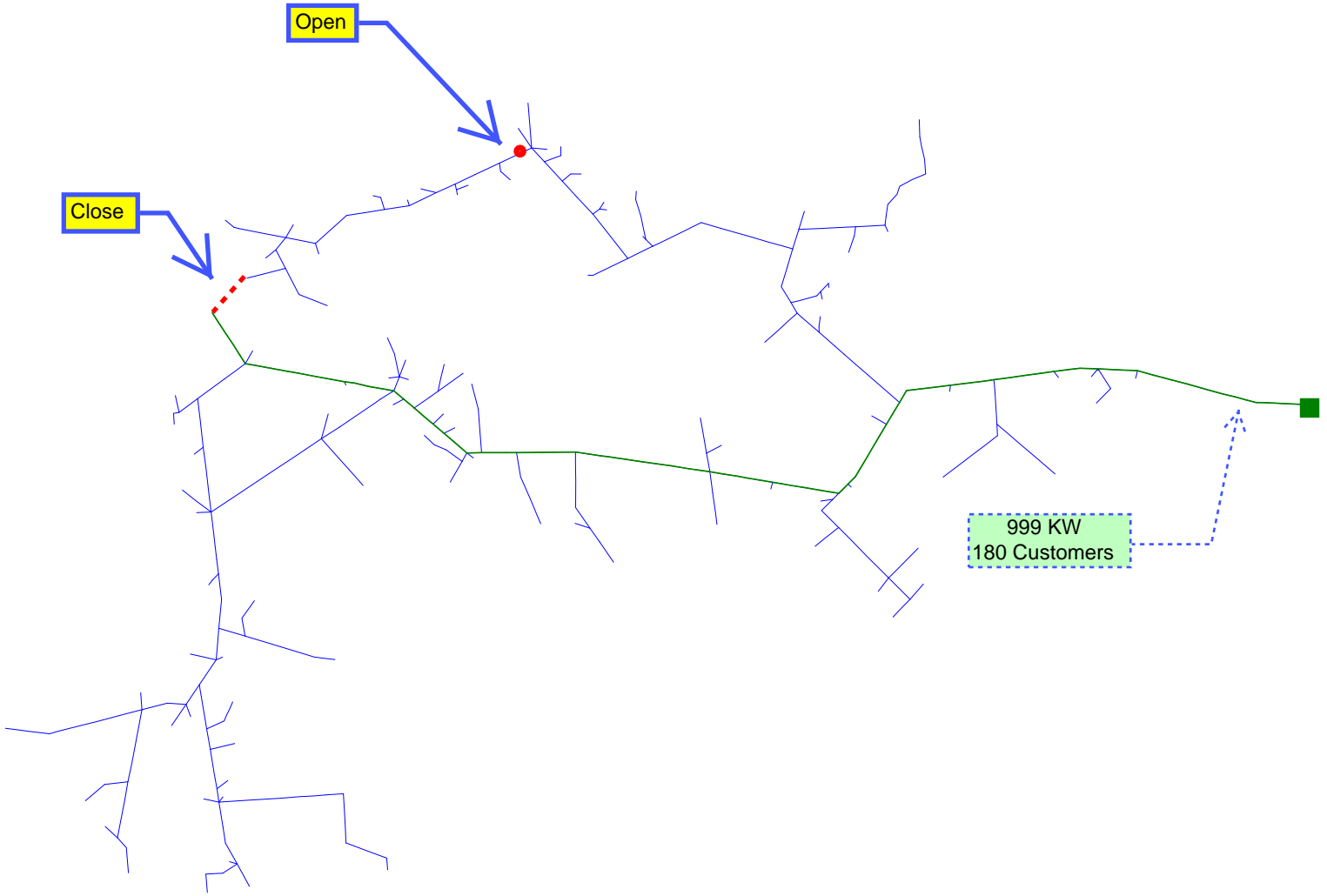
**No Projects Necessary**



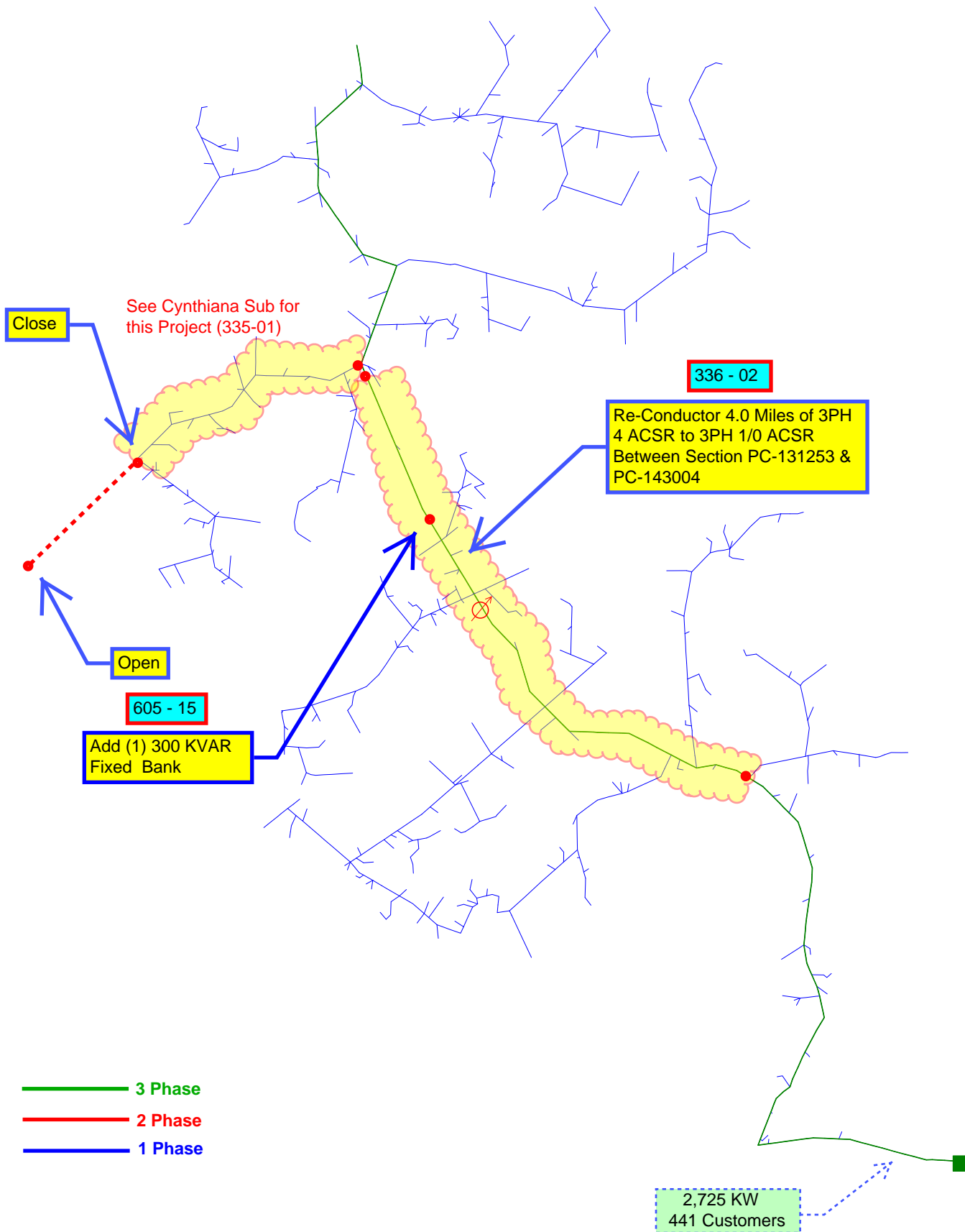
Transferred to Cynthiana Sub  
CKT: 154

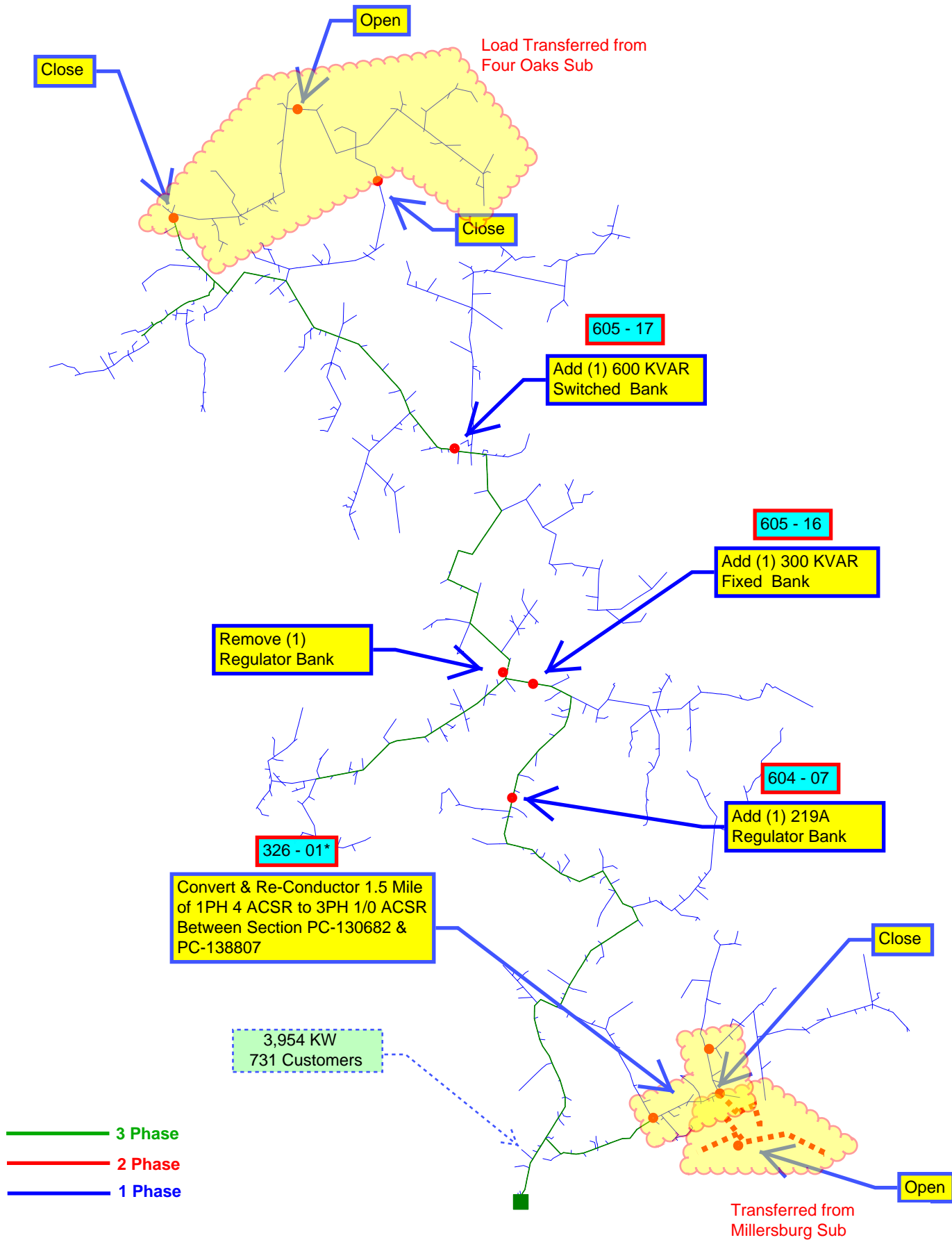
- 3 Phase
- 2 Phase
- 1 Phase

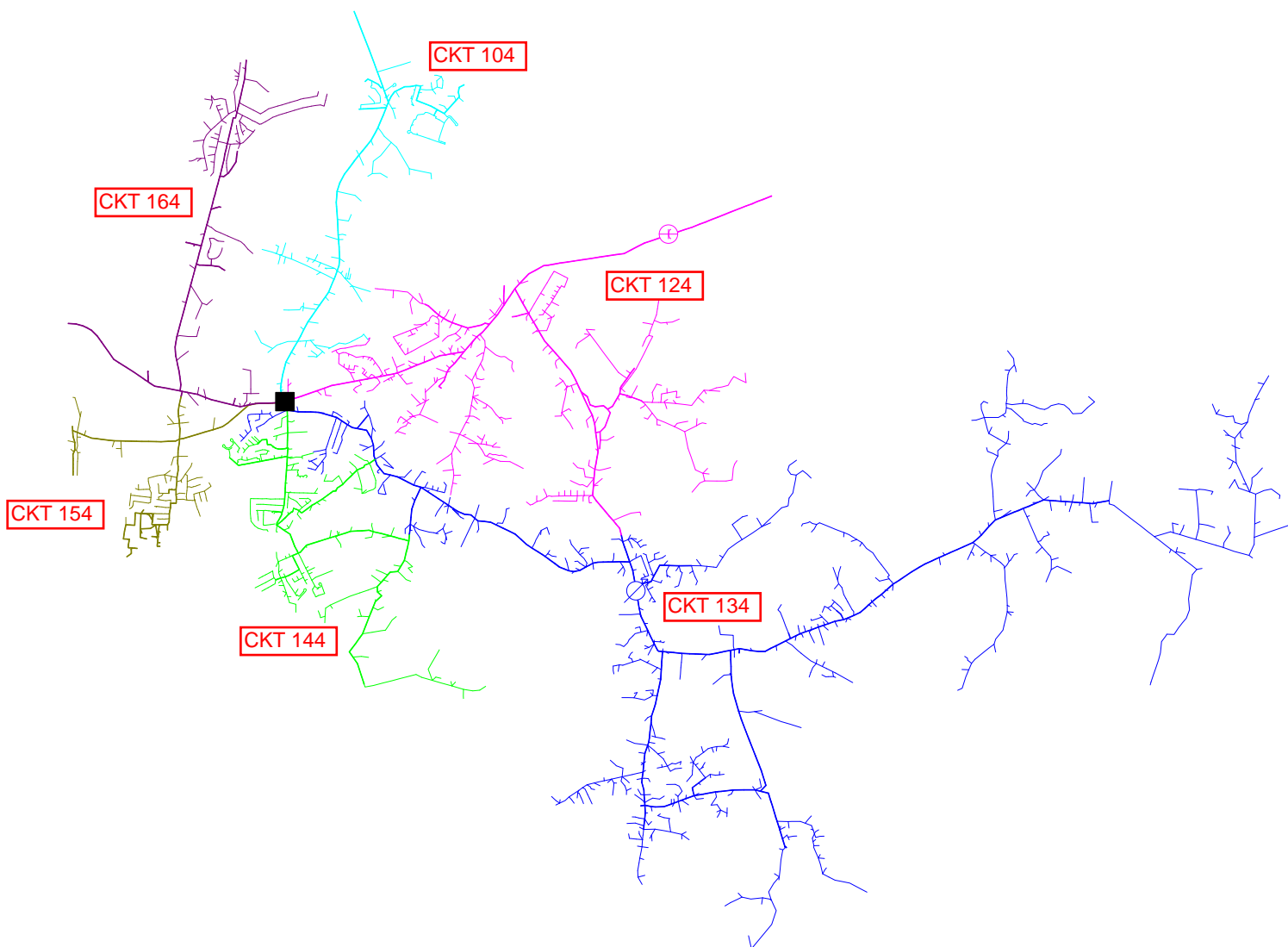
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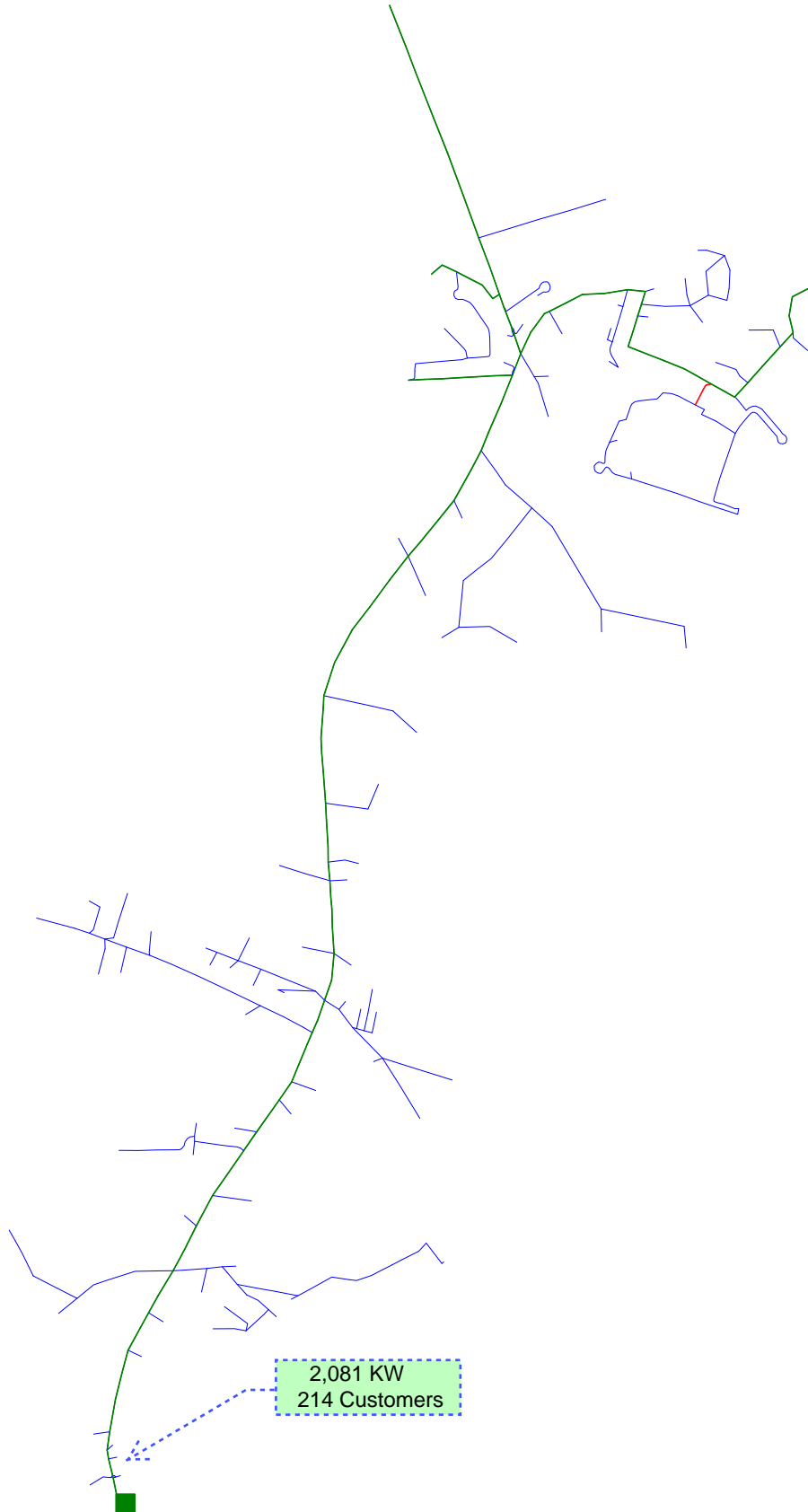
- 3 Phase
- 2 Phase
- 1 Phase

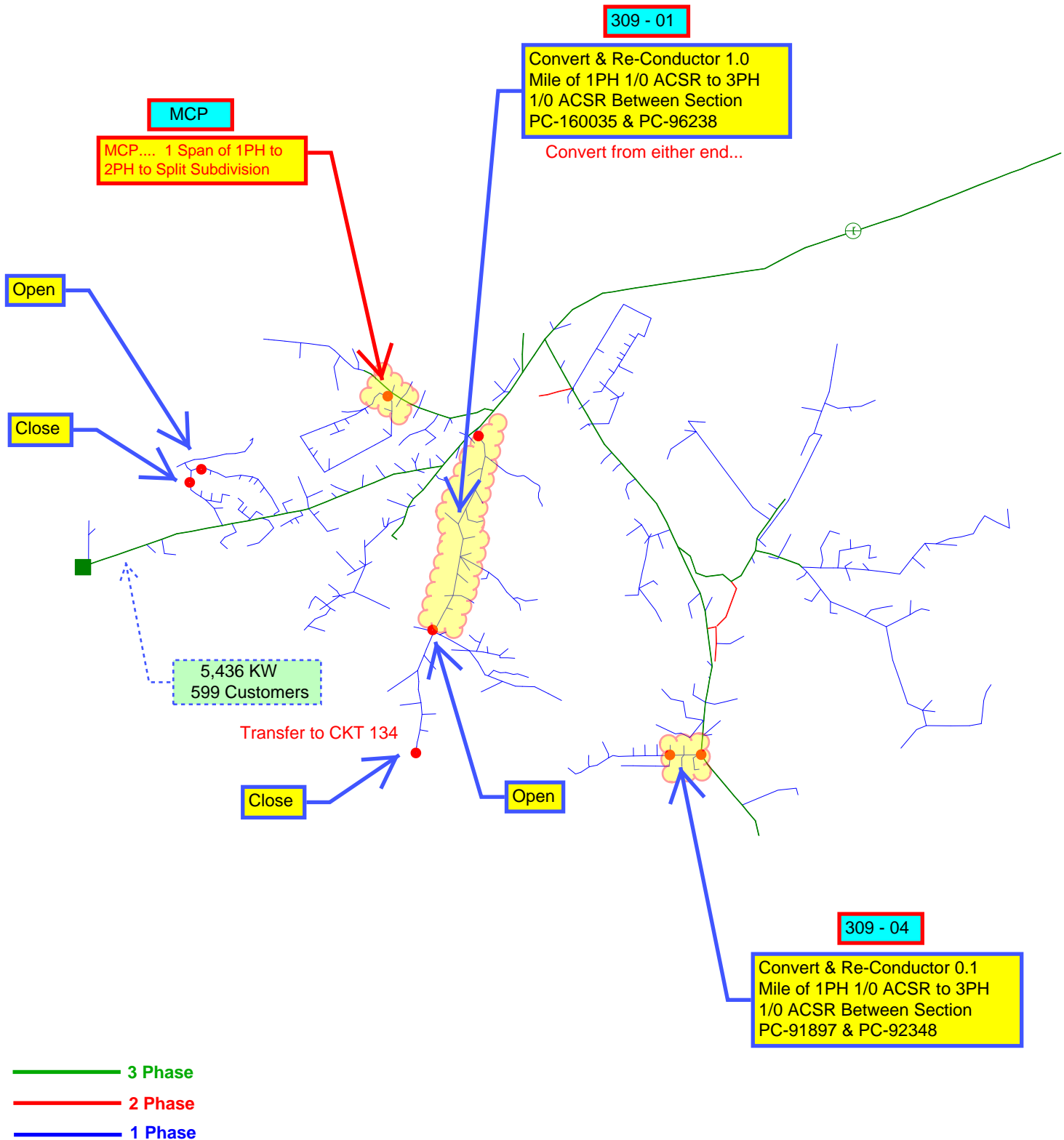




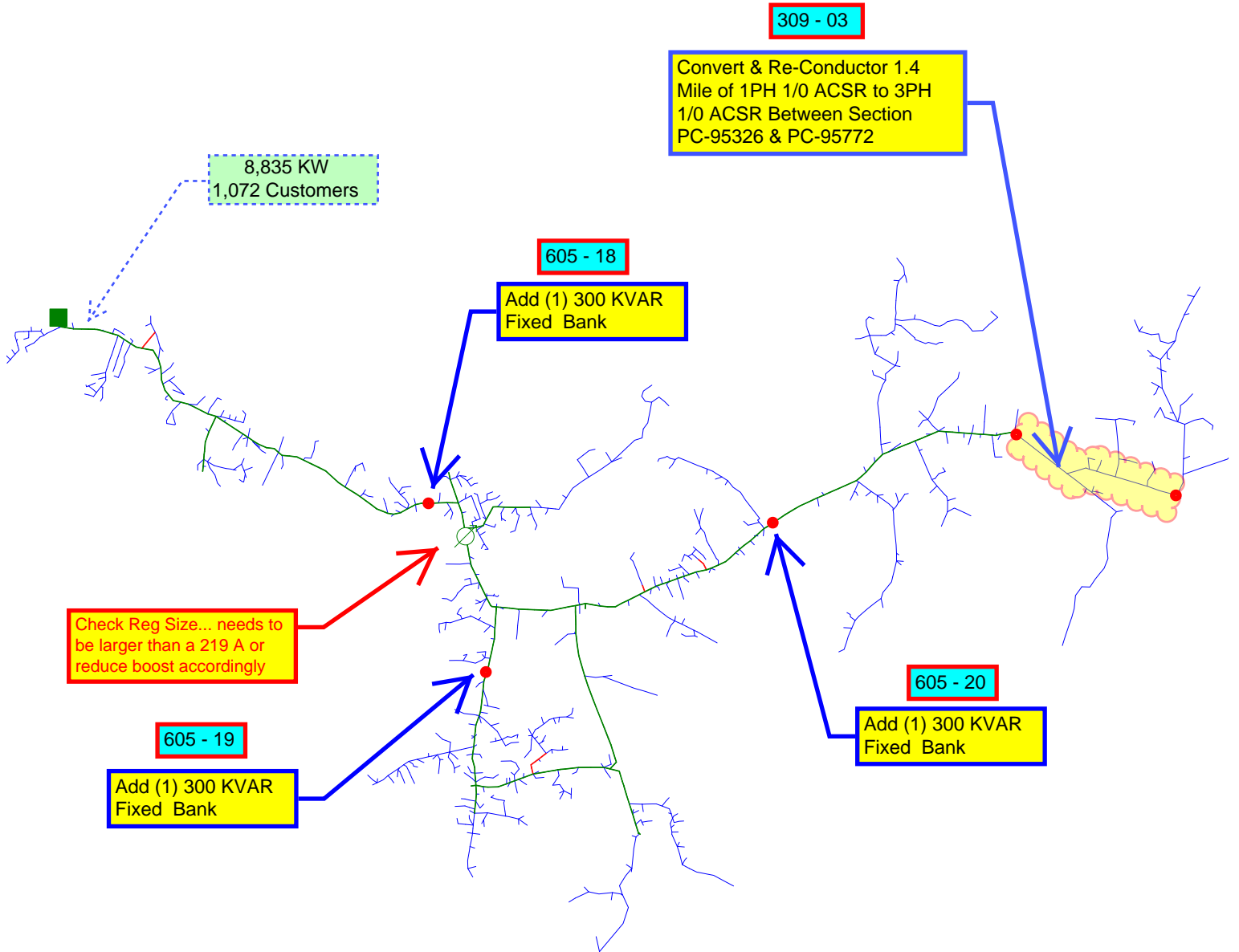


**No Projects Necessary**



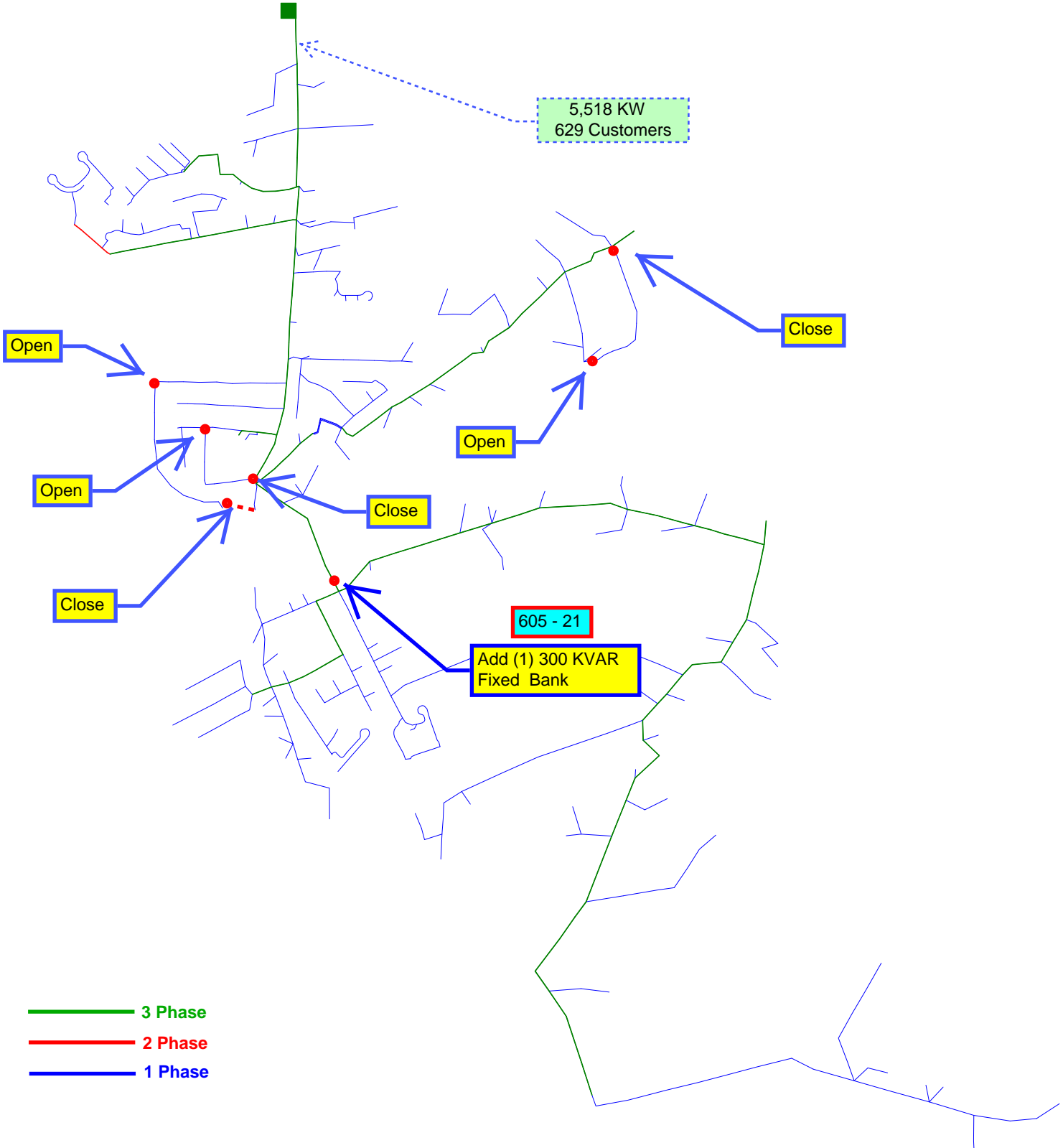




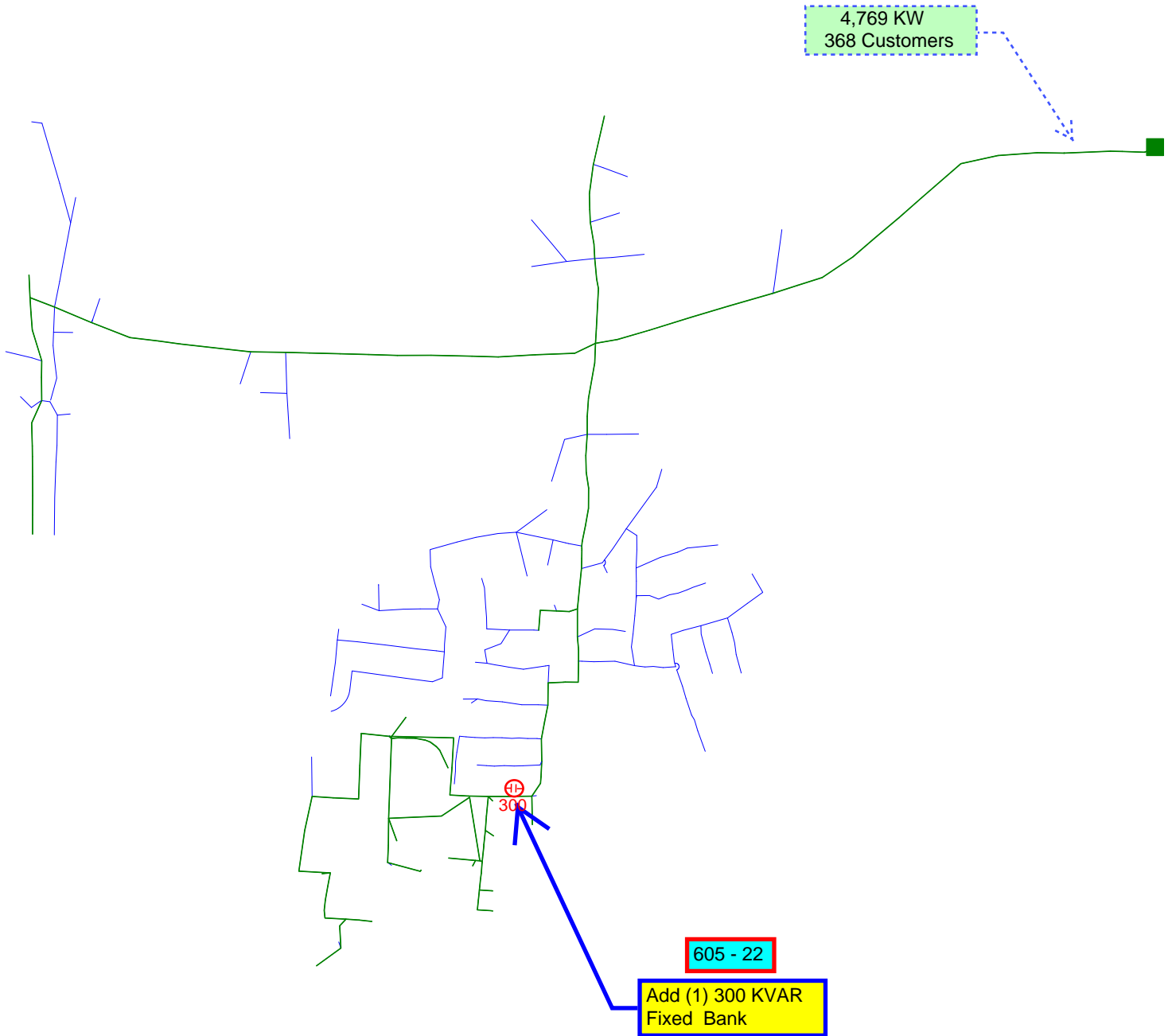


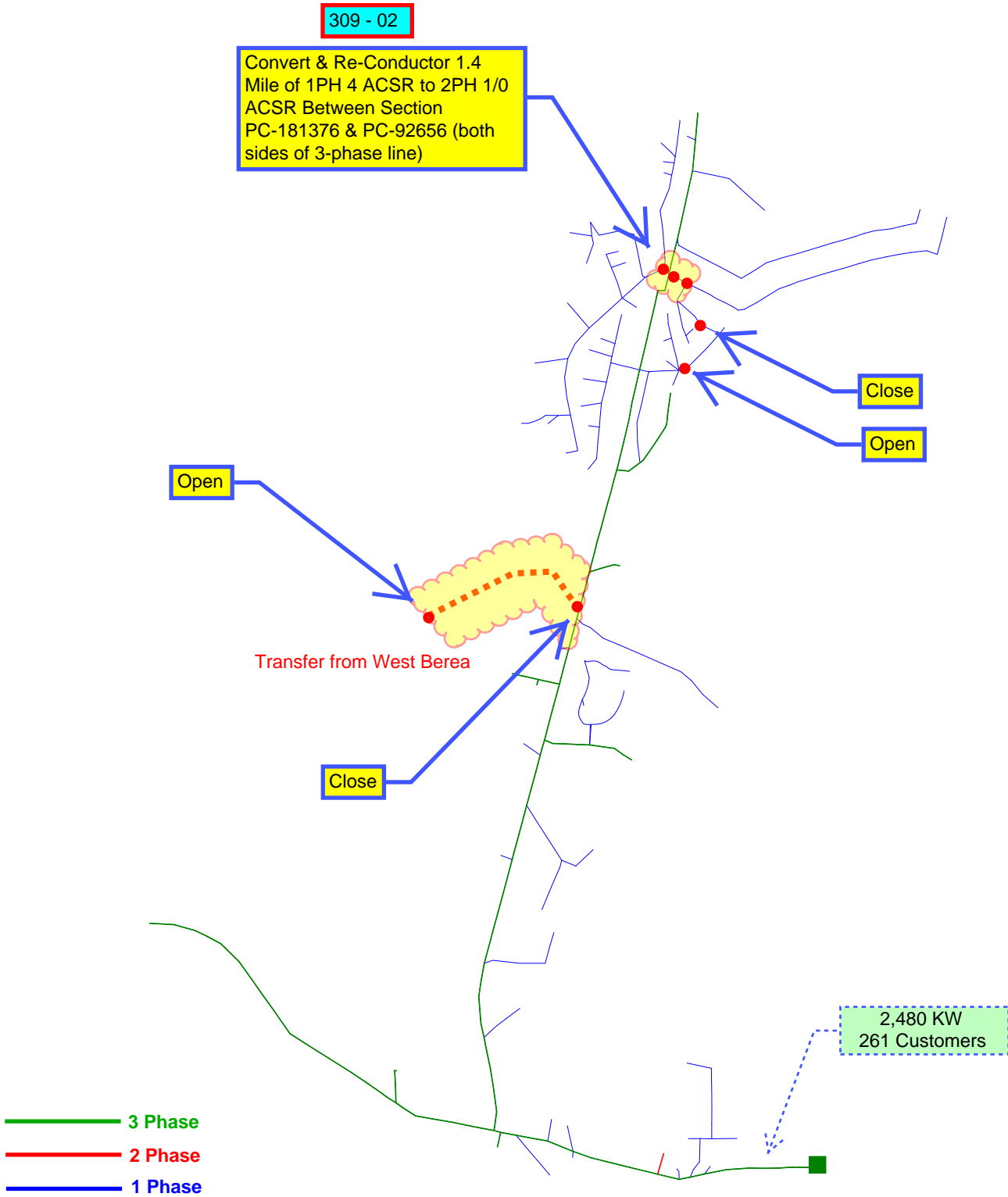
- 3 Phase
- 2 Phase
- 1 Phase

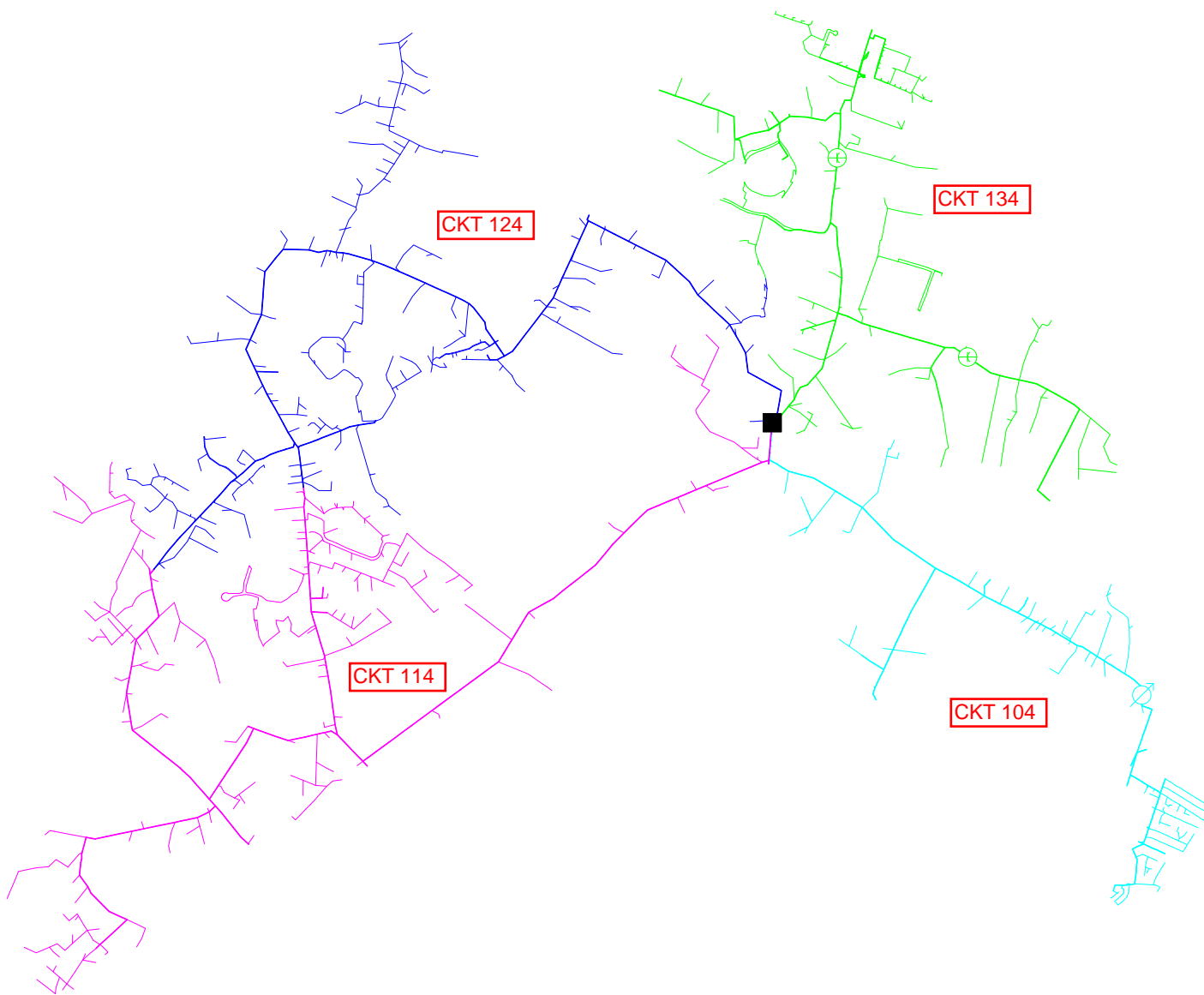
**No Projects Necessary**



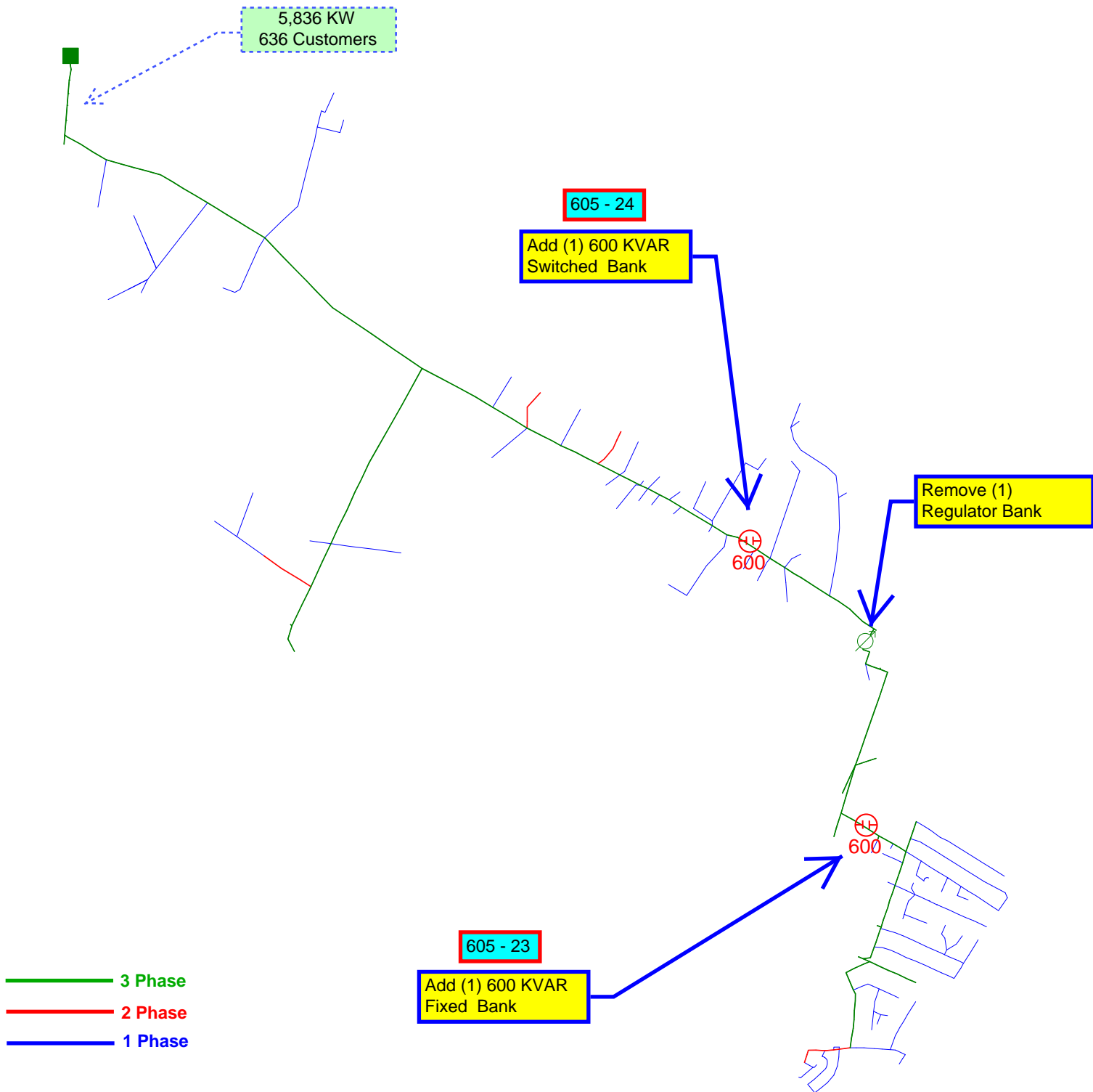
**No Projects Necessary**



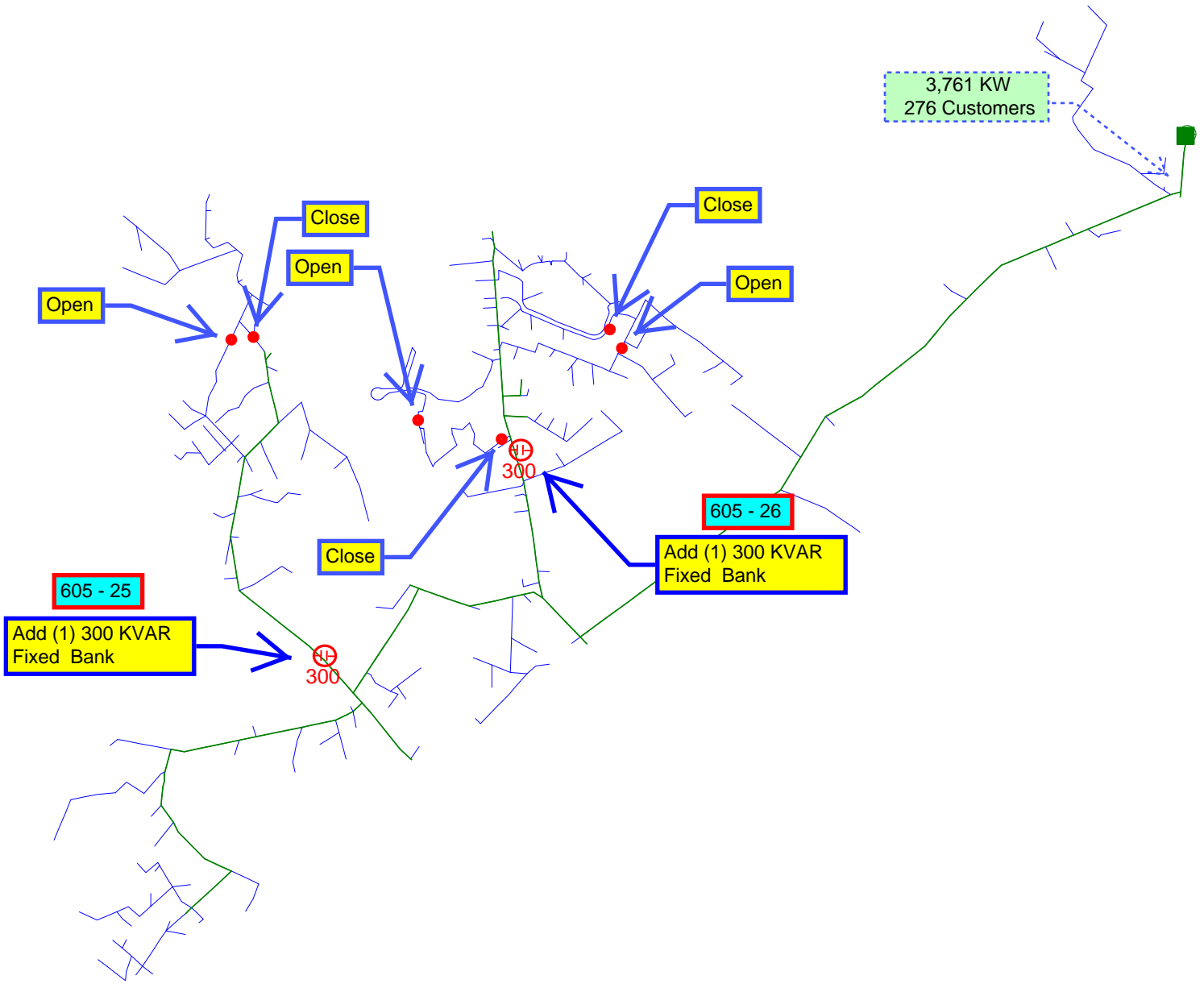




**No Projects Necessary**

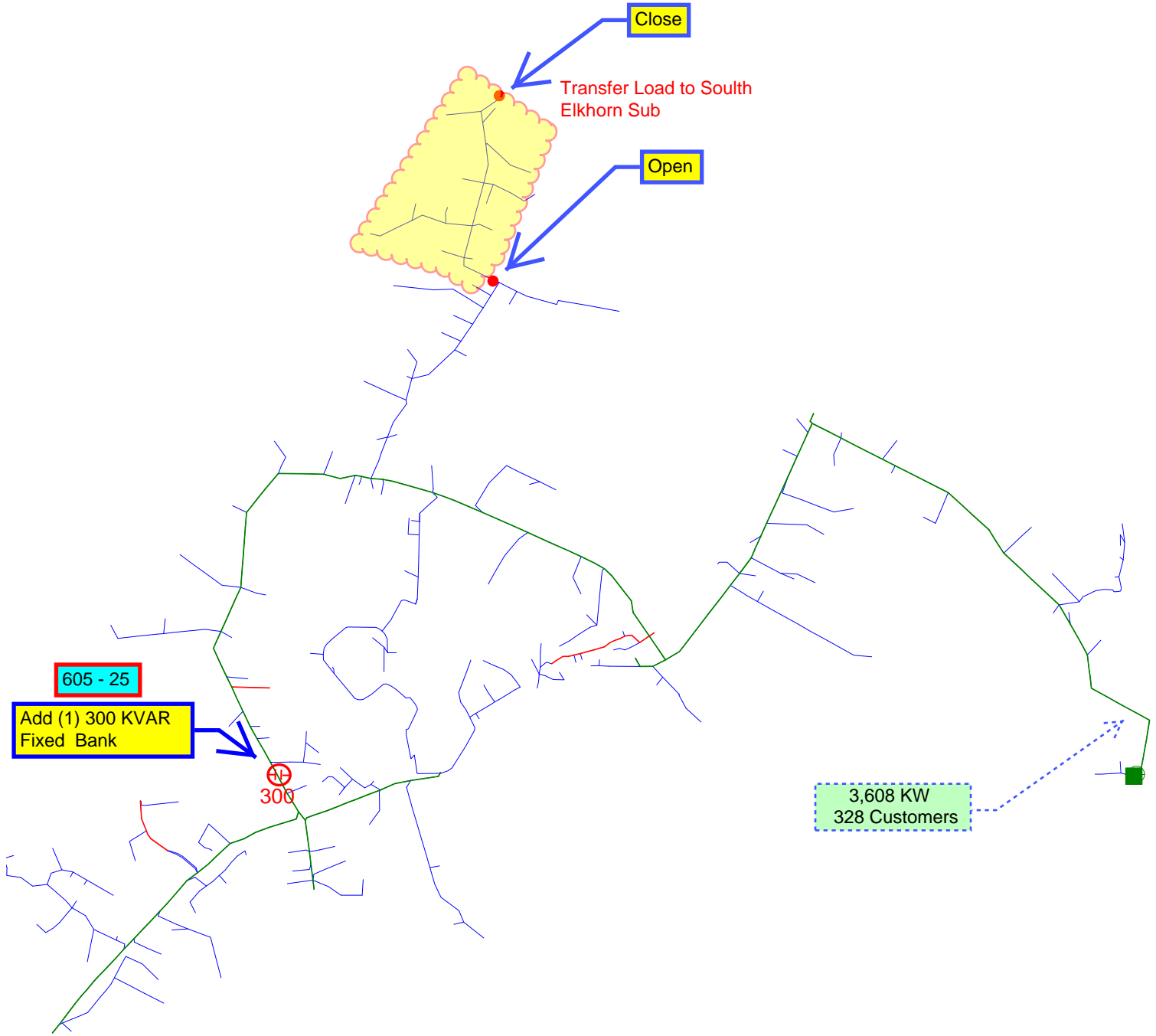


**No Projects Necessary**



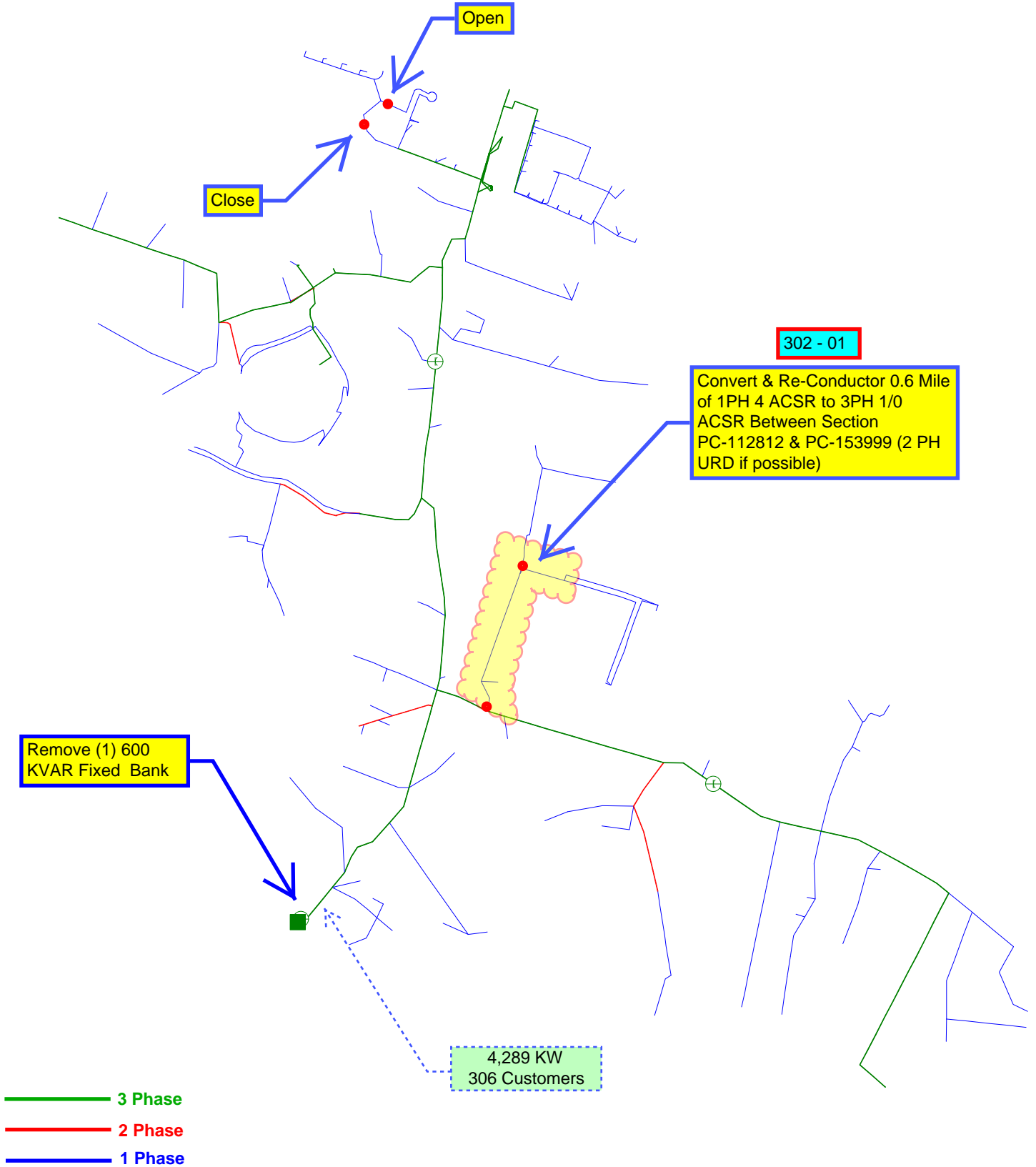
- 3 Phase
- 2 Phase
- 1 Phase

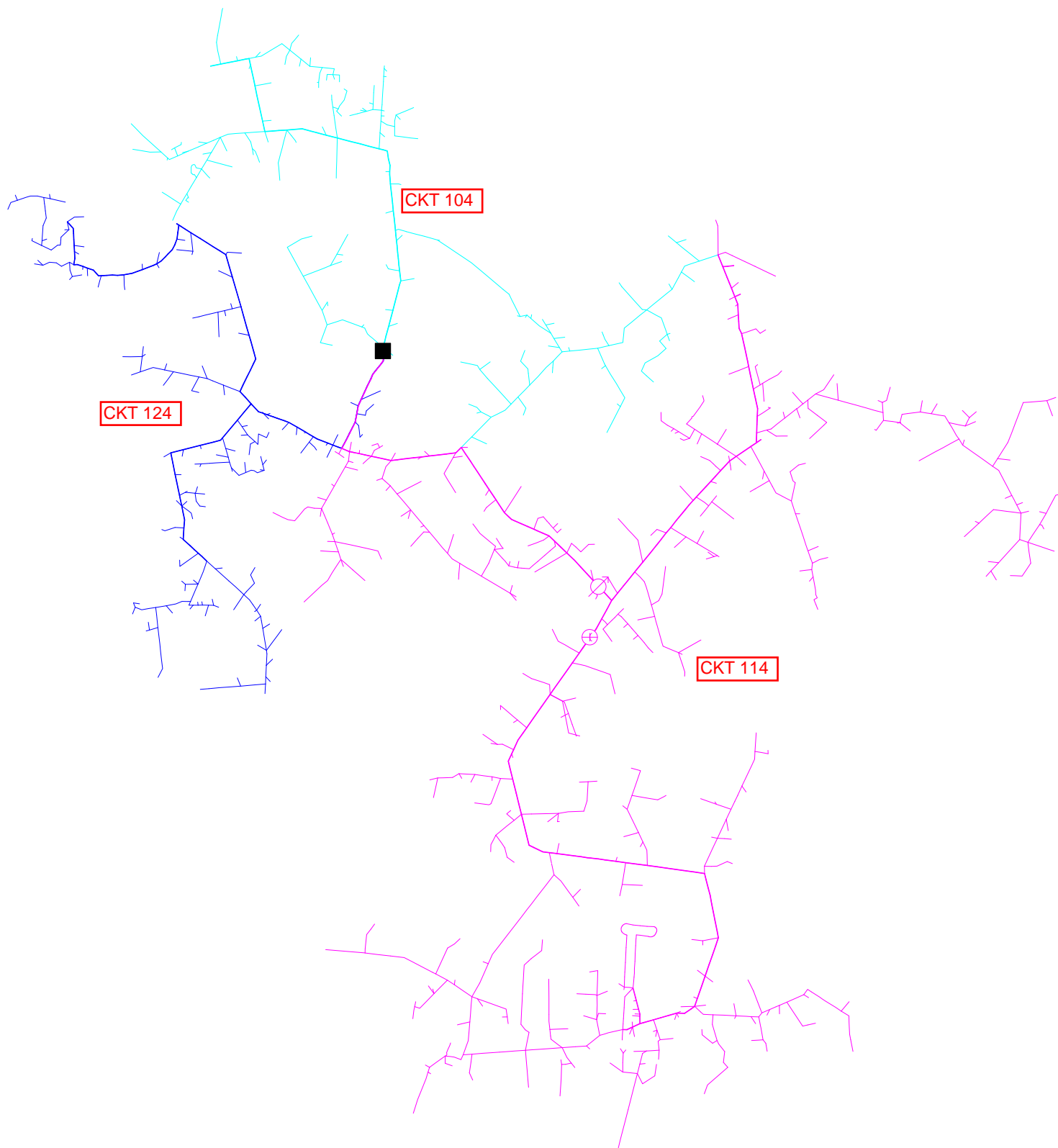
**No Projects Necessary**



- 3 Phase
- 2 Phase
- 1 Phase







339 - 01

Re-Conductor 2.2 Mile of 3PH 4  
ACSR to 3PH 336 ACSR  
Between Section PC-130158 &  
PC-138561

