City of Boulder
Rates and Reliability and Safety Working Groups
Orientation/Kickoff Meeting
Thursday, March 12, 2015, 11am – 1pm
Boulder Public Library, 1101 Arapahoe Ave. (Boulder Creek Meeting Room)

The first part of the meeting will be held jointly between the working groups.

Joint Working Group Agenda

1. Introductions (11:00-11:15)
   Staff: Heather Bailey, Kelly Crandall, Lisa Smith, Bob Harberg
   Working group members: Dan Powers, Don Price, Phil Wardwell, Andy Vissers, Pete Bastion, Kyle Gurken, Lynn Hearlehy, Jim Look, Jessica Sharkey, Don Archibald, Nils Dedier, Leslie Glustrom, Matt Lehrmann, Rick Tazelaar
2. Working group protocols and ground rules (11:15-11:30)
3. Background (11:30-11:40)
   a. On the Energy Future Project
   b. Transition Plan
4. Where we are now/next steps (11:40-11:50)
5. Questions/Transition to Separate Working Groups (11:50-12:05)

Reliability and Safety Working Group Agenda

1. Additional Background Information (12:05-12:20)
   a. Proposed acquisition
   b. Charter metrics
   c. Previous analysis and recommendations
2. Transition Plan Components and Anticipated Schedule (12:20-12:40)
   a. Review reliability related tasks and schedule
3. Determine Scope of Working Group Input and Review (12:45-1:00)
   a. Use of Basecamp
   b. RFQ for on-going services
   c. Assignments
   d. Future meeting schedule

Rates Working Group Agenda

1. About the Rates Working Group (12:05-12:20)
   a. Review objectives
   b. Relevant City Charter provisions
   c. Anticipated meeting schedule and upcoming topic
2. Background on Rates (12:20-12:45)
   a. Relevant City Charter language
3. Assignments and scheduling next meetings (12:45-1:00)

City of Boulder Energy Future Working Groups

Protocols and Agreements

The Energy Future Working Groups are one way for the City of Boulder to engage citizens in the democratic process. The primary purpose of the Working Groups is to provide meaningful advice from a community perspective. The activities of the Working Groups may include analysis and discussion of critical energy-related issues, performing independent research, and reviewing staff reports and recommendations. The Working Groups will discuss, analyze, formulate, and forward well-developed, thoughtful recommendations to the Energy Future staff, appointed City Boards and Commissions and ultimately City Council.

City staff will utilize Working Groups to aid the process of effective, responsible and efficient government by: marshalling and channeling the resources of expertise and insight available in the community to complement the judgment of staff; providing more available forums for public dialog; providing mechanisms appropriate for the ascertainment of facts and the discernment of views; and broadening the base of citizen participation in the Energy Future project.

MEETINGS

To provide a safe venue for the free flow of ideas, the working group sessions shall not be open to the public. Working group members may discuss the meetings with colleagues, friends and relatives, but shall not speak with the media or make public presentations or representations regarding the discussions of the working group.

DOCUMENTATION

a. Each member needs regular access to email and a web application page.
b. Documents will primarily be distributed at the meetings and shared via Basecamp .
c. All documents will be marked “draft” and are for discussion purposes until labeled “final.”
d. Draft documents should not be construed as “final” or distributed outside the working group.
e. All meetings will result in draft action summary minutes circulated to working group members for review and comment before being finalized.
f. Working group members will be given one week to review summaries and provide comments.

GROUND RULES/PROTOCOLS

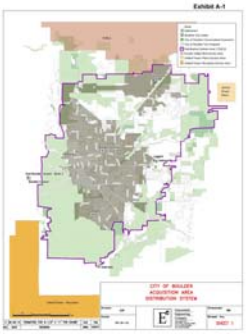
Members of the working groups agree to:

a. Abide by the protocols and allow the facilitator to enforce them;
b. Engage in meaningful and productive dialogue;
c. Assume best intent from all participants;
d. Focus on the discussion at hand; avoid side conversations;
e. Speak up respectfully and provide an explanation if in opposition to a proposal;
f. Avoid destructive language and personal attacks;
g. Come prepared, read materials prior to meetings;
h. Disclose any actual or potential conflicts of interest;
i. Respect the time of the group, speak briefly and on topic; and,
j. Limit comment and discussion to purpose statement and scope of work.

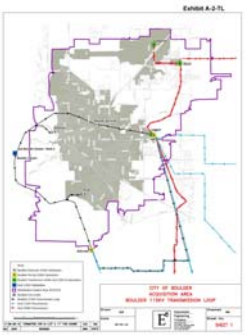
Reliability and Safety Working Group

Orientation Meeting – March 12, 2010

Acquisition Area – Distribution System



Acquisition Area – 115kV Transmission Loop



Proposed Boulder Electric Utility General System Characteristics

City of Boulder-Electric Utility General System Characteristics		
Acquisition Area Population	111,000	
Acquisition Area Employment	96,800	
Total Acquisition Area	44.4 square miles	
Residential Customers	56,000	approximate
Commercial Customers	6,800	approximate
Industrial Customers	20	approximate
Distribution System Voltage	13.2 kV	
Number of Substations	6	
Number of Transformers (115 kV to 13.2 kV)	10	
Number of Transformers (230 kV to 13.2 kV)	2	
Transmission System Voltage	115 kV	
Transmission Circuit Miles	29	
Total Number of Substations fed by Transmission System	9	
Distribution Circuit Miles	569	
Distribution Circuit % Overhead	38%	
Distribution Circuit % Underground	62%	
Overhead Transformers	2,600	approximate
Underground (Padmounted) Transformers	1,200	approximate
SAIDI goal	85 minutes	
SAIFI goal	<85	

Charter Metrics for Reliability

- Comparable Electric Equipment
- Reliability Indices
  * Outage duration (SAIDI) – 85 minutes
  * Outage frequency (SAIFI) – 0.85
- Reserve Margin – 15%
- Comply with all federal, regional, and local requirements

Reliability Working Group

- Review Consultant Work and Recommendations
  * Exponential Engineering (Separation and Day 1 Reliability Analysis)
  * Schneider Electric (Future Reliability Analysis)
  * Warren Wendling (Regulatory Requirements – Transmission and Generation)
- Four Meetings and Internet (Basecamp) Postings and Conversations

Reliability Considerations

- Separation Plan
- Startup Costs and Work Plan
- Ft. Collins and APPA Benchmarks for on-going O&M
- APPA Reliable Public Power Provider (RP3) Program
- Capital Replacement Schedule
- NERC and WECC Regulations and Guidelines

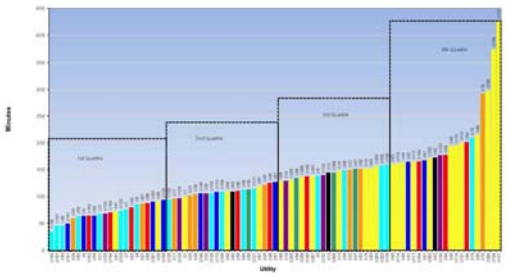
Separation Plan Methodology

- Maintain existing system configuration and existing feeders
- Retains looping and redundancy features
- Switched metered interconnections
- Additional infrastructure where needed

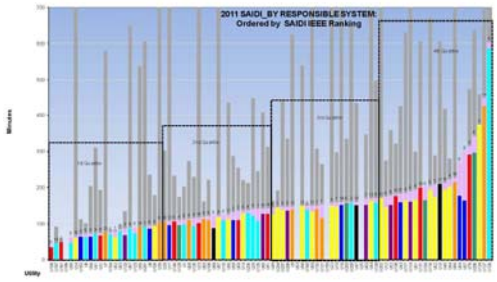
Transmission & Resource Mix

- NERC and WECC
- Contract with transmission provider (Xcel-PSCo)
- Power purchase agreement (PPA) portfolio
- 15 percent reserve margin
- On-line and off-line reserves
- One day in 10 year loss of load expectation
- Additional analysis

SAIDI Index Survey, Distribution Only



SAIDI Index Survey, Including Transmission and Extreme Events



Comparison Data

	Longmont	Fort Collins	Boulder
Service Area Population	86,000	147,000	111,000
Service Area Employment	49,000	97,000	97,000
Service Area (square miles)	49	56	44
Total metered customers	37,000	64,000	62,000
Circuit Miles	594	855	569
Miles Overhead	149	17	213
Miles Underground	445	838	356
SAIDI	38	17	85
SAIFI	0.69	0.45	0.85