605 - 25

Add (1) 300 KVAR  
Fixed Bank

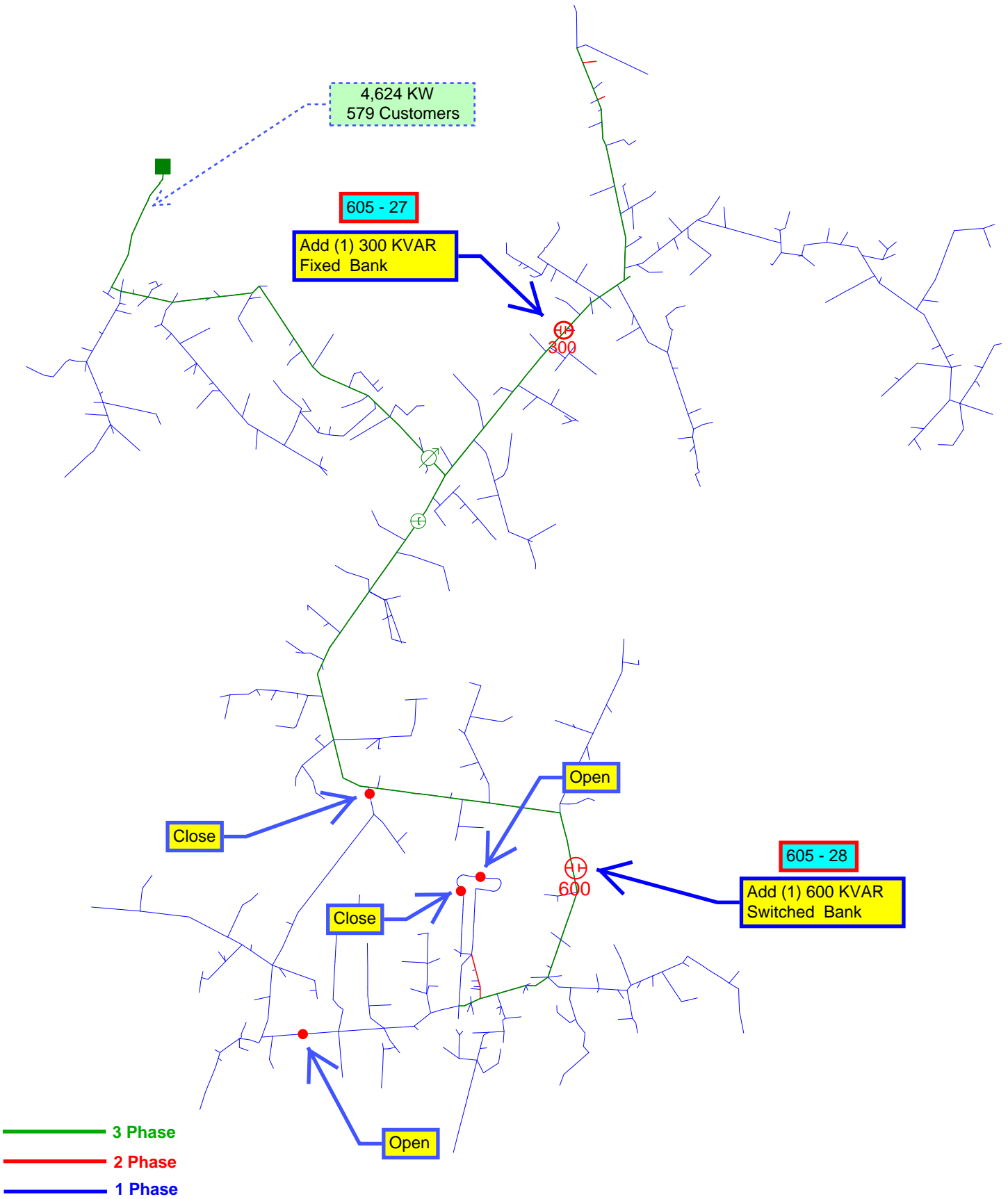
Open

Close

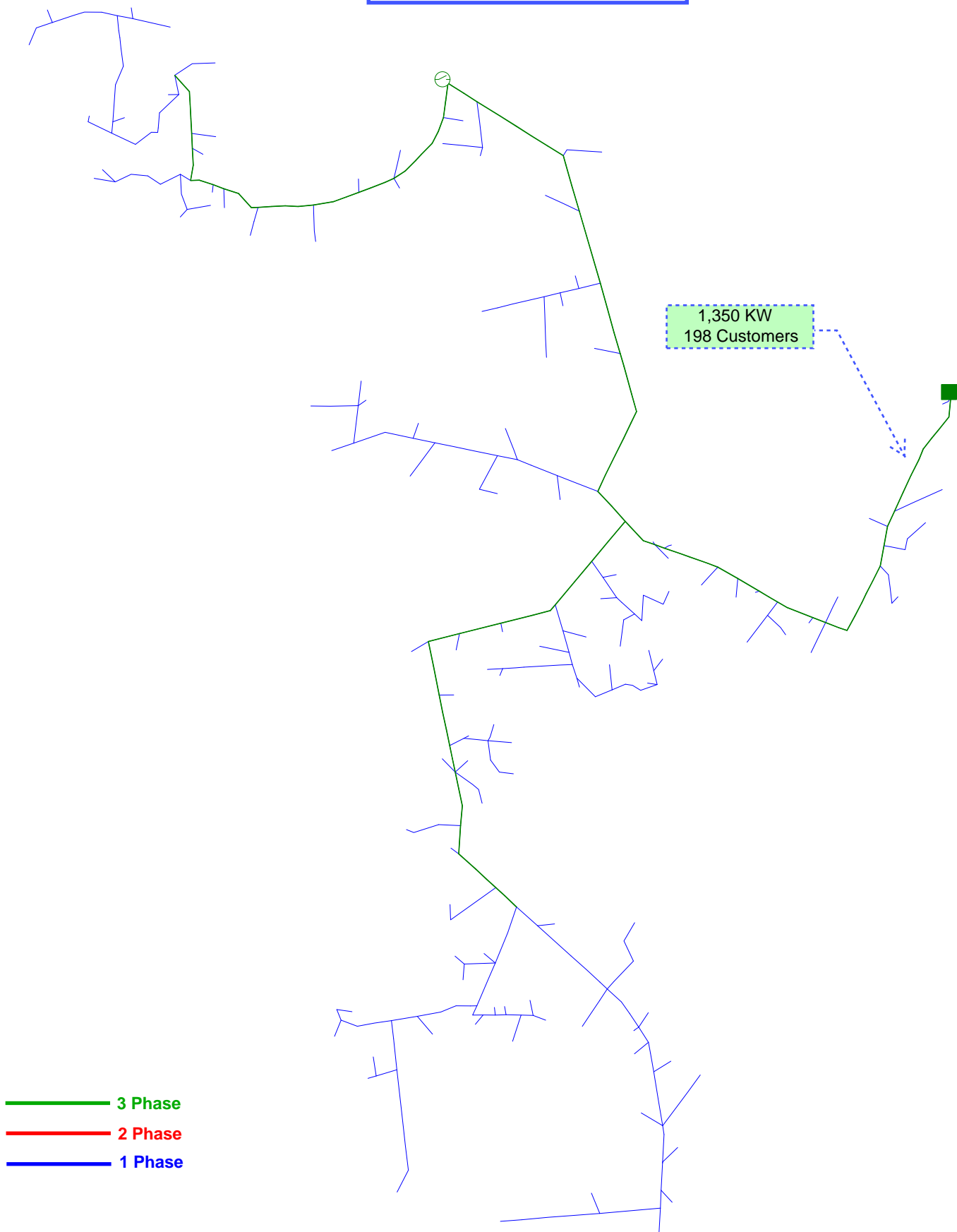
1,021 KW  
161 Customers

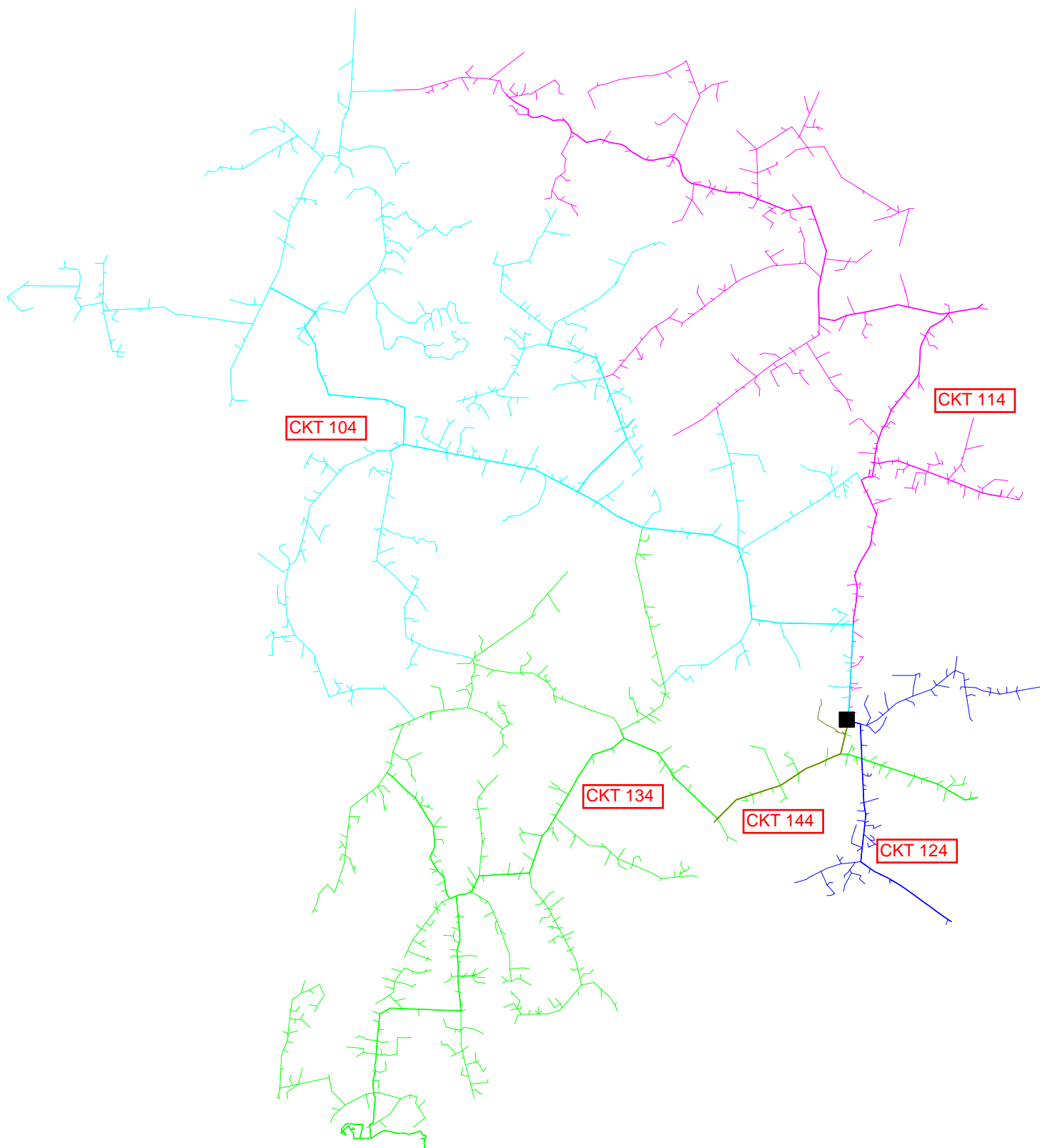
Transfer to CKT 114

- 3 Phase
- 2 Phase
- 1 Phase

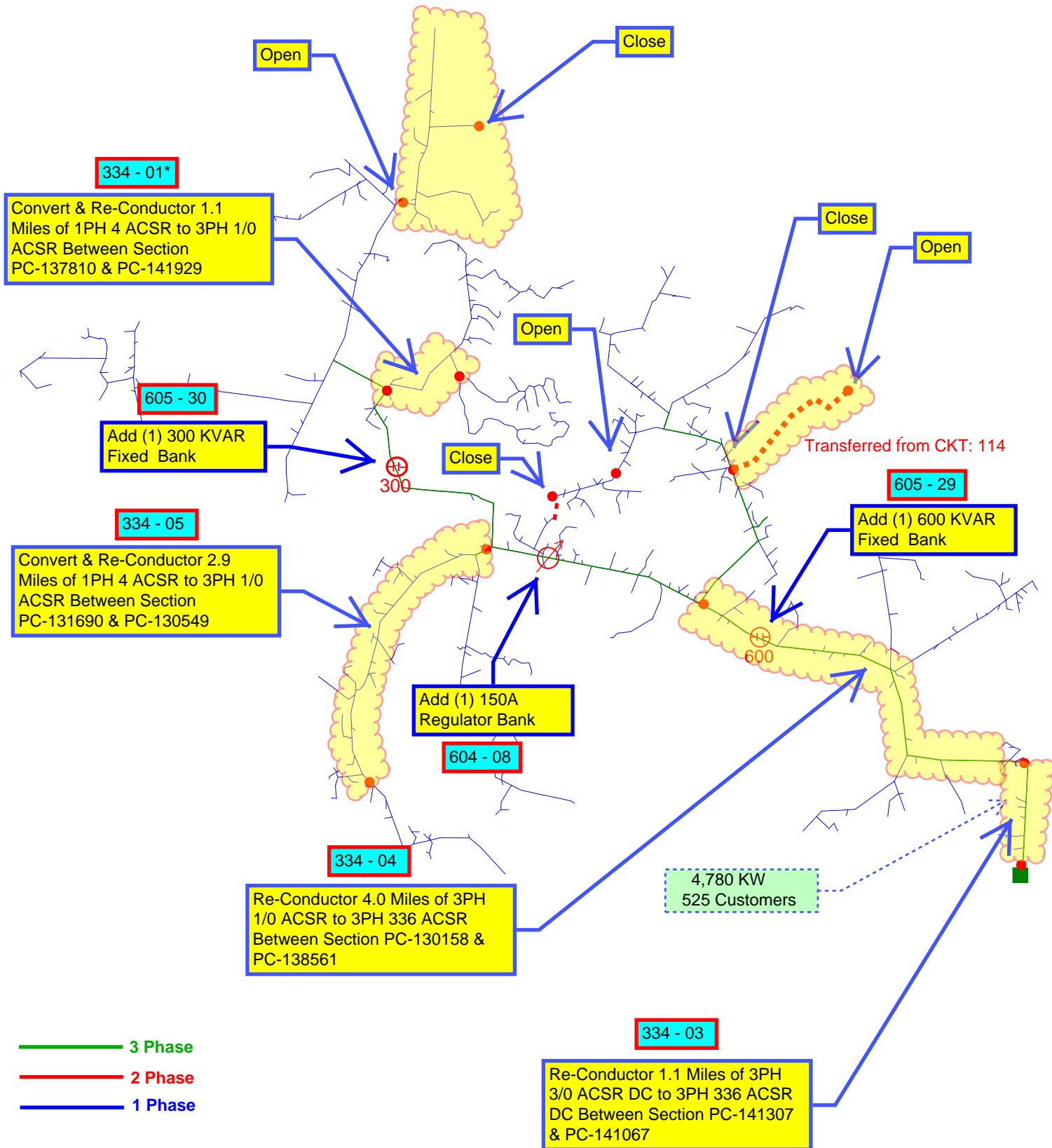


**No Projects Necessary**

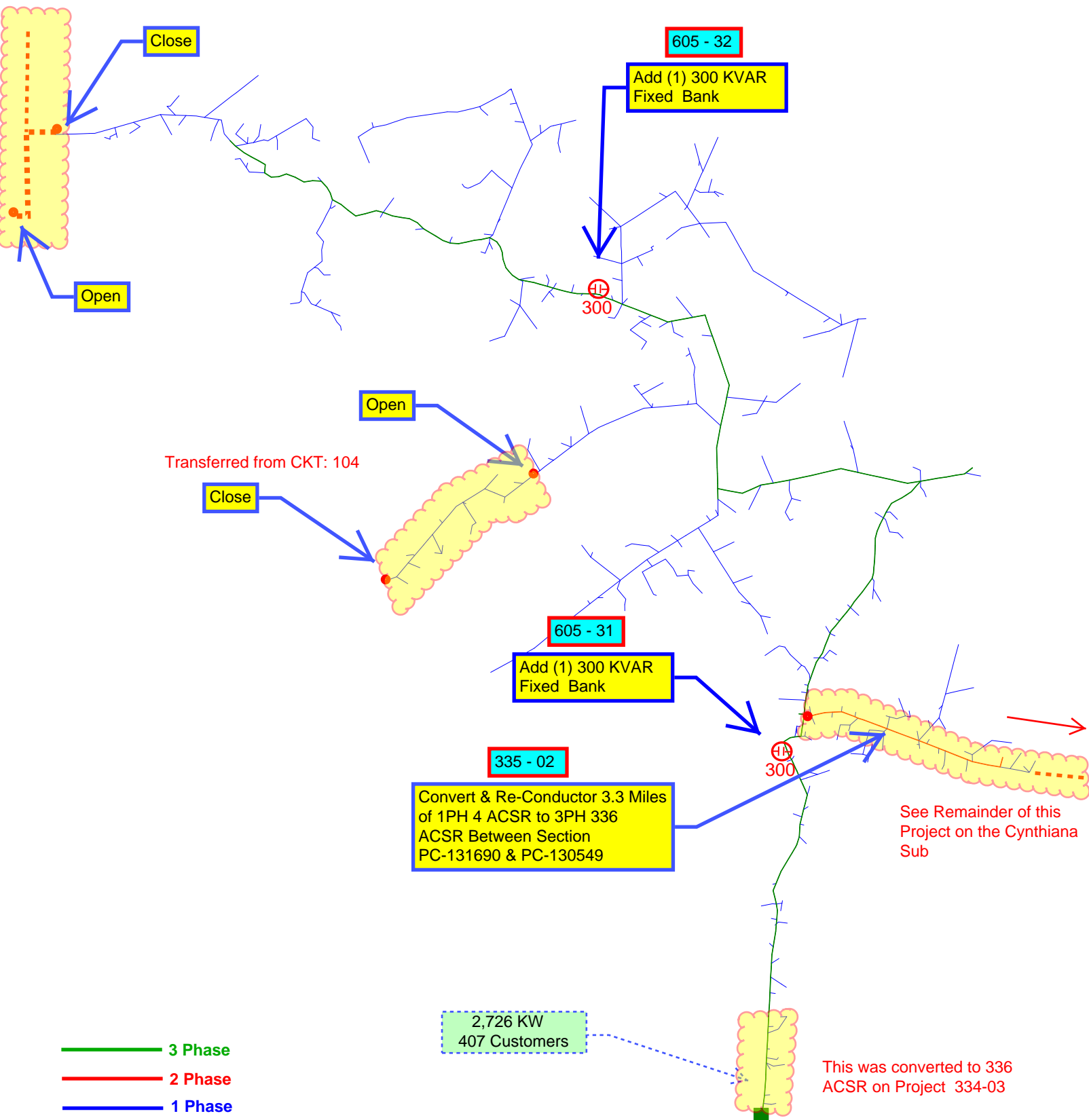




Transferred to CKT: 114



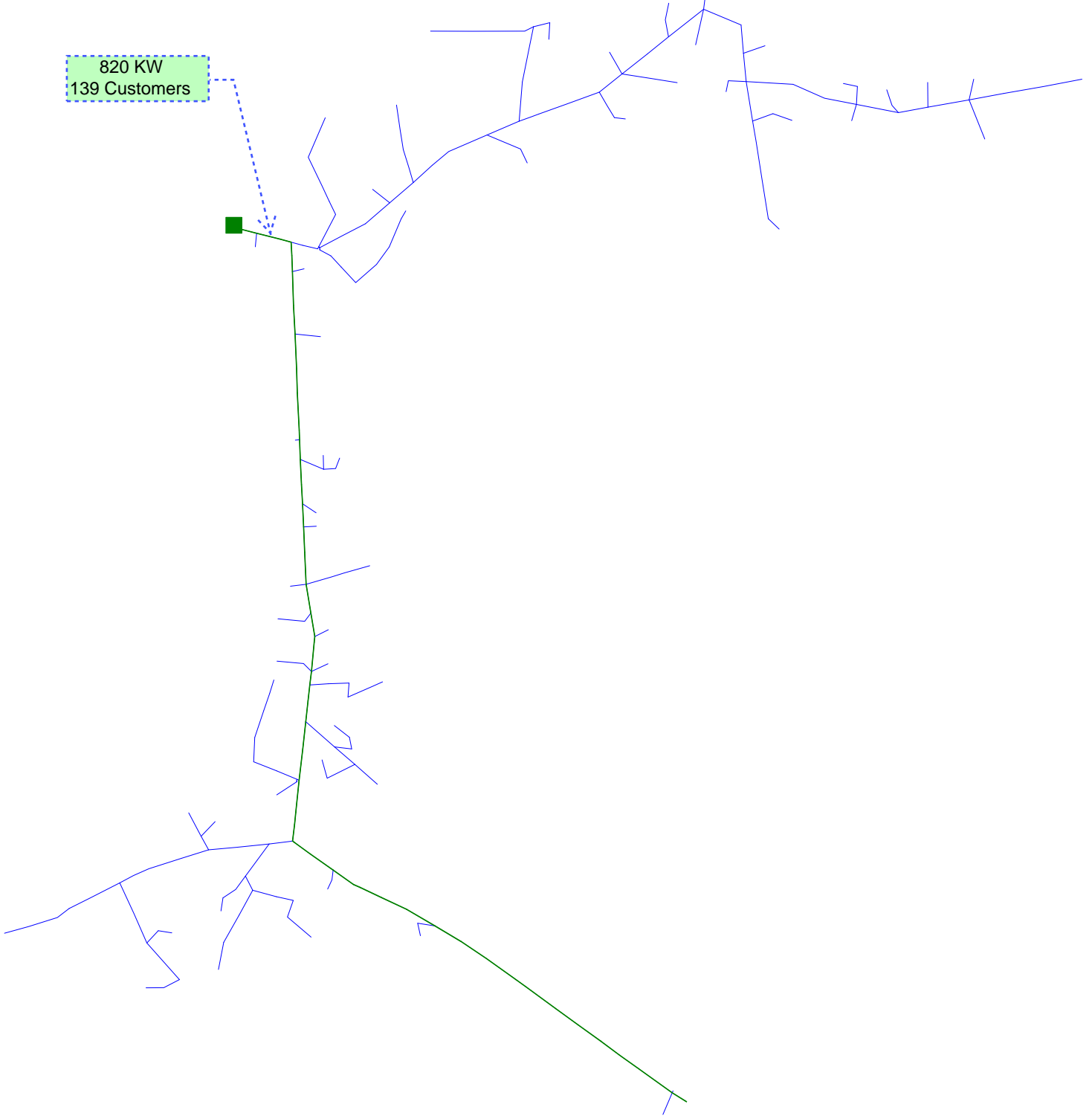
Transferred from CKT: 104



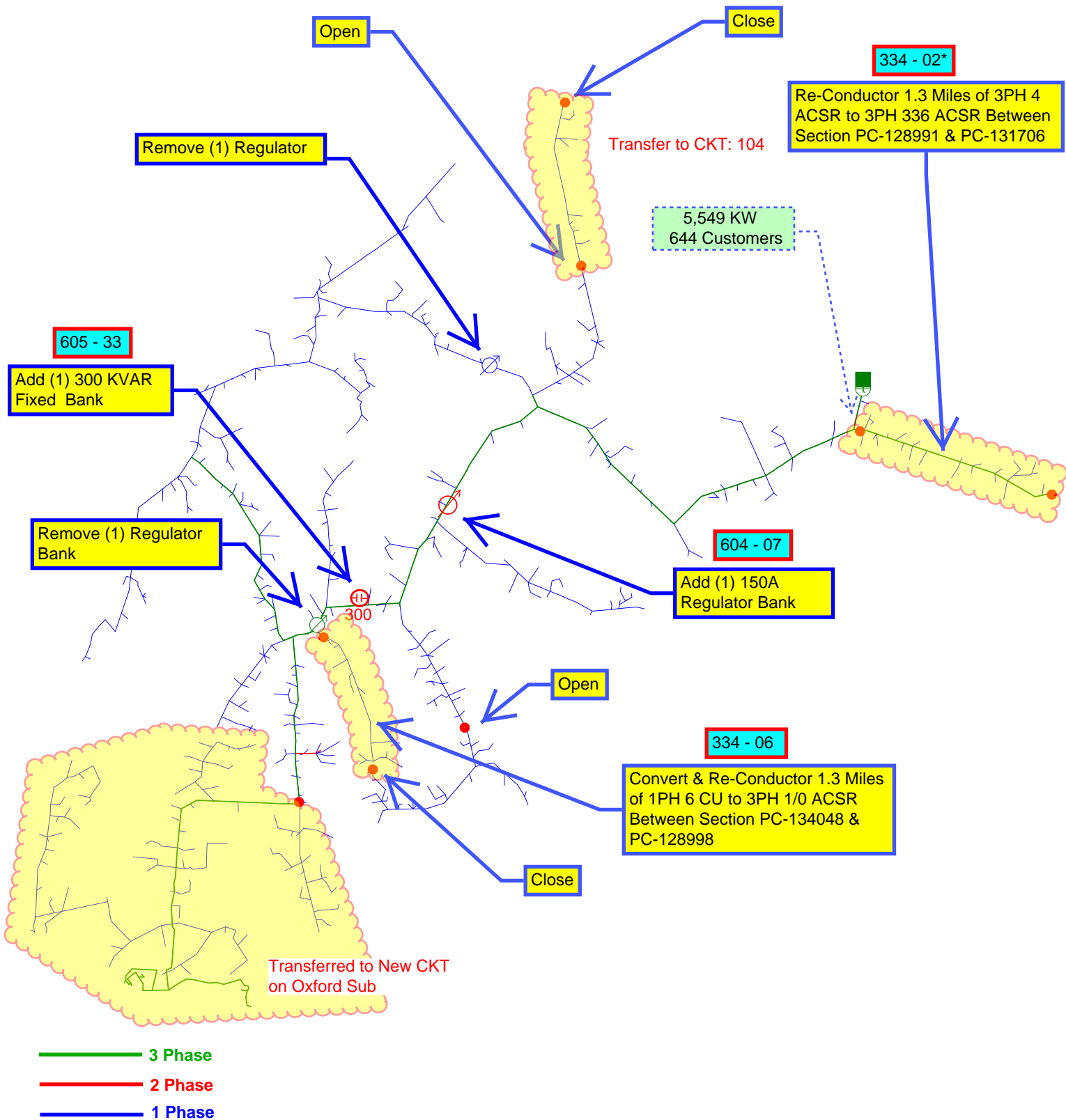


**No Projects Necessary**

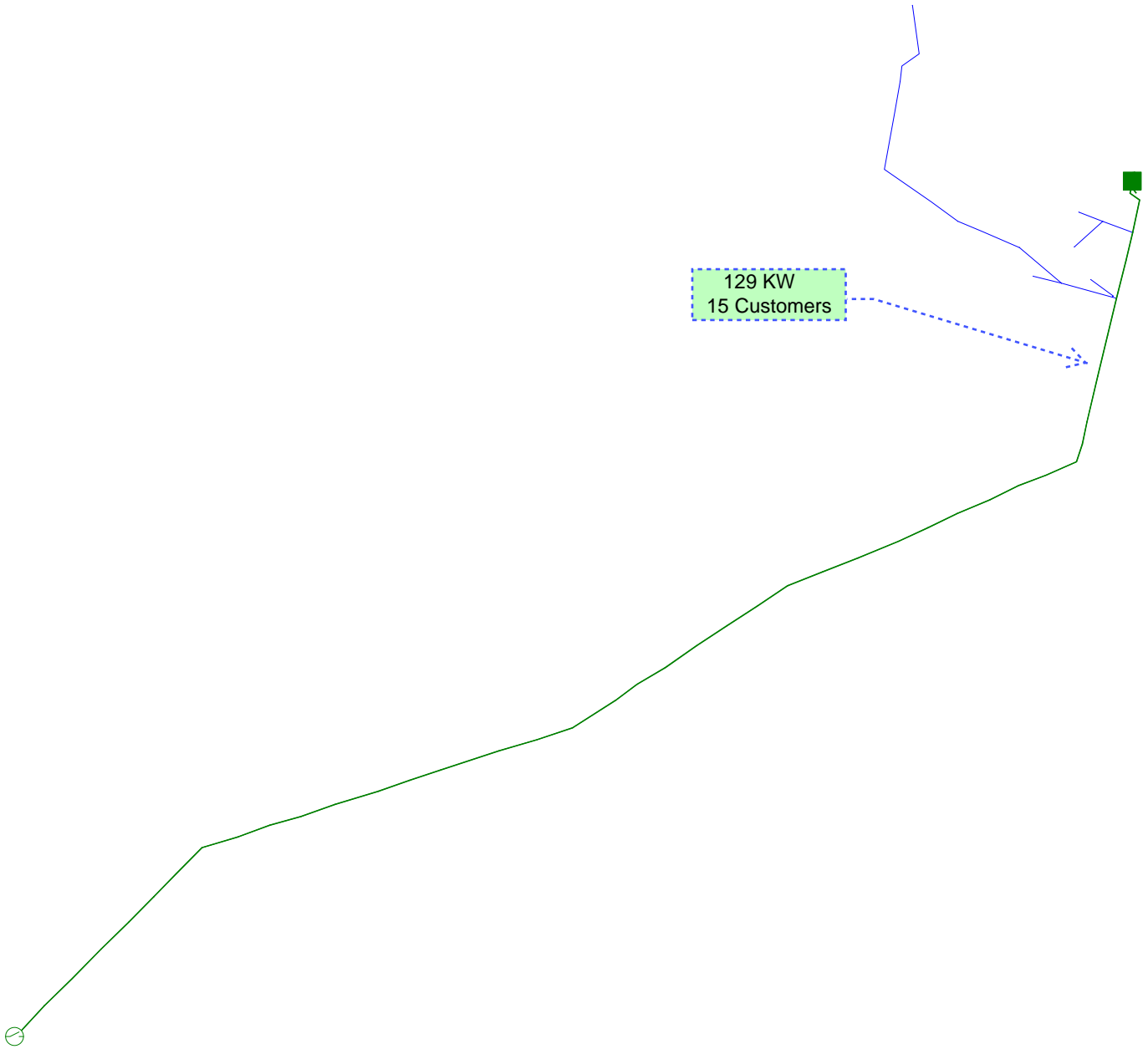
820 KW  
139 Customers



- 3 Phase
- 2 Phase
- 1 Phase

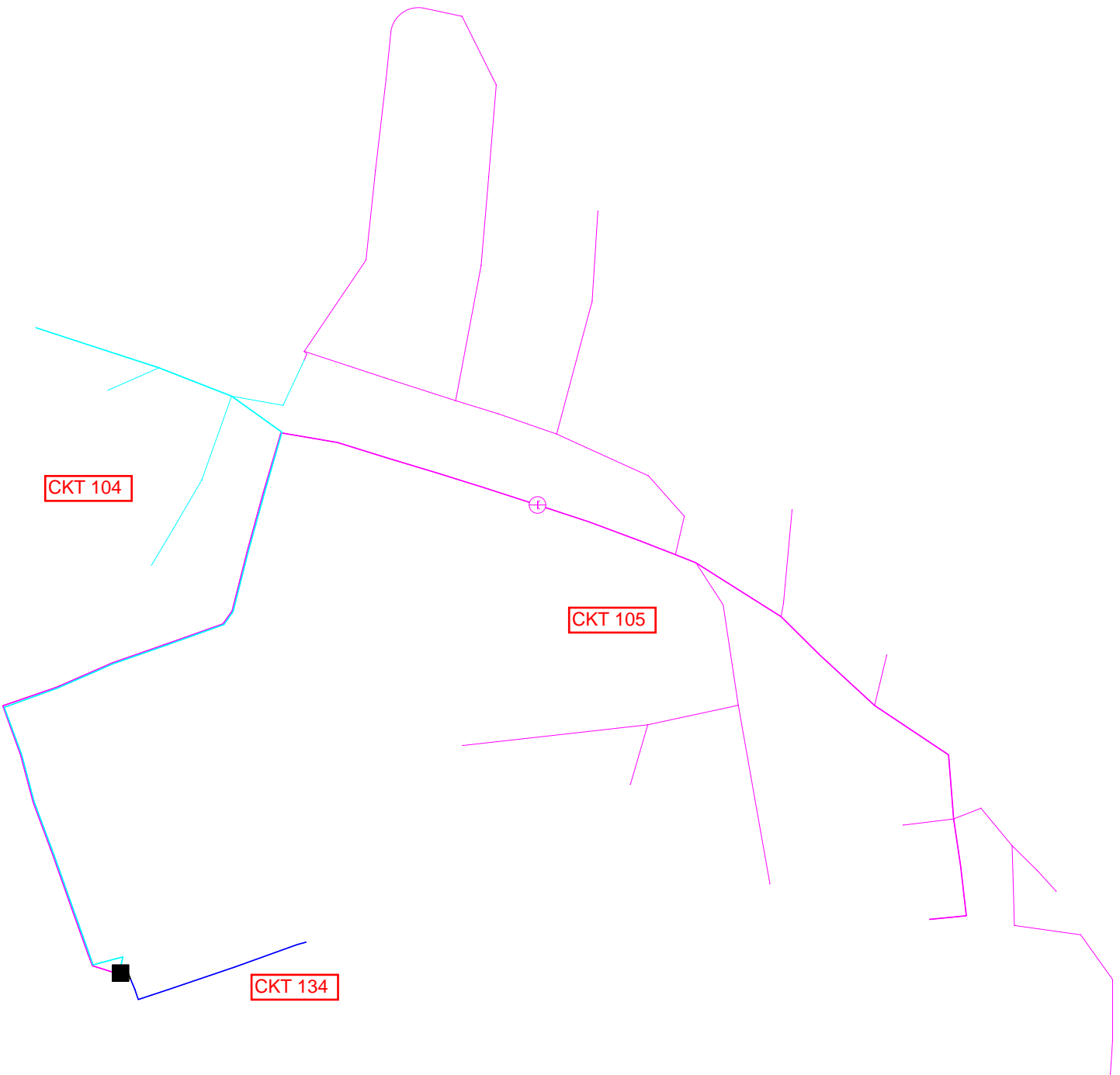


**No Projects Necessary**

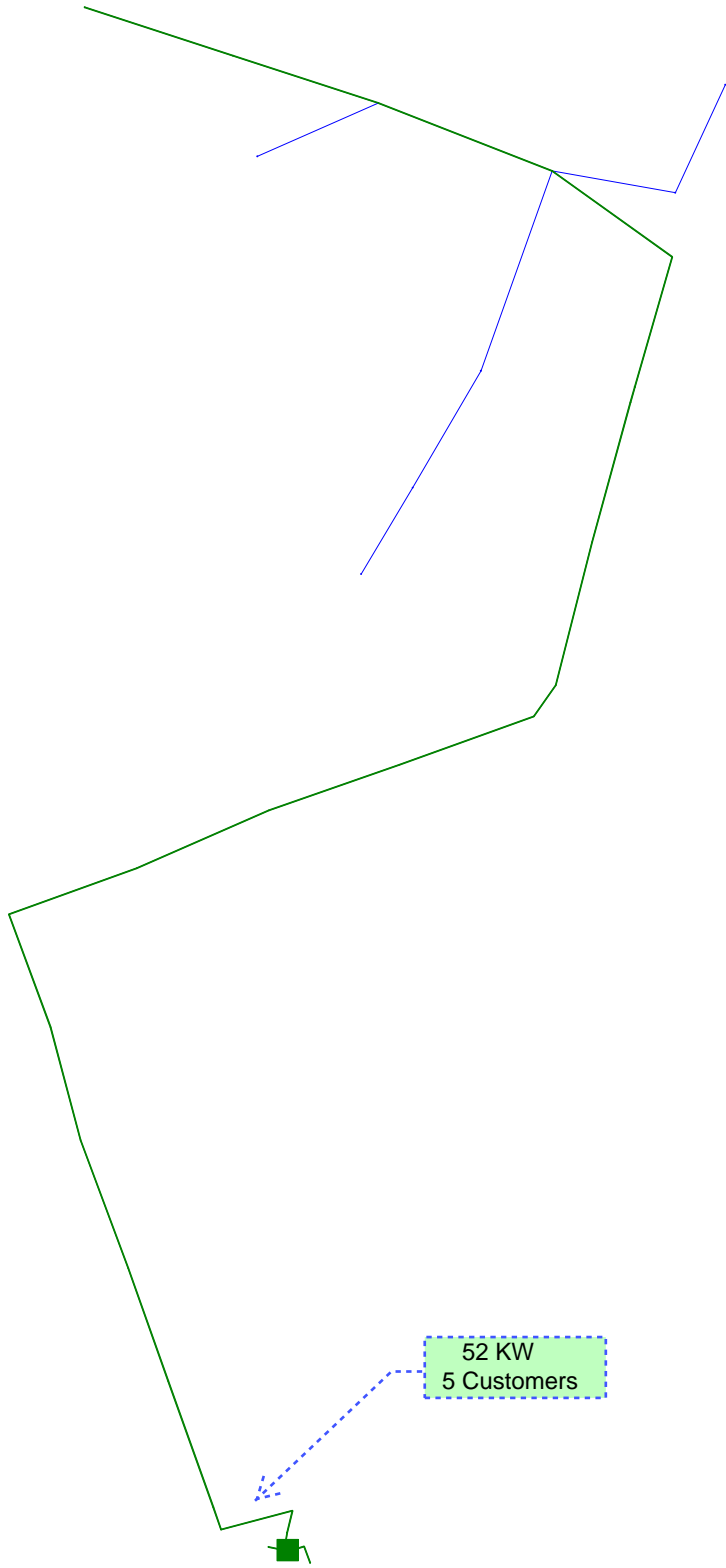


129 KW  
15 Customers

- 3 Phase
- 2 Phase
- 1 Phase

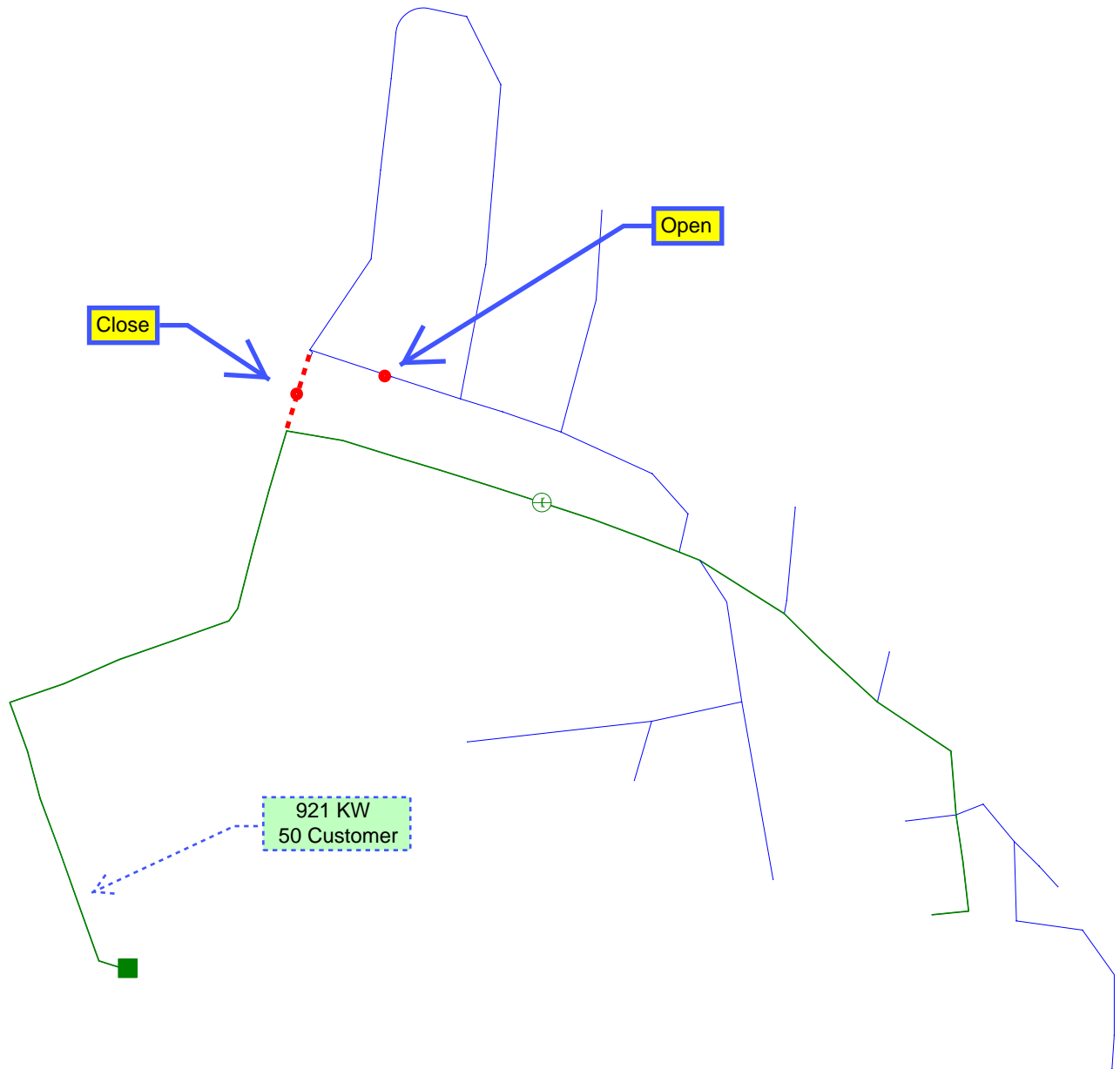


**No Projects Necessary**



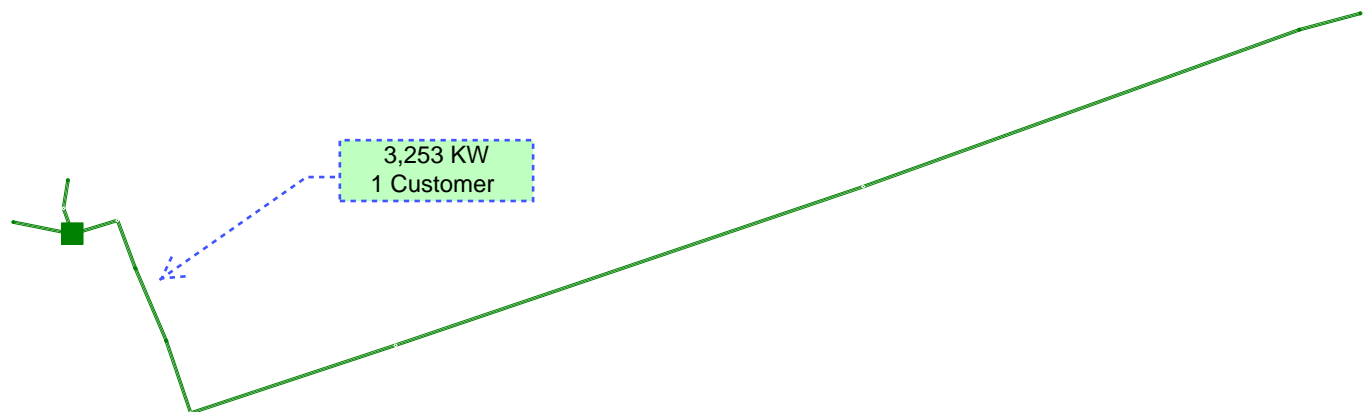
- 3 Phase
- 2 Phase
- 1 Phase

**No Projects Necessary**

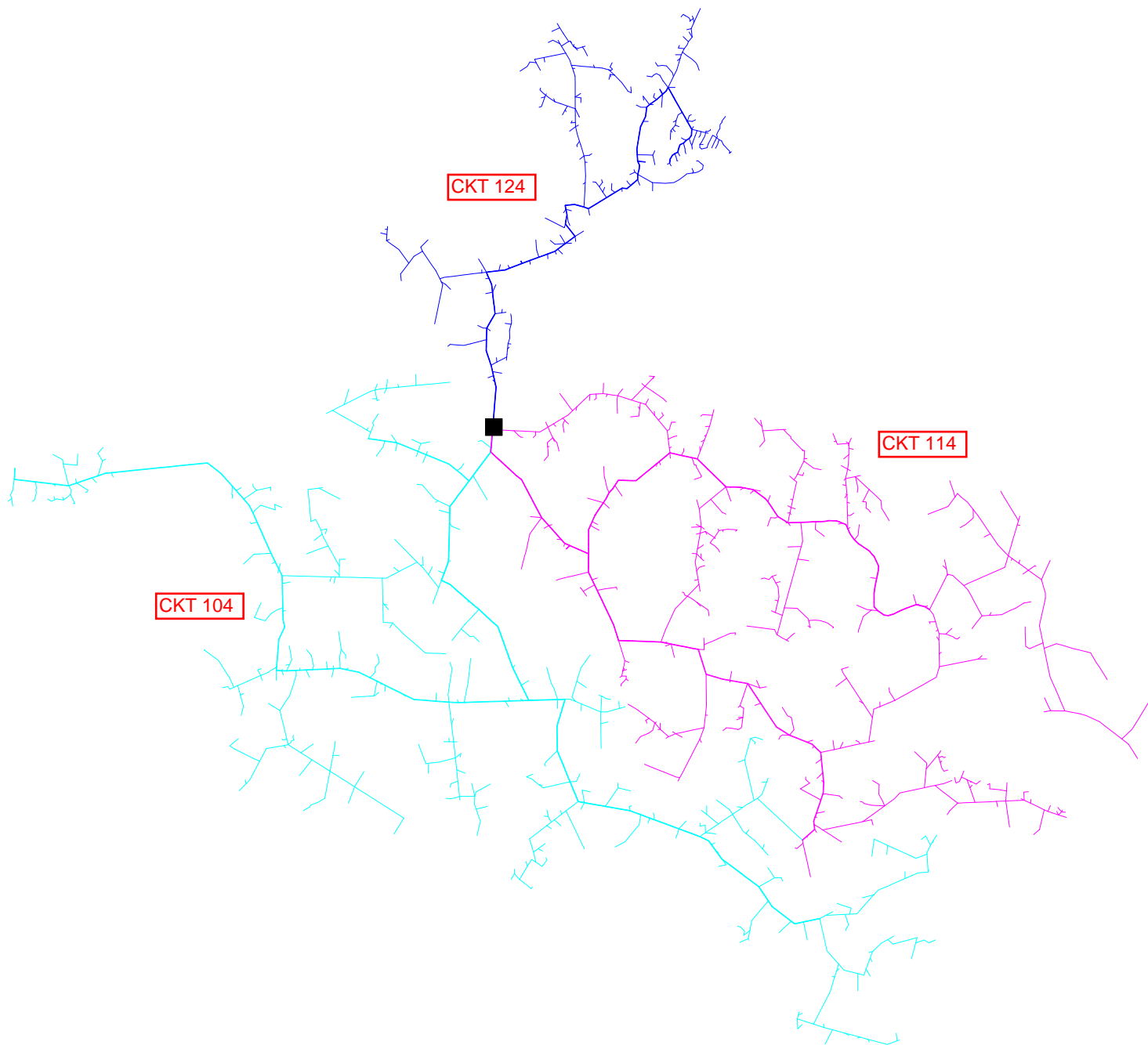


- 3 Phase
- 2 Phase
- 1 Phase

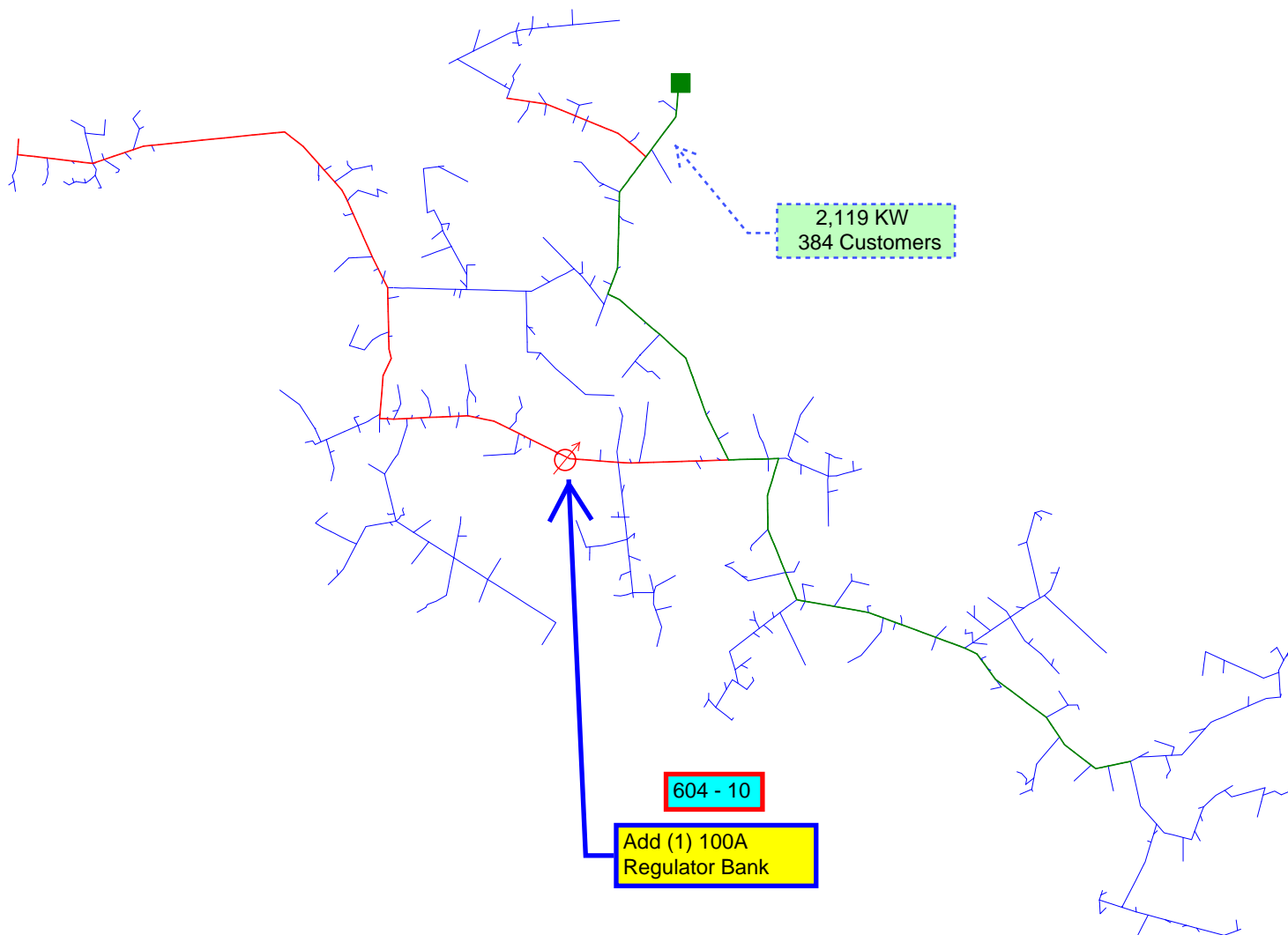
**No Projects Necessary**



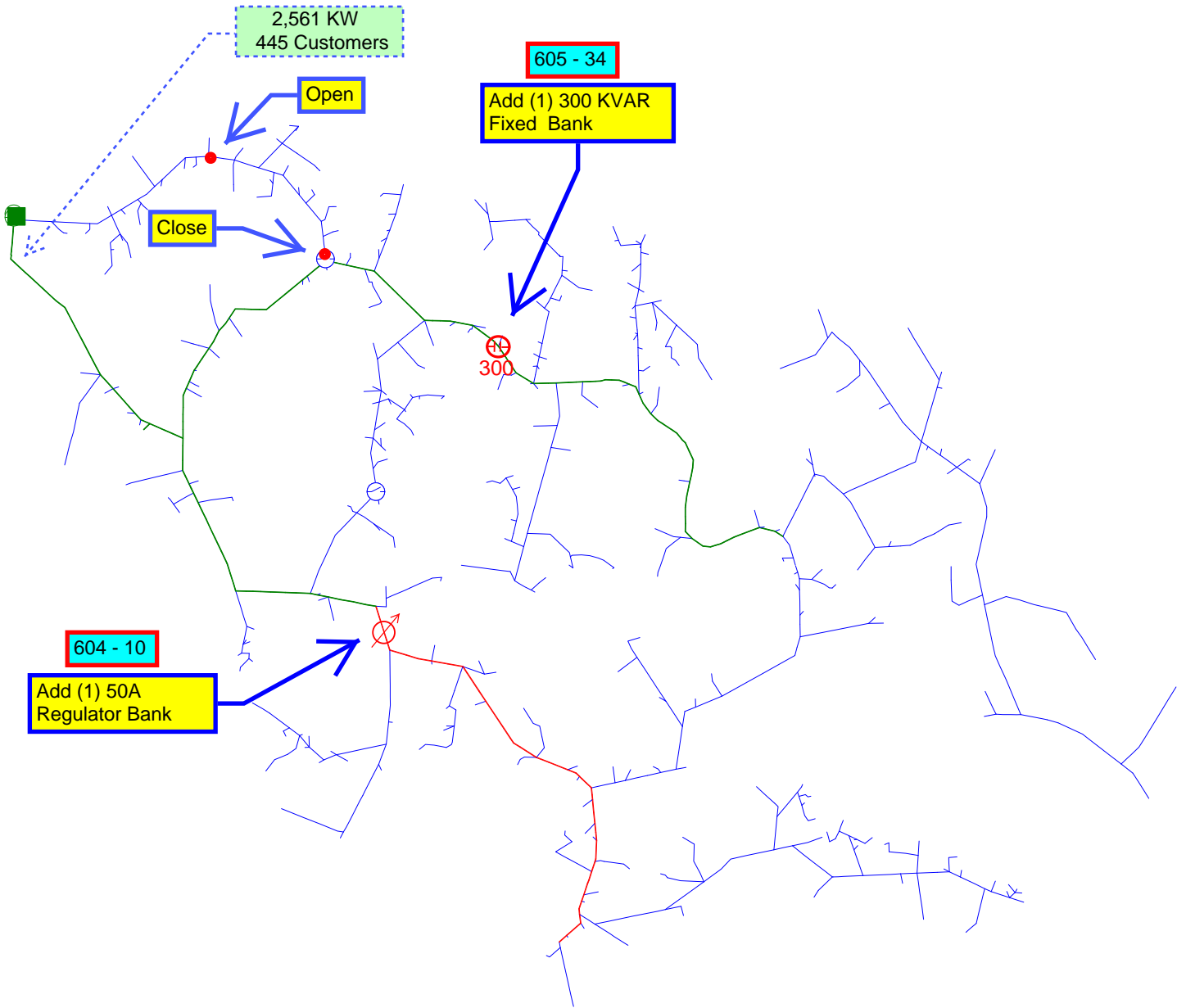
- 3 Phase
- 2 Phase
- 1 Phase





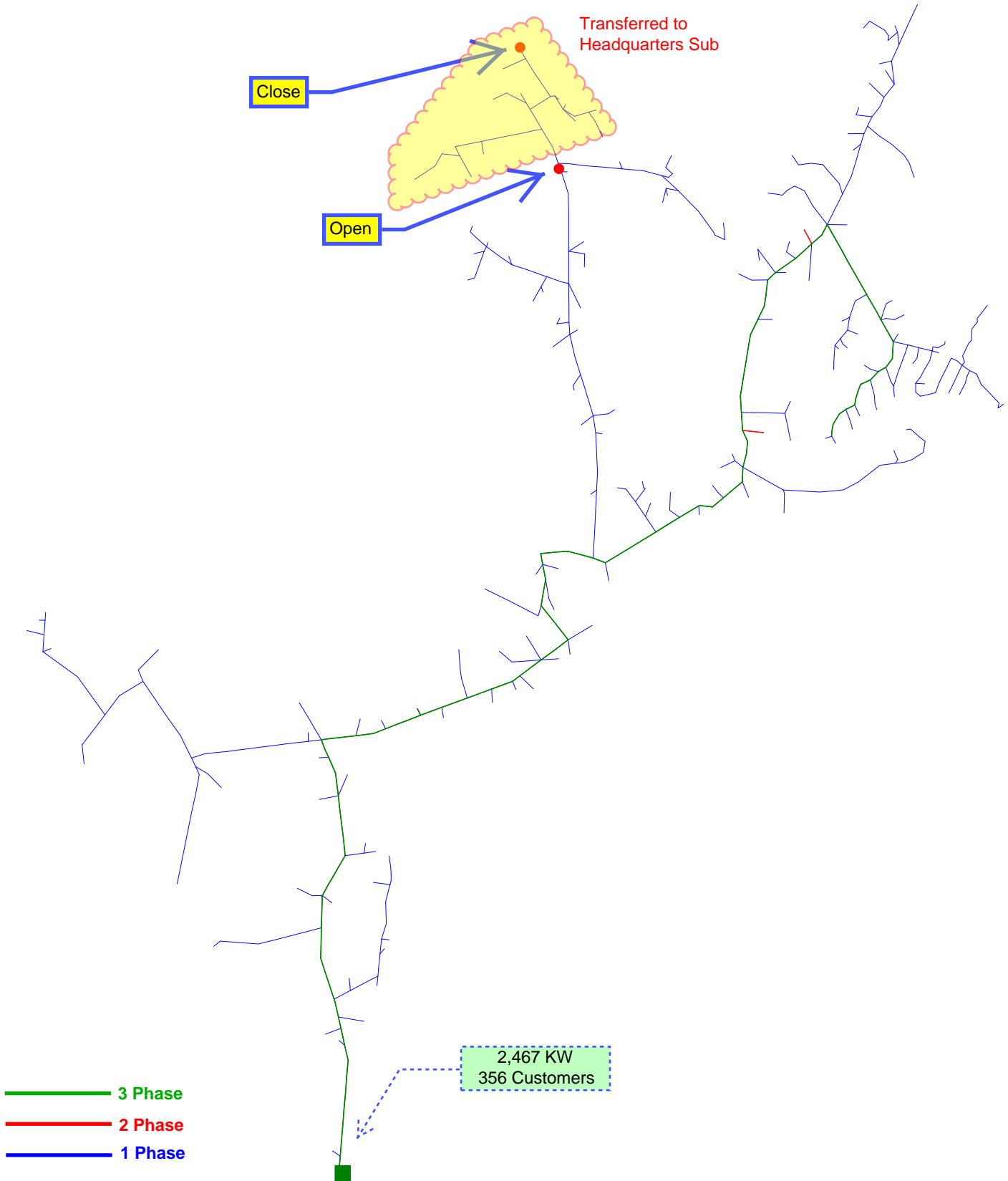


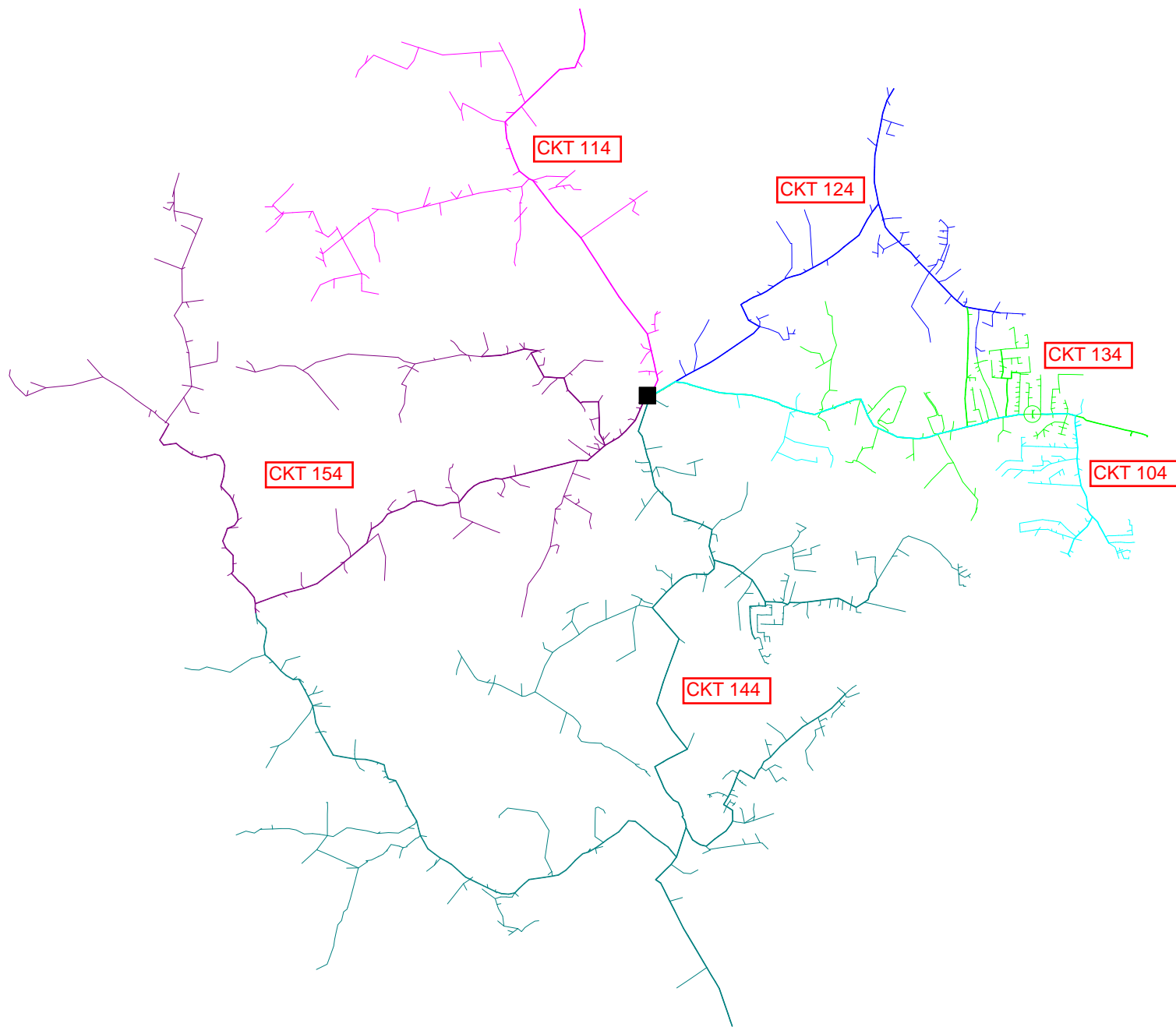
- 3 Phase
- 2 Phase
- 1 Phase



- 3 Phase
- 2 Phase
- 1 Phase

**No Projects Necessary**



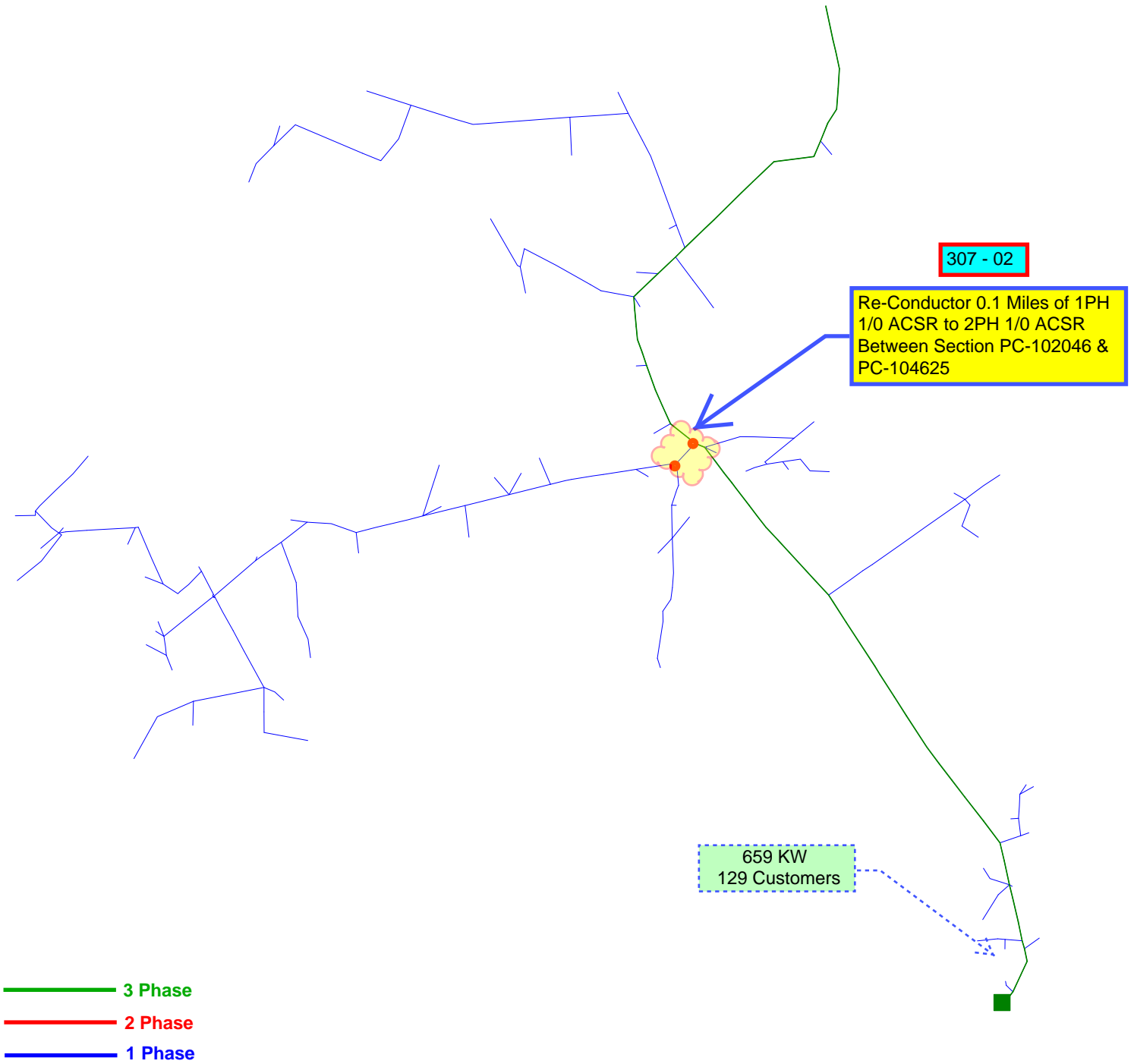


**No Projects Necessary**



- 3 Phase
- 2 Phase
- 1 Phase

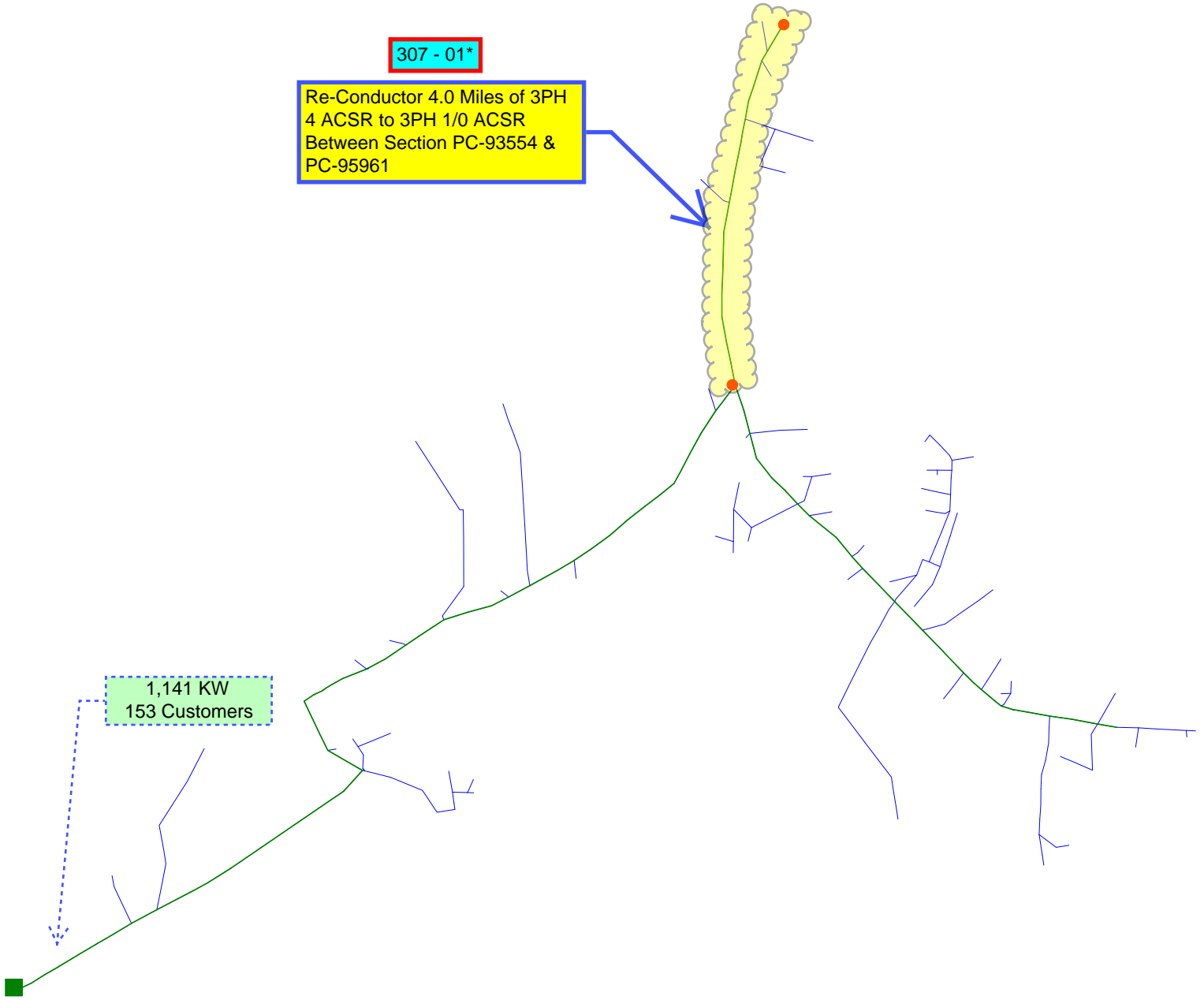
SUB: NEWBY  
CKT: 114



307 - 01\*

Re-Conductor 4.0 Miles of 3PH  
4 ACSR to 3PH 1/0 ACSR  
Between Section PC-93554 &  
PC-95961

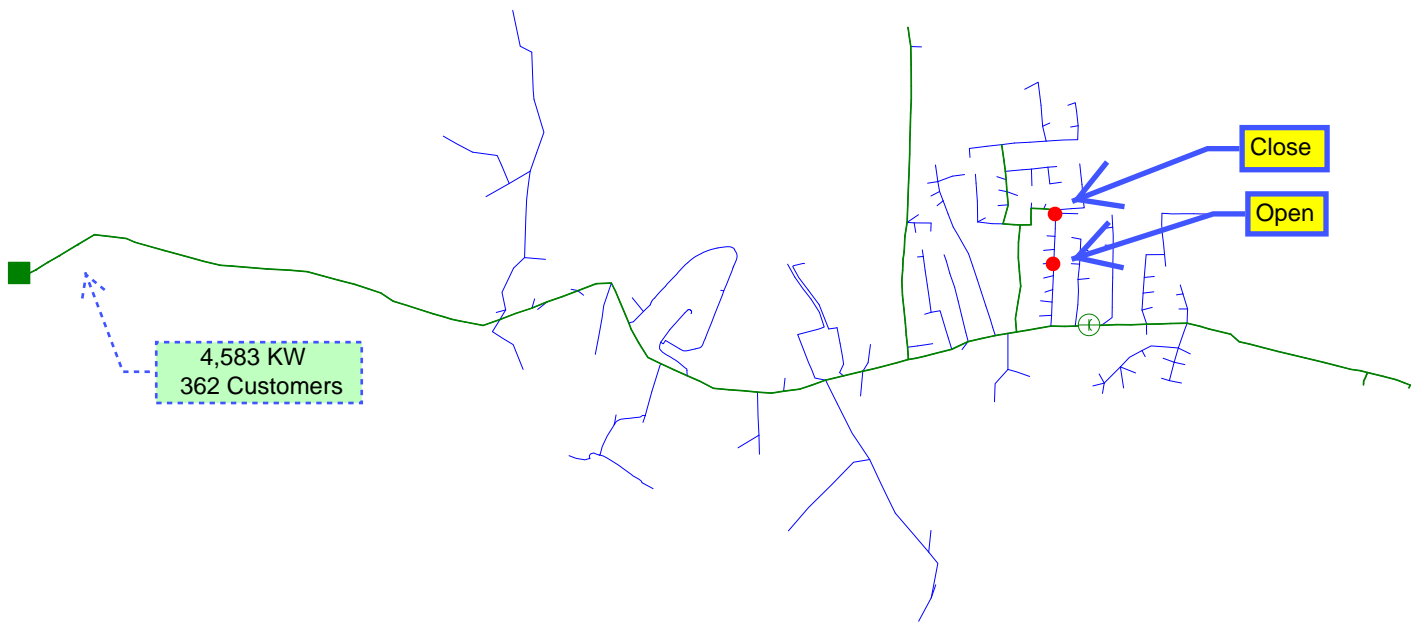
1,141 KW  
153 Customers



- 3 Phase
- 2 Phase
- 1 Phase

SUB: NEWBY  
CKT: 134

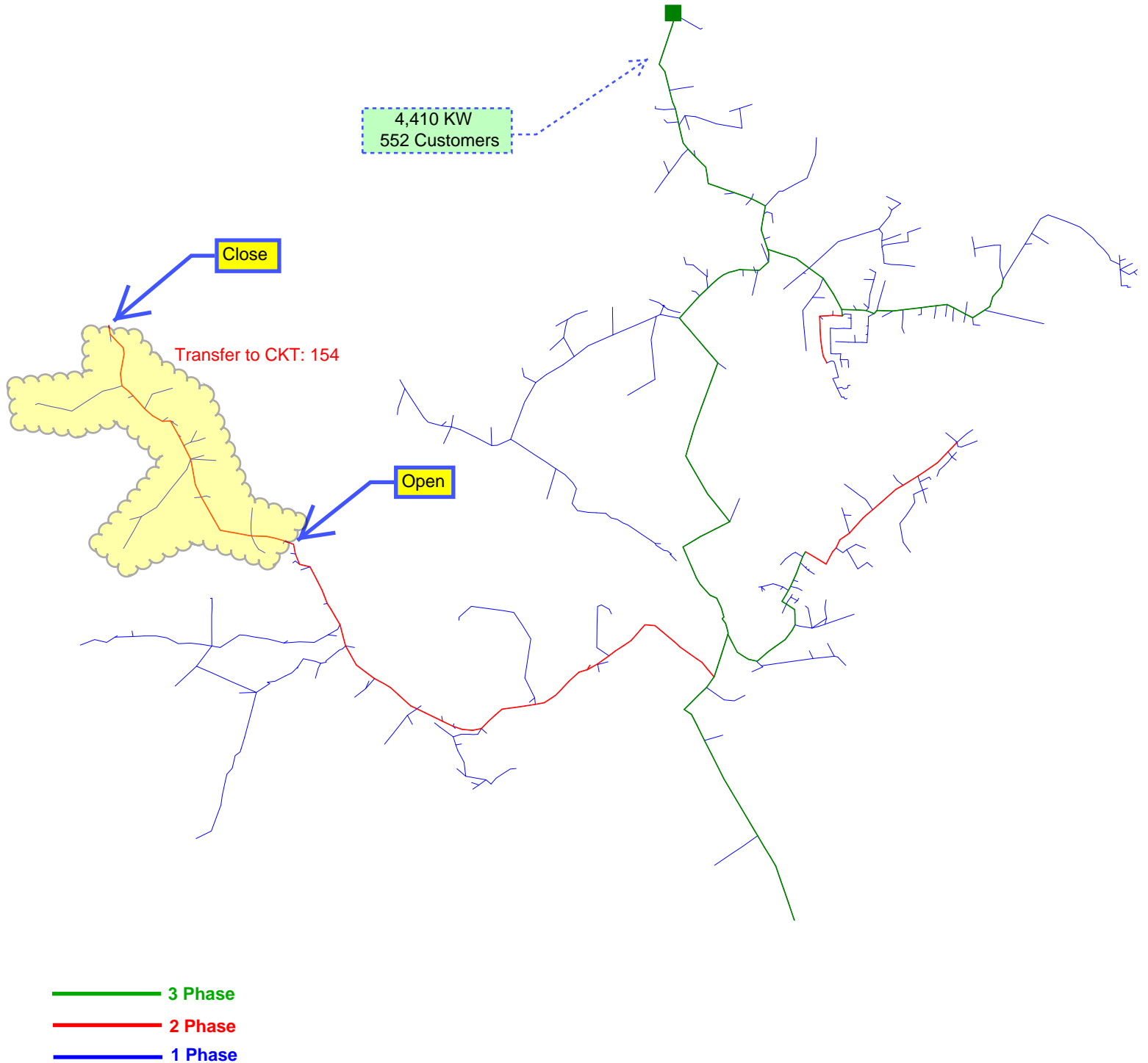
**No Projects Necessary**



- 3 Phase
- 2 Phase
- 1 Phase

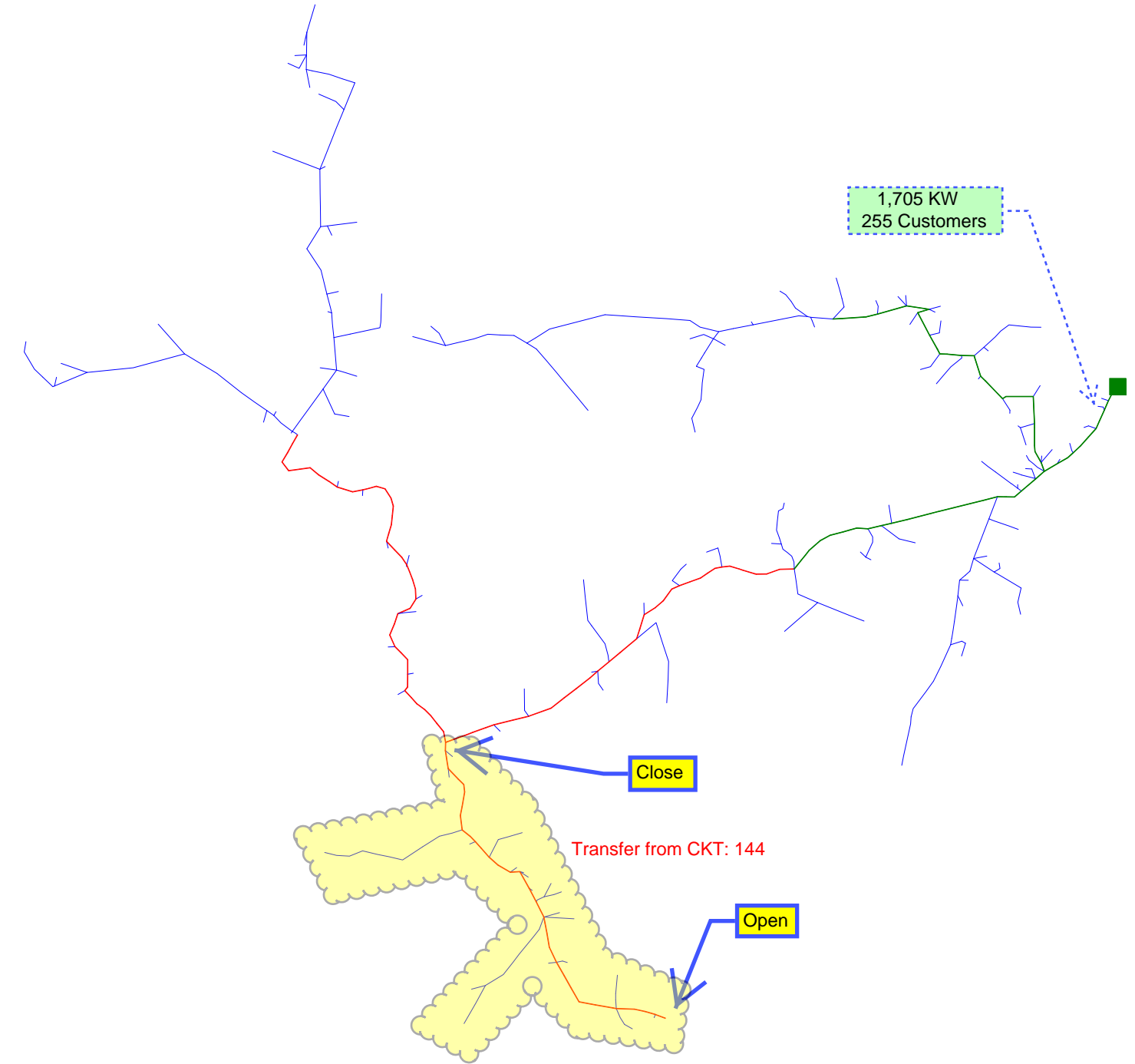


**No Projects Necessary**

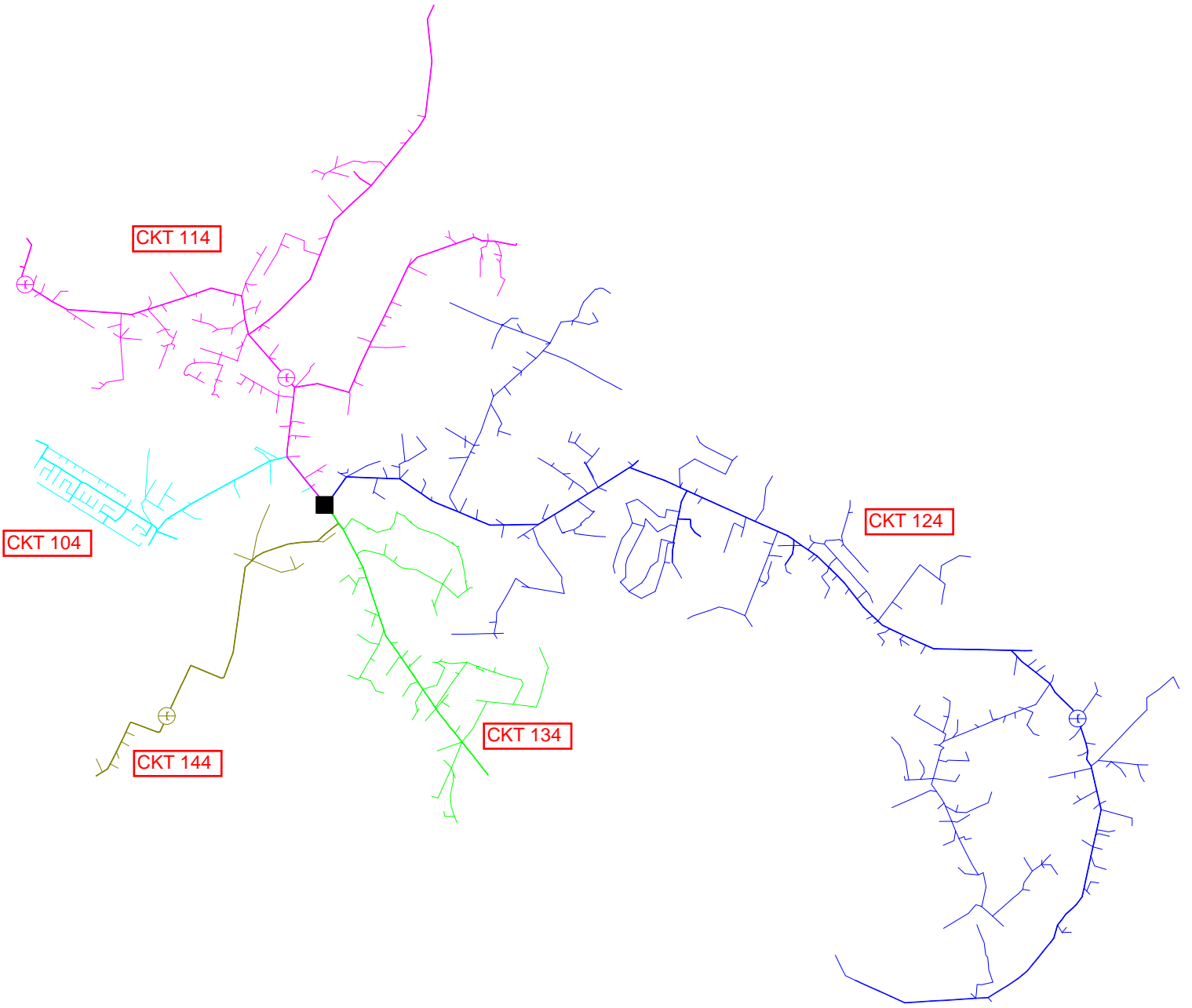


SUB: NEWBY  
CKT: 154

**No Projects Necessary**

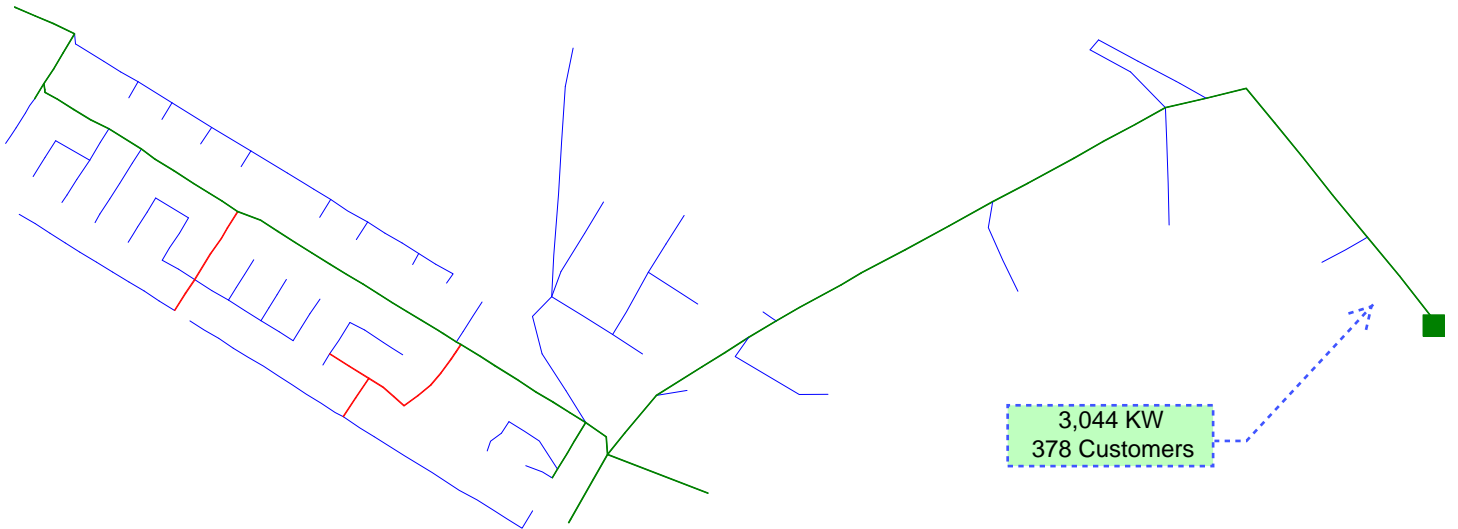


- 3 Phase
- 2 Phase
- 1 Phase



**No Projects Necessary**

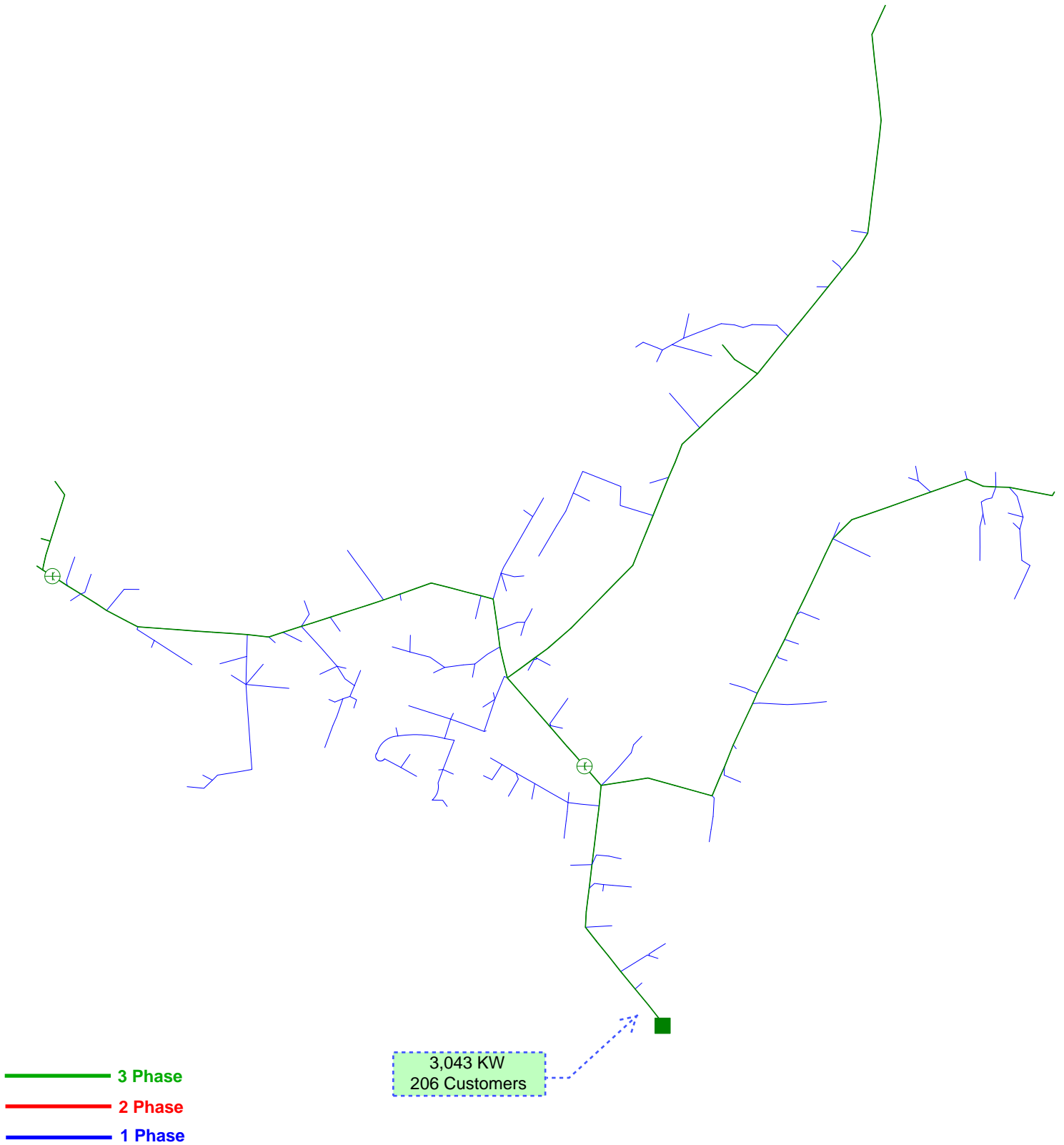
CONFIRM OPEN POINTS ARE  
AS INDICATED BELOW.....