Benchmarking – Total O&M Expense per Customer

Category 10 = Total O&M Expense (Excluding Power Supply Expense)							
	Boulder Modeled $/year	Boulder Modeled $/customer	Estimated Xcel Energy Base Case $/year	Estimated Xcel Energy Base Case $/customer	Ft. Collins (2009 $)	APPA Median West Region (2012 $)	APPA Median 50K-100K customers (2012 $)
1st Quartile	NA	NA	NA	NA	NA	$340	$319
Median	$22,656,744	$362.51	$19,709,313	$315.35	$260	$480	$402
3rd Quartile	NA	NA	NA	NA	NA	$617	$498

Distribution O&M Expenses per Circuit Mile

Category 15 = Distribution O&M Expenses per Circuit Mile							
	Boulder Modeled $/year	Boulder Modeled $/circuit mile	Estimated Xcel Energy Base Case $/year	Estimated Xcel Energy Base Case $/circuit mile	Ft. Collins (2009 $)	APPA Median West Region (2012 $)	APPA Median 50K-100K customers (2012 $)
1st Quartile	NA	NA	NA	NA	NA	$4,270	$6,678
Median	$9,176,997	$16,128	$4,949,548	$8,699	$10,284	$6,088	$9,426
3rd Quartile	NA	NA	NA	NA	NA	$13,494	$12,910

Xcel Energy Quality of Service Plan Reporting

Xcel Energy Quality of Service Plan (QSP) Reporting - Boulder Region								7/15/2014
Data compiled by Bob Harberg in reviewing Quality of Service Monitoring and Reporting Plan (QSMRP) annual summary reports								
		2007	2008	2009	2010	2011	2012	2013
	RWT SAIDI - ODI	92.7	98.7	99.1	101	101.1	101.3	100.2
	SAIDI - ODI	110.3	88.8	98.4	88.6	90.5	76.9	91.8
5 Year Running Average						95.32	88.64	89.24
SAIDI = System Average Interruption Duration Index								
ODI = Ordinary Distribution Interruptions								
RWT = Reliability Warning Threshold								

APPA RP3 Reliable Public Power Provider

American Public Power Association

Reliable Public Power Provider

APPA RP3 Reliable Public Power Provider

- Reliability
- Safety
- Work Force Development
- System Improvement
- Emerging Issues

Transition Plan

Transition Plan – Reliability and Safety Tasks

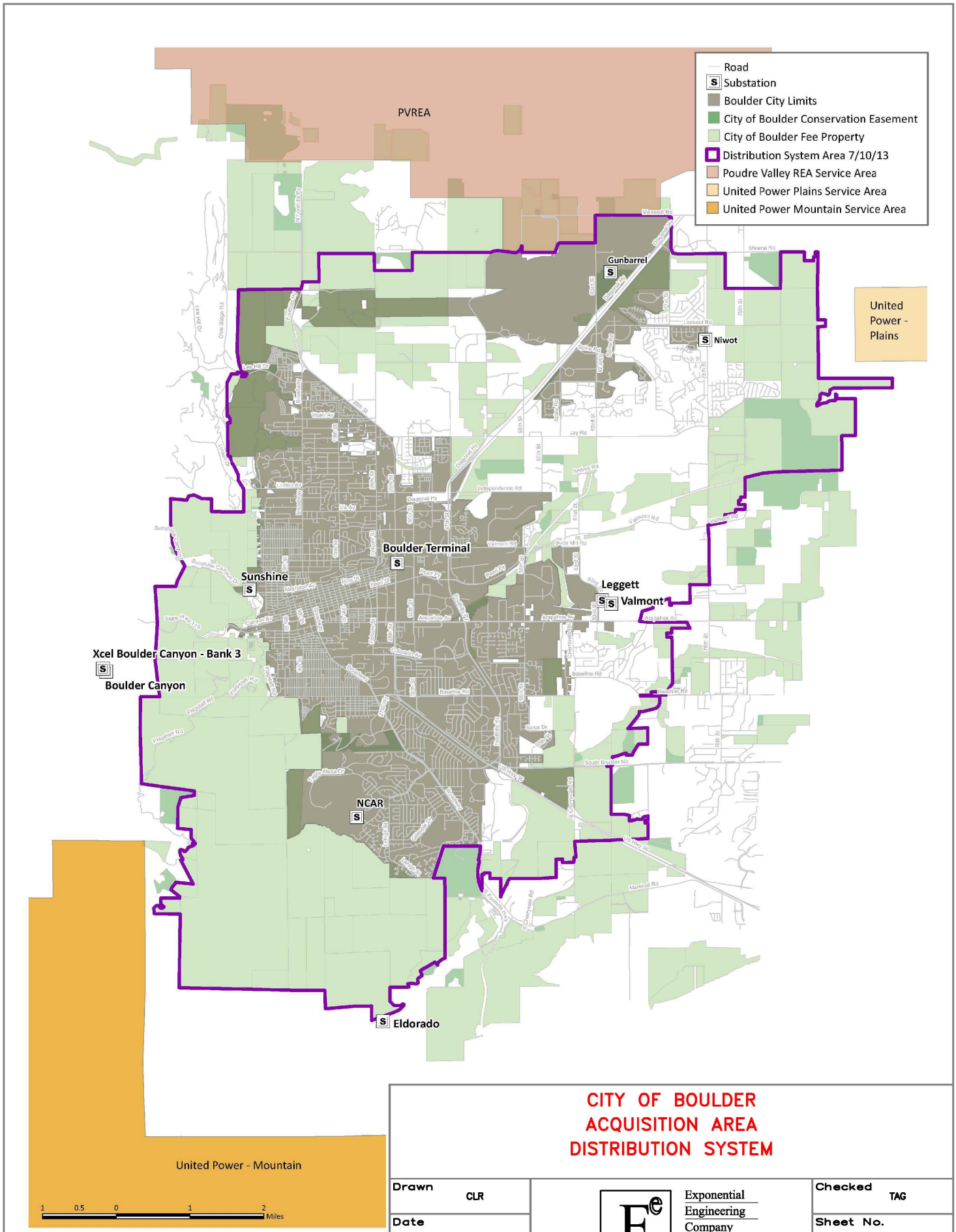
The following is a sampling of the various Transition Plan reliability and safety related tasks:

- Interconnection Standards
- Metering Design Manual and Construction Standards
- Distribution System Design Manual and Construction Standards
- Substation Design Manual and Construction Standards
- Transmission Line Design Manual and Construction Standards
- Operations and Maintenance Procedures, Policies and Standards
- System Planning Procedures
- System Model
- Protective Device Coordination
- Arc Flash Analysis
- System Operating Procedures
- System Inspection, Maintenance and Testing Procedures
- Vegetation Management Plan
- Safety Policies and Training Program

Determine Scope of Working Group Input and Review

- Use of Basecamp
- RFQ for on-going services
- Assignments
- Future meeting schedule

Exhibit A-1

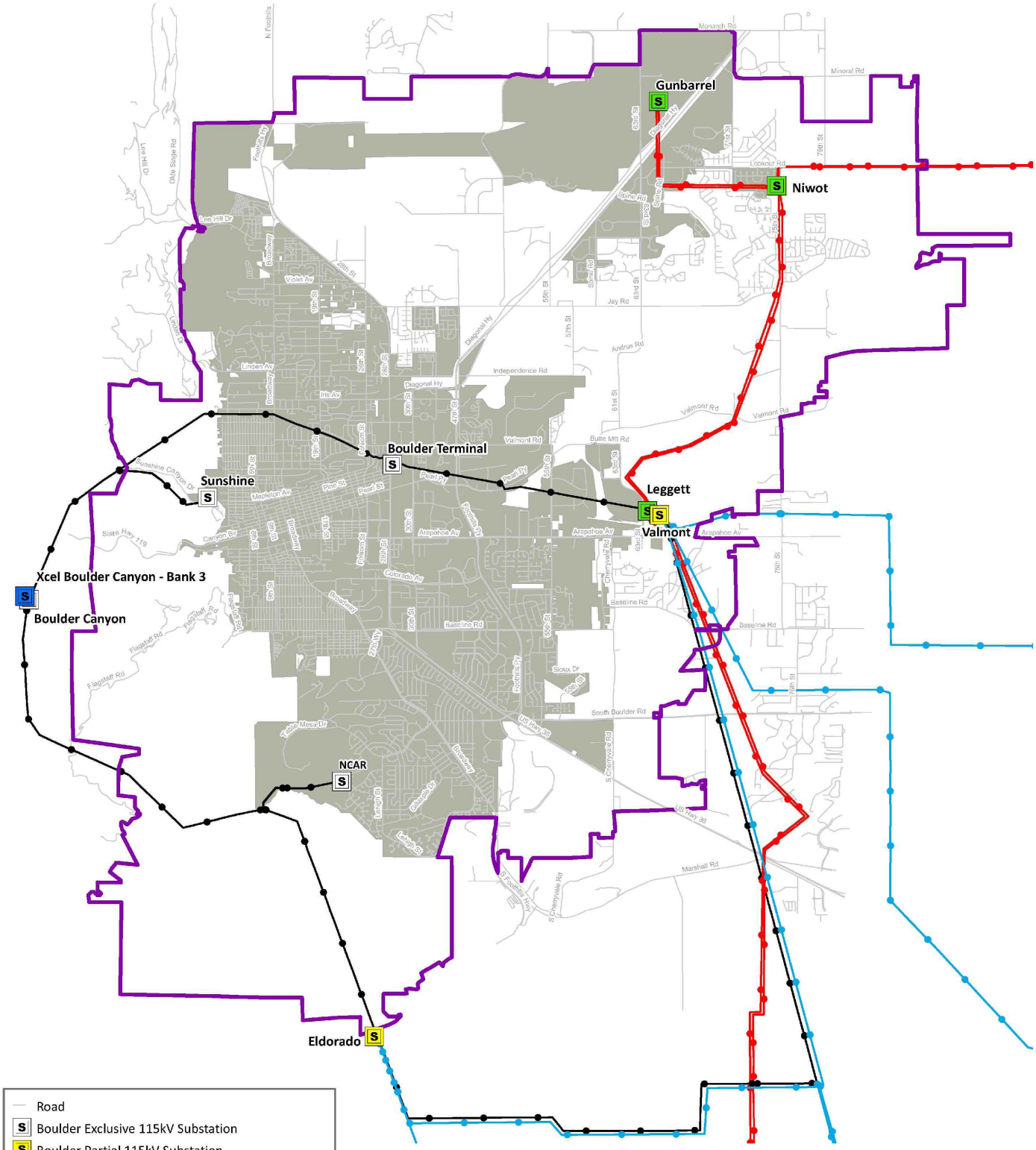


CITY OF BOULDER
ACQUISITION AREA
DISTRIBUTION SYSTEM

Drawn CLR	Exponential Engineering Company, 328 Airpark Drive, Fort Collins, Colorado 80524, Phone: (970) 207-9648, Fax: (970) 207-9657	Checked TAG	
Date 07-31-13		Sheet No. SHEET 1	

NO.	DATE	REVISION	DWN.	CHK'D
0	06-26-14	FORMATTED FOR 8-1/2" X 11" FOR EXHIBIT	CLR	TAG

Exhibit A-2-TL



- Road
- Boulder Exclusive 115kV Substation
- Boulder Partial 115kV Substation
- Boulder Transformer within Xcel 230 kV Substation
- Xcel 115kV Substation