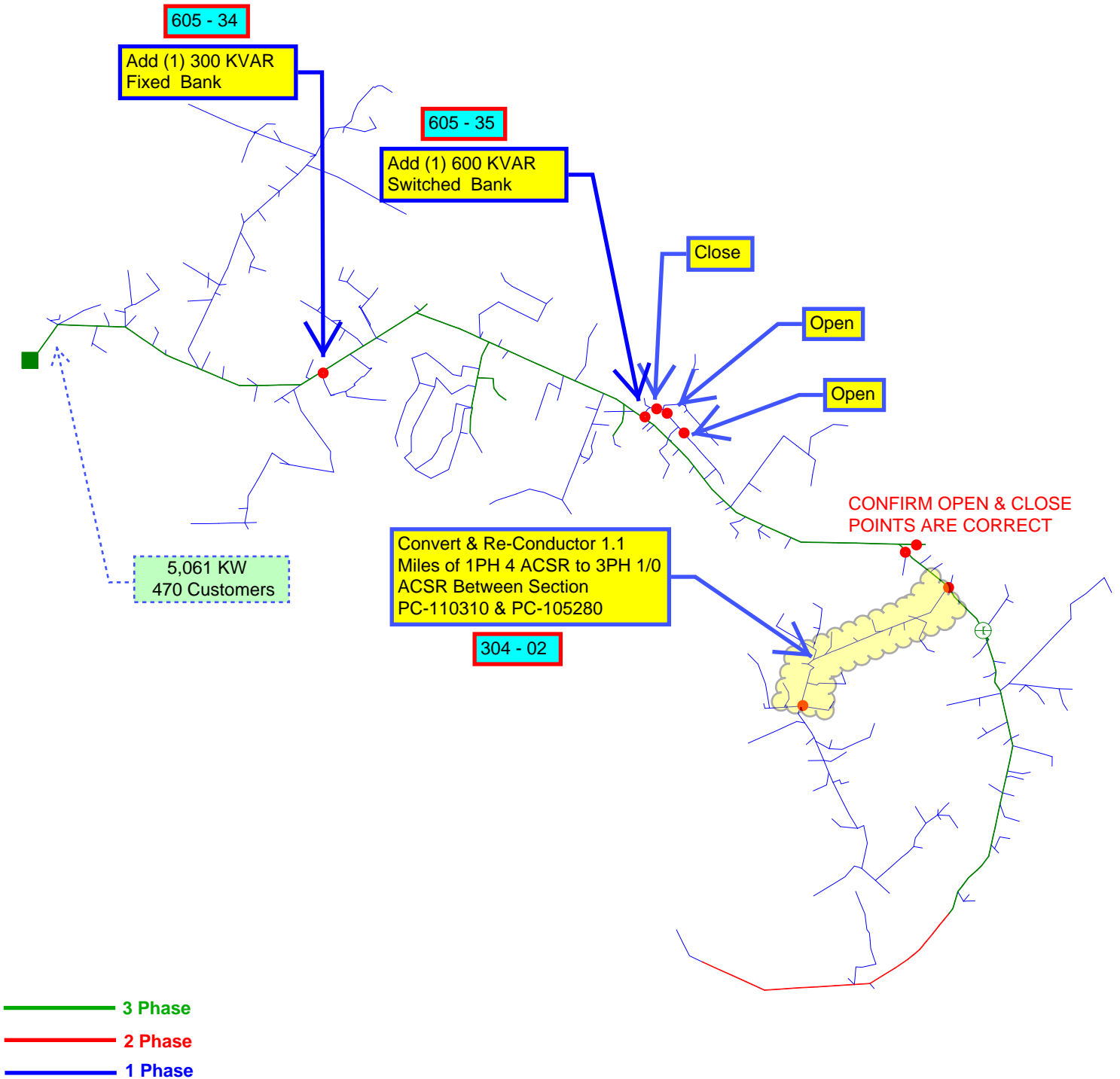


3,044 KW  
378 Customers

- 3 Phase
- 2 Phase
- 1 Phase

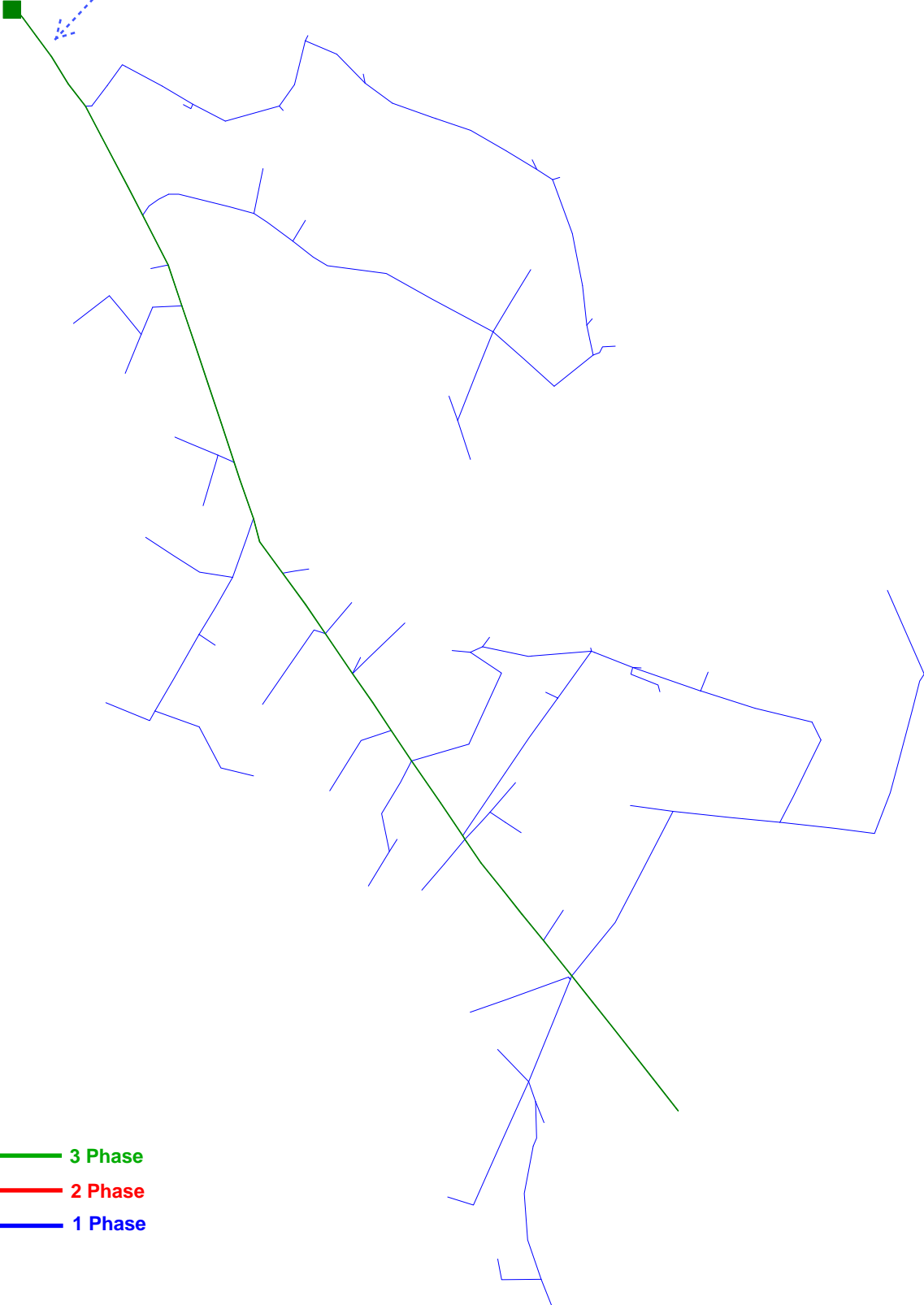
**No Projects Necessary**





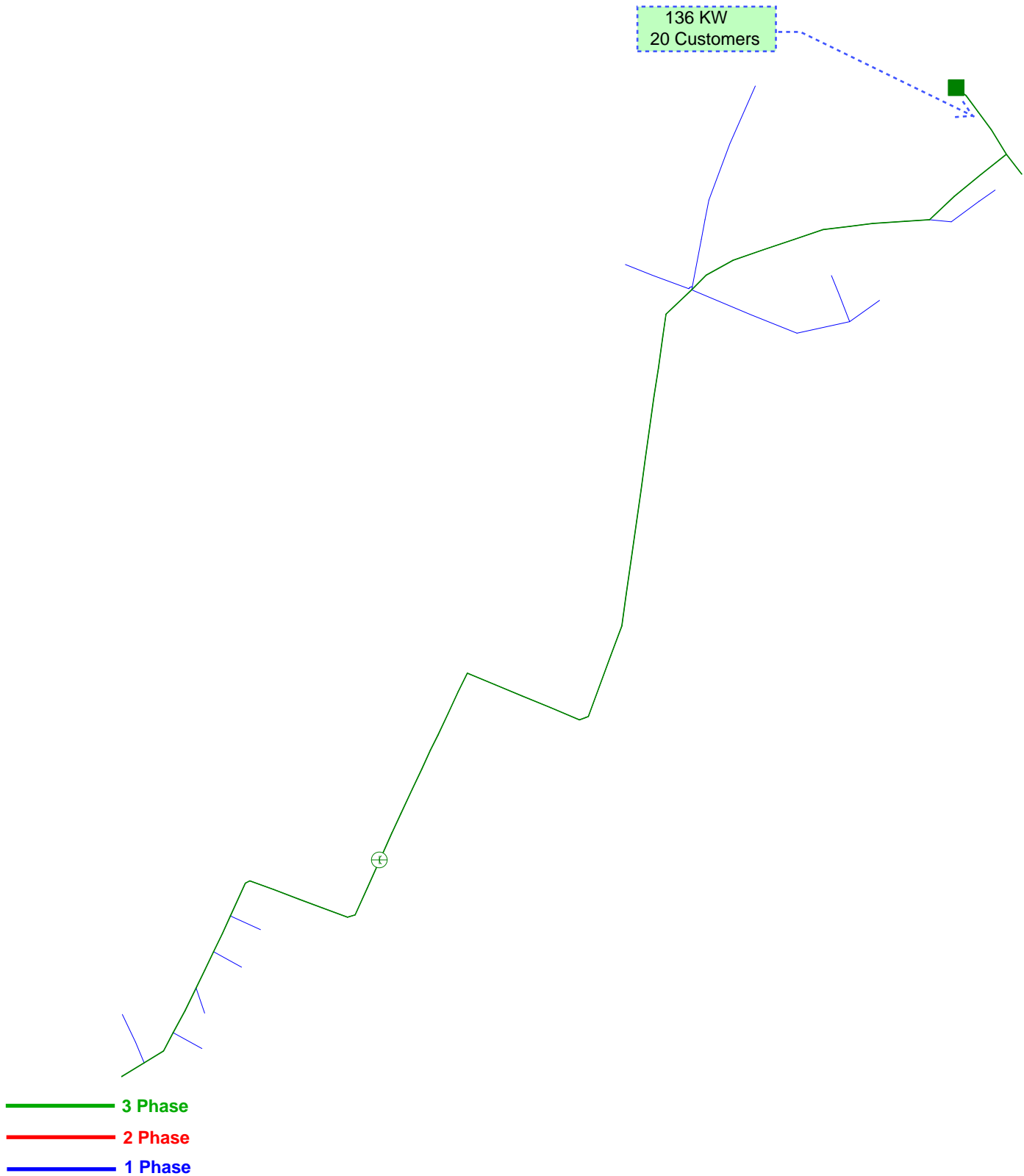
**No Projects Necessary**

902 KW  
104 Customers



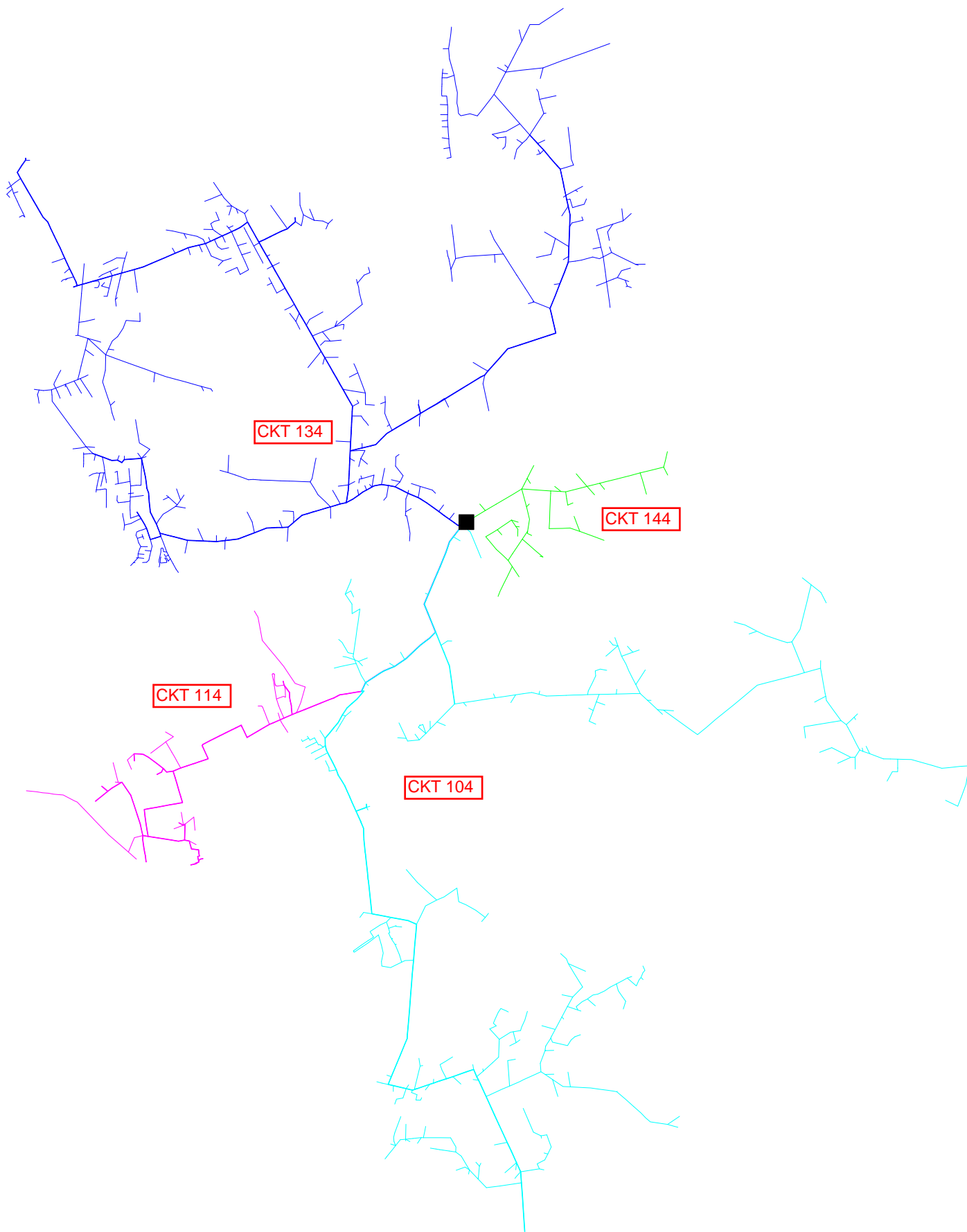
- 3 Phase
- 2 Phase
- 1 Phase

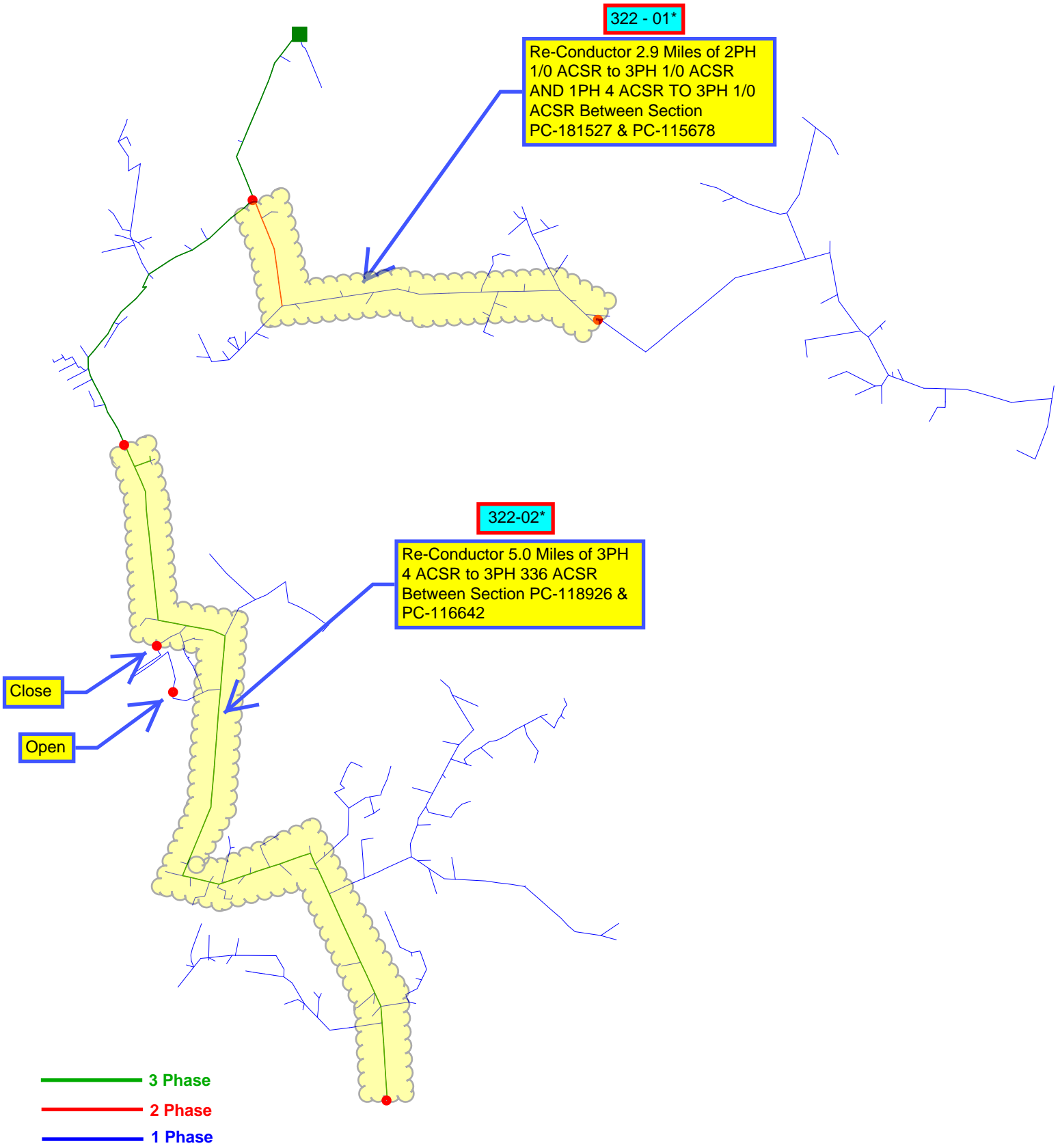
**No Projects Necessary**



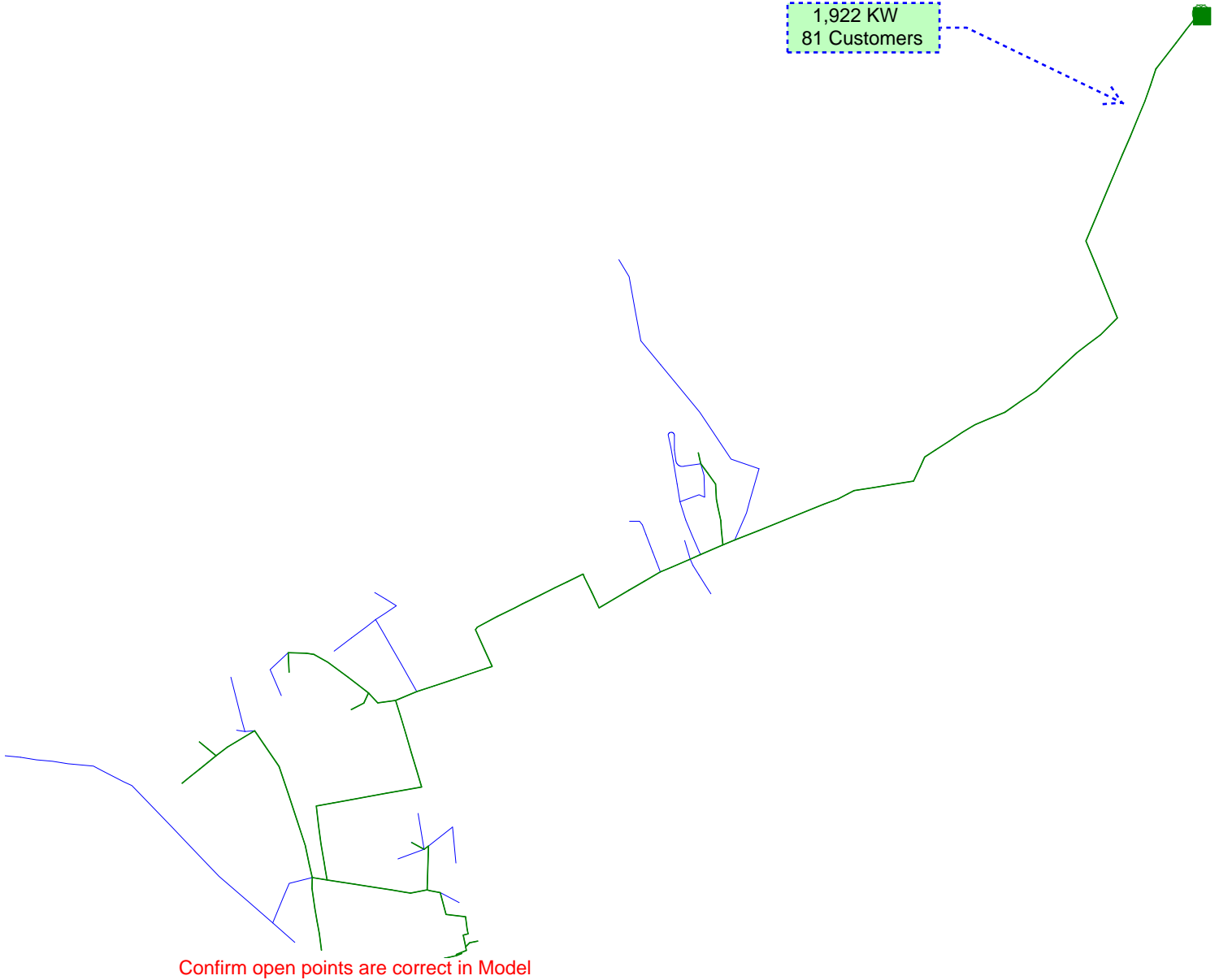


SUB: NINEVAH

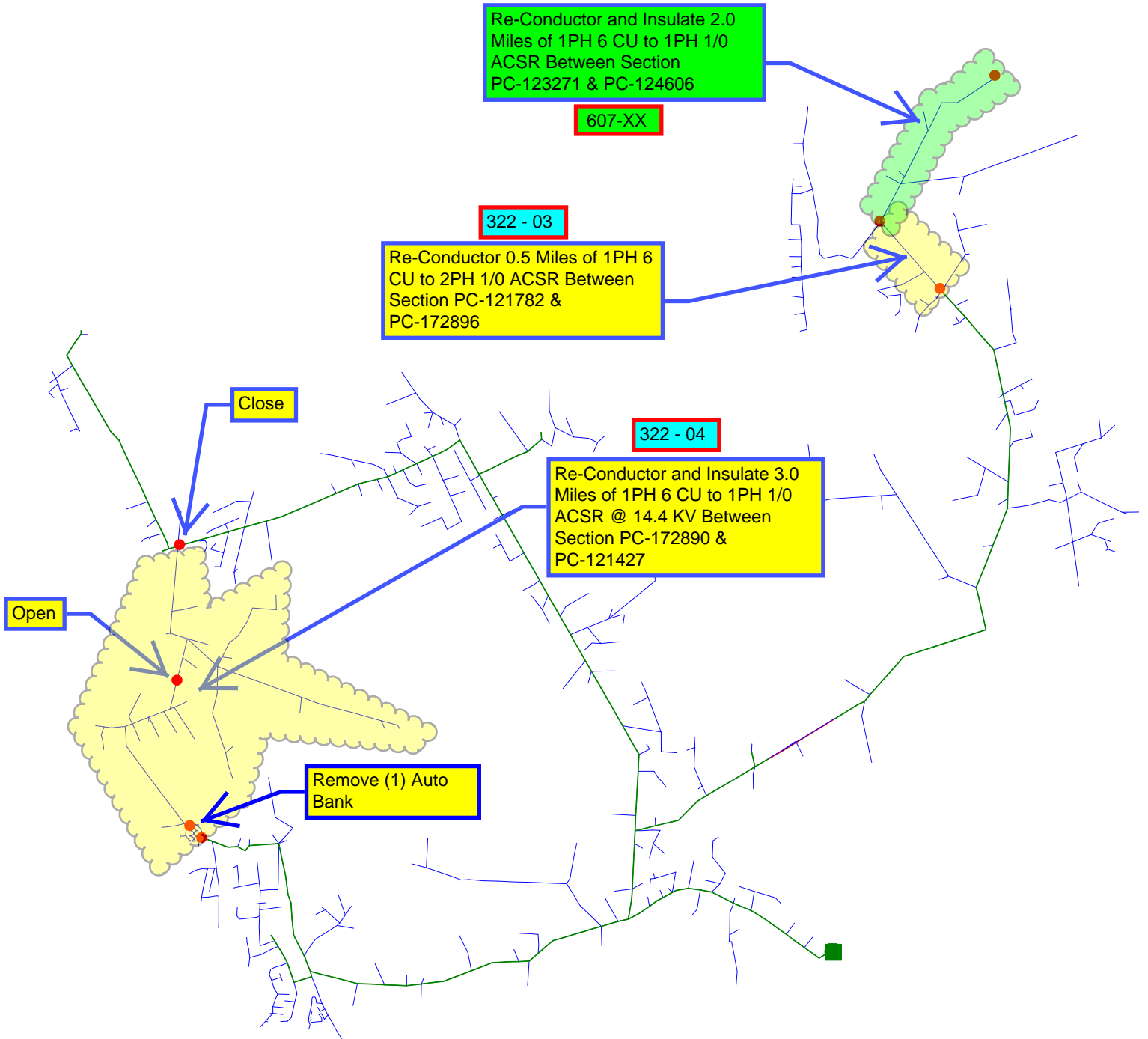




**No Projects Necessary**



- 3 Phase
- 2 Phase
- 1 Phase



Re-Conductor and Insulate 2.0 Miles of 1PH 6 CU to 1PH 1/0 ACSR Between Section PC-123271 & PC-124606

607-XX

322 - 03

Re-Conductor 0.5 Miles of 1PH 6 CU to 2PH 1/0 ACSR Between Section PC-121782 & PC-172896

322 - 04

Re-Conductor and Insulate 3.0 Miles of 1PH 6 CU to 1PH 1/0 ACSR @ 14.4 KV Between Section PC-172890 & PC-121427

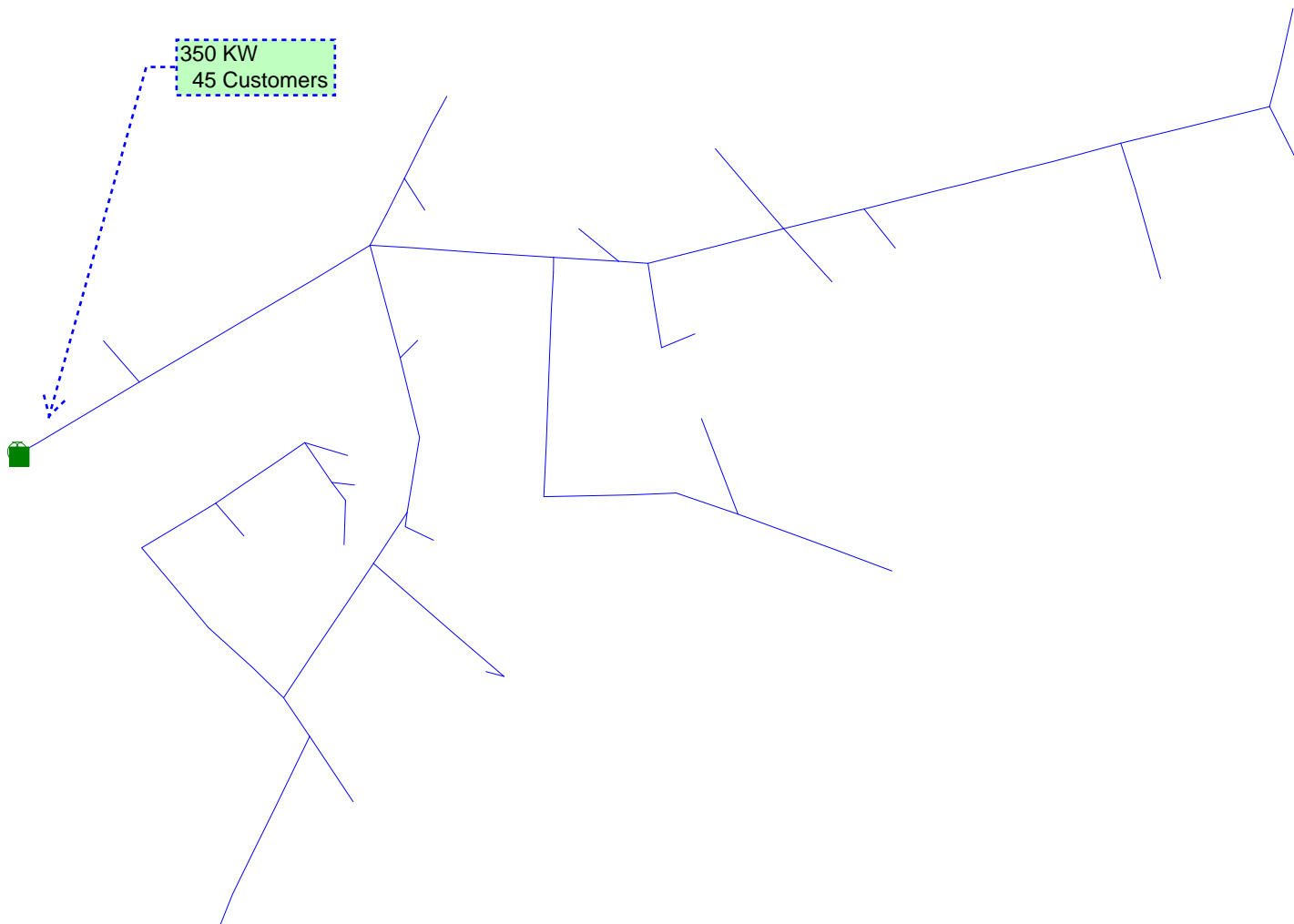
Close

Open

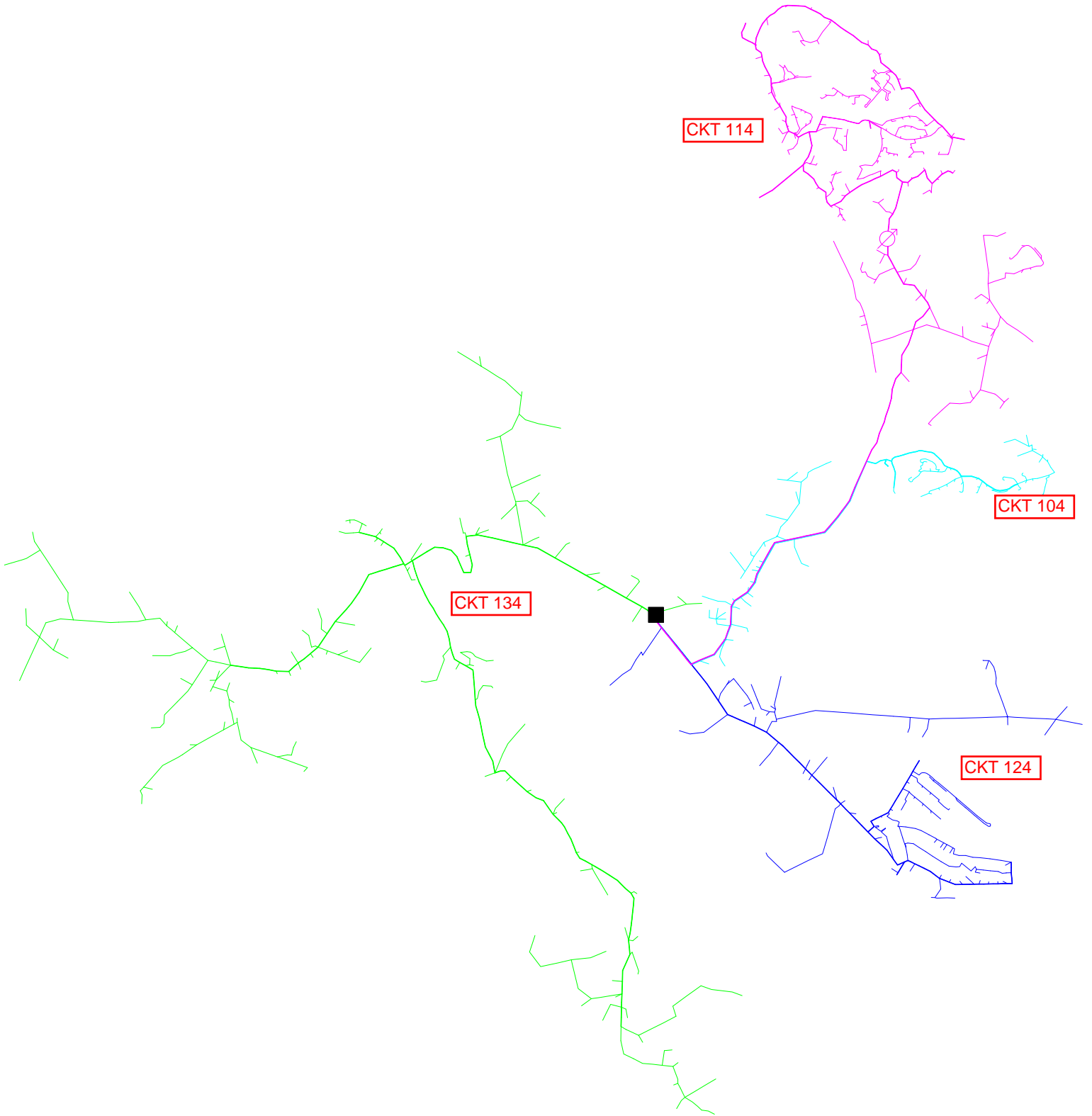
Remove (1) Auto Bank

- 3 Phase
- 2 Phase
- 1 Phase

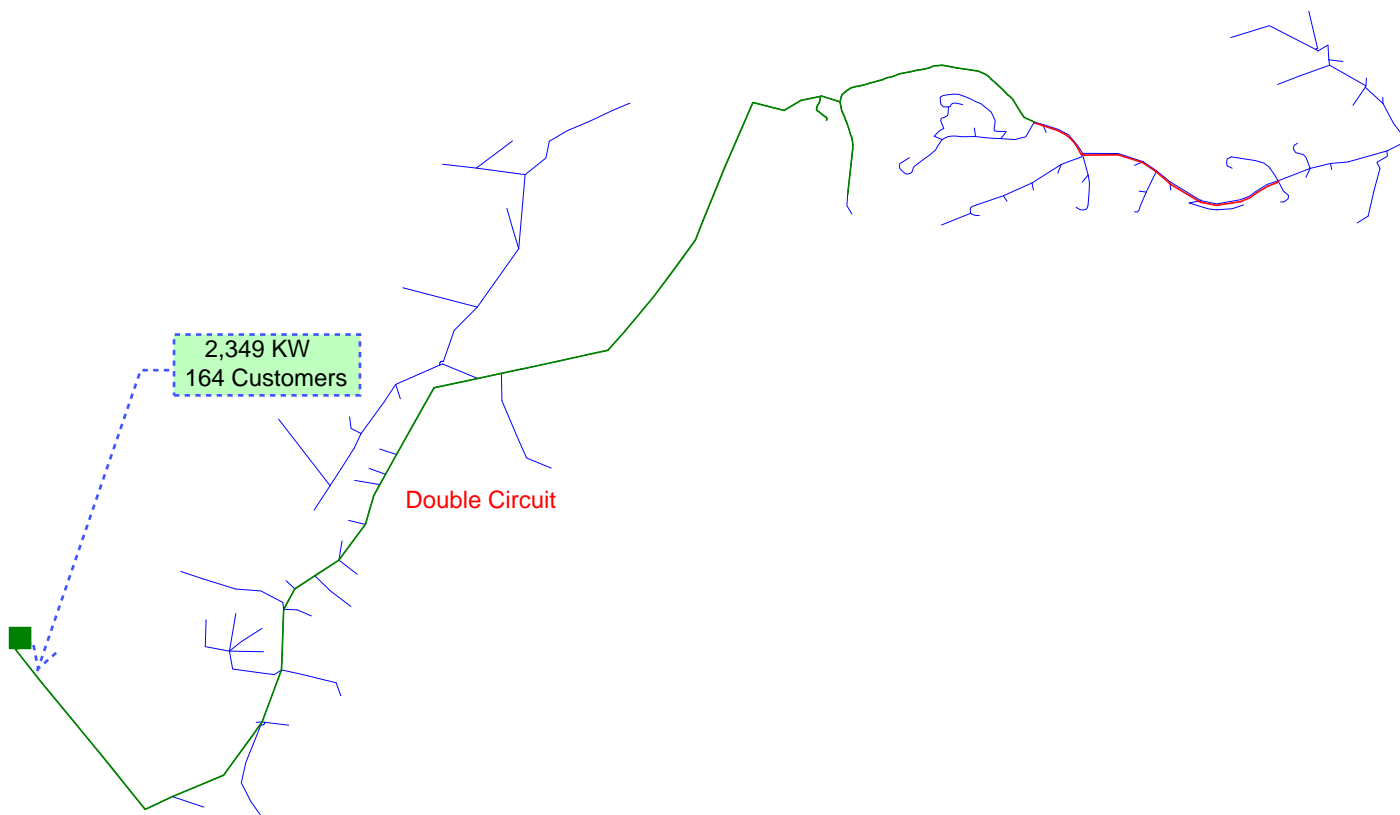
**No Projects Necessary**



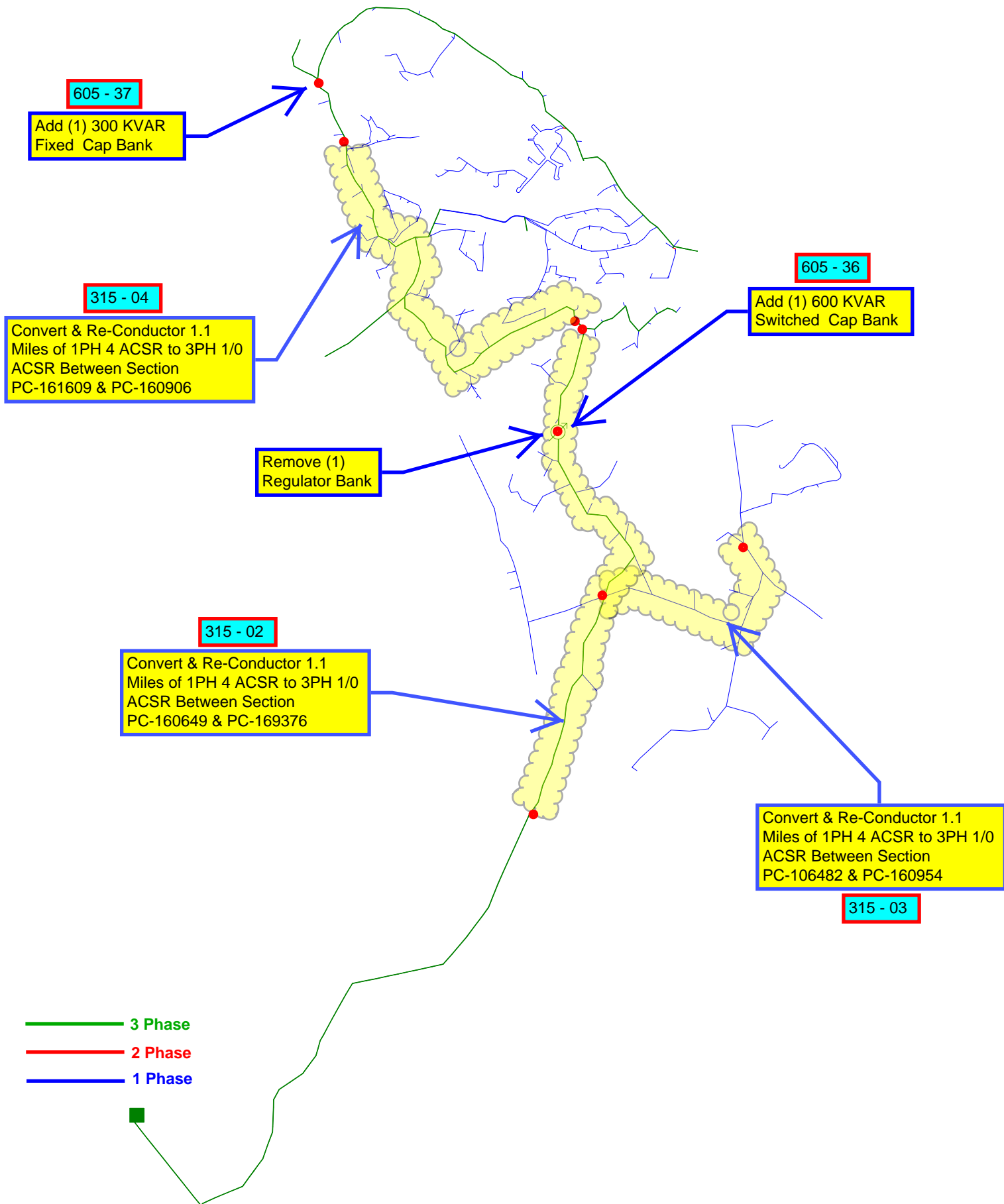
- 3 Phase
- 2 Phase
- 1 Phase



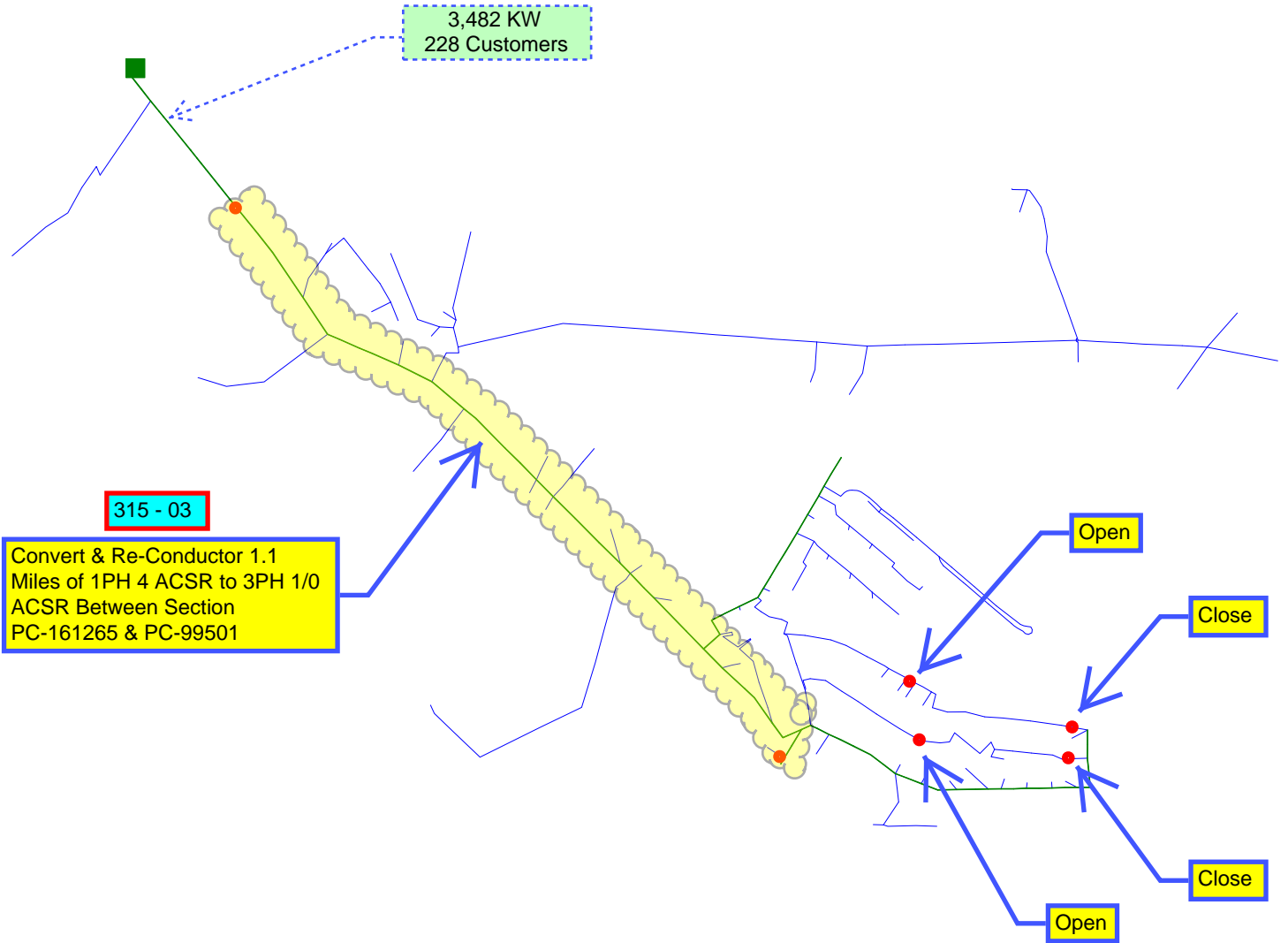
**No Projects Necessary**



- 3 Phase
- 2 Phase
- 1 Phase

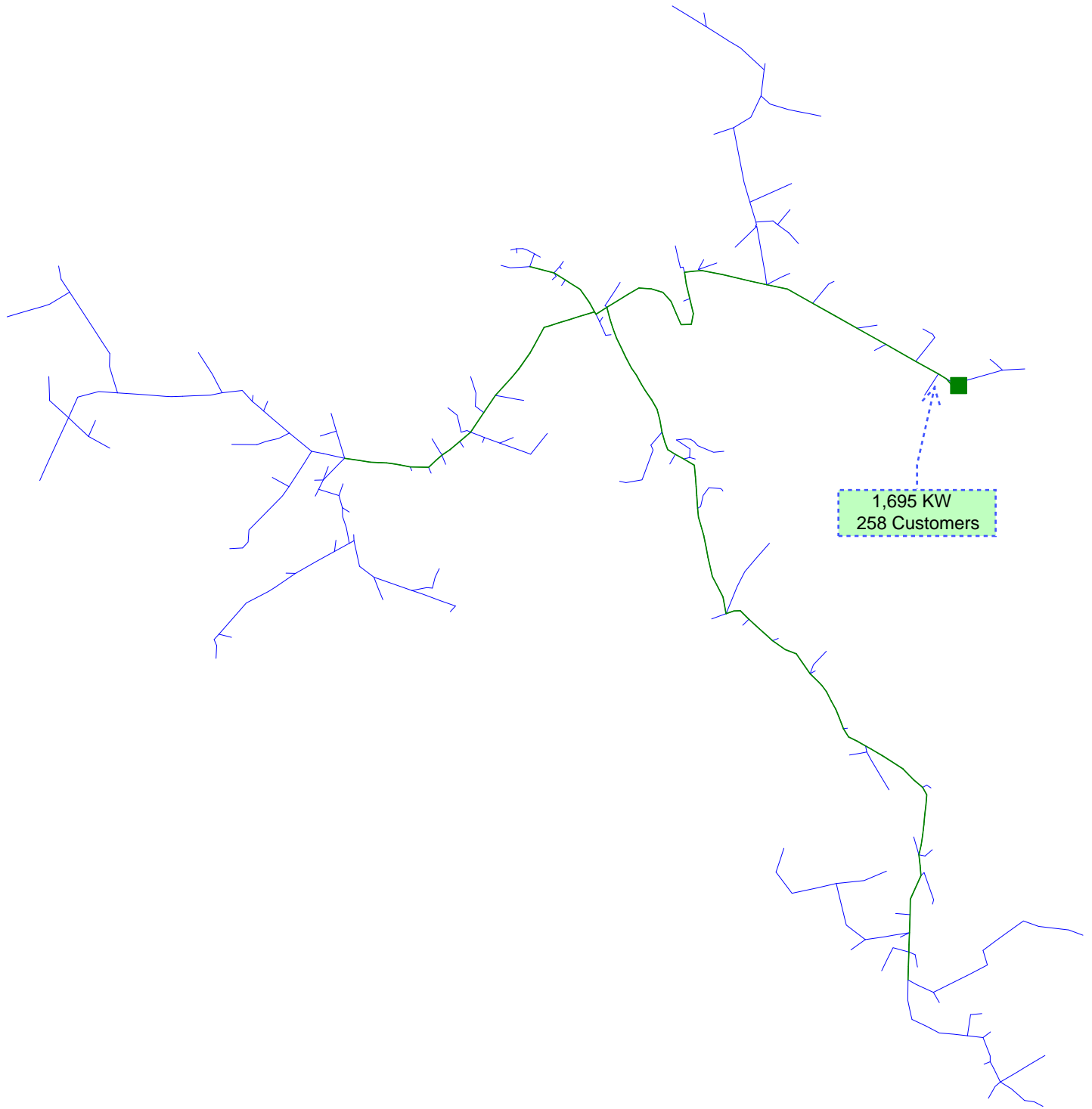






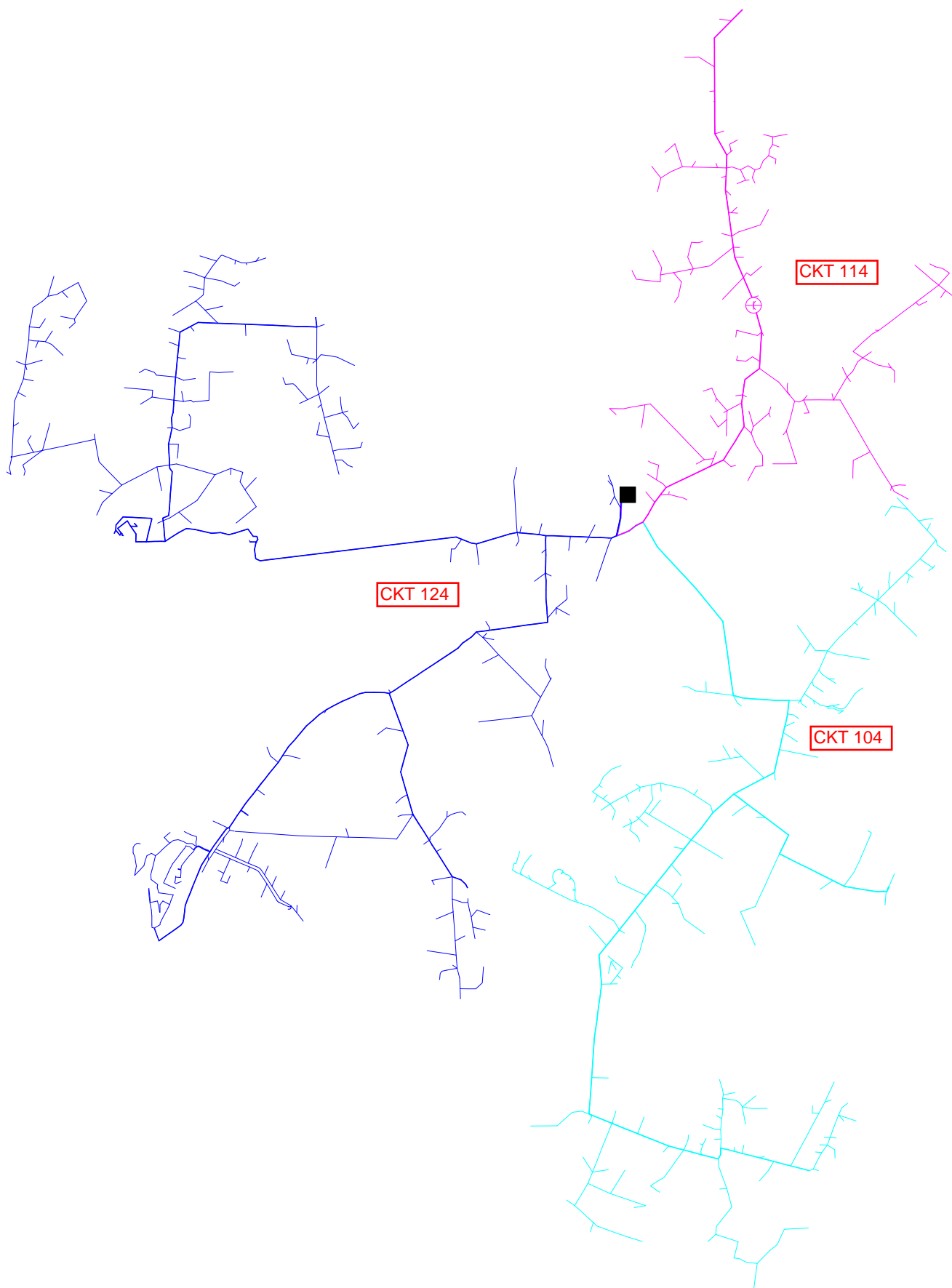
- 3 Phase
- 2 Phase
- 1 Phase

**No Projects Necessary**

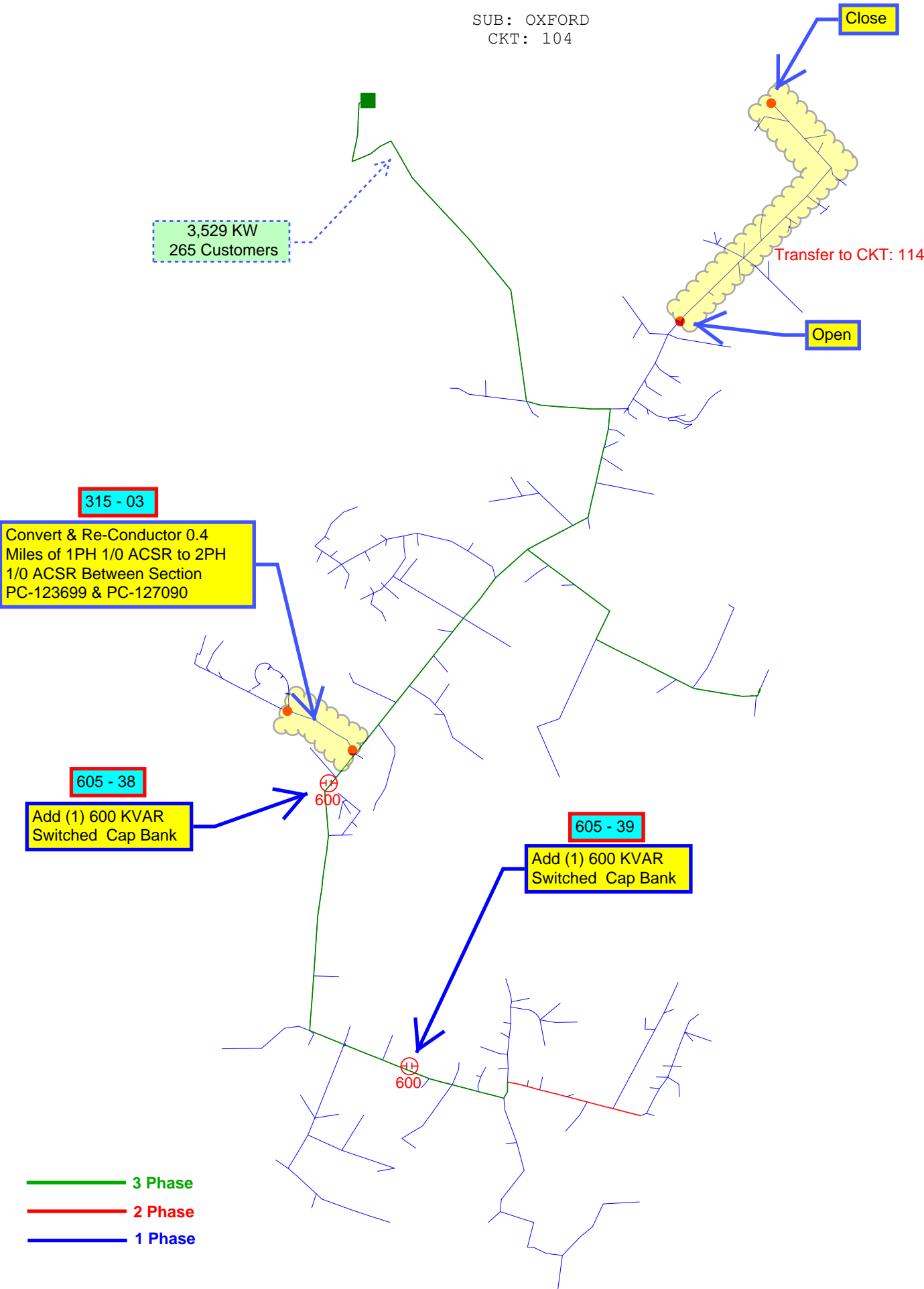


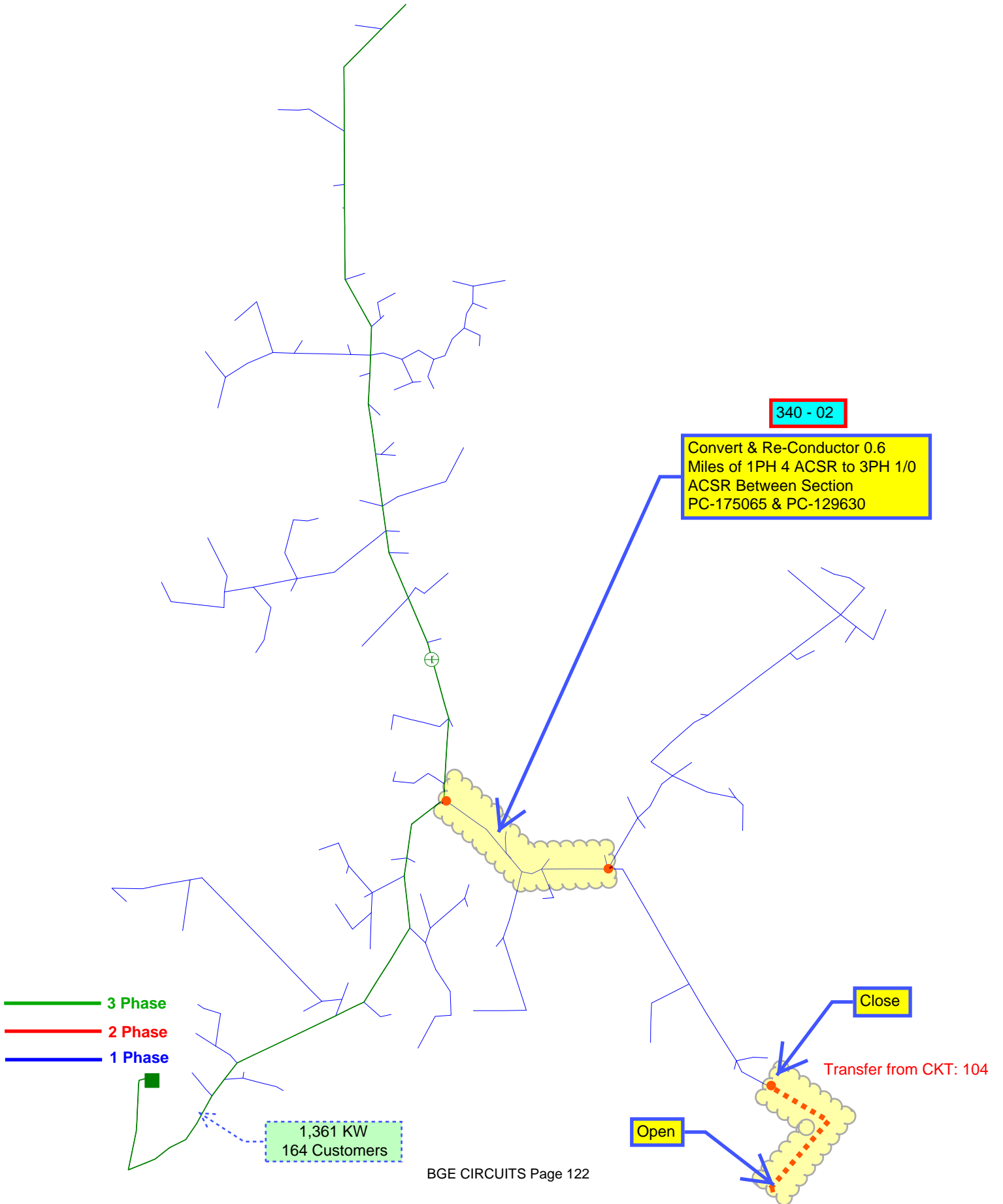
1,695 KW  
258 Customers

- 3 Phase
- 2 Phase
- 1 Phase

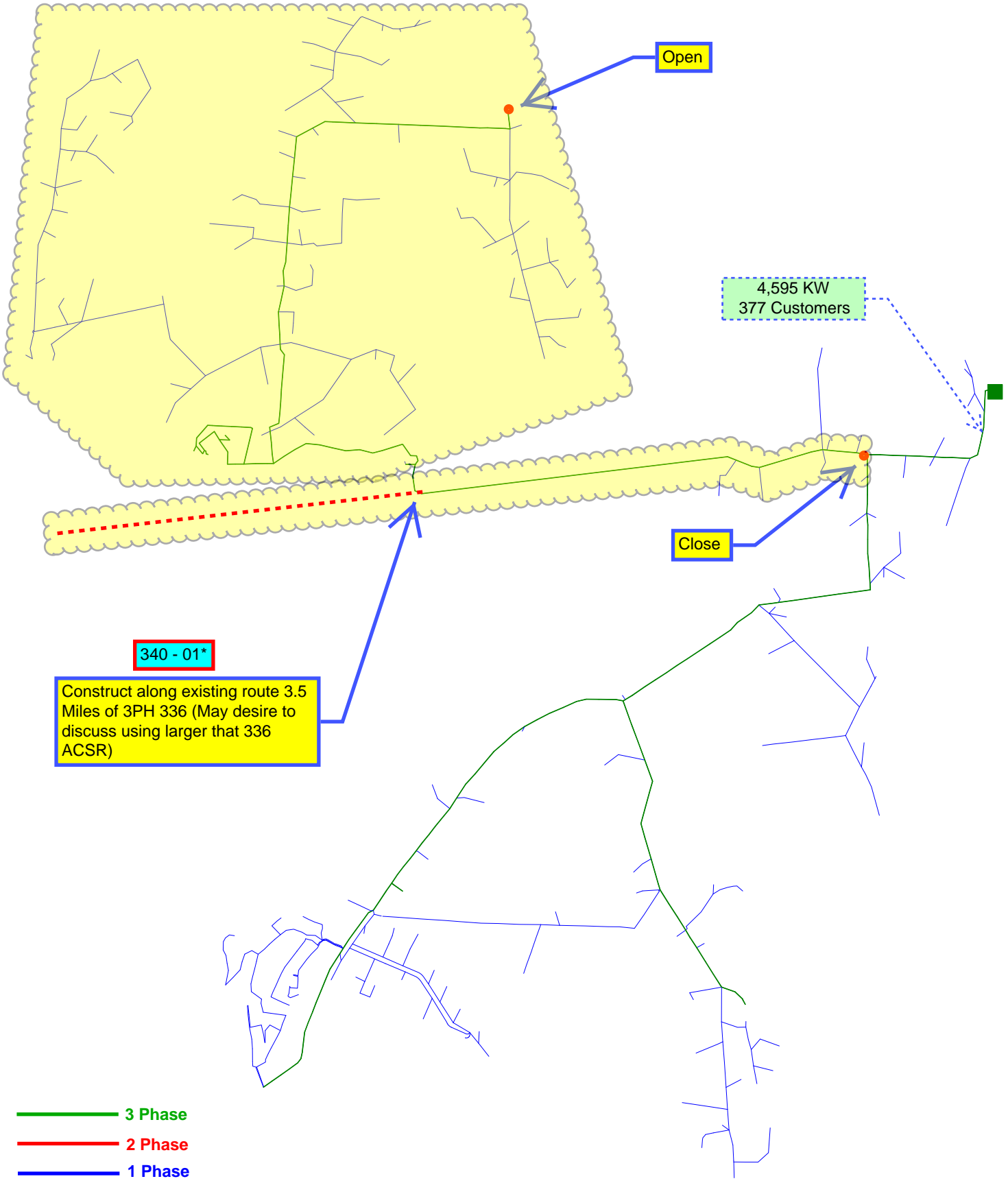


SUB: OXFORD  
CKT: 104





Transfer from Lee's Lick Substation



Open

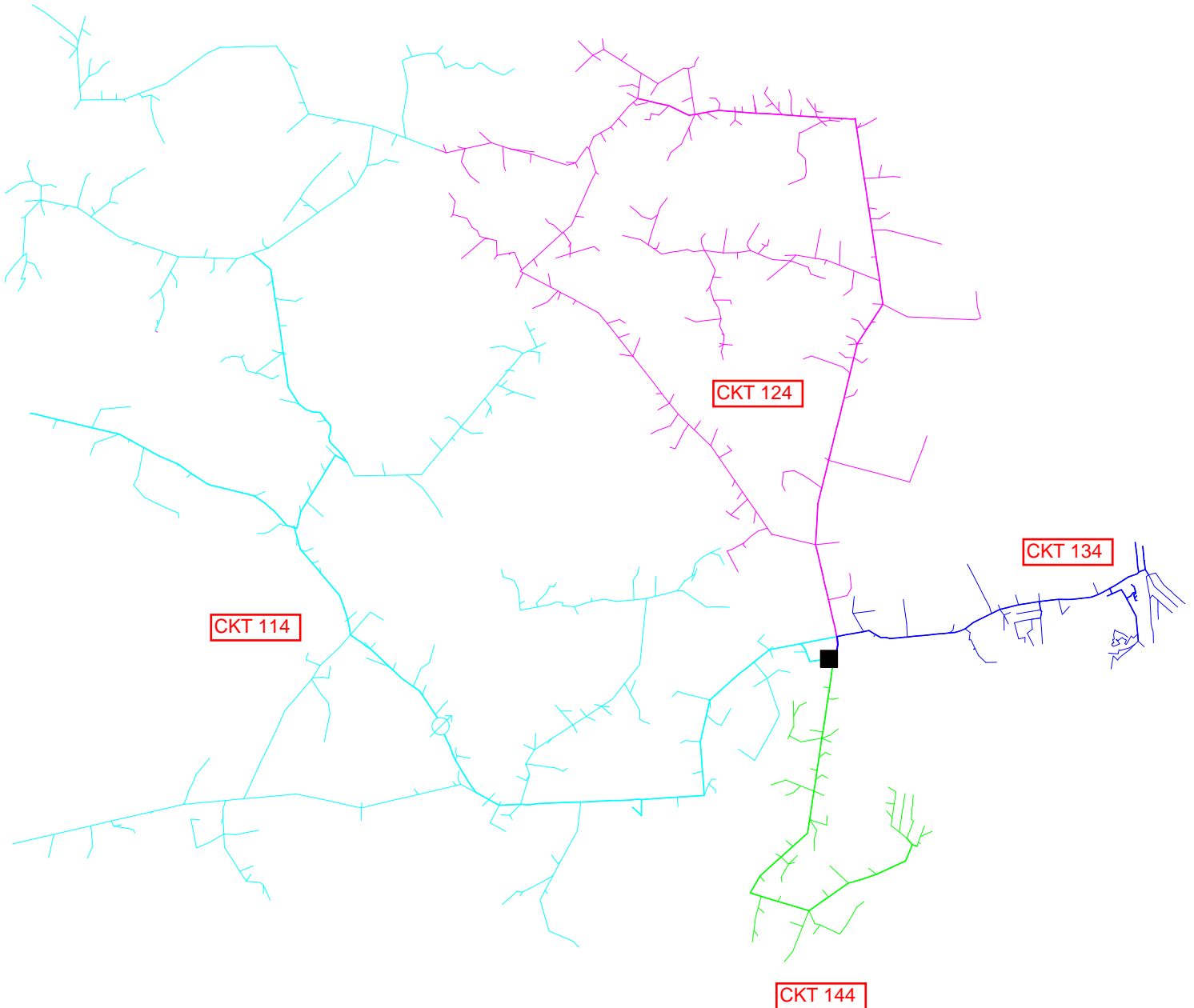
4,595 KW  
377 Customers

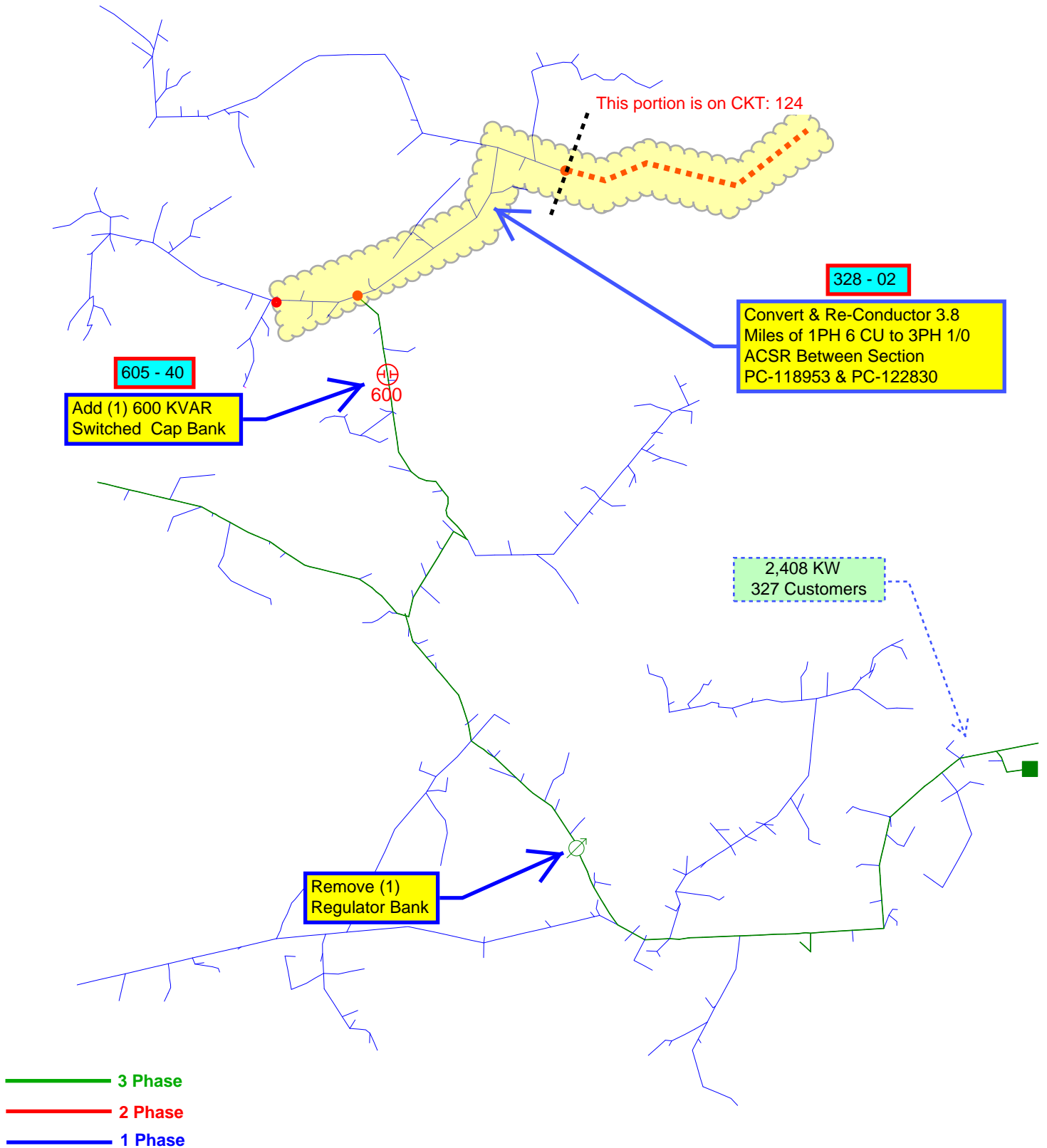
Close

340 - 01\*

Construct along existing route 3.5  
Miles of 3PH 336 (May desire to  
discuss using larger than 336  
ACSR)

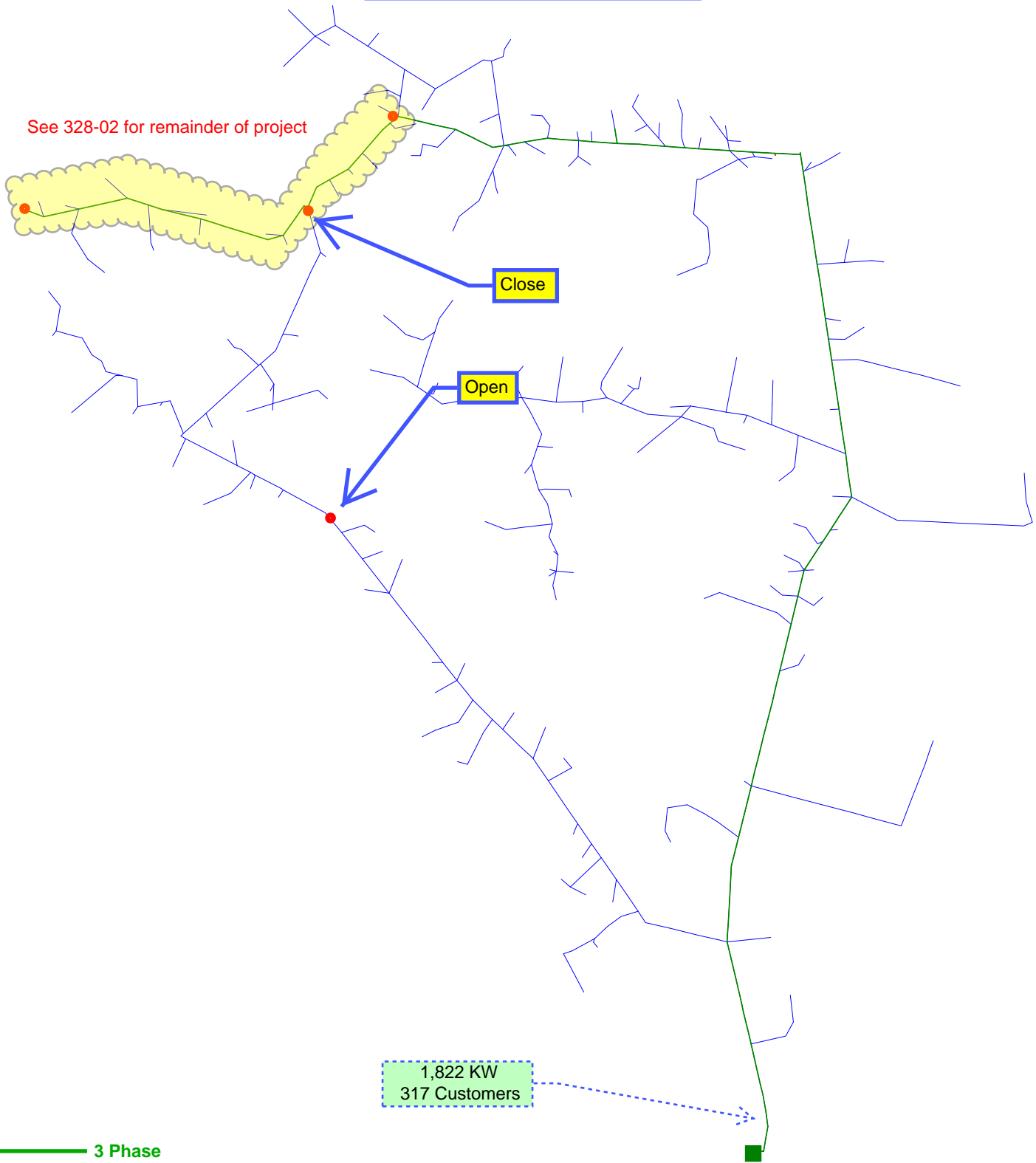
- 3 Phase
- 2 Phase
- 1 Phase

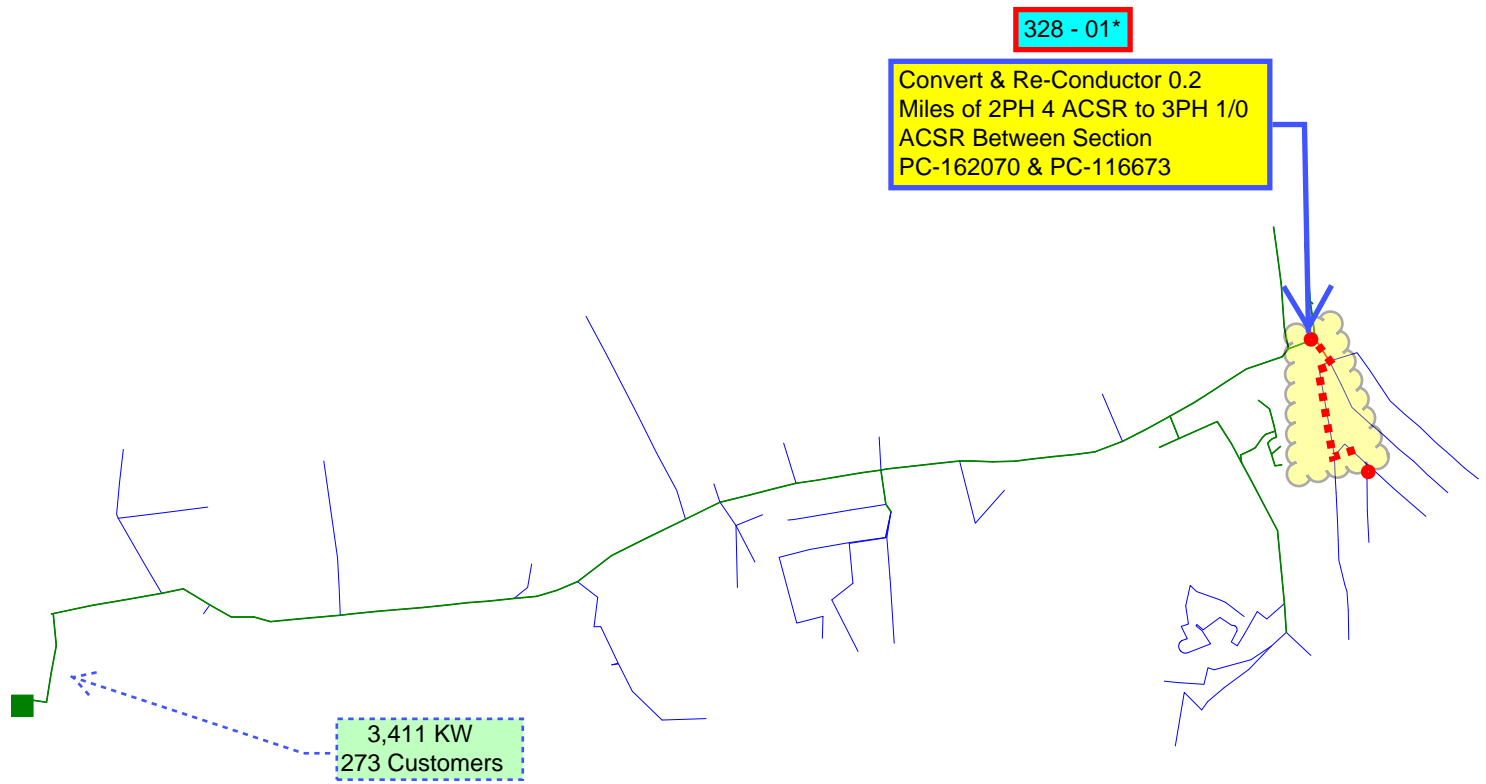




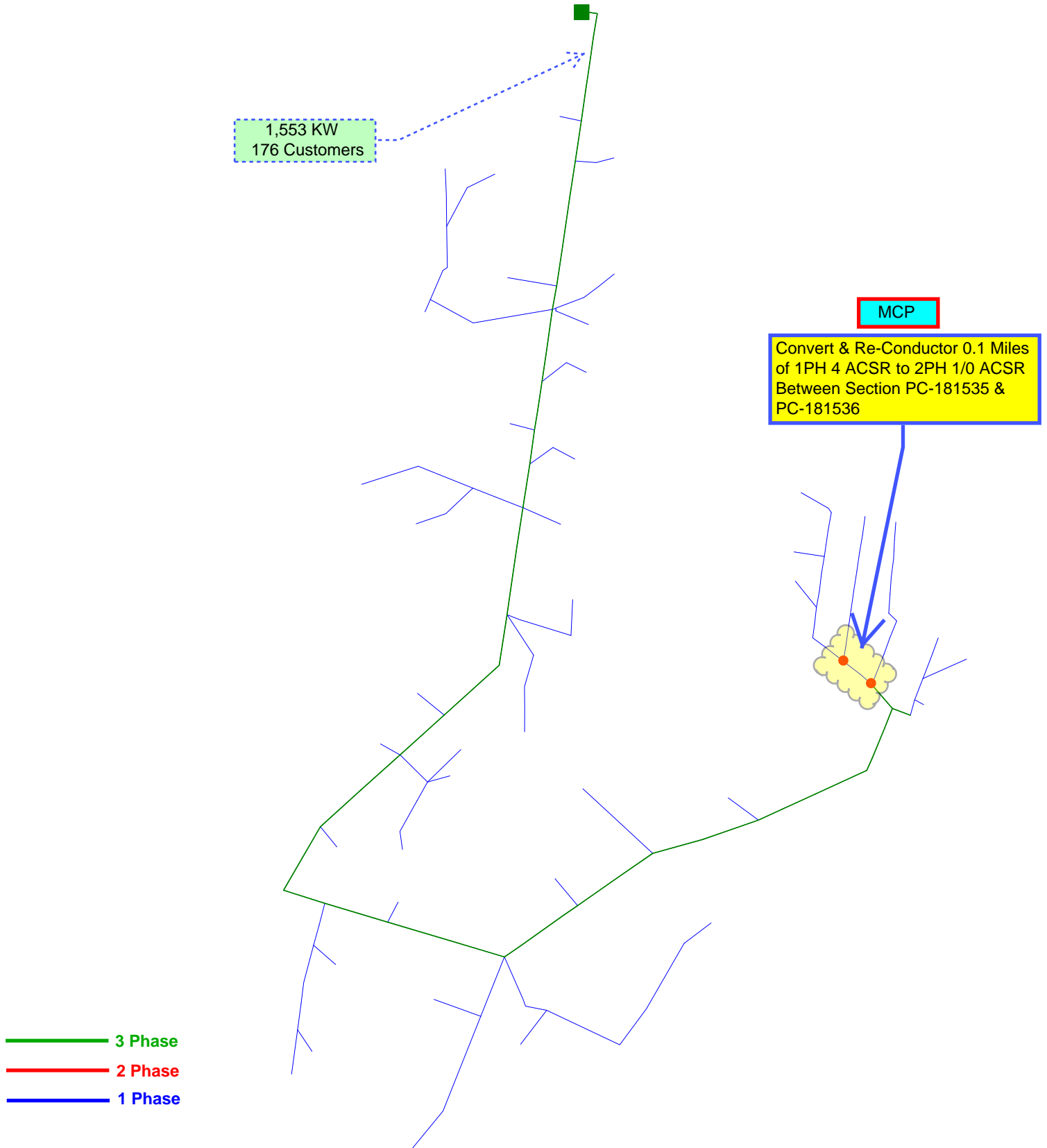


**No Projects Necessary**



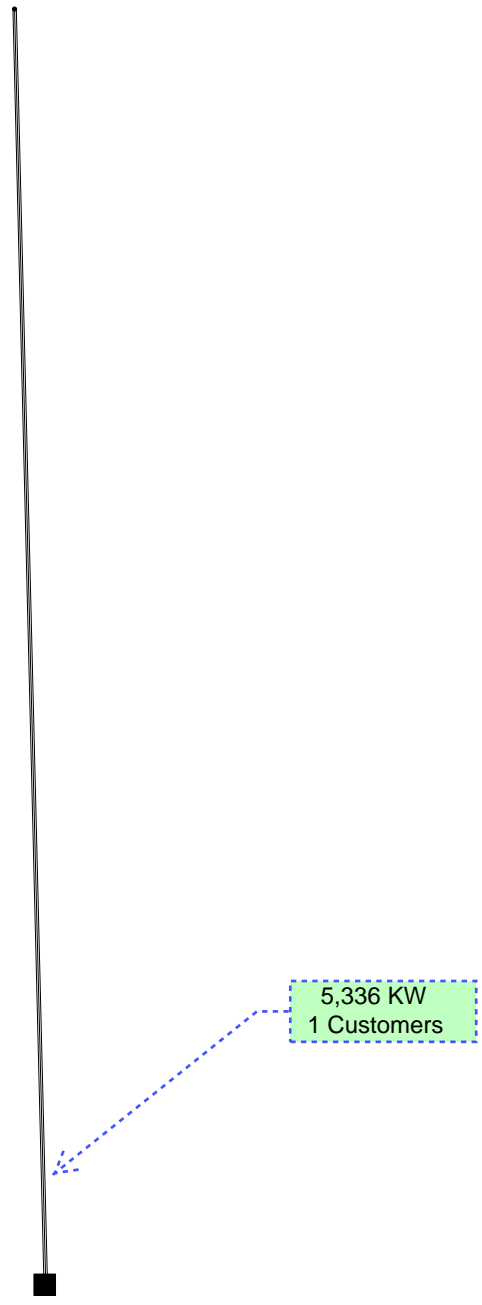


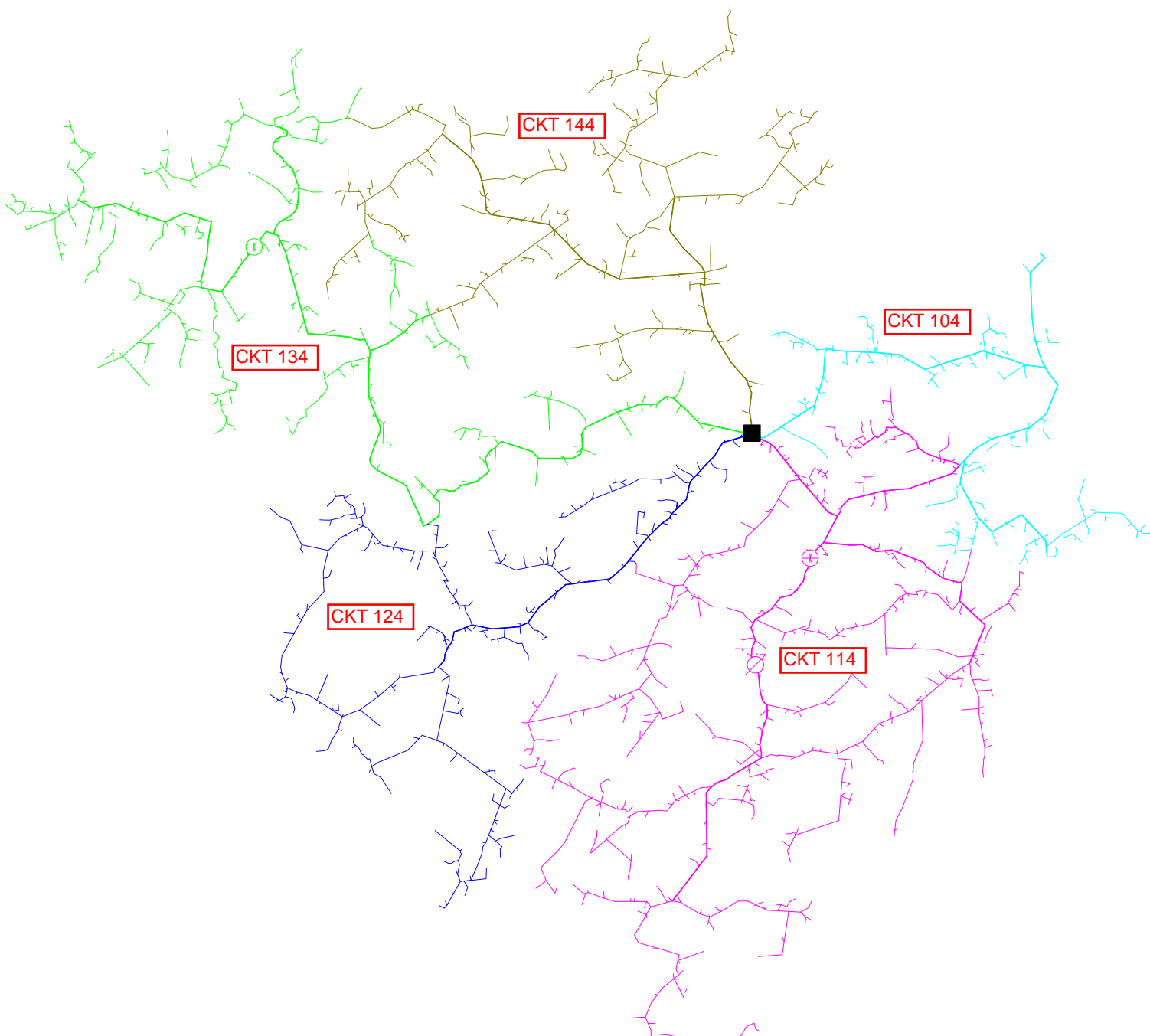
- 3 Phase
- 2 Phase
- 1 Phase



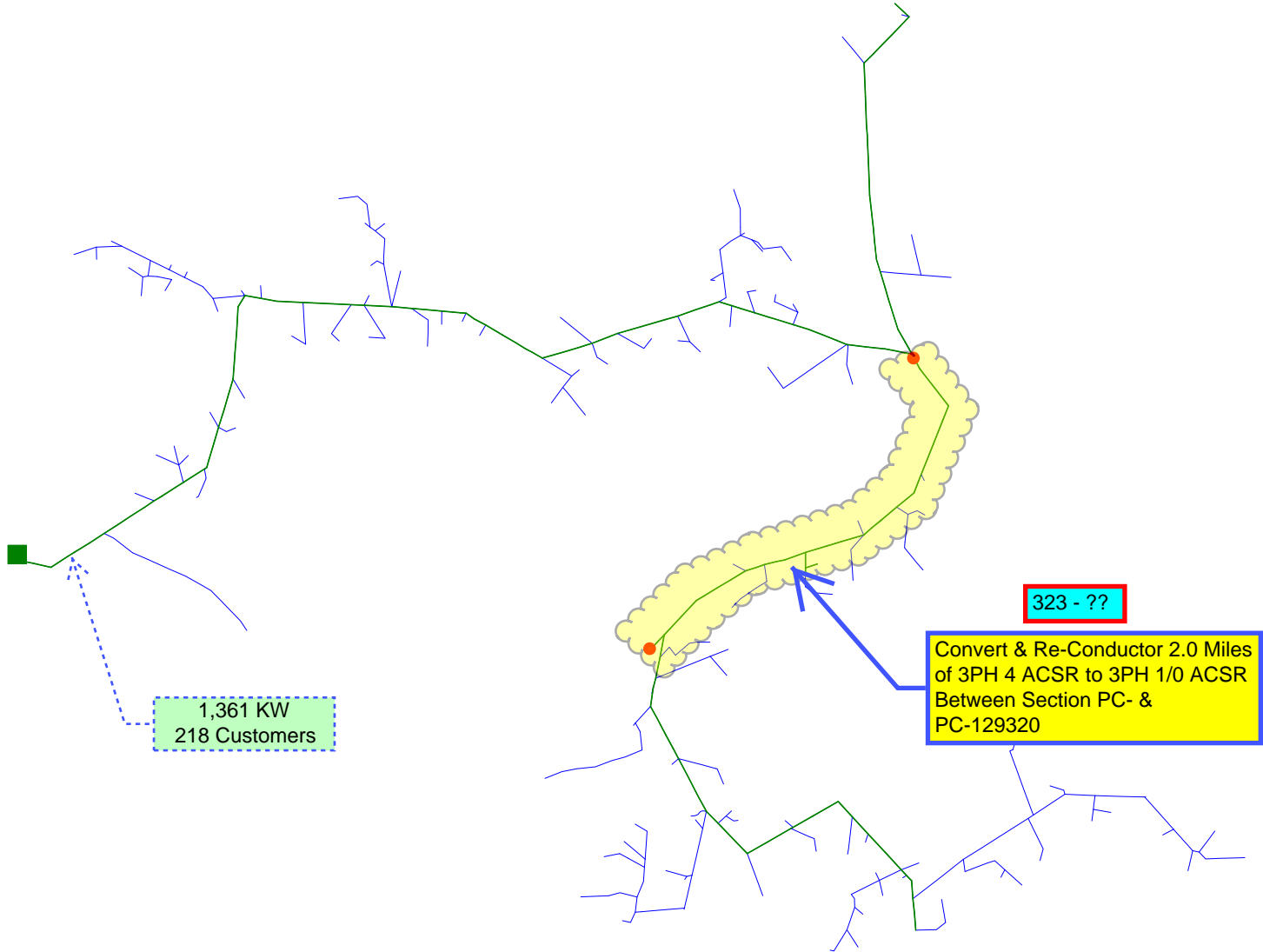
SUB: PPG

**No Projects Necessary**

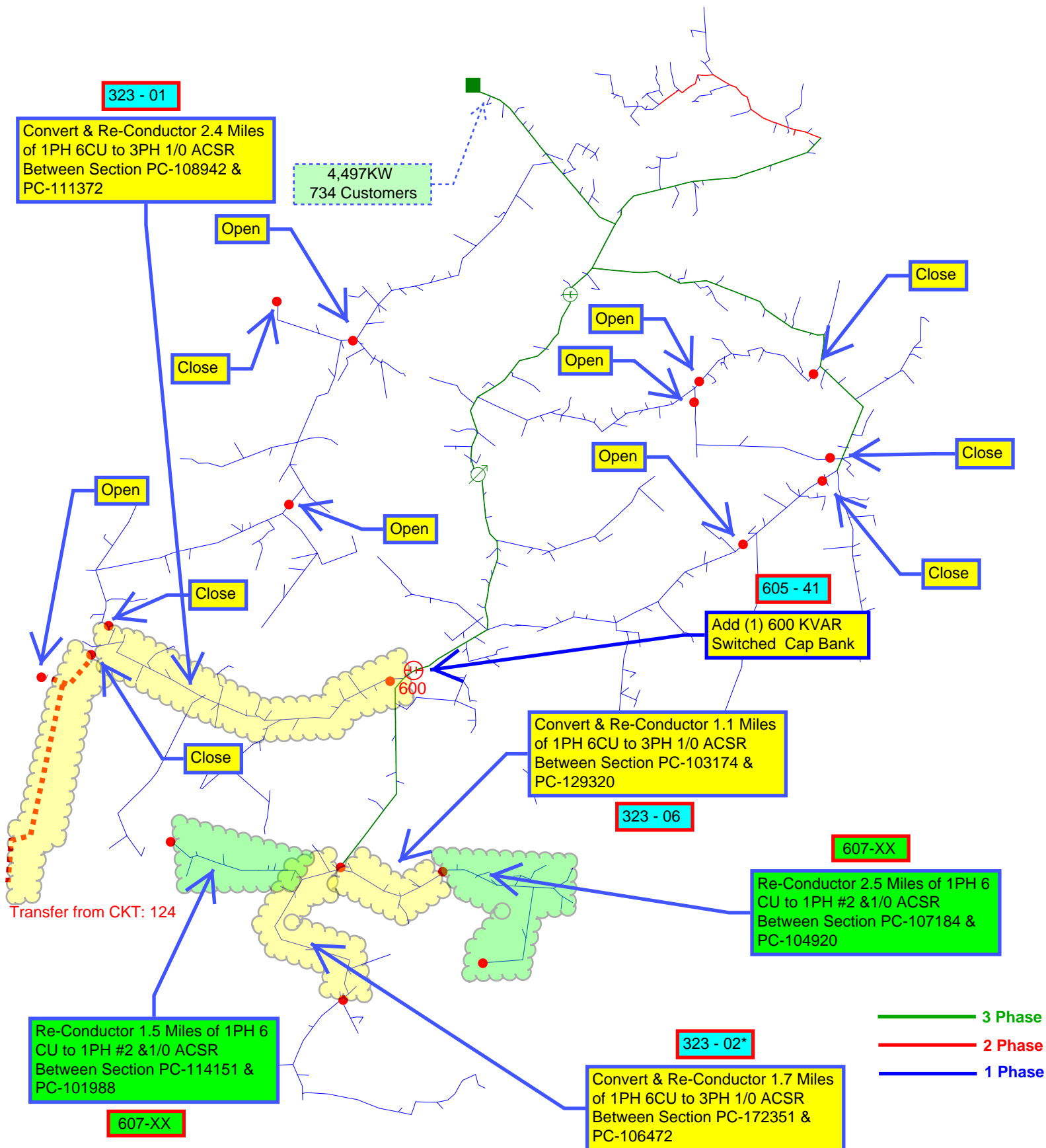




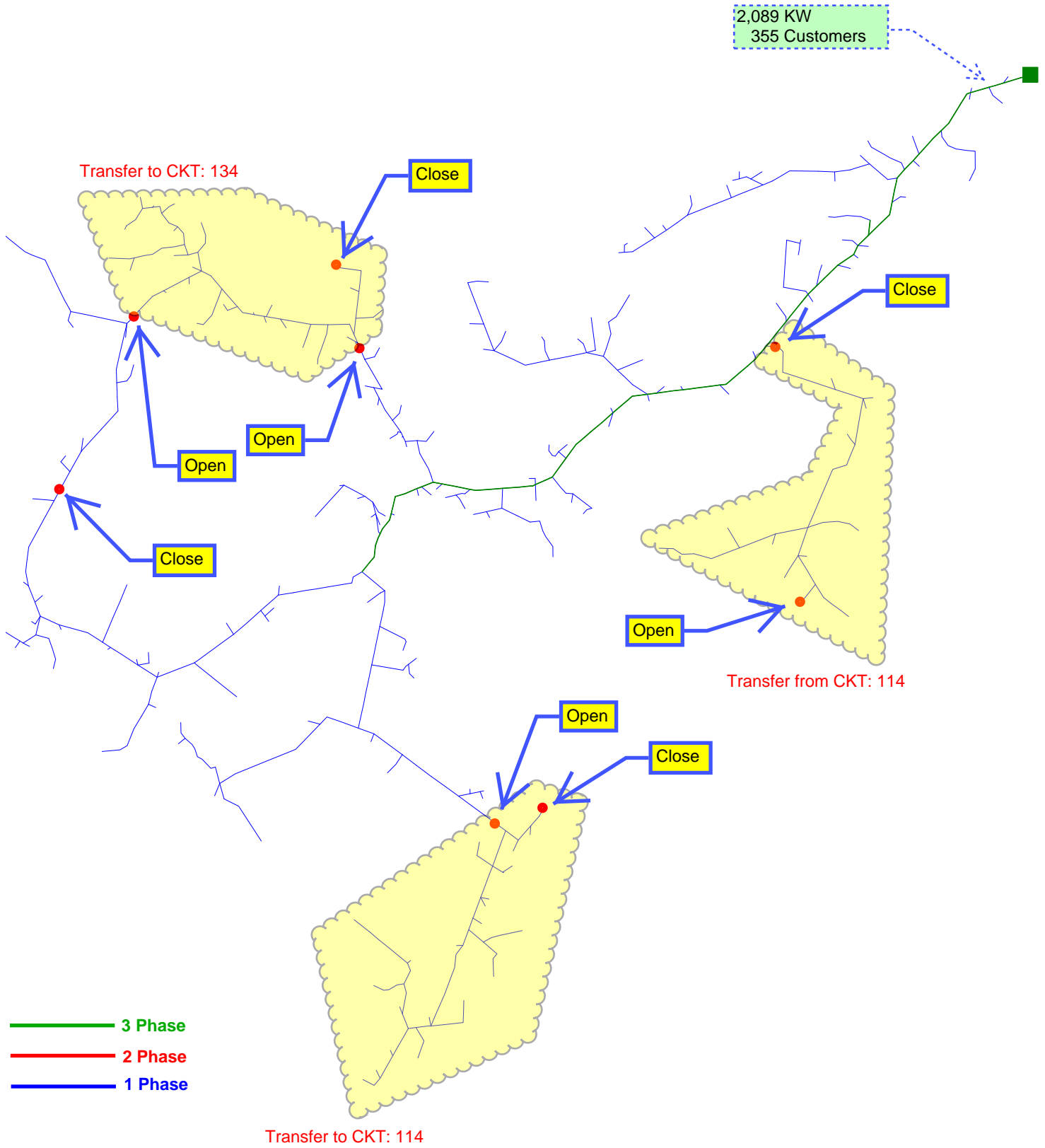
SUB: SINAI  
CKT: 104



- 3 Phase
- 2 Phase
- 1 Phase

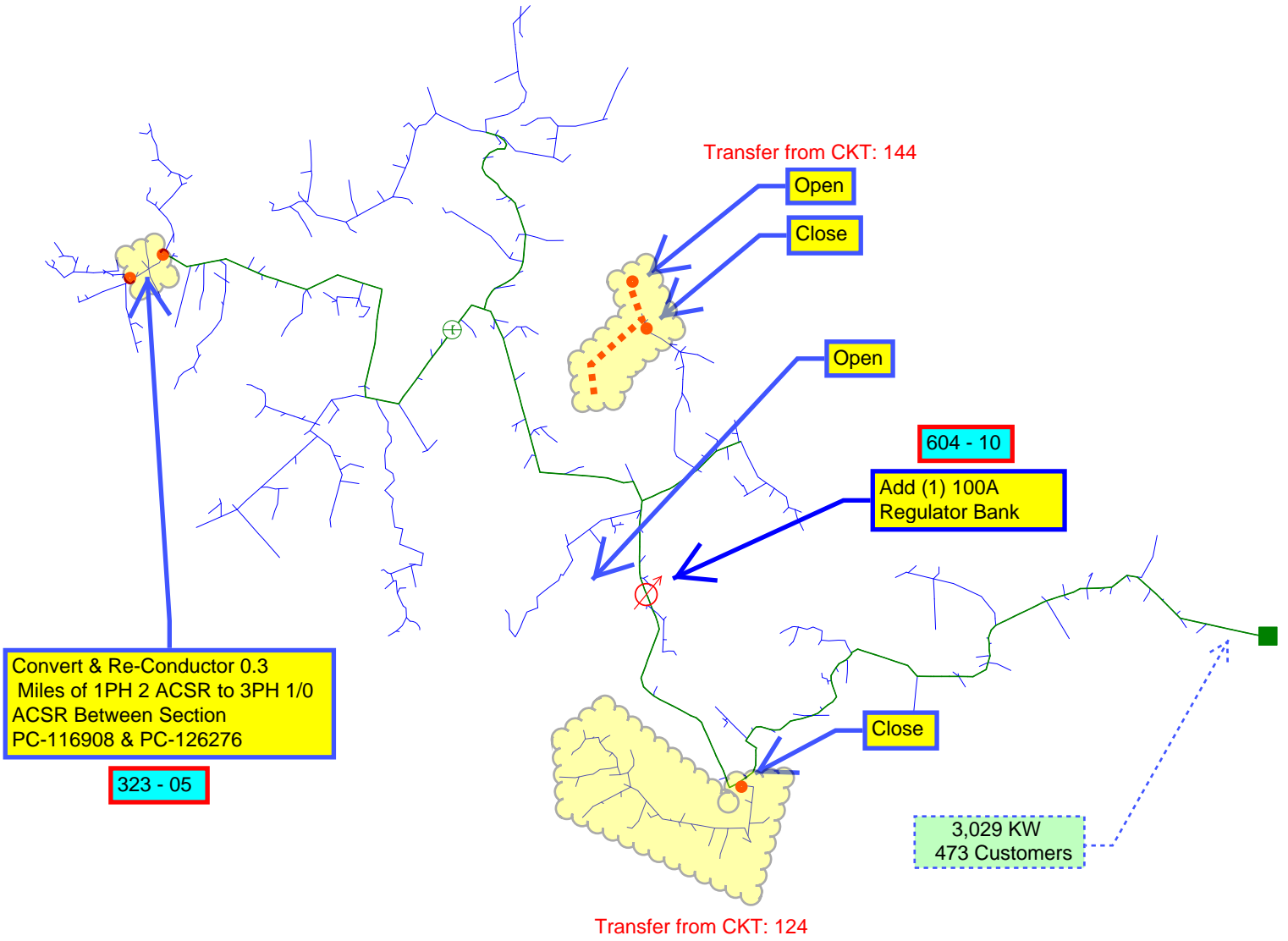


**No Projects Necessary**

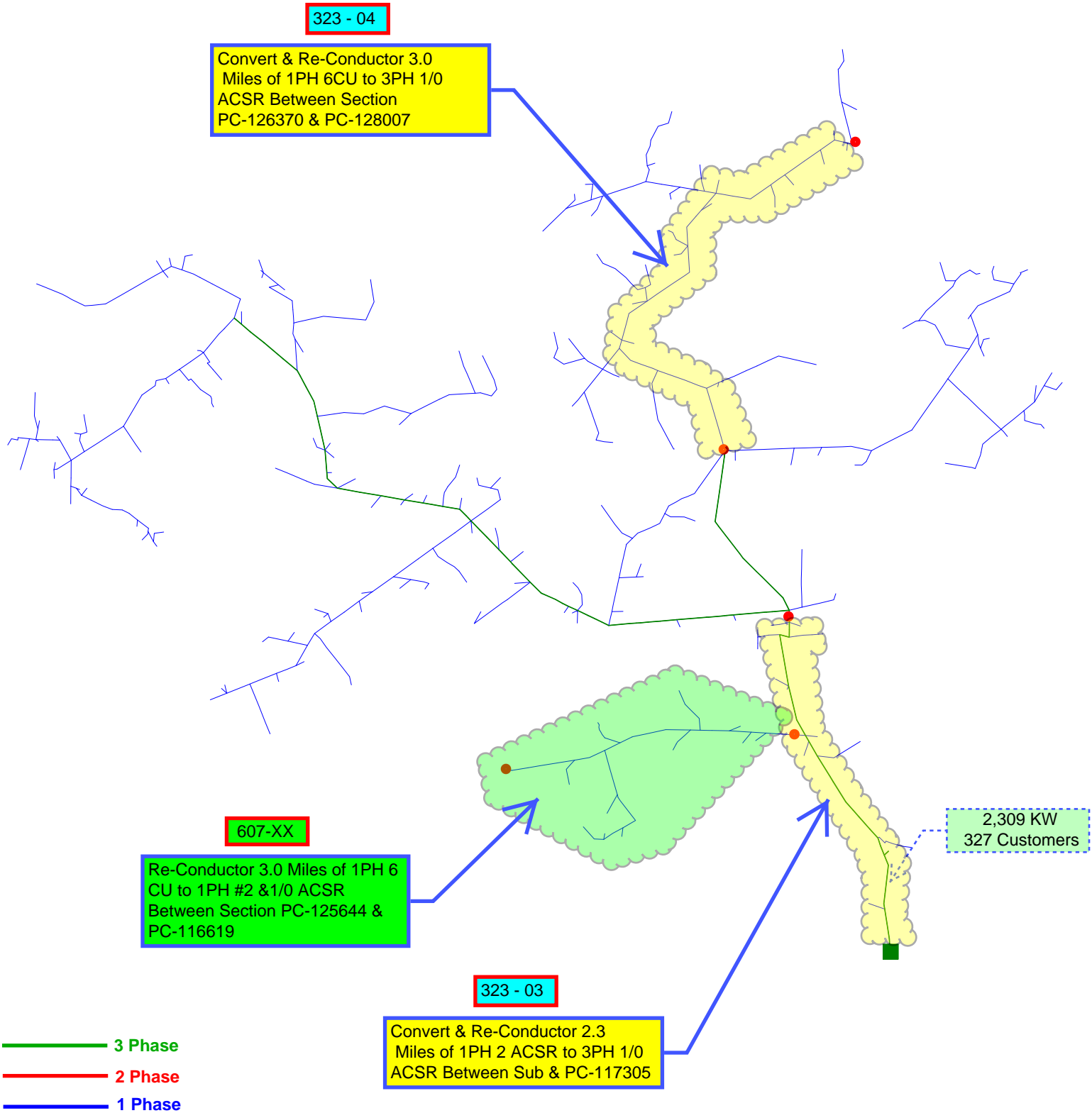


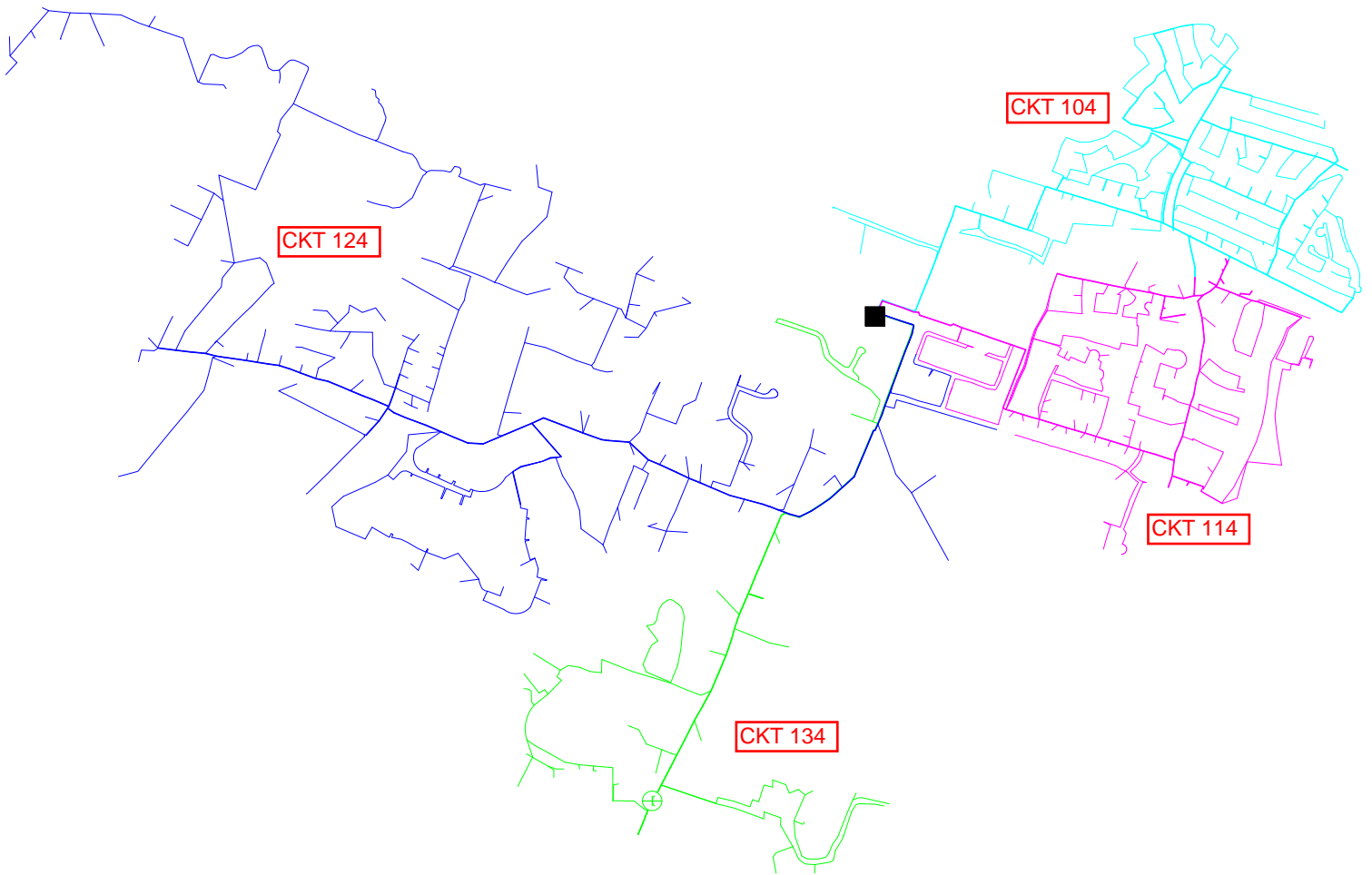


SUB: SINAI  
CKT: 134

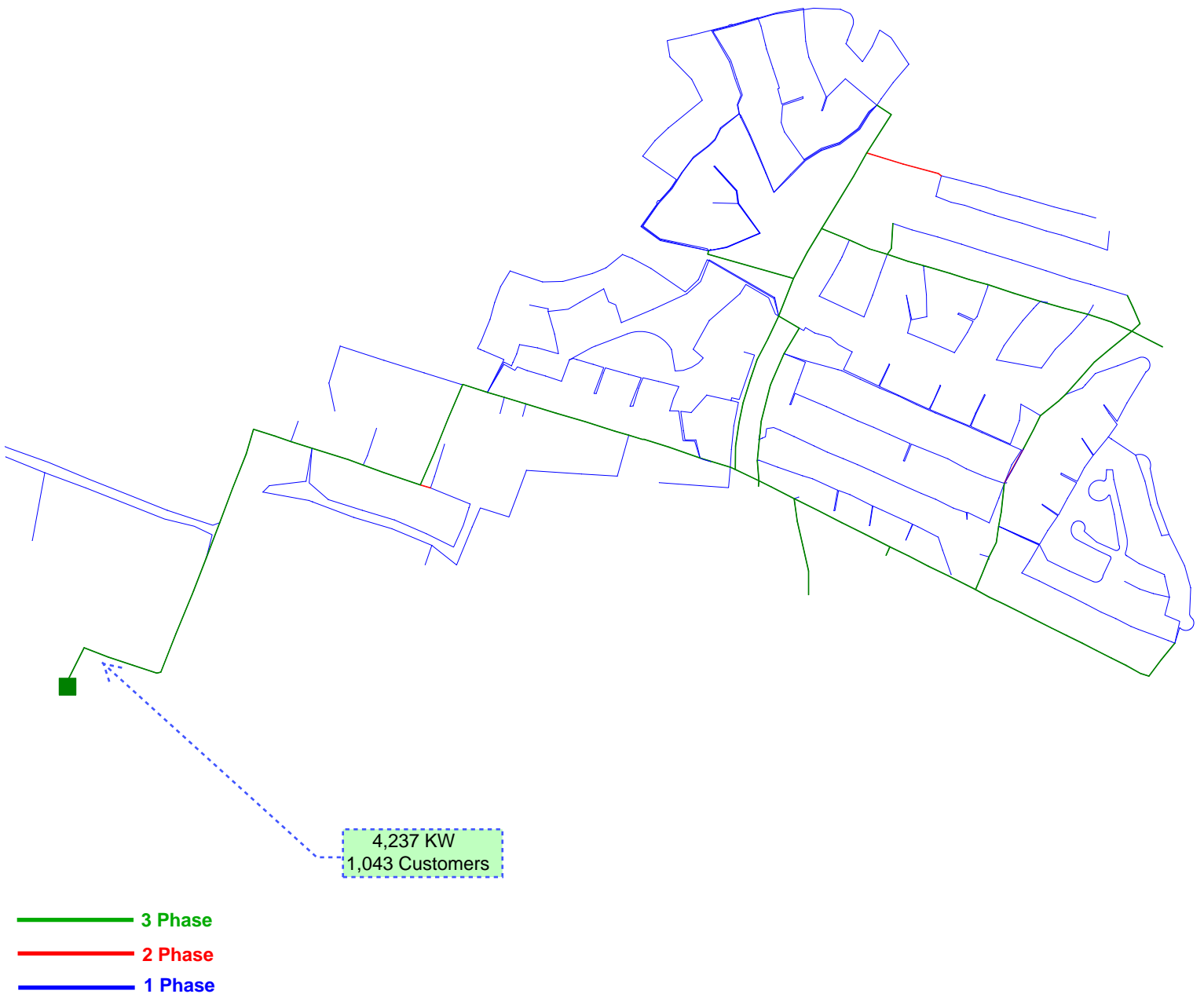


- 3 Phase
- 2 Phase
- 1 Phase

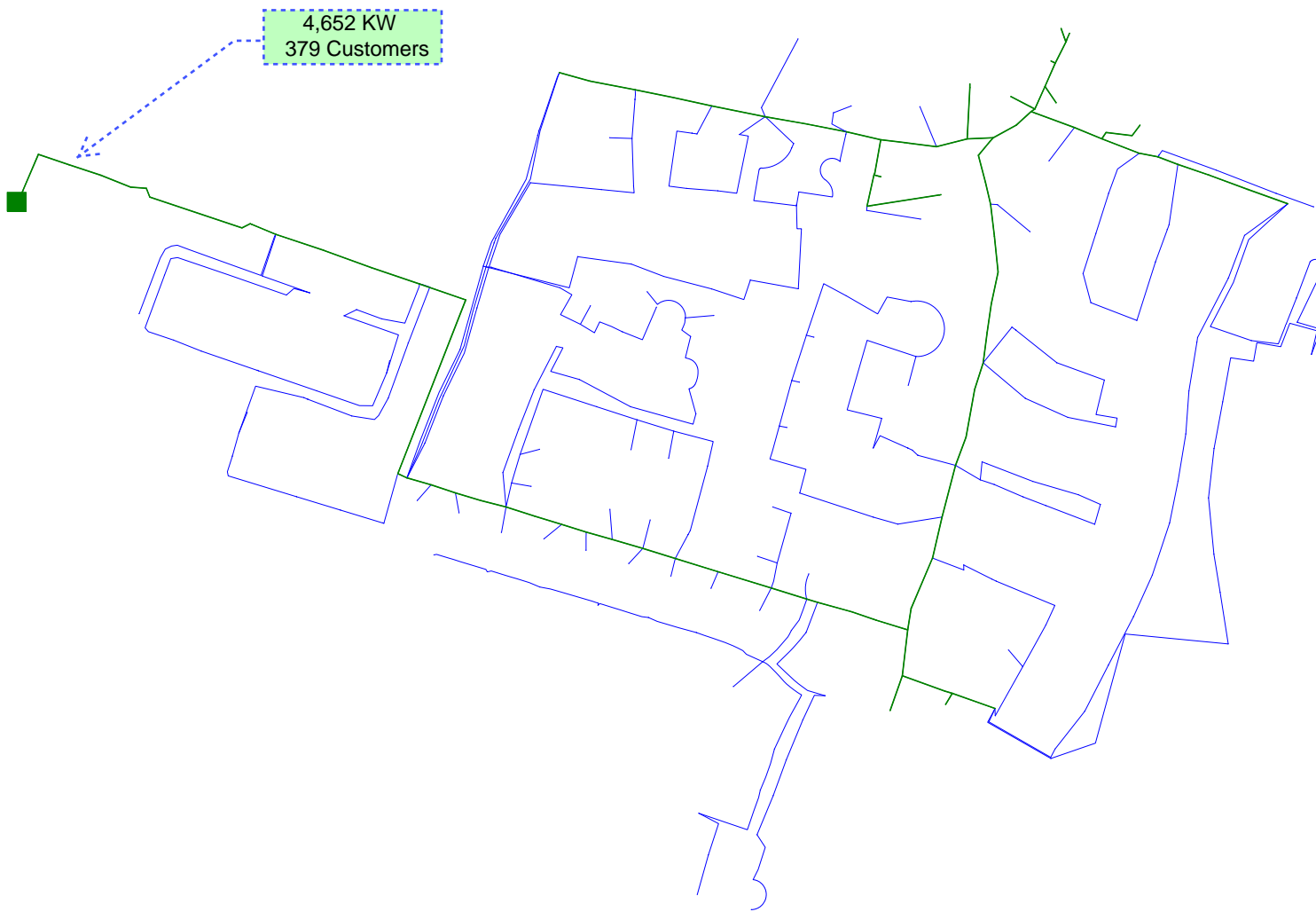




**No Projects Necessary**



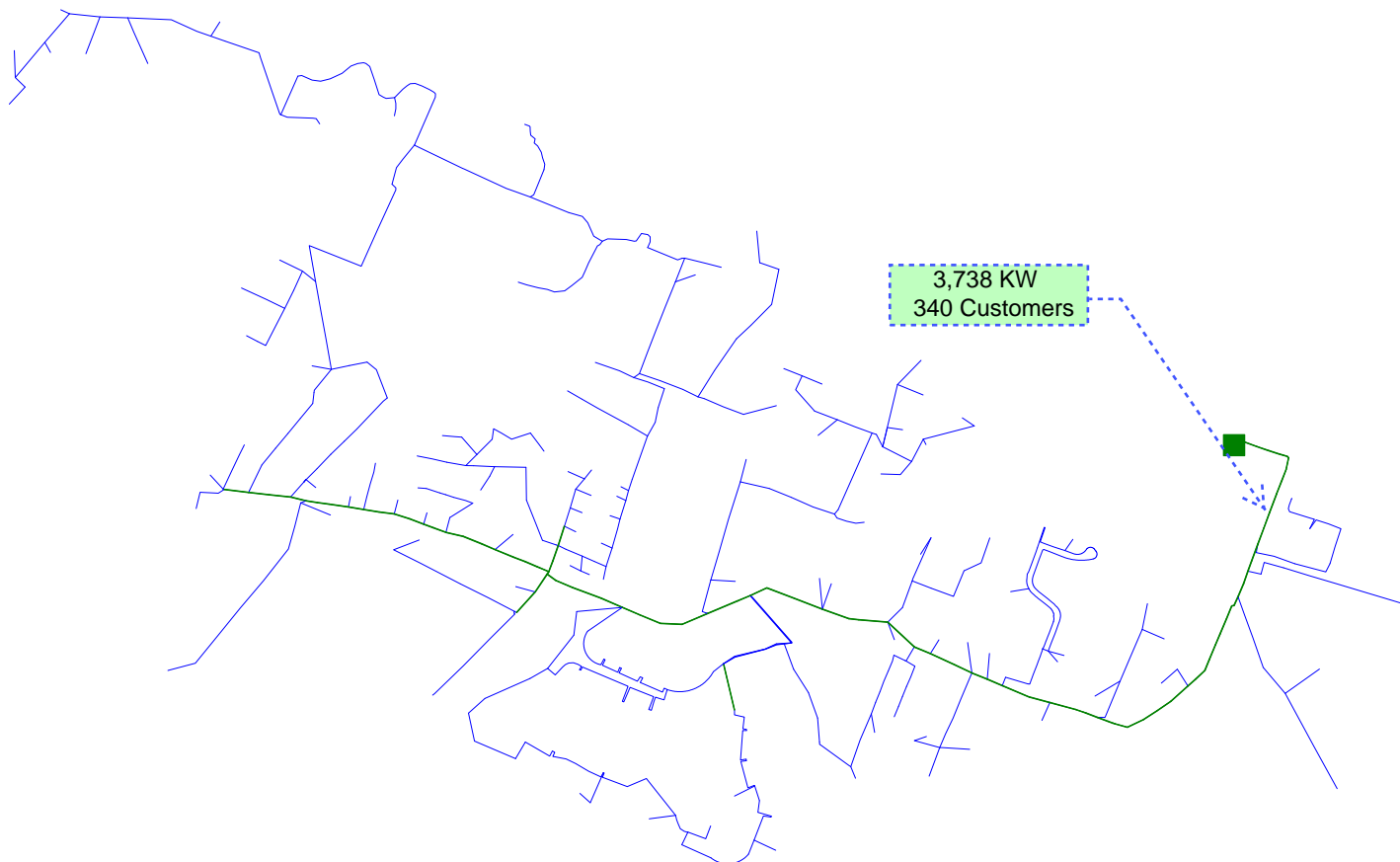
**No Projects Necessary**



4,652 KW  
379 Customers

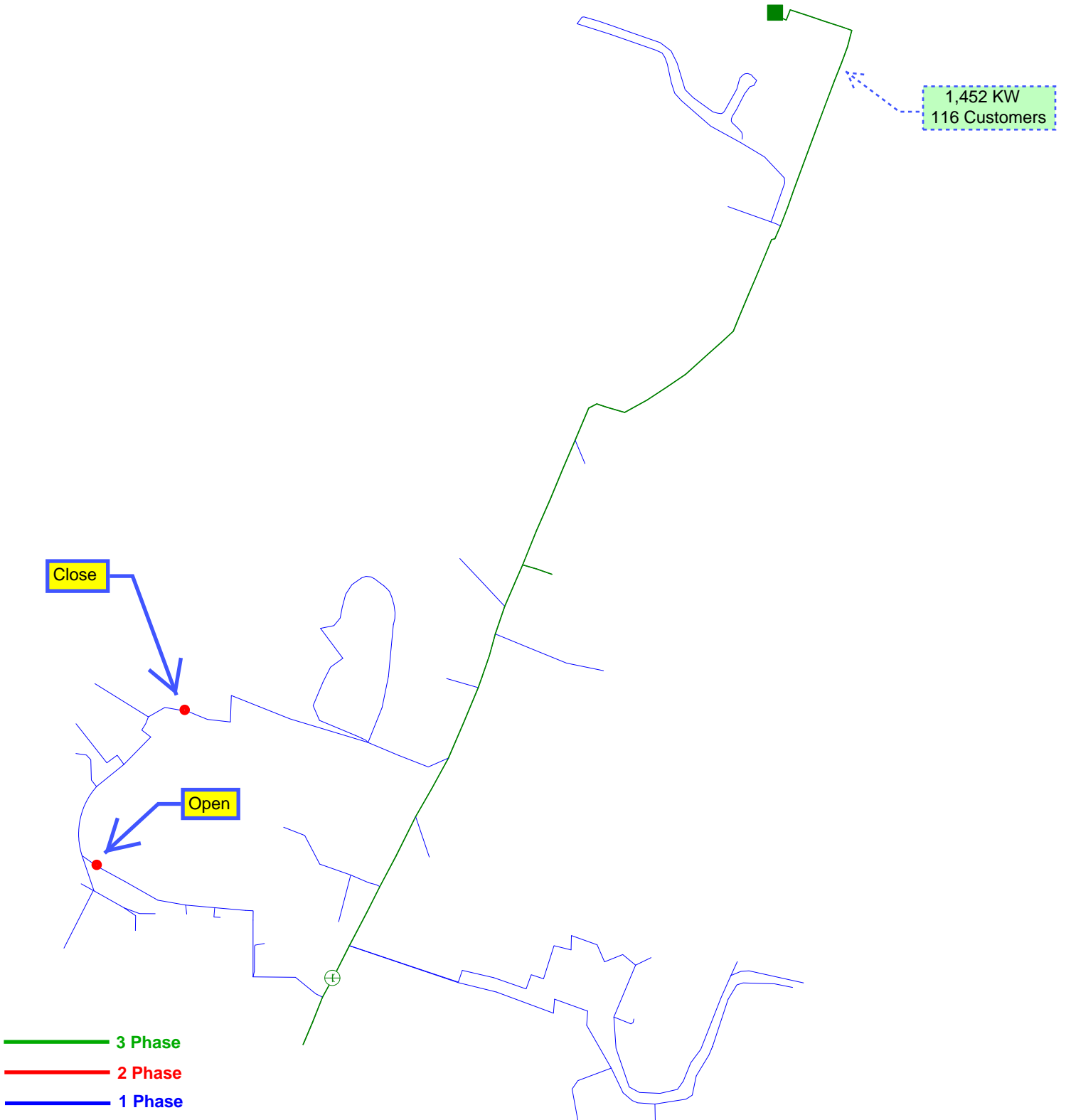
- 3 Phase
- 2 Phase
- 1 Phase

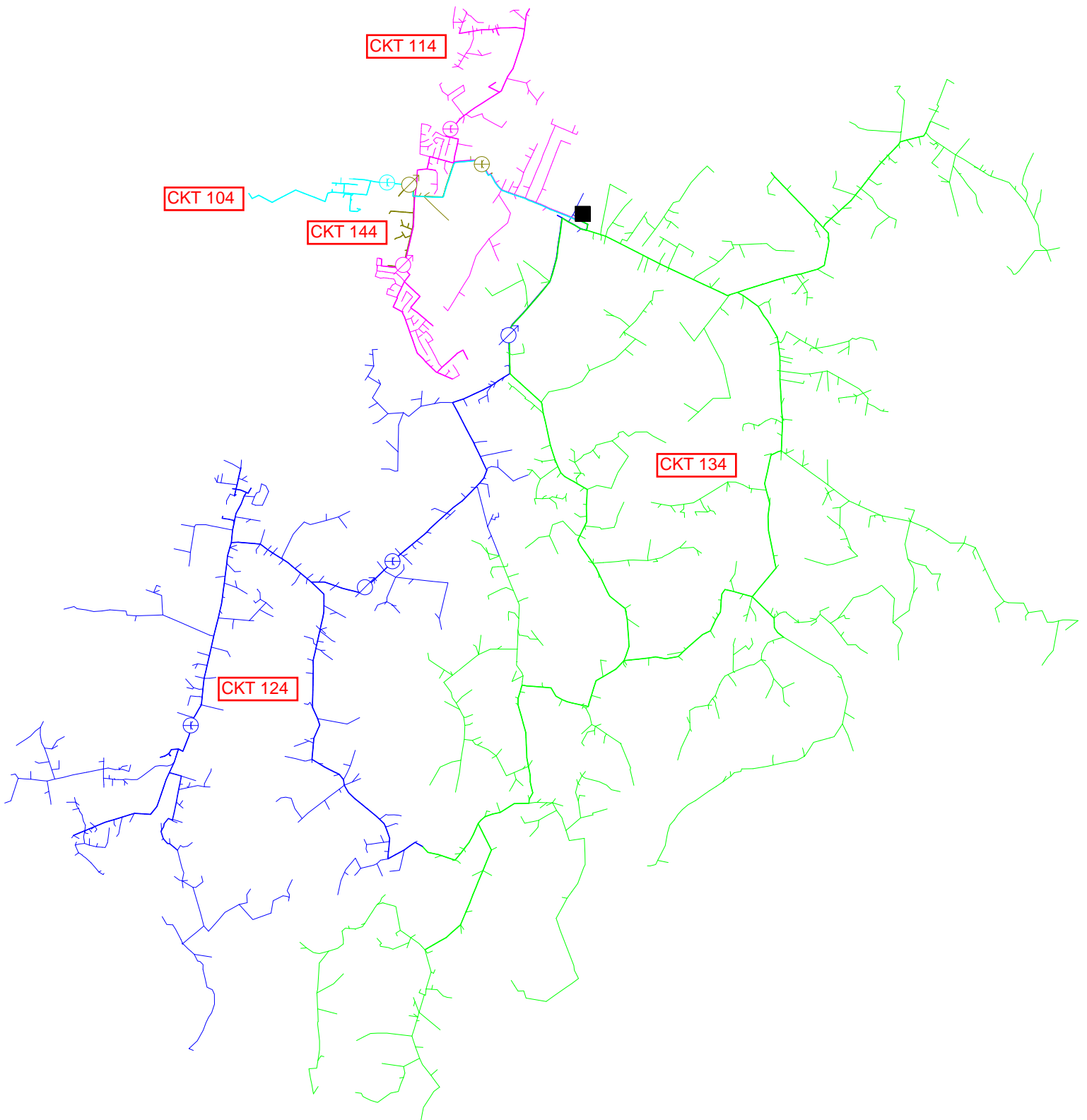
**No Projects Necessary**



- 3 Phase
- 2 Phase
- 1 Phase

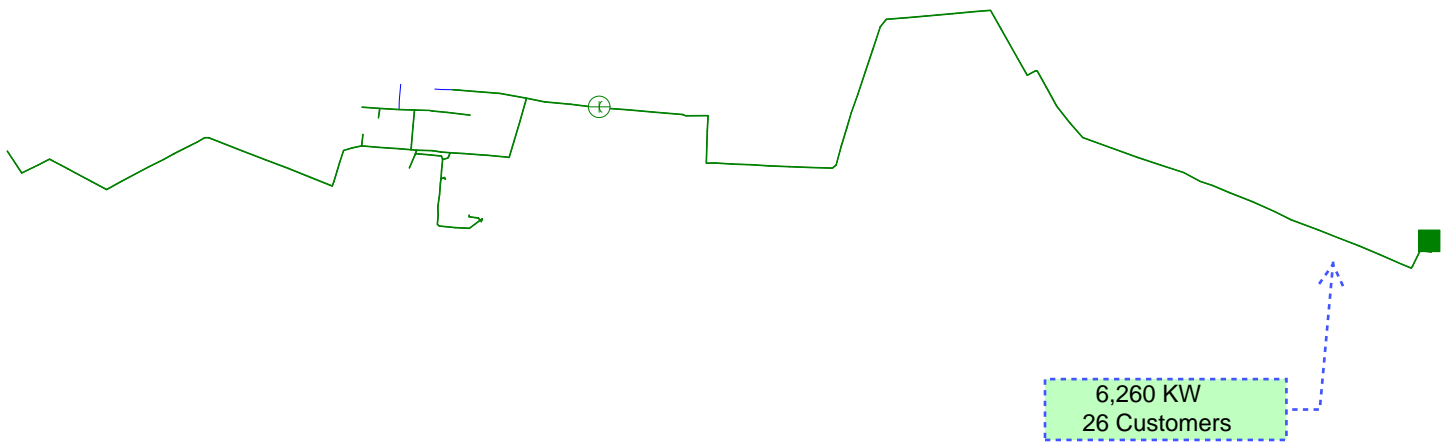
**No Projects Necessary**







**No Projects Necessary**



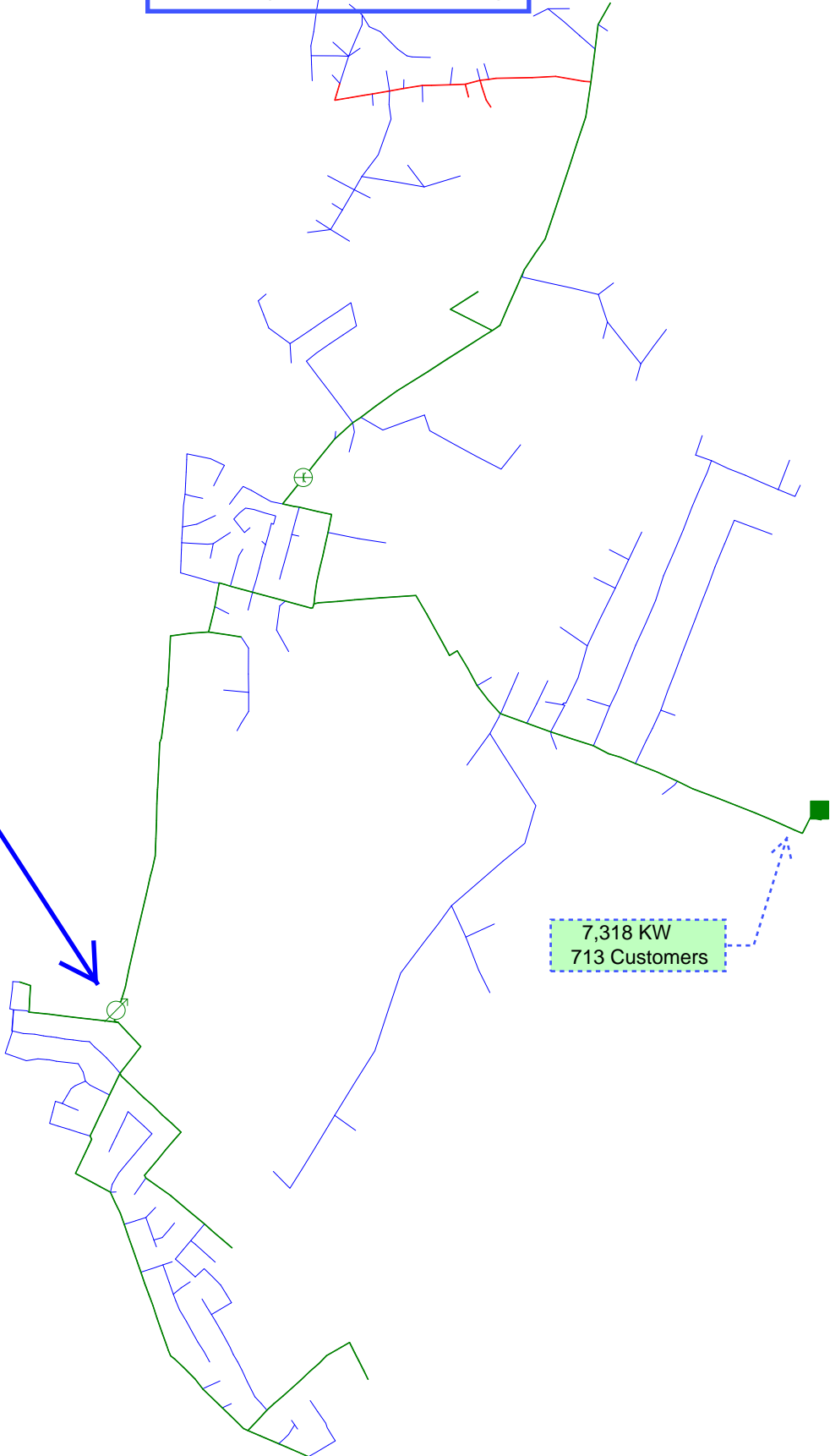
- 3 Phase
- 2 Phase
- 1 Phase

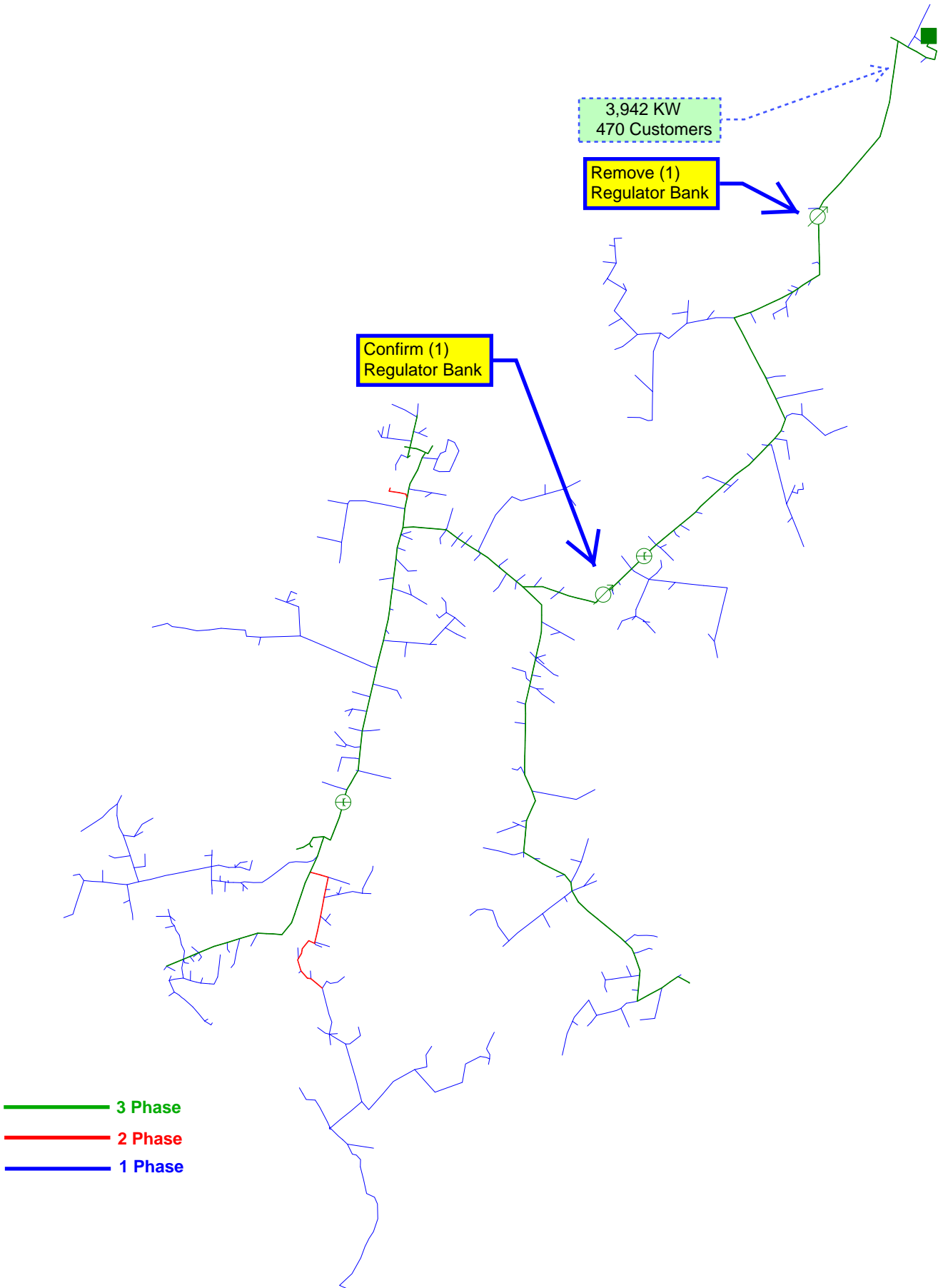
**No Projects Necessary**

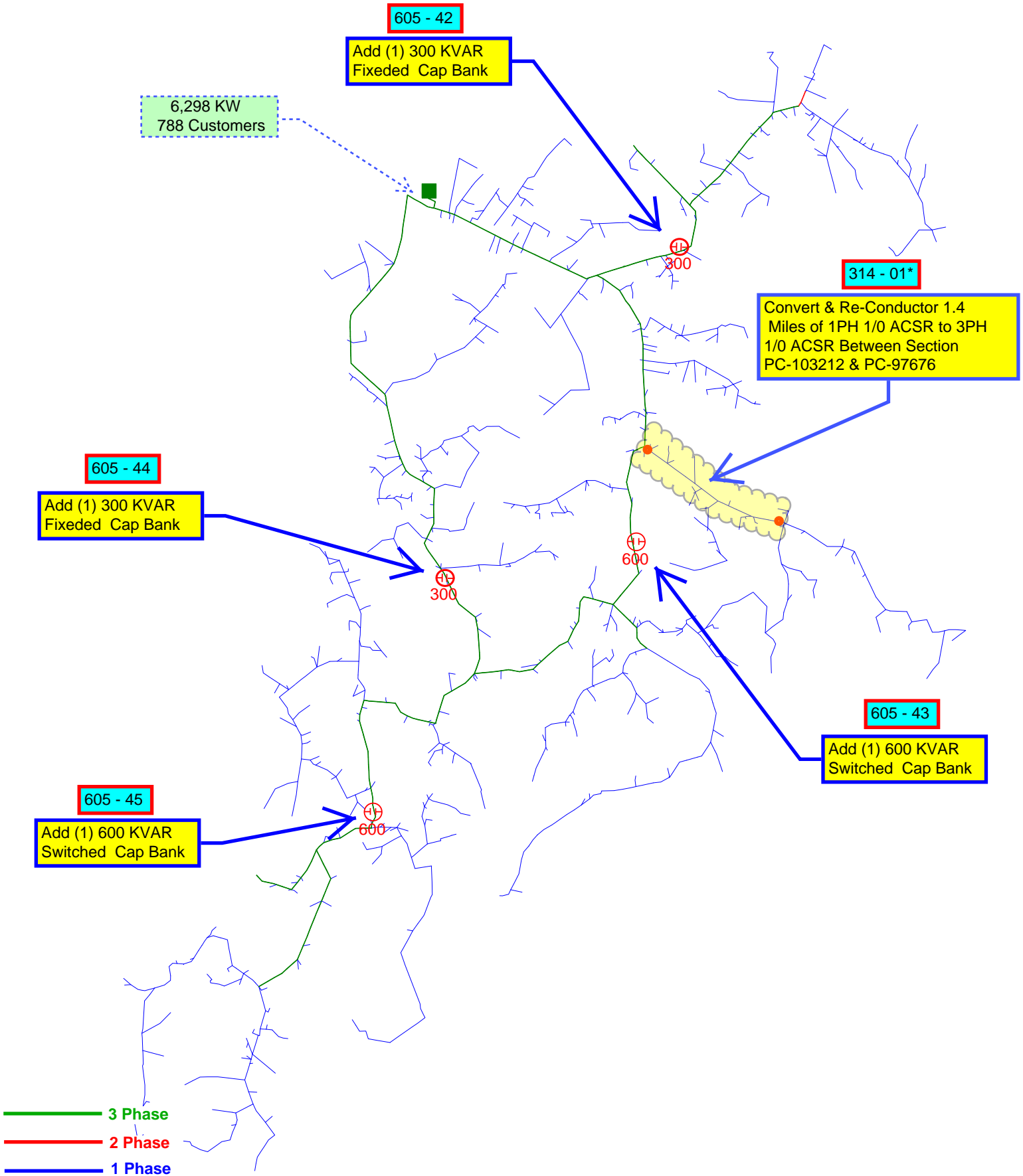
Remove (1)  
Regulator Bank

7,318 KW  
713 Customers

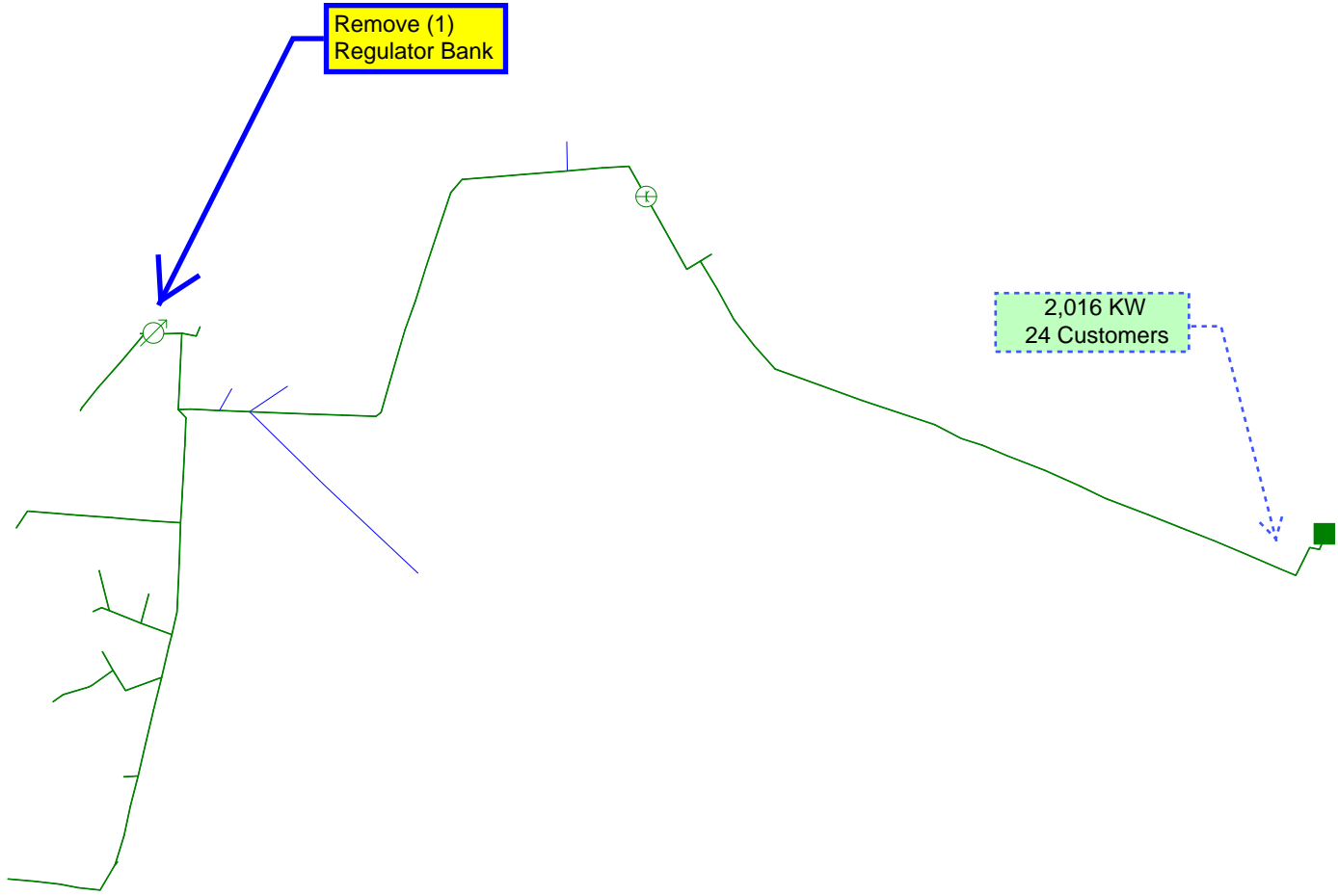
- 3 Phase
- 2 Phase
- 1 Phase



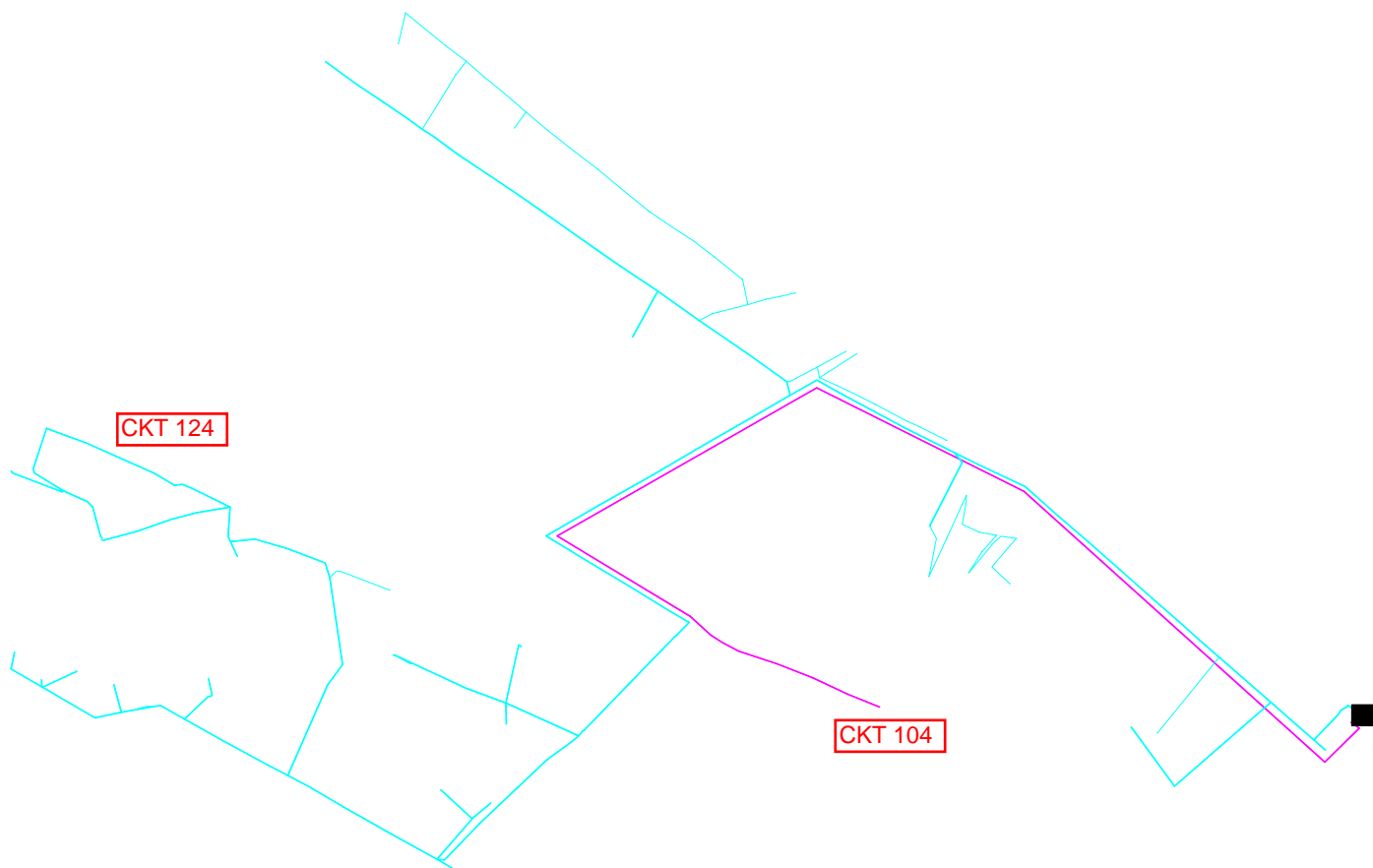




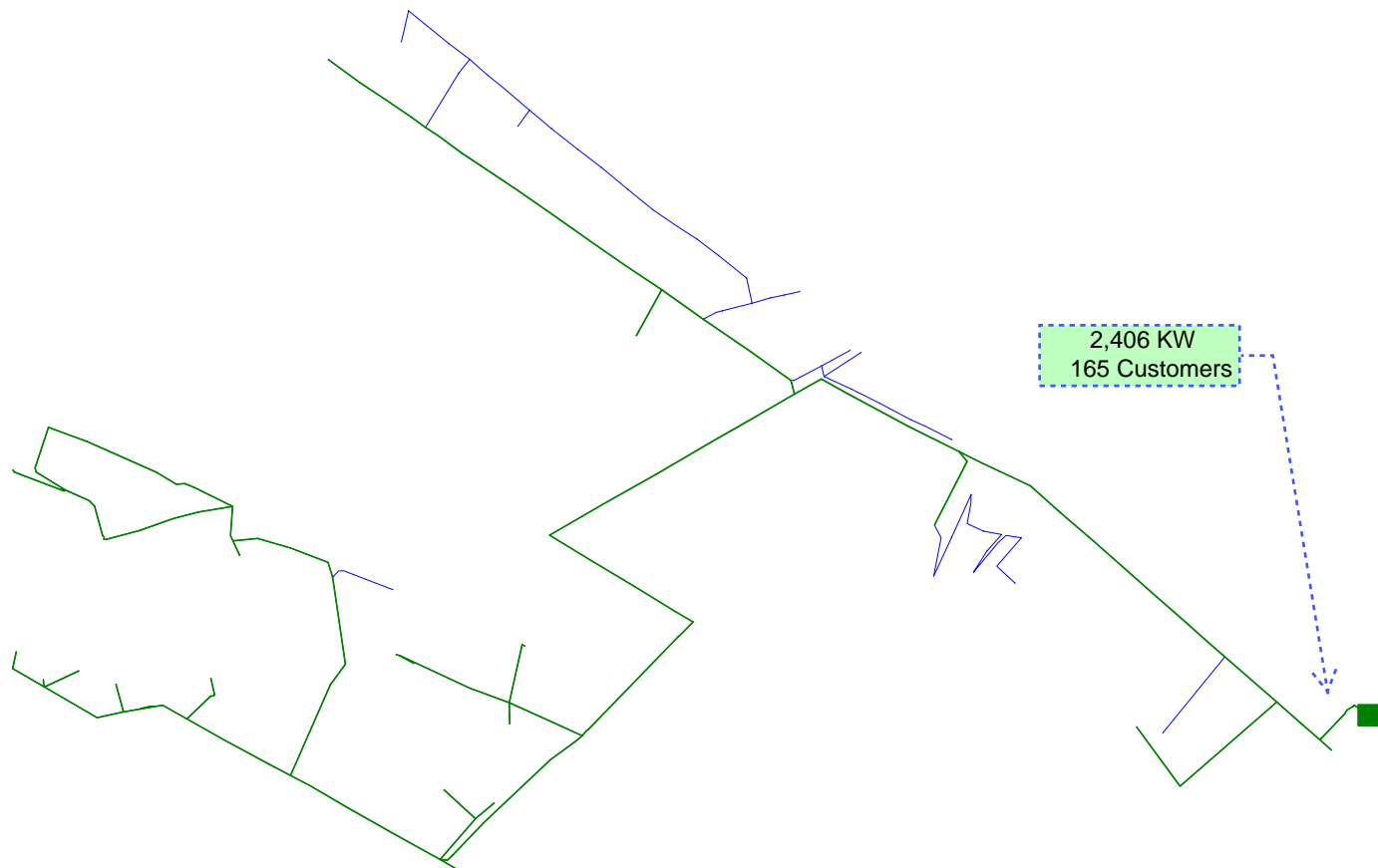
**No Projects Necessary**



- 3 Phase
- 2 Phase
- 1 Phase

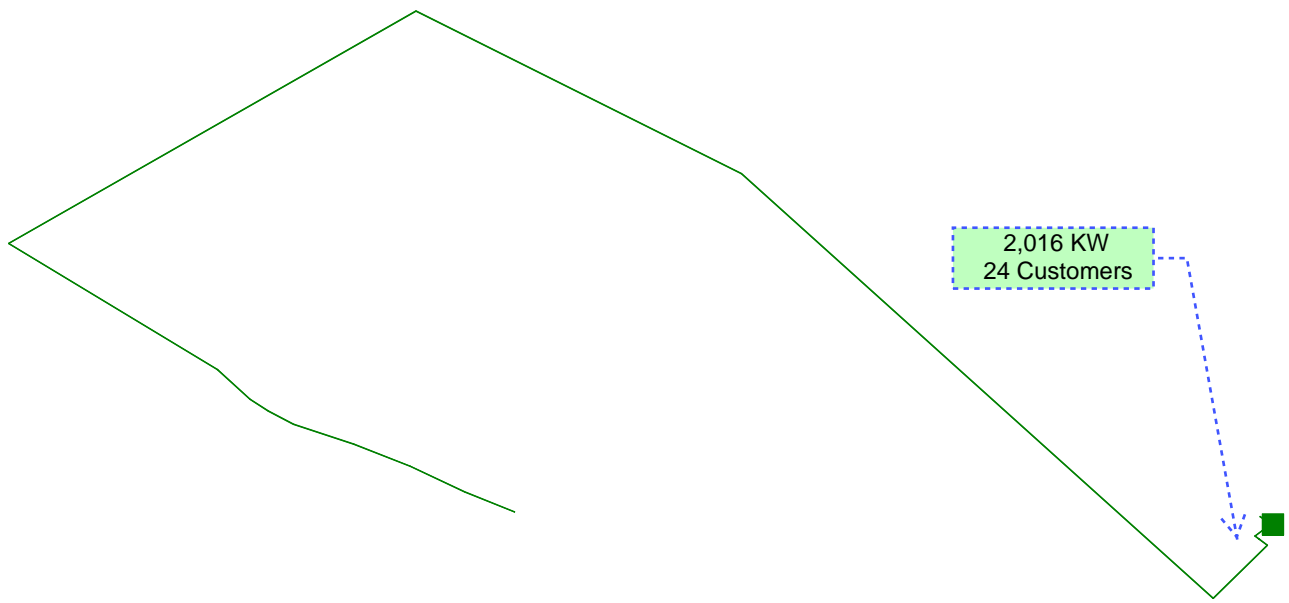


**No Projects Necessary**



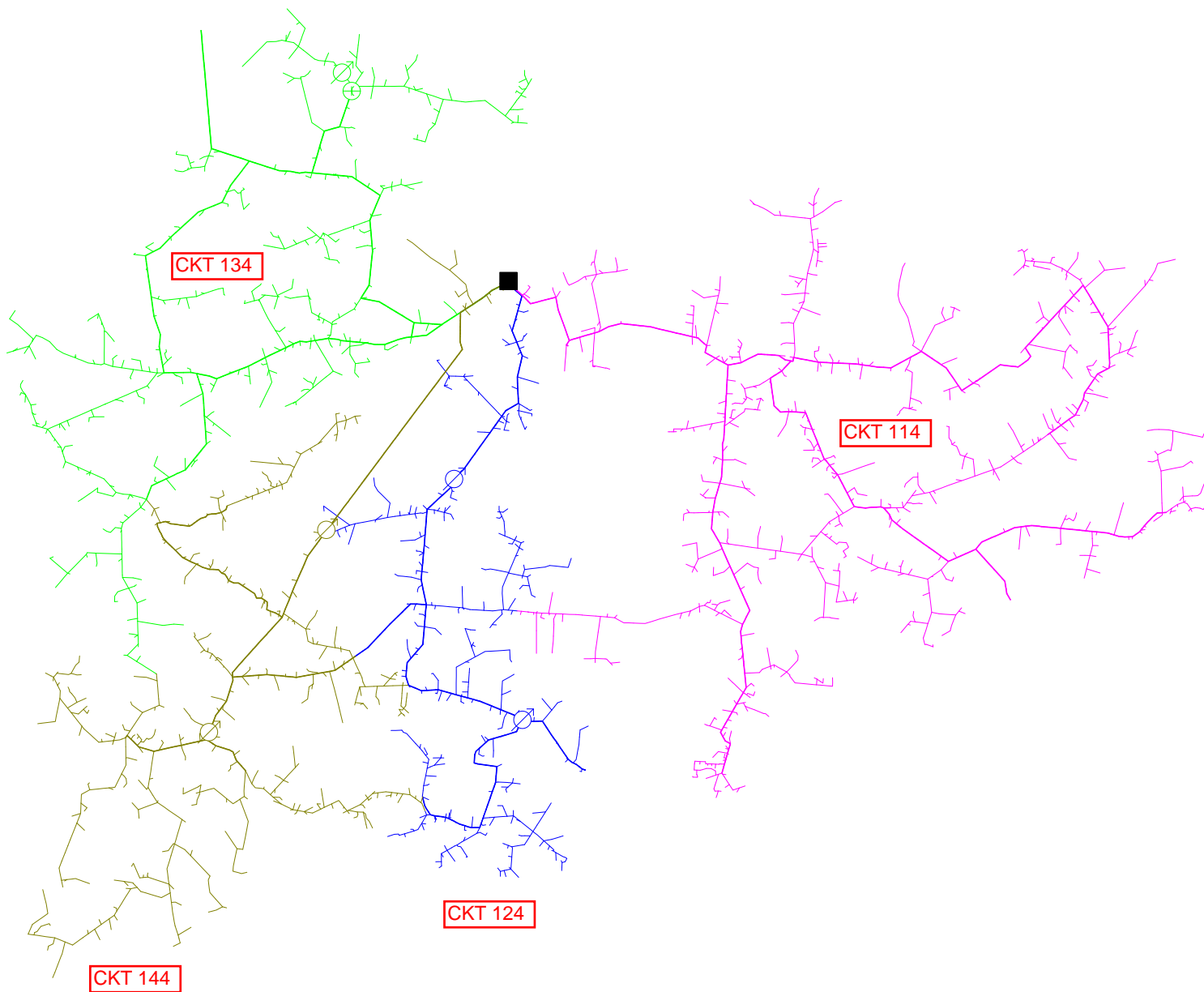
- 3 Phase
- 2 Phase
- 1 Phase

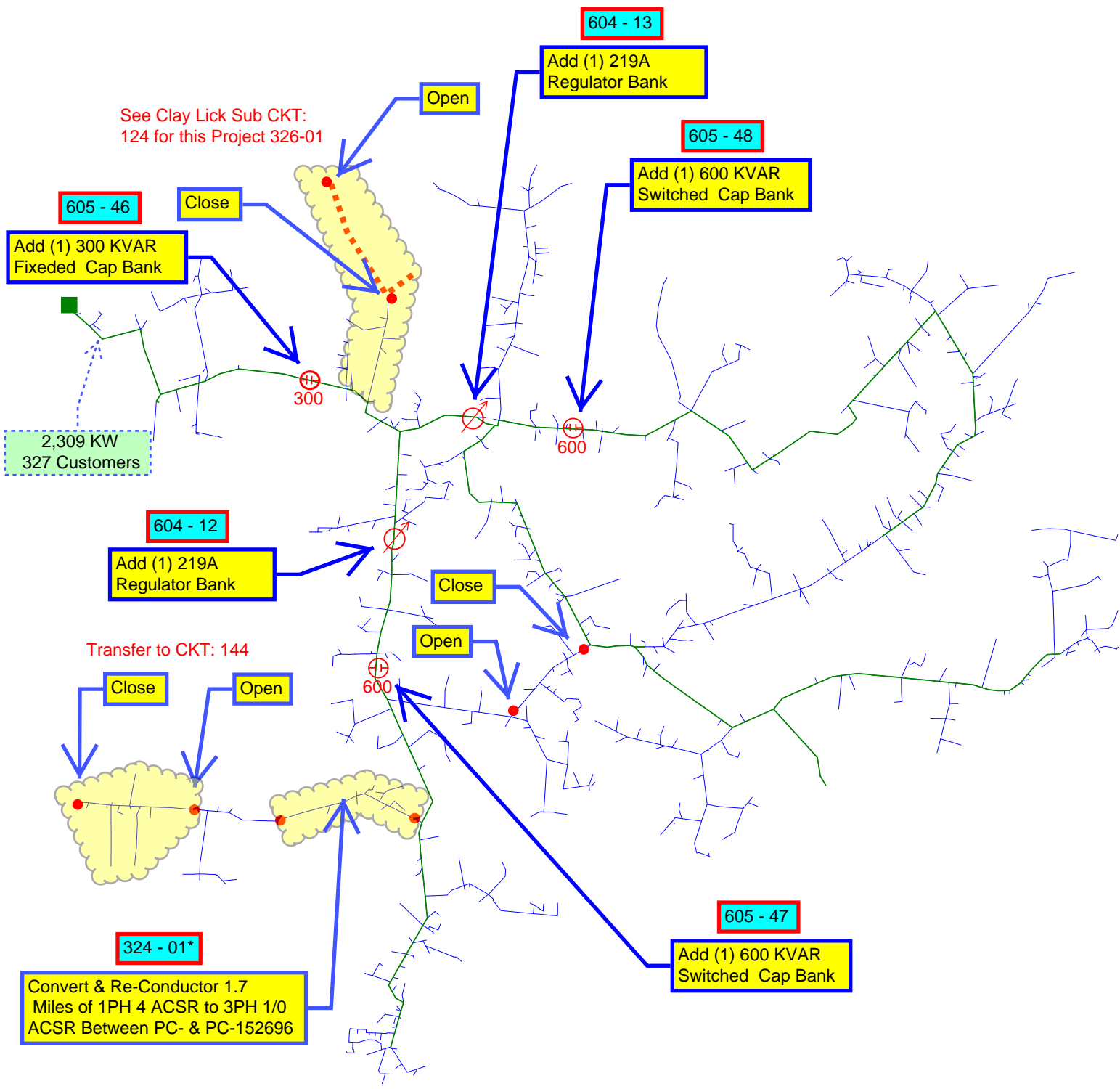
**No Projects Necessary**



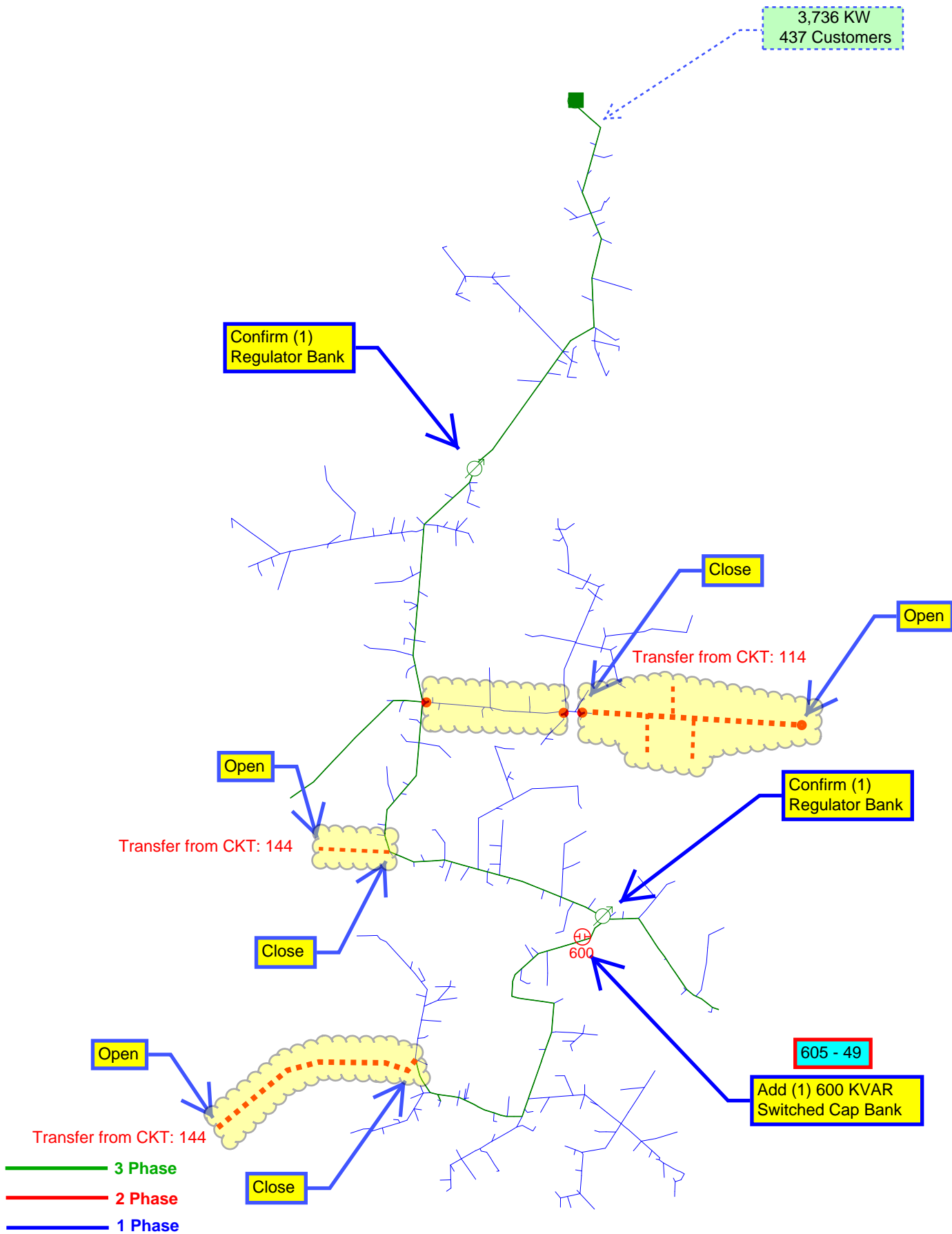
- 3 Phase
- 2 Phase
- 1 Phase

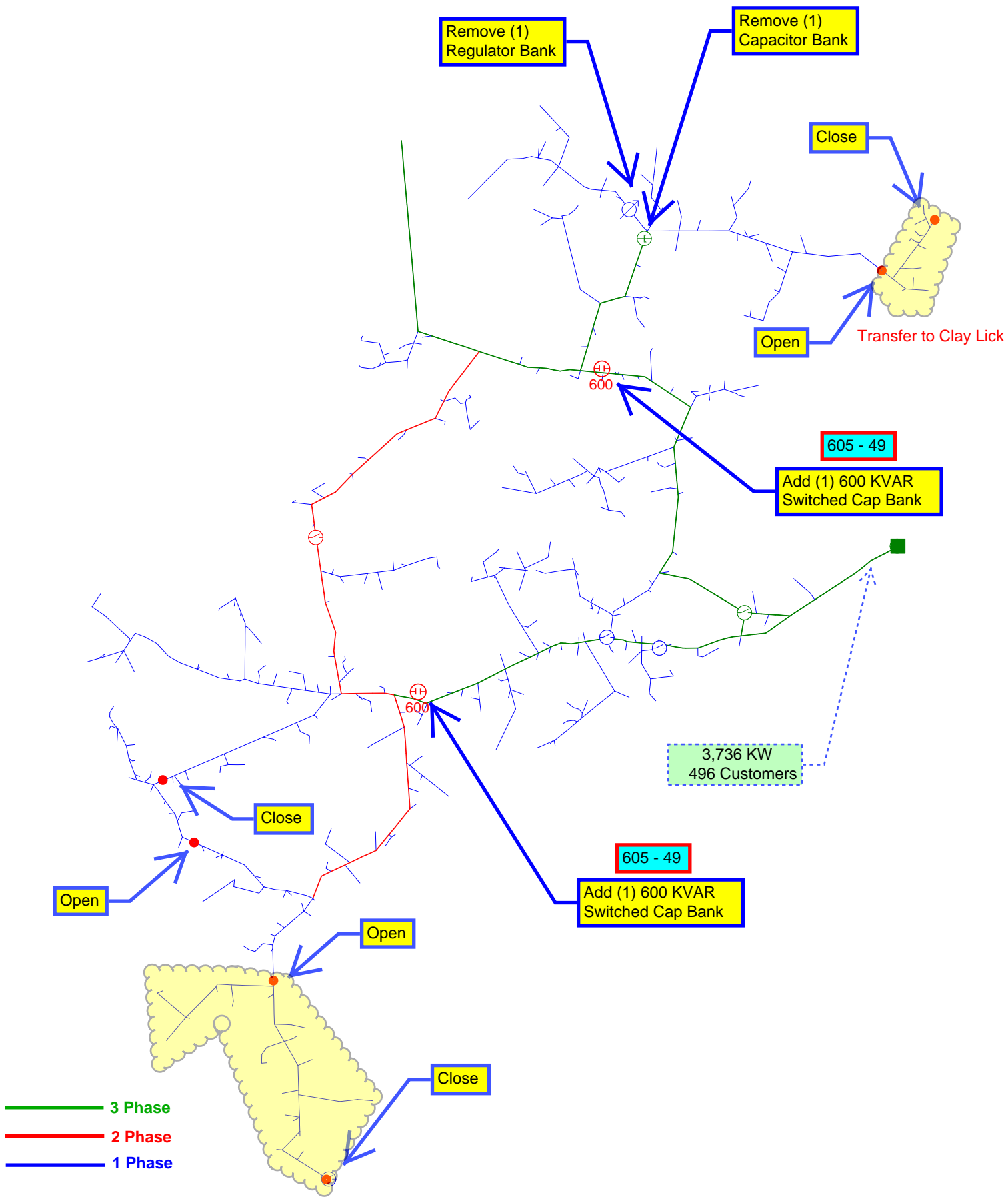




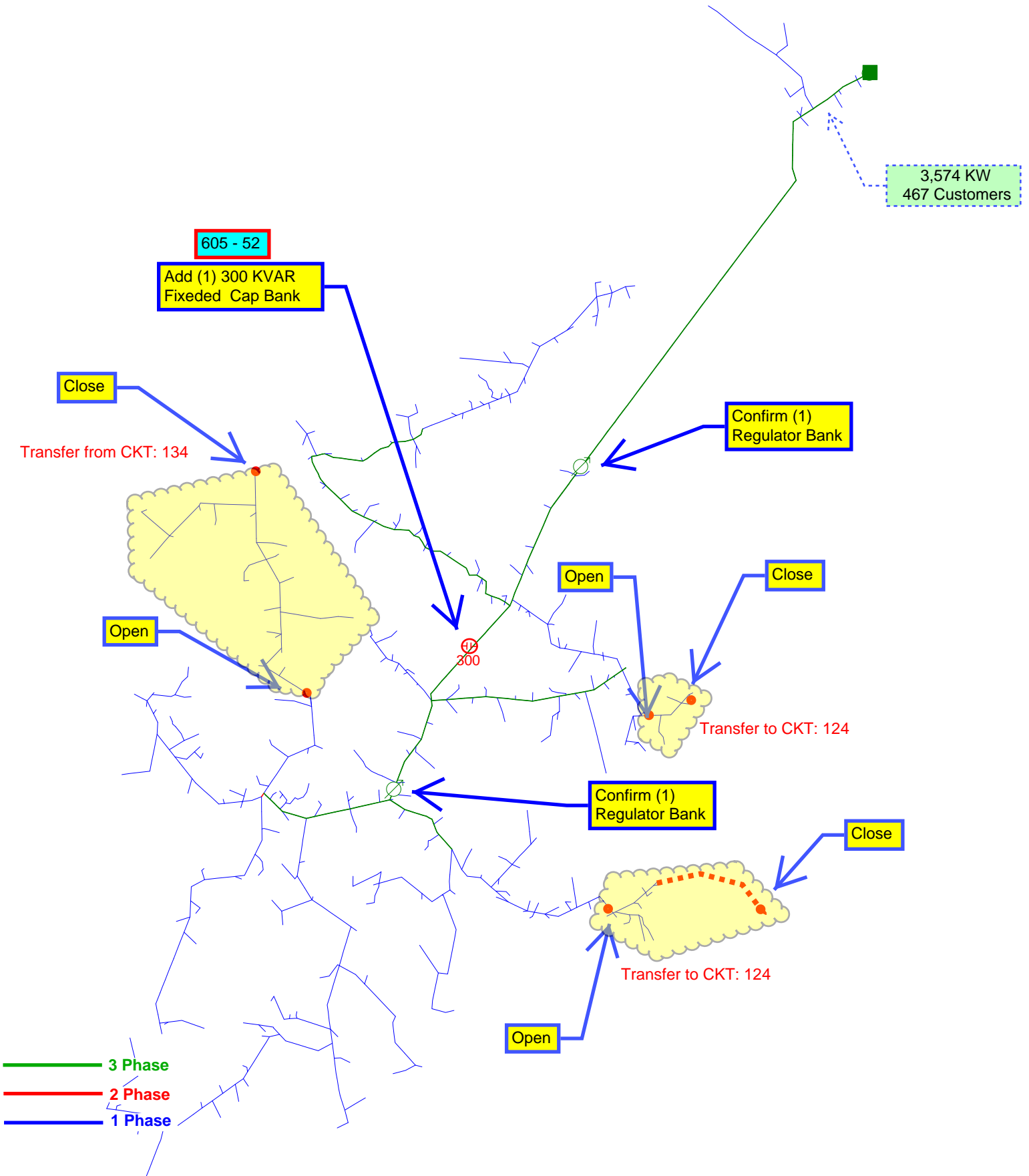


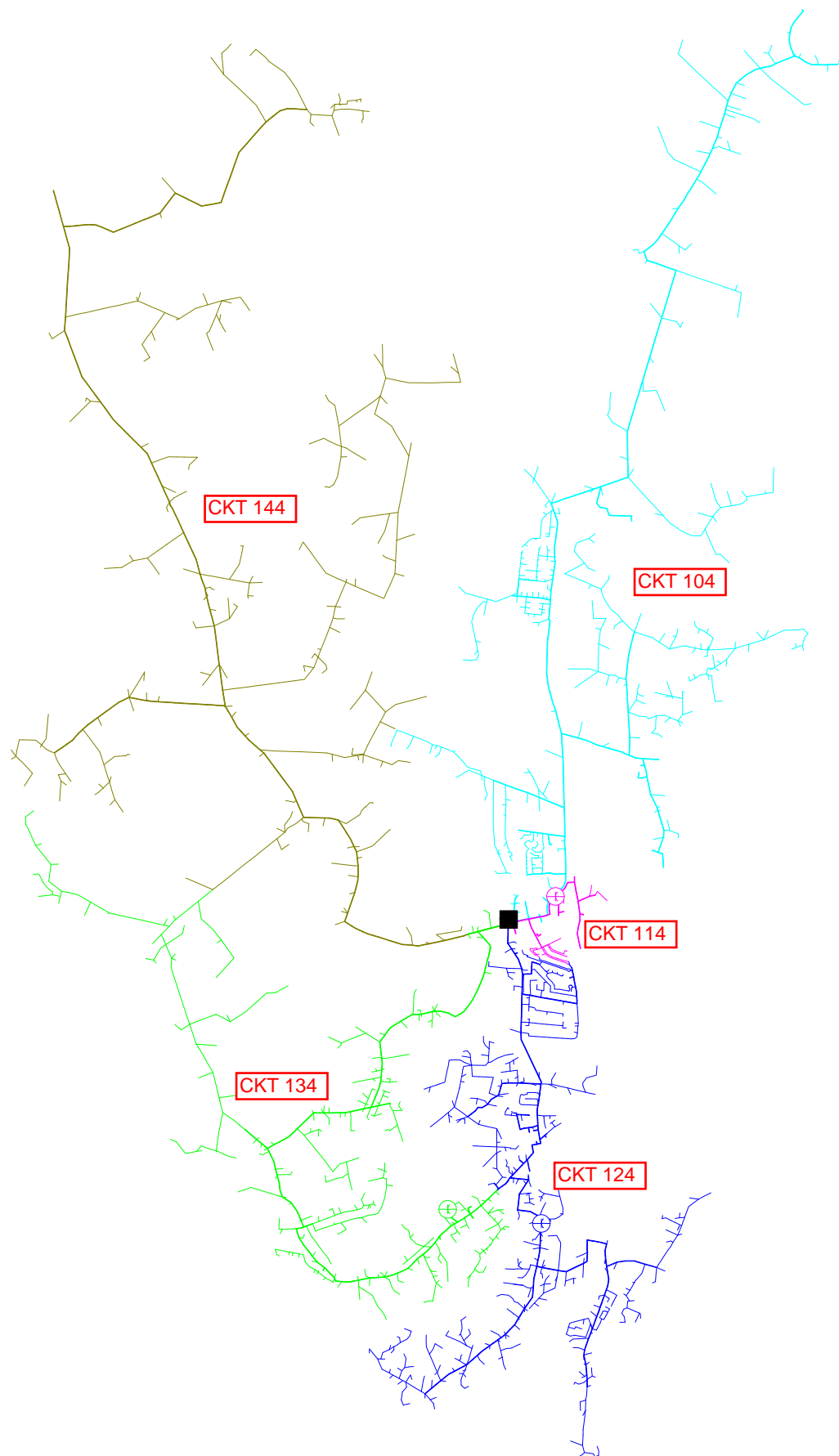
- 3 Phase
- 2 Phase
- 1 Phase

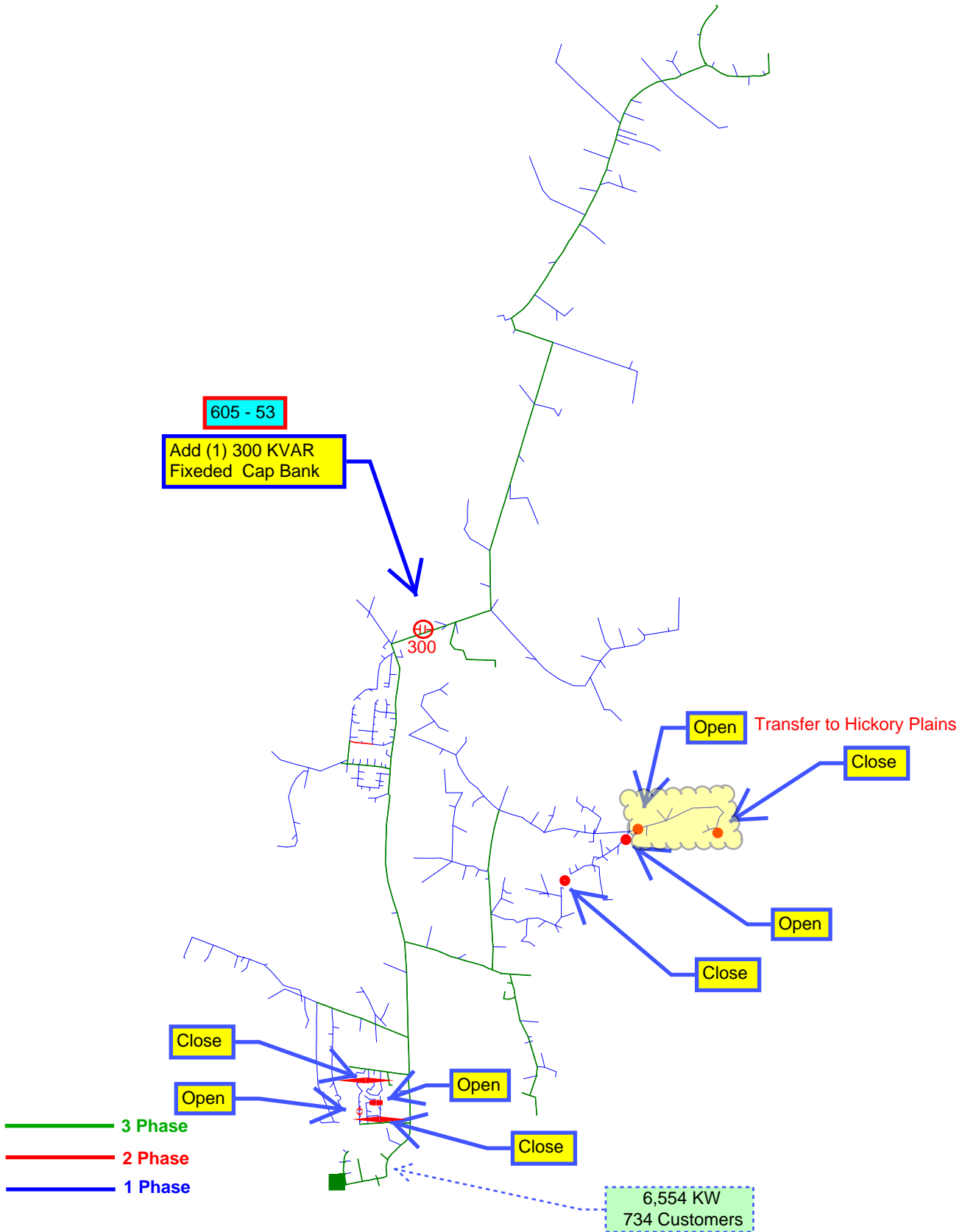




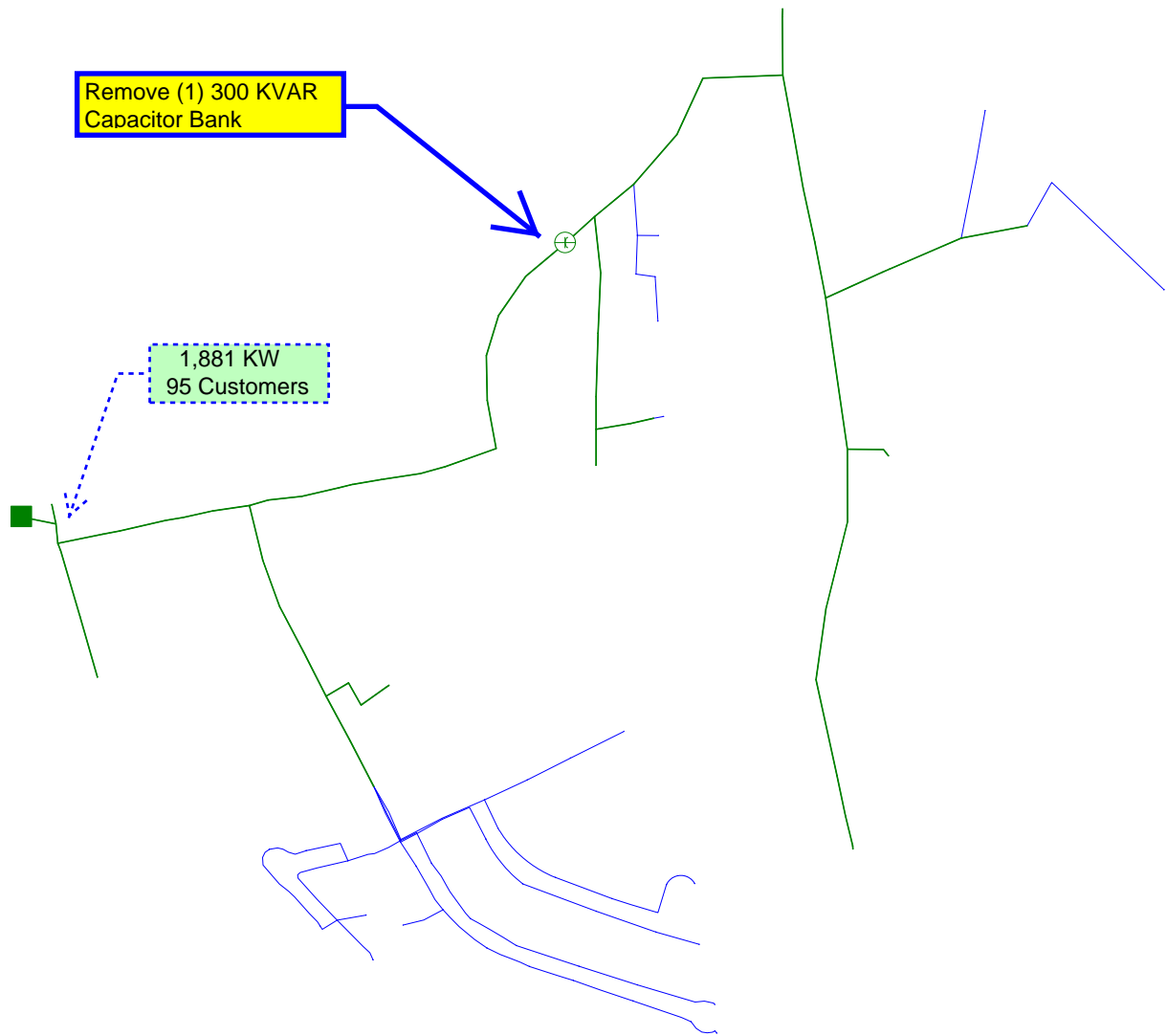
Transfer to CKT: 144







**No Projects Necessary**

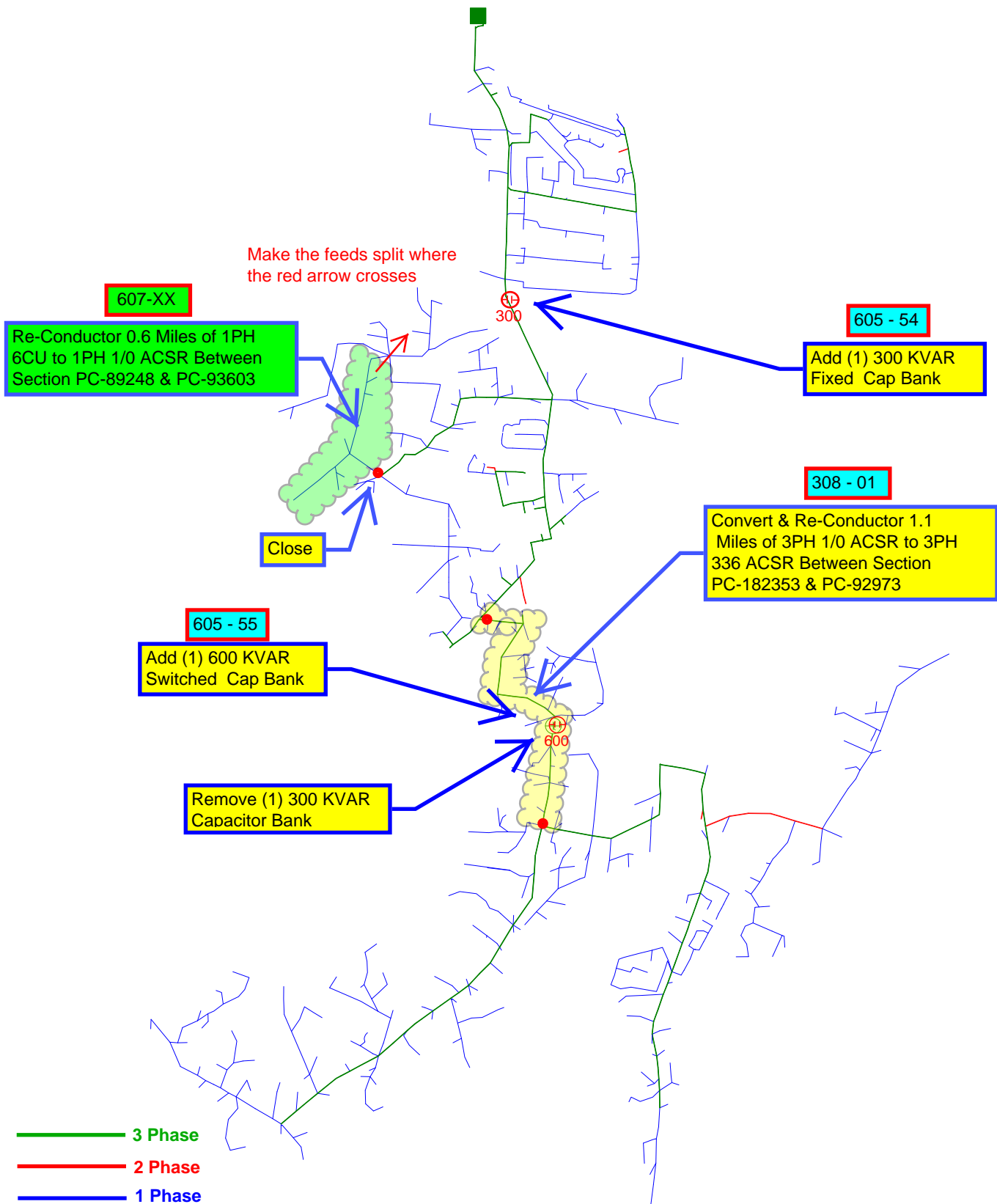


Remove (1) 300 KVAR  
Capacitor Bank

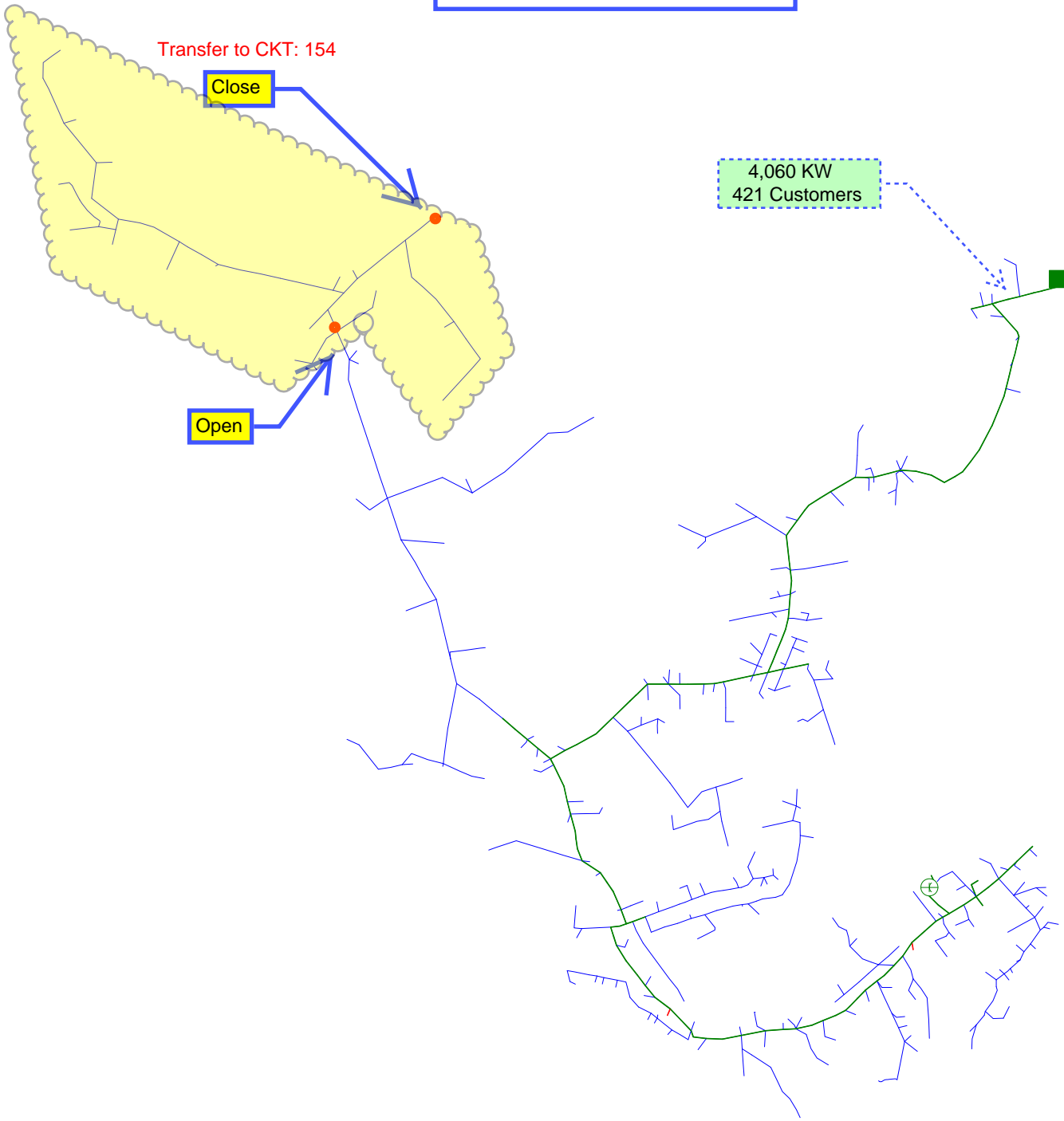
1,881 KW  
95 Customers

- 3 Phase
- 2 Phase
- 1 Phase



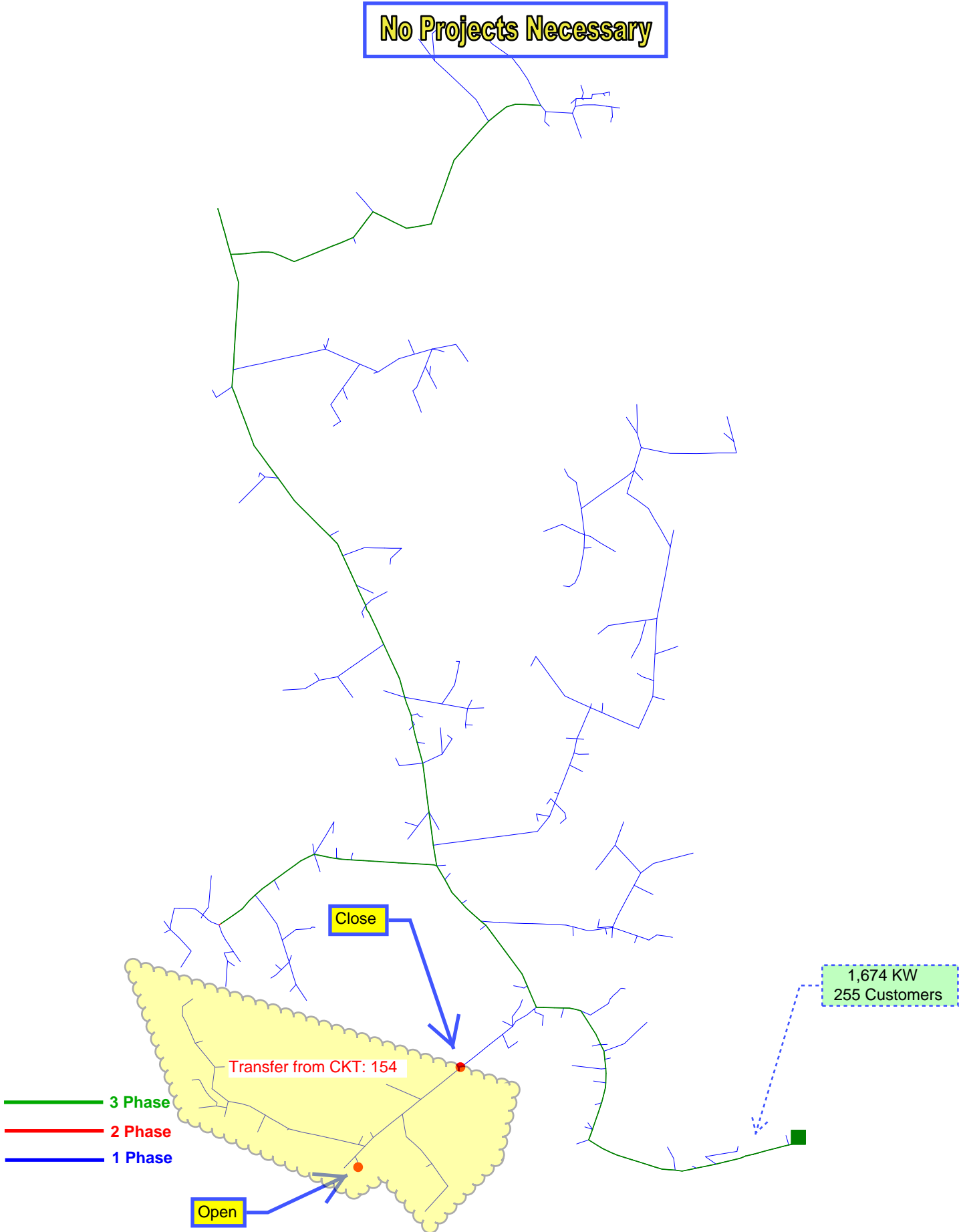


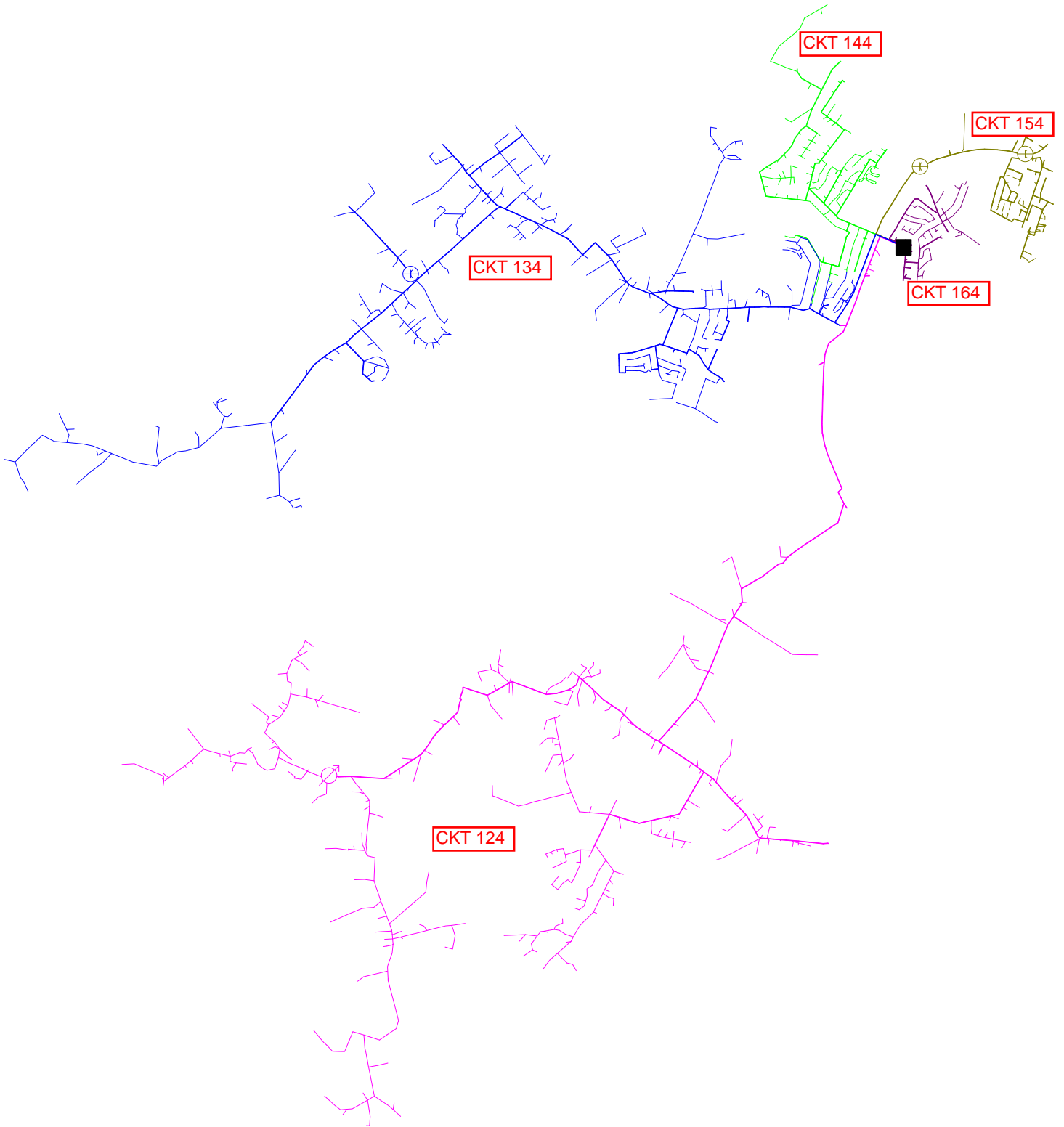
**No Projects Necessary**



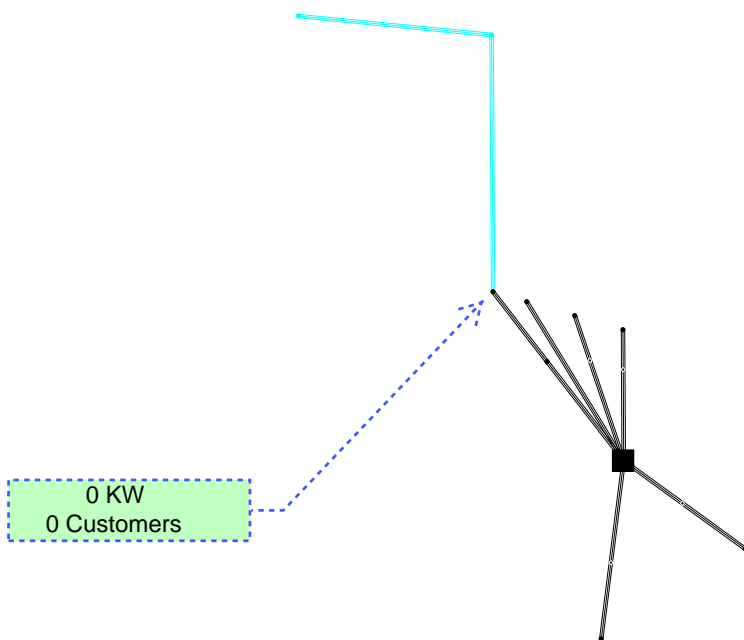
- 3 Phase
- 2 Phase
- 1 Phase

**No Projects Necessary**

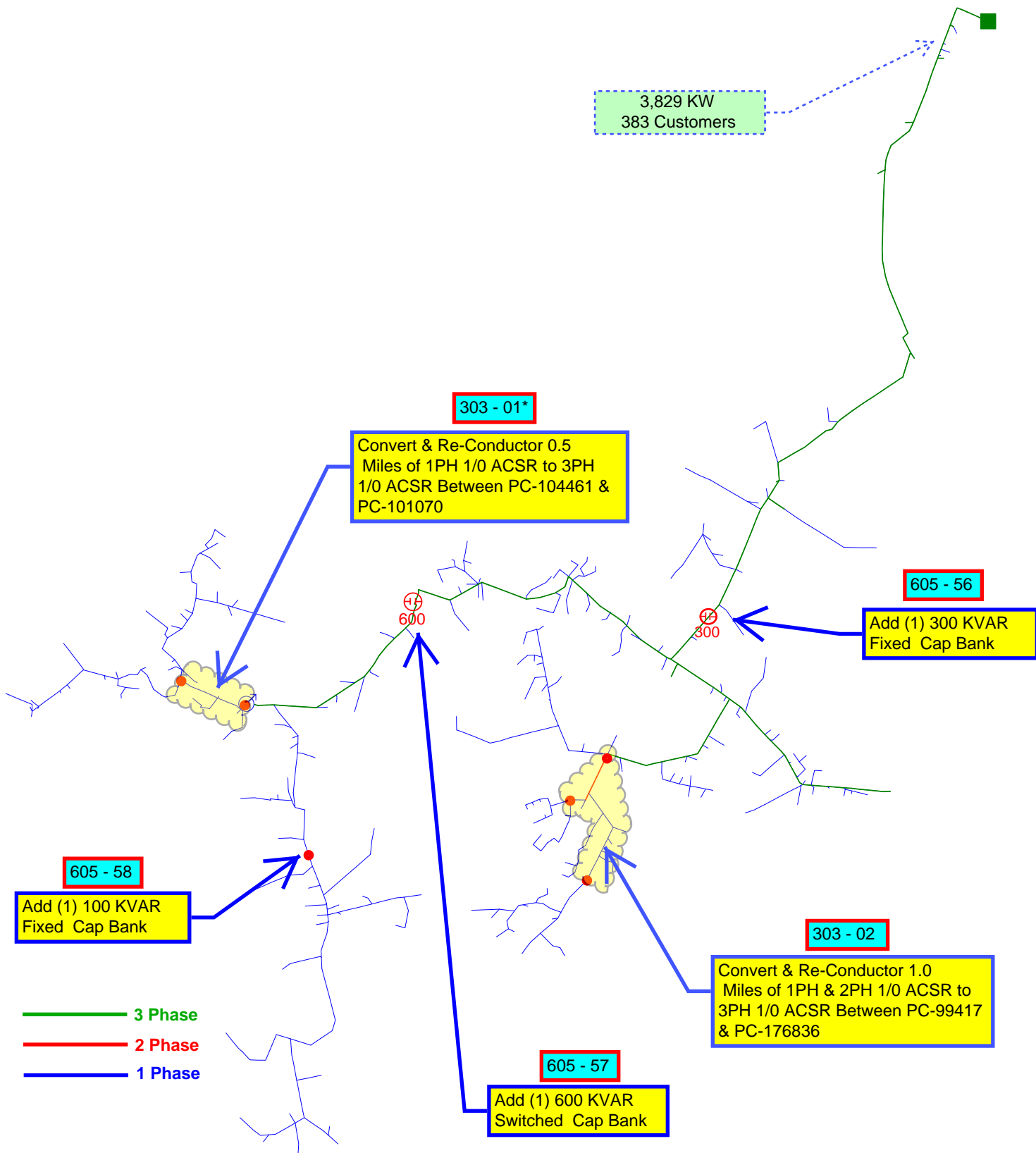




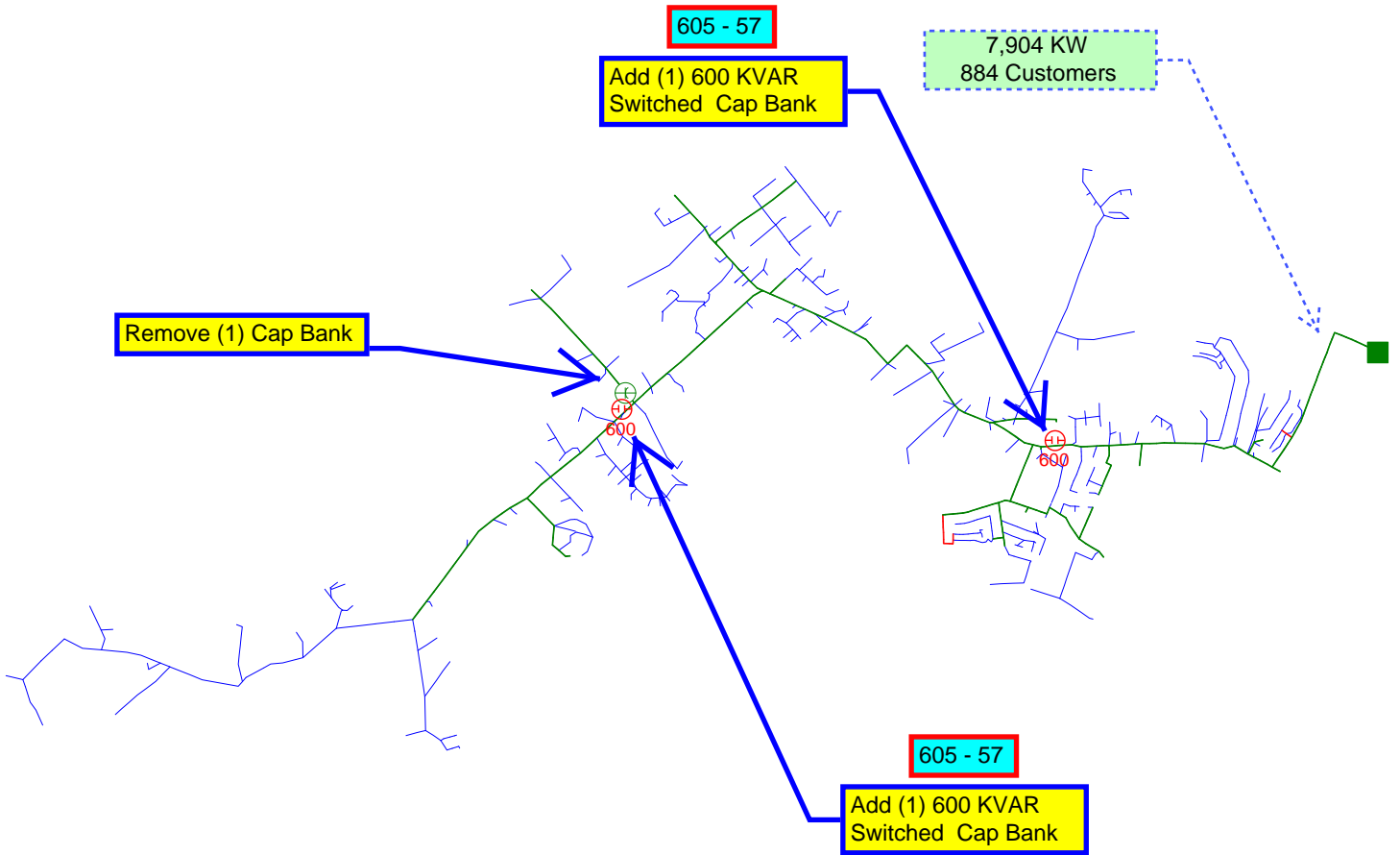
**No Projects Necessary**



- 3 Phase
- 2 Phase
- 1 Phase

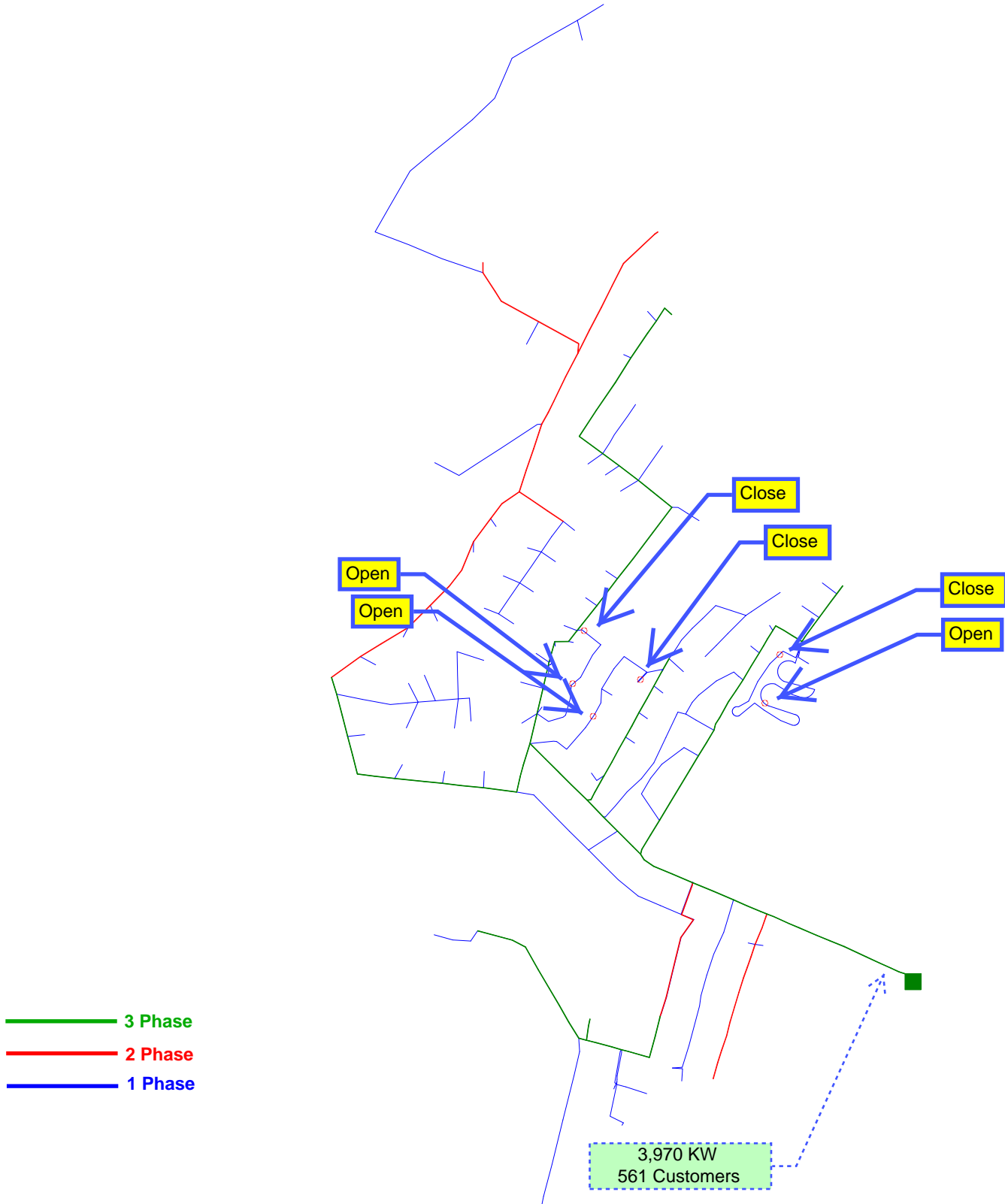


**No Projects Necessary**



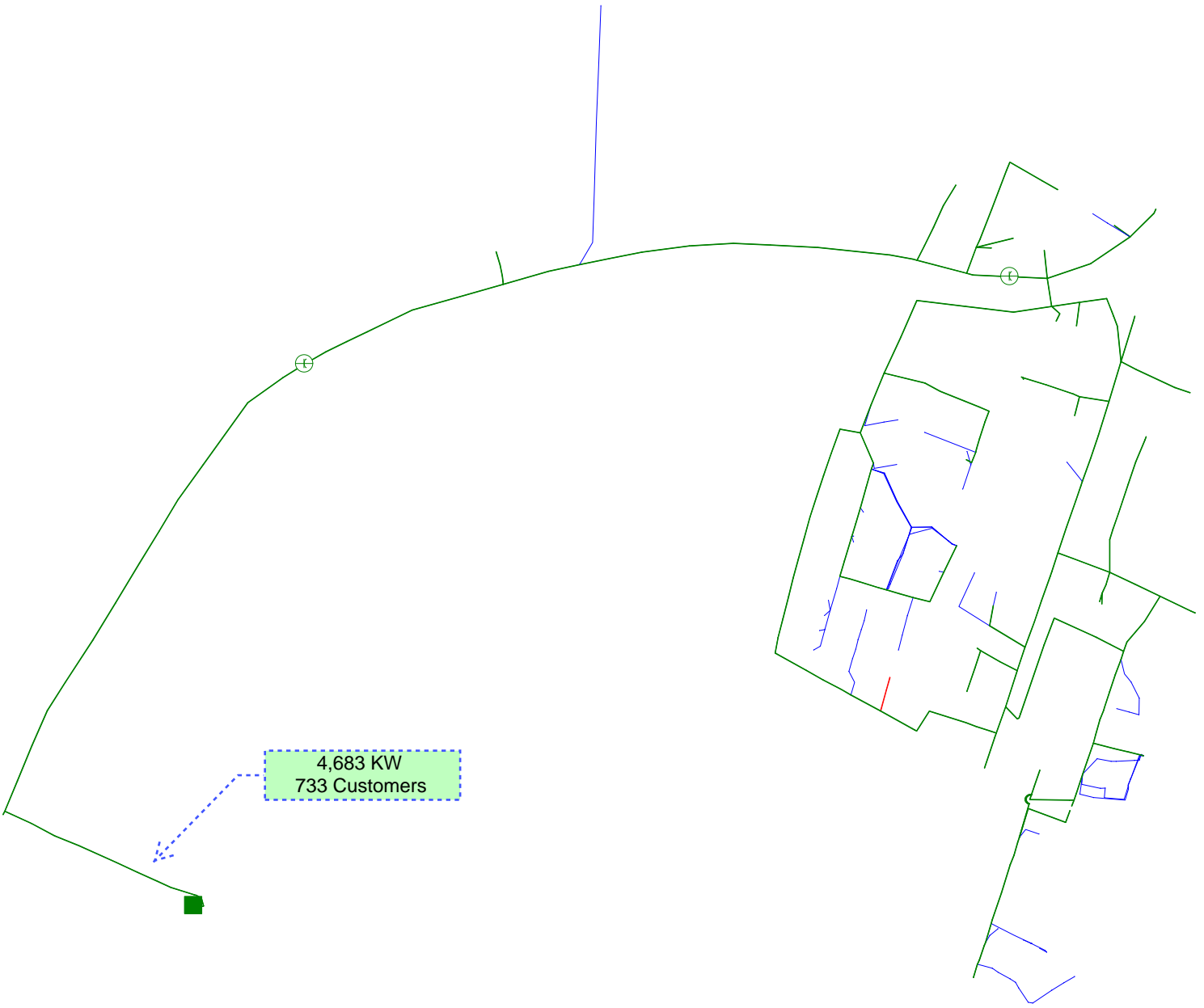
- 3 Phase
- 2 Phase
- 1 Phase

**No Projects Necessary**



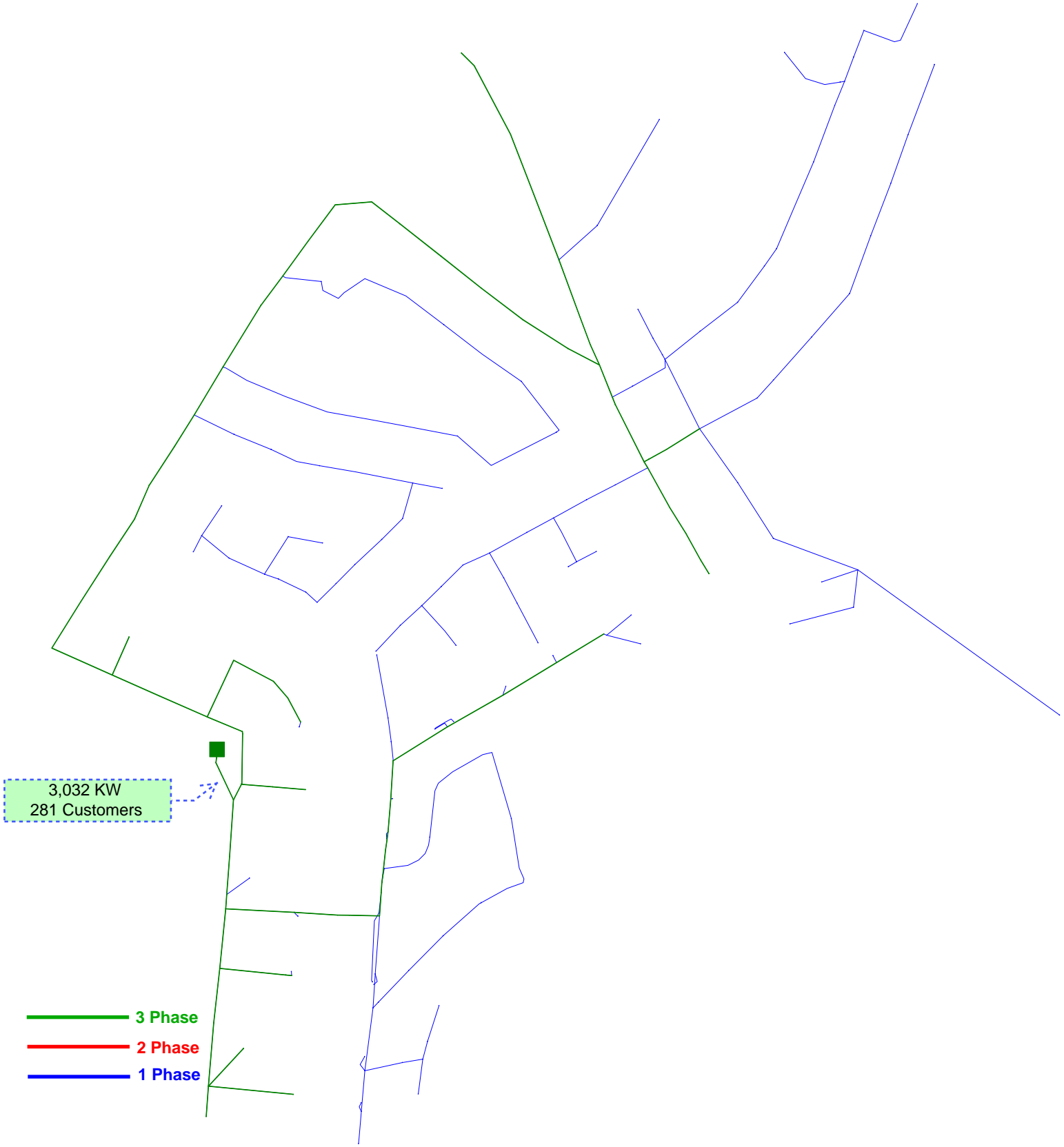


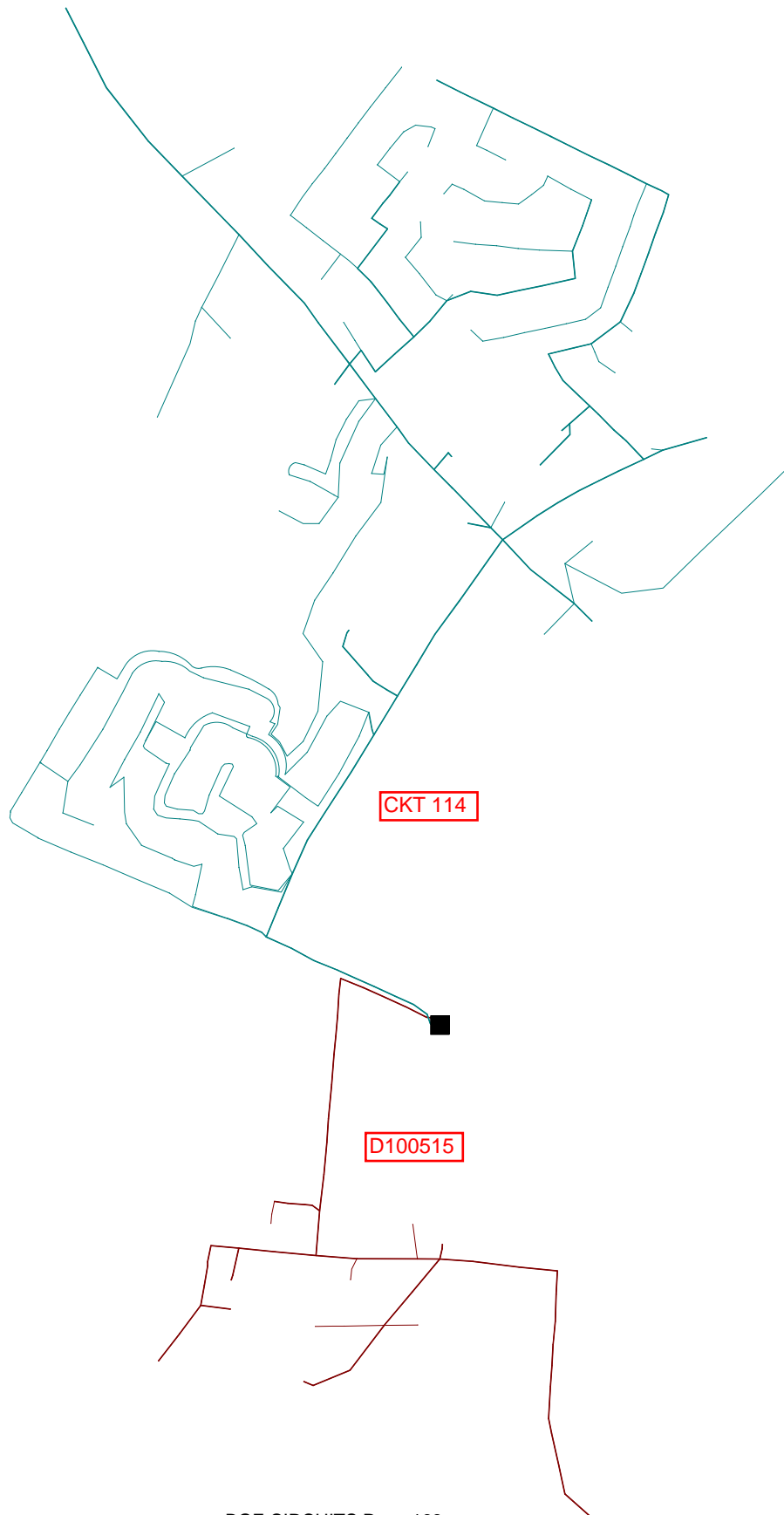
**No Projects Necessary**



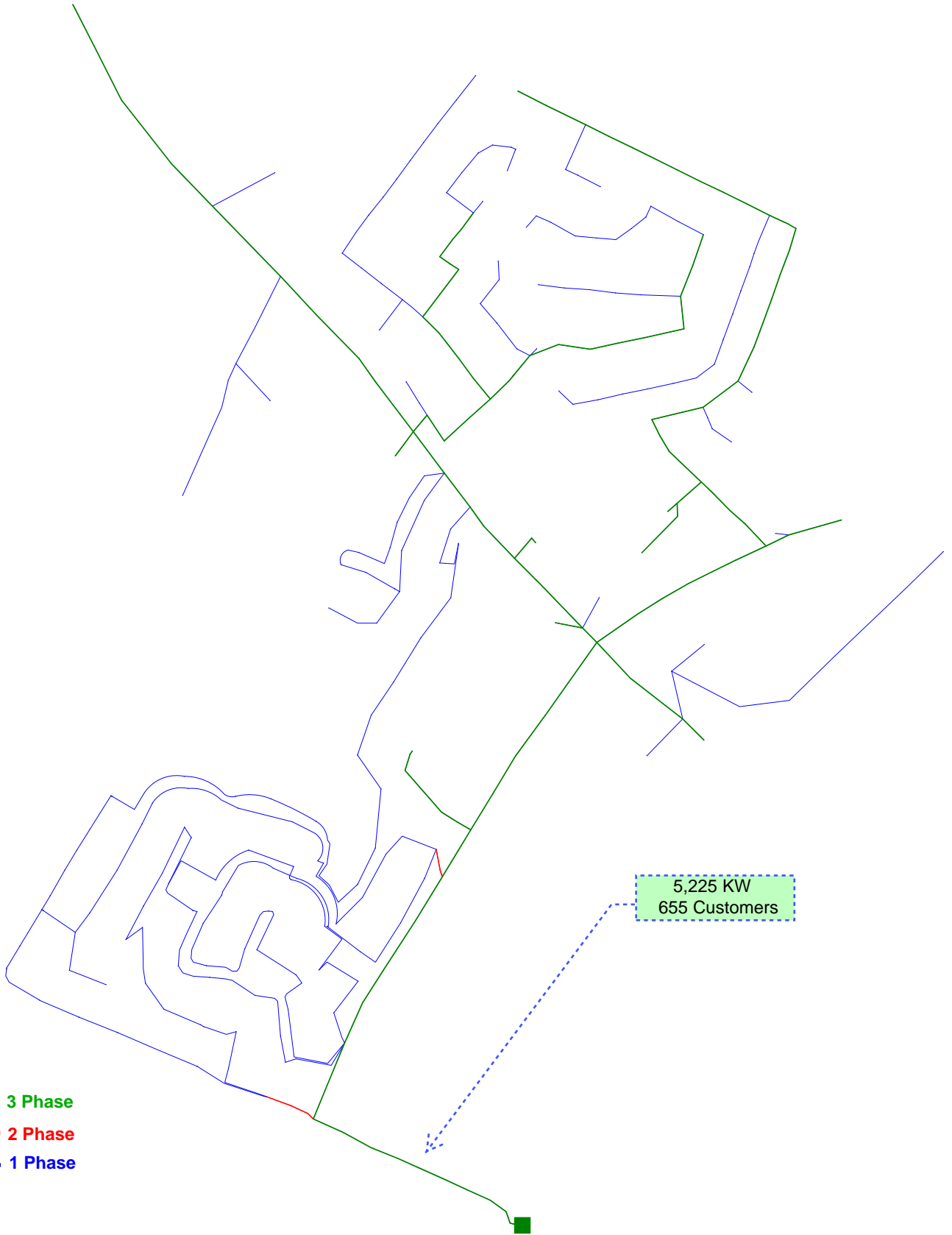
- 3 Phase
- 2 Phase
- 1 Phase

**No Projects Necessary**





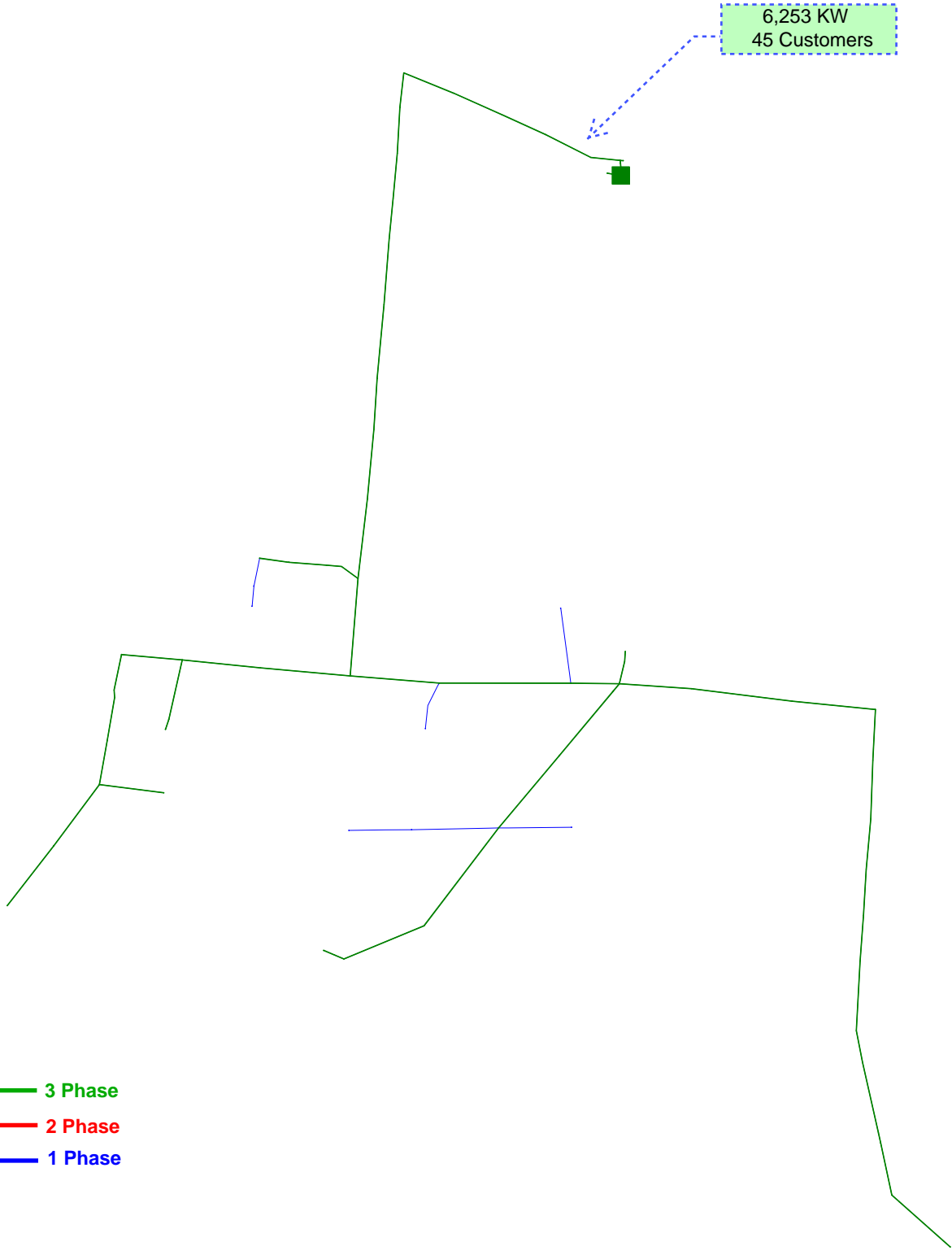
**No Projects Necessary**



- 3 Phase
- 2 Phase
- 1 Phase

5,225 KW  
655 Customers

**No Projects Necessary**



- 3 Phase
- 2 Phase
- 1 Phase



A Touchstone Energy Cooperative 

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P.O. Box 990 • 1201 Lexington Road • Nicholasville, Kentucky 40340-0990  
Phone: 888-546-4243 • Fax: 859-885-2854 • www.bgenergy.com

## EXCERPT FROM MINUTES DATED November 18, 2010

### RESOLUTION

"WHEREAS, a Three-Year Construction Work Plan dated 2010-2013 in the amount of \$37,991,700 has been prepared by Patterson & Dewar Engineers, Inc.

"NOW, THEREFORE, BE IT RESOLVED, that the Board of Directors of Blue Grass Energy Electric Cooperative Corporation hereby approves the 2010-2013 Work Plan as a plan of action, to be followed, or until amended with the approval of RUS."

### CERTIFICATE OF SECRETARY

I, Paul L. Tucker, Secretary of Blue Grass Energy Electric Cooperative Corporation hereby certify that the foregoing is a true and correct copy of an excerpt taken from the minutes of a regular meeting of the Board of Directors held on November 18, 2010.

A handwritten signature in cursive script, reading "Paul L. Tucker", written over a horizontal line.

Signature of Secretary

# KY64 2010 ~ 2013 CONSTRUCTION WORK PLAN

## 740c (ENVIRONMENTAL CHECKLIST)

15-Nov-10

**1. DISTRIBUTION**

Was project approved in a previous CWP or Amendment? If yes, provide status if no provide anticipated classification (per 7CFR1794)	Will work be entirely within existing ROW, generating station, industrial park or substation fencing? If no, see next column. If yes is SHPO concurrence required for work? Is yes, are T&E Species or Critical Habitat located within the county? Are Federal Lands, floodplains or wetlands crossed?	For substations, will the new disturbance be <1 acre, <5 acres, or >5 acres? For lines, provide the voltage, length and ROW width.	Does the project require preparation of an Environmental Assessment of Environmental Impact Statement? If yes, the environmental work must be approved prior to application or removed from loan.
---	--	--	---

**100 a. New Line: (Excluding Tie-Lines)**

Construction	Consumers	Miles
Underground _____	_____	_____
Overhead _____	_____	_____
Total Consum _____	0	Total Miles _____
		0

NA	NA		
NA	NA		
NA	NA		

**200 b. New Tie-Lines**

Line Designation	Miles
_____	_____
_____	_____
_____	_____

NA			
NA			
NA			
NA			

**300 c. Conversion and Line Changes**

Line Designation	Miles
(301-340) Line Conversions _____	116.3

No	Existing ROW - Yes SHPO - NA T&E Species - NA Federal lands, floodplains, wetlands - NA		
----	--	--	--

**400 d. New Substations, Switching Stations, Metering Points, etc.**

Station Designation	kVA	kV to kV
_____	_____	_____
_____	_____	_____
_____	_____	_____

NA			
NA			
NA			

**500 e. Substation, Switching Station, Metering Point Changes**

Station Designation	Description of Changes
_____	_____
_____	_____
_____	_____
_____	_____

NA			
NA			
NA			
NA			
NA			

**600 f. Miscellaneous Distribution Equipment**

601 (1) Transformers and Meters

C Transformers	Meters
Underground _____	_____
Overhead _____	_____

*Subtotal code 601 . . . (included in total of all 600 codes below)*

NA			
NA			
NA			

602 (2) Sets of Service Wires to increase Capacity \_\_\_\_\_

603 (3) Sectionalizing Equipment \_\_\_\_\_

604 (4) Regulators \_\_\_\_\_

605 (5) Capacitors \_\_\_\_\_

606 (6) Pole Replacements \_\_\_\_\_

NA			
NA			
NA			
NA			
NA			

608 (8) Conductor Replacements - 54 miles \_\_\_\_\_

No	Existing ROW - Yes SHPO - NA T&E Species - NA Federal lands, floodplains, wetlands - NA		
----	--	--	--

**700 g. Other Distribution Items**

701 (1) Engineering Fees \_\_\_\_\_

702 (2) Security Lights \_\_\_\_\_

703 (3) Reimbursement of General Funds (see attached) \_\_\_\_\_

704 (4) AMR \_\_\_\_\_

NA			
NA			
NA			
NA			

**2. TRANSMISSION**

**800 a. New Line**

Line Designation	Wire Size
_____	_____
_____	_____

NA			
NA			

900 b. New Substations, Switching Stations, etc.  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

NA			
NA			
NA			
NA			

1000 c. Line and Station Changes  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

NA			
NA			
NA			
NA			

1100 d. Other Transmission Items  
 (1) R/W Procurement \_\_\_\_\_  
 (2) Engineering Fees \_\_\_\_\_  
 (3) Reimbursement of General Funds (see schedule) \_\_\_\_\_  
 (4) \_\_\_\_\_

NA			
NA			
NA			
NA			

3. GENERATION (including Step-up Station at Plant)

1200 a. Fuel \_\_\_\_\_ Nameplate Rating \_\_\_\_\_  
 b. \_\_\_\_\_

NA			
NA			

4. HEADQUARTERS FACILITIES

1300 a. New or additional Facilities \_\_\_\_\_  
 b. \_\_\_\_\_

NA			
NA			

1400 5. ACQUISITIONS  
 a. \_\_\_\_\_ Consumers \_\_\_\_\_ Miles  
 b. \_\_\_\_\_

NA			
NA			

1500 6. ALL OTHER  
 a. \_\_\_\_\_  
 b. \_\_\_\_\_

NA			
NA			





**United States Department of Agriculture  
Rural Development**

JAN 3 2011

Mr. Daniel W. Brewer  
President and CEO  
Blue Grass Energy Cooperative Corporation  
P.O. Box 990  
Nicholasville, Kentucky 40340-0990

Dear Mr. Brewer:

The USDA Rural Utilities Service (RUS) has reviewed the Environmental Report (ER) covering the facilities recommended in Blue Grass Energy Cooperative Corporation's 2010-2013 Construction Work Plan (CWP). In accordance with 7 CFR Part 1794, Environmental Policies and Procedures, as amended, all projects proposed in the CWP are Categorical Exclusions (§1794.21[b][7] and [15]). No additional environmental information needs to be submitted for review, provided there are no extraordinary circumstances and the projects do not change from what has been described in the CWP/ER.

Blue Grass Energy Cooperative Corporation now has environmental approval for all projects in the CWP. Blue Grass Energy Cooperative Corporation is responsible for acquiring the necessary permits for construction and operation of the proposed projects and for ensuring that any environmental commitments made in the CWP/ER are fulfilled.

Thank you for your assistance and cooperation in helping us fulfill our environmental review requirements. If you have any questions, please contact me at (202) 720-1994 or Ms. Lauren McGee, Environmental Scientist, at [lauren.mcgee@wdc.usda.gov](mailto:lauren.mcgee@wdc.usda.gov) or (202) 720-1482.

Sincerely,

A handwritten signature in black ink, appearing to read "Charles M. Philpott".

CHARLES M. PHILPOTT  
Chief, Engineering Branch  
Northern Regional Division  
USDA Rural Utilities Service

1400 Independence Ave, S.W. · Washington DC 20250-0700  
Web: <http://www.rurdev.usda.gov>

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"USDA is an equal opportunity provider, employer and lender."  
To file a complaint of discrimination, write USDA, Director, Office of Civil Rights,  
1400 Independence Avenue, S.W., Washington, DC 20250-9410 or call (800) 795-3272 (Voice) or (202) 720-6382 (TDD).

**Anticipated Annual Additional Cost of Operation After Completion of all CWP Projects:**

**Estimated Depreciation:**

<i>Account No.</i>	<i>Balance 12/31/2010</i>	<i>Monthly Rate X 12</i>	<i>Depreciation</i>	<i>Percent of Total</i>	<i>Estimated Capitalization</i>	<i>Estimated Depreciation</i>
36200	\$1,660,932.86	2.95%	\$48,997.52	0.87%	\$328,839	\$9,701
36400	\$52,239,365.70	3.50%	\$1,828,377.80	32.30%	\$12,270,866	\$429,480
36500	\$46,088,416.58	2.55%	\$1,175,254.62	20.76%	\$7,887,534	\$201,132
36700	\$11,696,448.64	2.65%	\$309,955.89	5.48%	\$2,080,220	\$55,126
36800	\$30,339,001.59	2.85%	\$864,661.55	15.27%	\$5,803,038	\$165,387
36900	\$26,780,109.08	3.35%	\$897,133.65	15.85%	\$6,020,970	\$201,702
37000	\$6,560,055.87	3.15%	\$206,641.76	3.65%	\$1,386,843	\$43,686
37100	\$4,745,158.26	4.15%	\$196,924.07	3.48%	\$1,321,625	\$54,847
37300	\$2,658,382.16	5.00%	\$132,919.11	2.35%	\$892,065	\$44,603
39000						\$0
	\$182,767,870.74		\$5,660,865.97	100.00%	\$37,992,000	\$1,205,664

**Estimated Property Taxes:**

<i>2009 Taxes</i>	<i>Property @ 12/31/09</i>	<i>Average Rate</i>	<i>Work Plan Amount</i>	<i>Estimated Taxes</i>
\$1,603,843	\$147,171,999	1.09%	\$37,992,000	\$414,027

**Estimated Interest Expense:**

<i>Plant</i>	<i>Estimated Interest Rate</i>	<i>Estimated Interest Expense</i>
\$37,992,000	4.00%	\$1,519,680

**Estimated Operation and Maintenance Expense:**

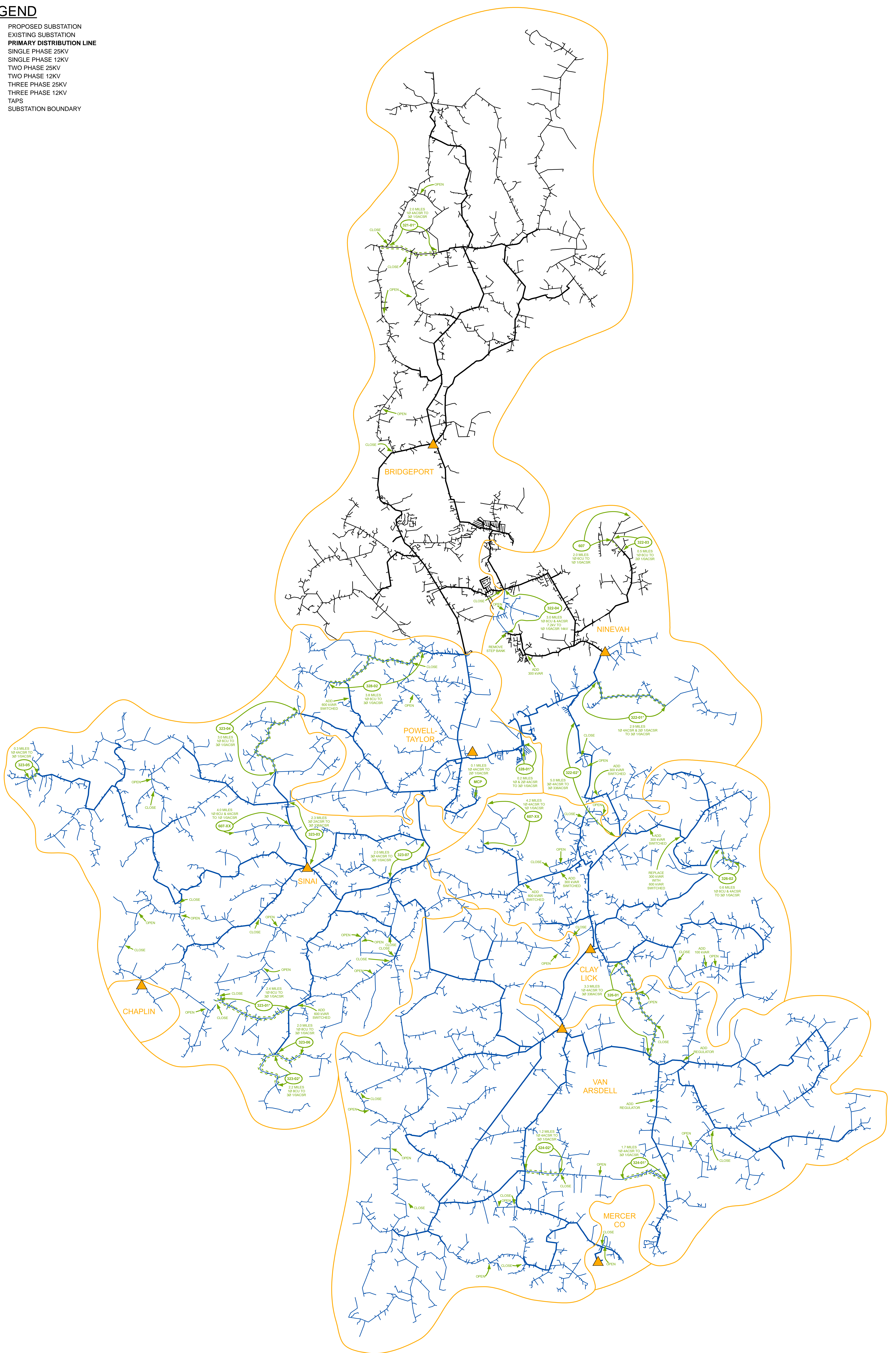
<i>Plant</i>	<i>Estimated O&amp;M %</i>	<i>Estimated O&amp;M Expense</i>
\$37,992,000	4.30%	\$1,633,656

**Estimated cost of operation after the proposed facilities are completed:**

**\$4,773,027**

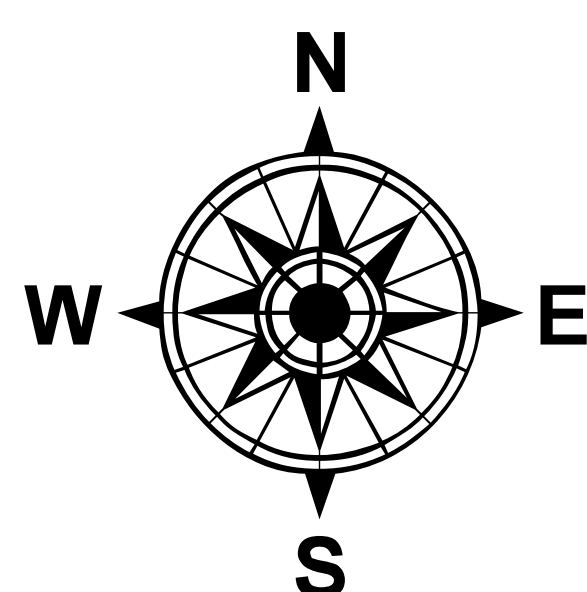
**LEGEND**

- ▲ PROPOSED SUBSTATION
- ▲ EXISTING SUBSTATION
- PRIMARY DISTRIBUTION LINE
- SINGLE PHASE 25KV
- SINGLE PHASE 12KV
- TWO PHASE 25KV
- TWO PHASE 12KV
- THREE PHASE 25KV
- THREE PHASE 12KV
- TAPS
- SUBSTATION BOUNDARY



PATTERSON & DEWAR ENGINEERS, INC.  
 850 CENTER WAY, NORCROSS, GEORGIA 30071  
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ENGINEERS - SURVEYORS



DATE	REVISIONS

**BLUE GRASS ENERGY  
 COOPERATIVE CORPORATION**  
 NICHOLASVILLE, KENTUCKY  
 KENTUCKY 64 JESSAMINE

PATTERSON & DEWAR ENGINEERS, INC. NORCROSS, GA  
 DWN BY: SR CKD BY: NM APPD BY: DATE: DEC-2010

**MAP 1**

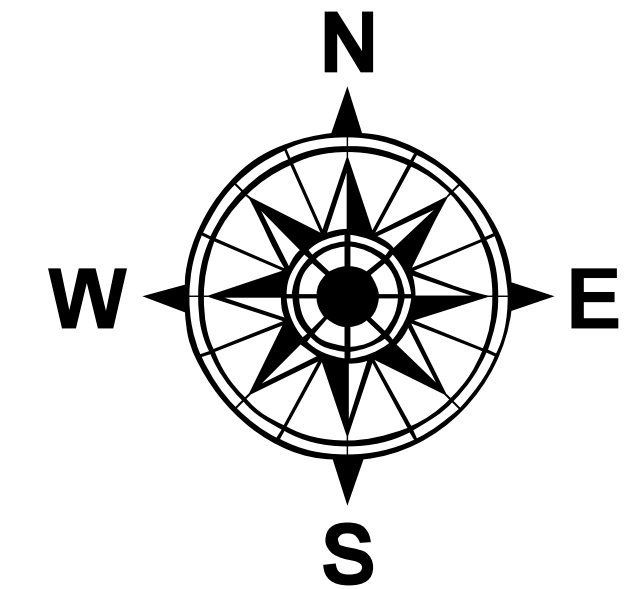
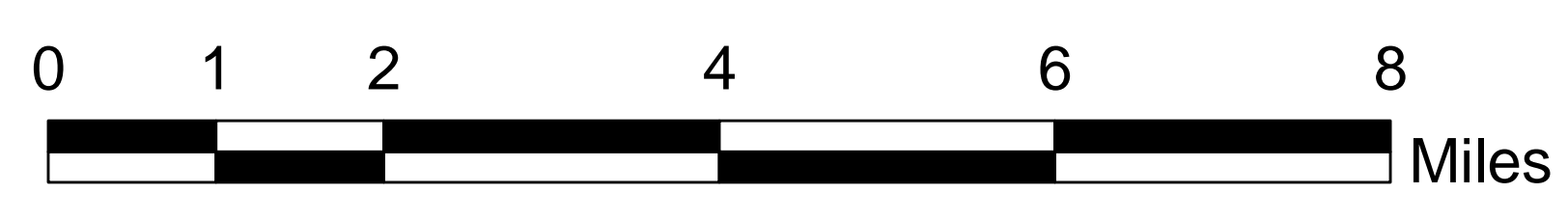
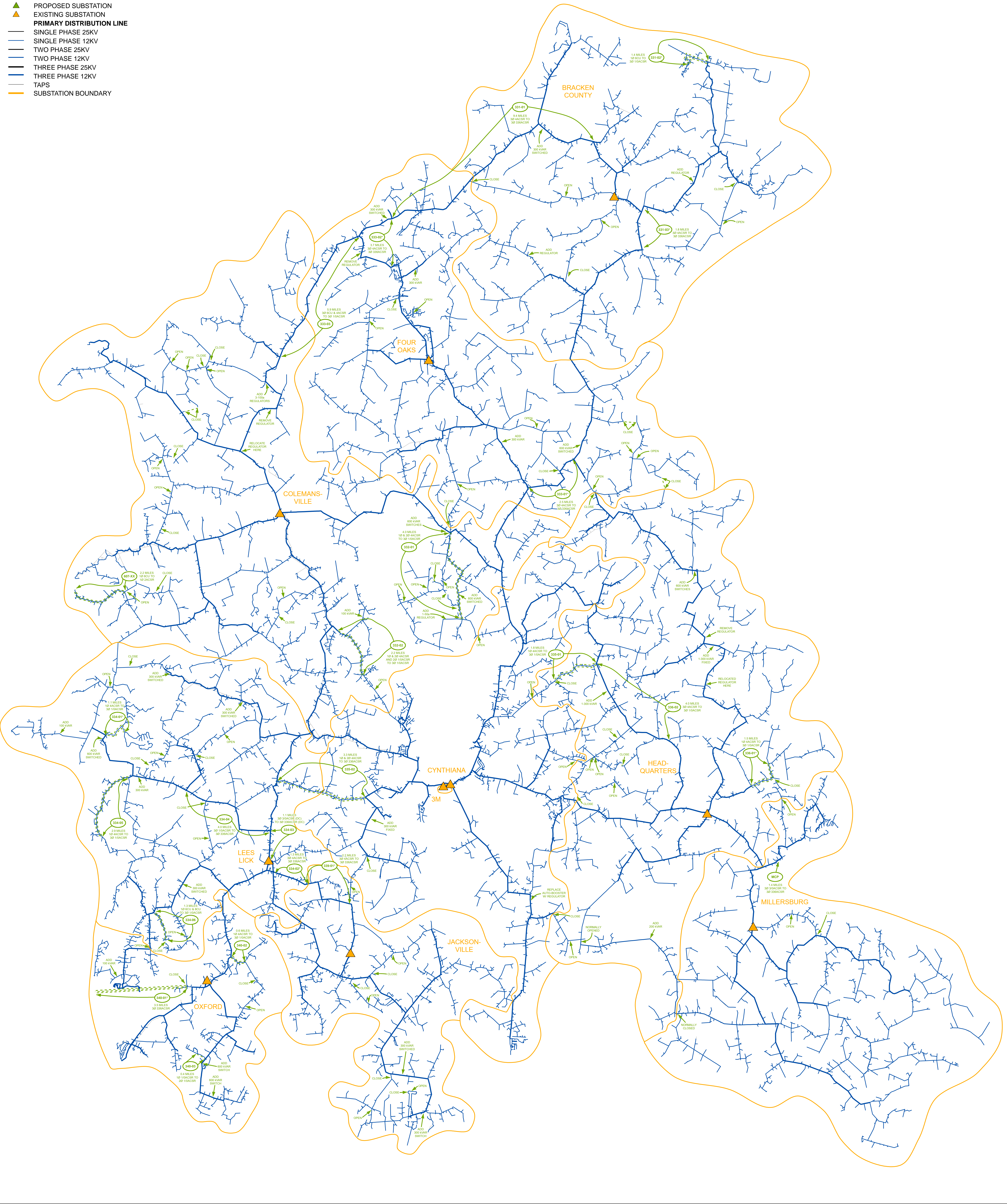
WORK PLAN

FOXCREEK

SHEET 2 OF 4

**LEGEND**

- ▲ PROPOSED SUBSTATION
- ▲ EXISTING SUBSTATION
- PRIMARY DISTRIBUTION LINE**
- SINGLE PHASE 25KV
- SINGLE PHASE 12KV
- TWO PHASE 25KV
- TWO PHASE 12KV
- THREE PHASE 25KV
- THREE PHASE 12KV
- TAPS
- SUBSTATION BOUNDARY













DATE	REVISIONS

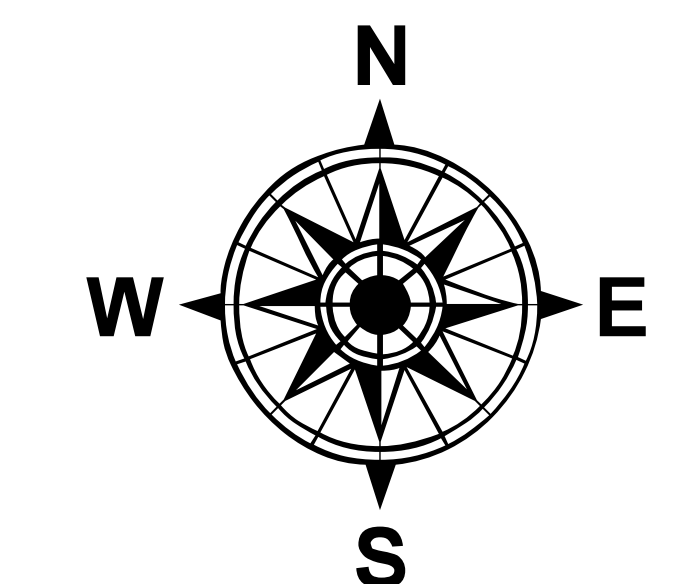
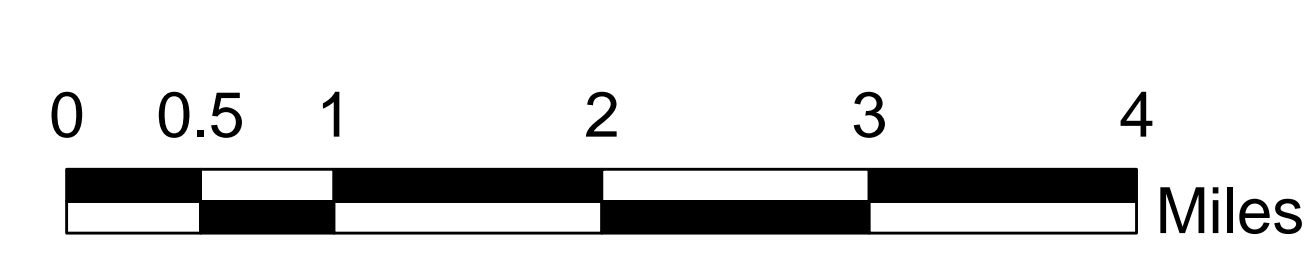
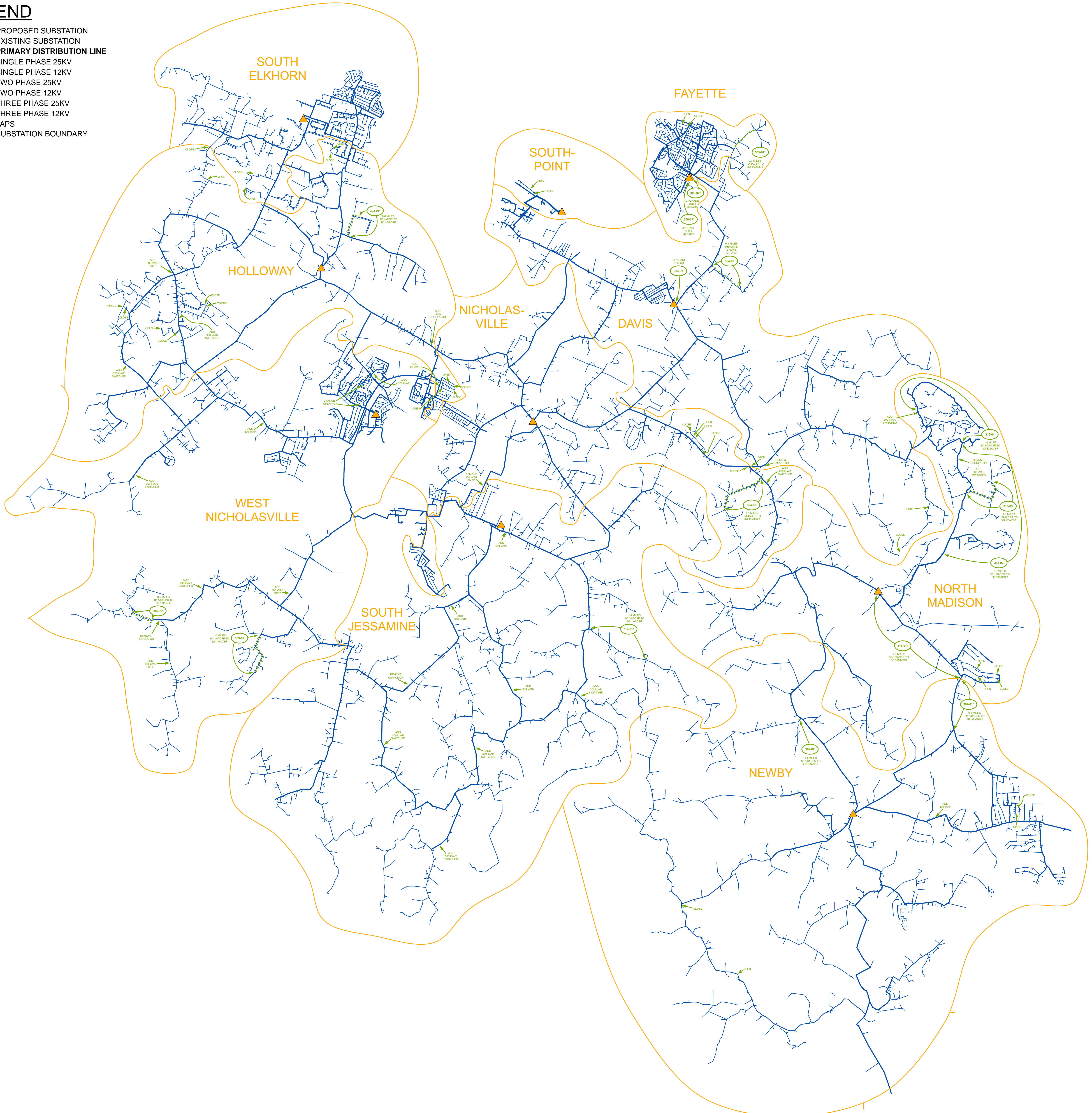
**BLUE GRASS ENERGY  
 COOPERATIVE CORPORATION**  
 NICHOLASVILLE, KENTUCKY  
 KENTUCKY 64 JESSAMINE

PATTERSON & DEWAR ENGINEERS, INC. NORCROSS, GA

DWN BY: SR    CKD BY: NM    APPD BY:    DATE: DEC-2010

# LEGEND

-  PROPOSED SUBSTATION
-  EXISTING SUBSTATION
- PRIMARY DISTRIBUTION LINE**
-  SINGLE PHASE 25KV
-  SINGLE PHASE 12KV
-  TWO PHASE 25KV
-  TWO PHASE 12KV
-  THREE PHASE 25KV
-  THREE PHASE 12KV
-  TAPS
-  SUBSTATION BOUNDARY



DATE	REVISIONS

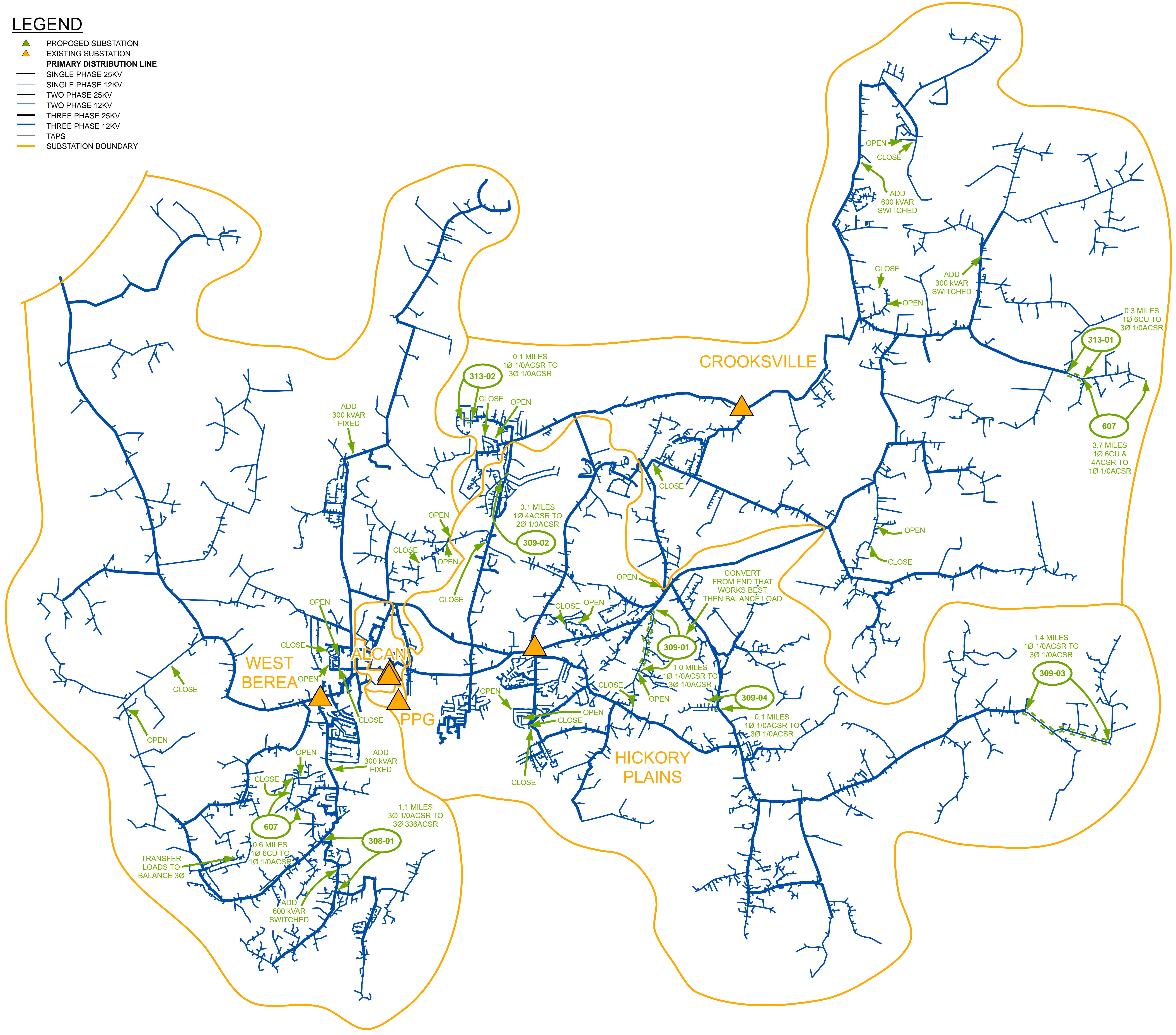
**BLUE GRASS ENERGY  
 COOPERATIVE CORPORATION**  
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PATTERSON & DEWAR ENGINEERS, INC. NORCROSS, GA

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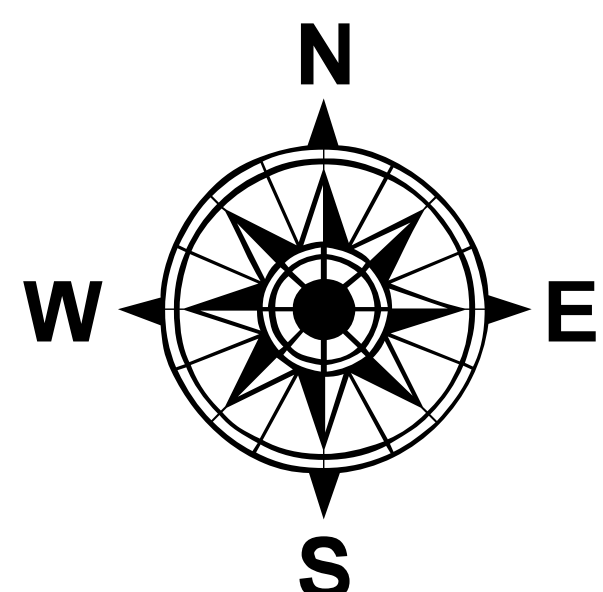
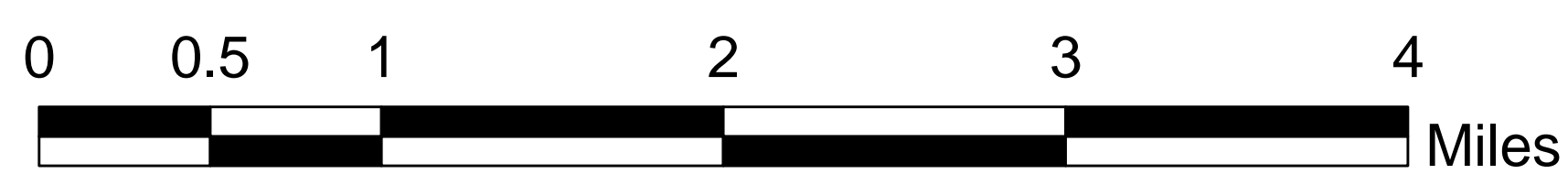
# LEGEND

- ▲ PROPOSED SUBSTATION
- ▲ EXISTING SUBSTATION
- PRIMARY DISTRIBUTION LINE
- SINGLE PHASE 25KV
- SINGLE PHASE 12KV
- TWO PHASE 25KV
- TWO PHASE 12KV
- THREE PHASE 25KV
- THREE PHASE 12KV
- TAPS
- SUBSTATION BOUNDARY



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DATE	REVISIONS

**BLUE GRASS ENERGY  
 COOPERATIVE CORPORATION**  
 NICHOLASVILLE, KENTUCKY  
 KENTUCKY 64 JESSAMINE

PATTERSON & DEWAR ENGINEERS, INC. NORCROSS, GA

DWN BY: SR    CKD BY: NM    APPD BY:    DATE: DEC-2010








**MAP 1**

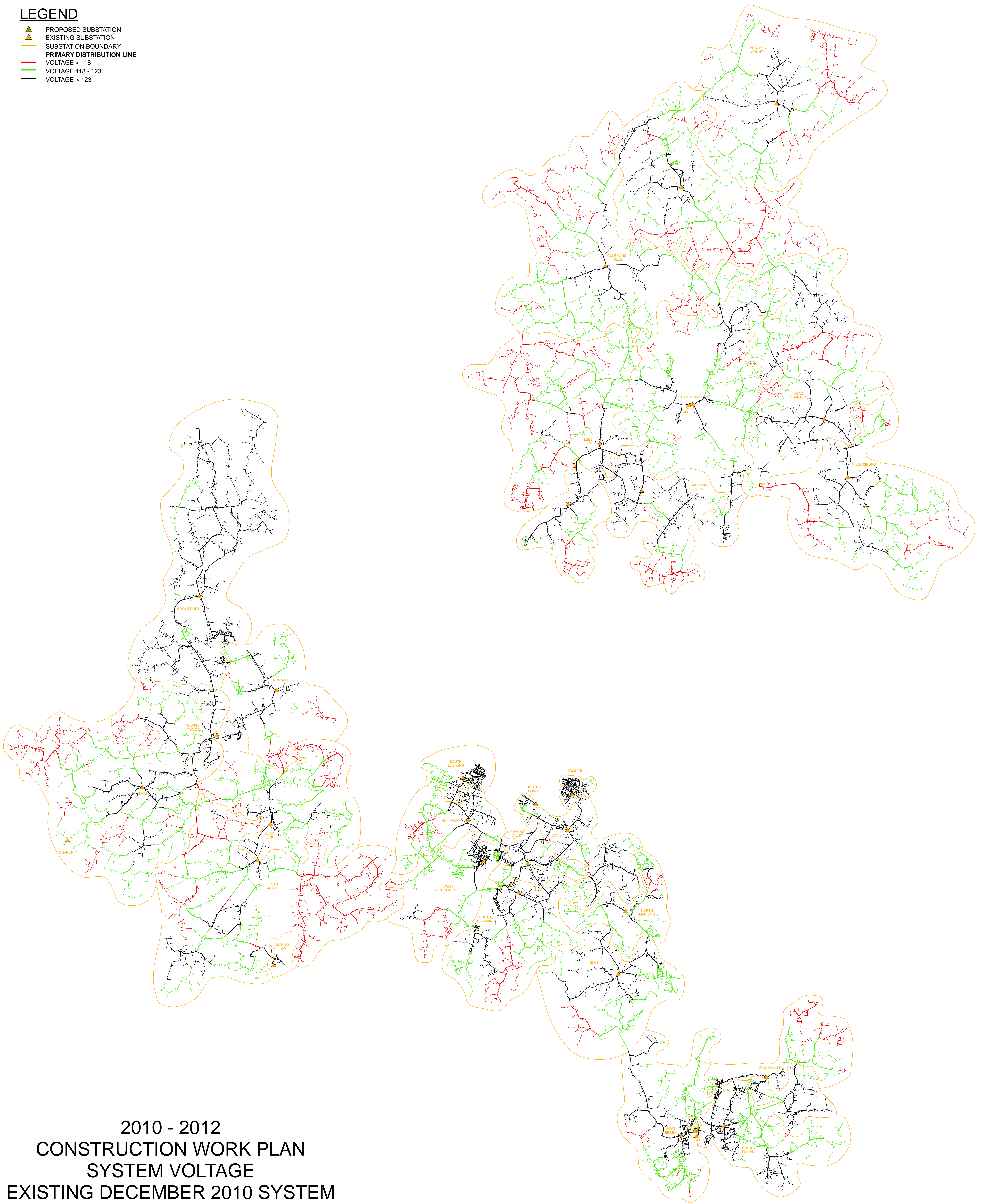
WORK PLAN

MADISON

SHEET 4 OF 4

**LEGEND**

-  PROPOSED SUBSTATION
-  EXISTING SUBSTATION
-  SUBSTATION BOUNDARY
-  PRIMARY DISTRIBUTION LINE
-  VOLTAGE < 118
-  VOLTAGE 118 - 123
-  VOLTAGE > 123

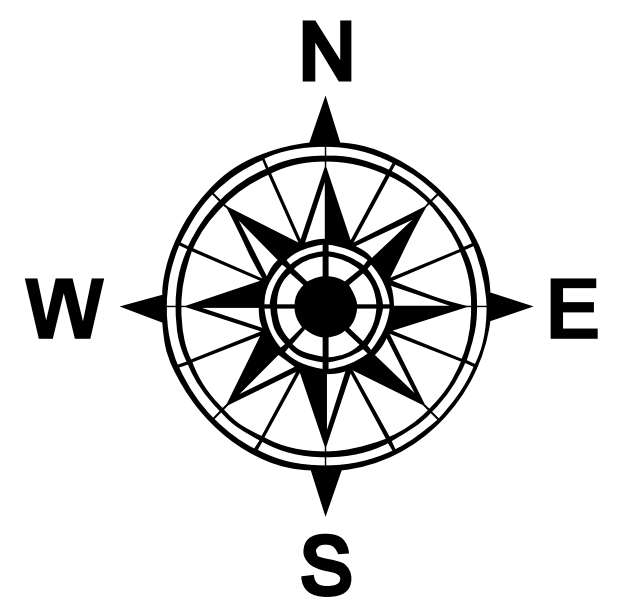
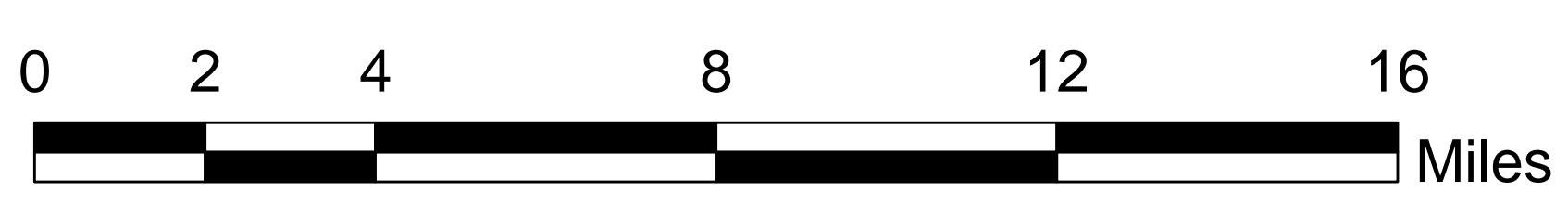


**2010 - 2012  
CONSTRUCTION WORK PLAN  
SYSTEM VOLTAGE  
EXISTING DECEMBER 2010 SYSTEM**



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850 CENTER WAY, NORCROSS, GEORGIA 30071  
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ENGINEERS - SURVEYORS



DATE	REVISIONS	BLUE GRASS ENERGY COOPERATIVE CORPORATION		MAP 1
		NICHOLASVILLE, KENTUCKY		SYSTEM MAP
		KENTUCKY 64 JESSAMINE		VOLTAGE
		PATTERSON & DEWAR ENGINEERS, INC.	NORCROSS, GA	
		DWN BY: SR	CKD BY: DT	APPD BY:
				DATE: DECEMBER-2010
				SHEET 1 OF 2

BLUE GRASS ENERGY

Primary Conductor of 6 ACWC \_8 ACWC = RED





BLUE GRASS ENERGY

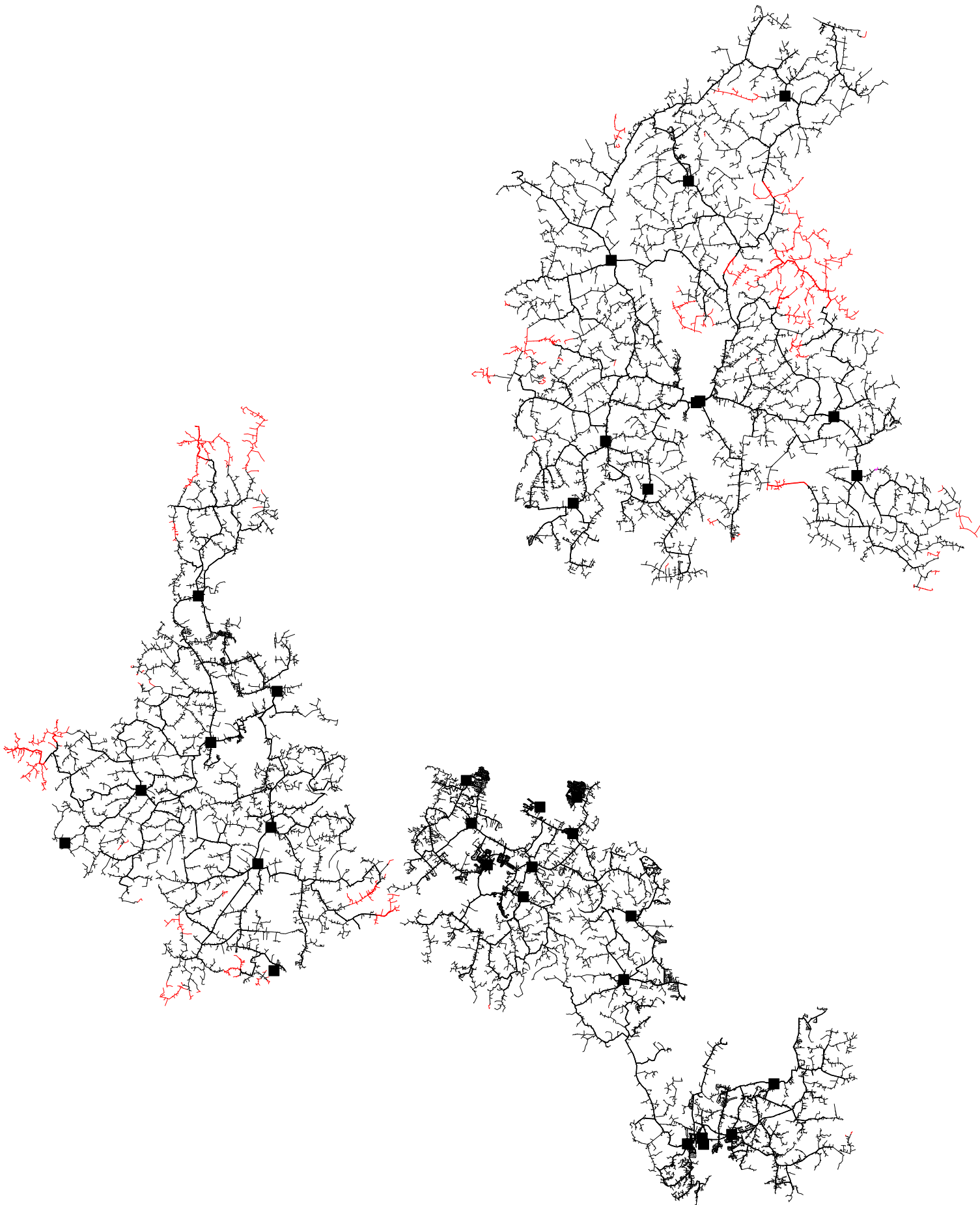
Primary Conductor of 336.4 ACSR = RED  
Primary Conductor Smaller than 336.4 ACSR = BLACK



BLUE GRASS ENERGY

Lines Served 12 Miles and Greater from a Sub = RED

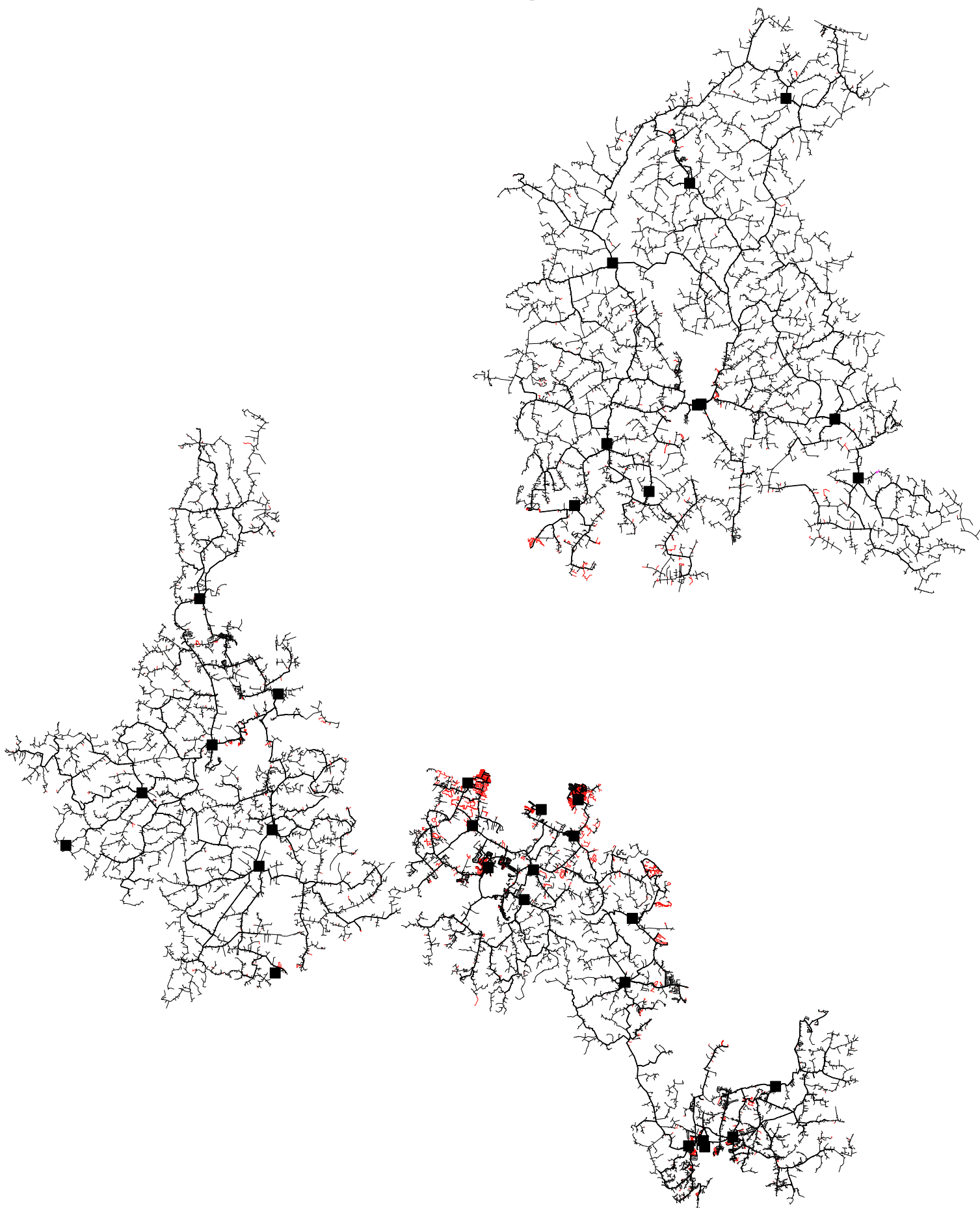
Lines Served less than 12 Miles from a Sub = BLACK



BLUE GRASS ENERGY

Underground Primary = RED

Overhead Primary = BLACK



BLUE GRASS ENERGY

14.4 / 25 KV = RED  
7.2 / 12.47 KV = Black