- Distribution System Area 07/10/13
- Boulder City Limits
- Boulder 115kV Transmission Loop
- Xcel 115kV Transmission
- Xcel 230kV Transmission

1 0.5 0 1 2 Miles

NO.	DATE	REVISION	DWN.	CHK'D
0	06-26-14	FORMATTED FOR 8-1/2" X 11" FOR EXHIBIT	CLR	TAG

CITY OF BOULDER
ACQUISITION AREA
BOULDER 115KV TRANSMISSION LOOP

Drawn CLR

Date 07-31-13

Checked TAG

Sheet No. SHEET 1

Exponential Engineering Company
328 Airpark Drive
Fort Collins, Colorado 80524
Phone: (970) 207-9648
Fax: (970) 207-9657

City of Boulder-Electric Utility General System Characteristics		
Acquisition Area Population	111,000	
Acquisition Area Employment	96,800	
Total Acquisition Area	44.4 square miles	
Residential Customers	56,000	approximate
Commercial Customers	6,800	approximate
Industrial Customers	20	approximate
Distribution System Voltage	13.2 kV	
Number of Substations	6	
Number of Transformers (115 kV to 13.2 kV)	10	
Number of Transformers (230 kV to 13.2 kV)	2	
Transmission System Voltage	115 kV	
Transmission Circuit Miles	29	
Total Number of Substations fed by Transmission System	9	
Distribution Circuit Miles	569	
Distribution Circuit % Overhead	38%	
Distribution Circuit % Underground	62%	
Overhead Transformers	2,600	approximate
Underground (Padmounted) Transformers	1,200	approximate
SAIDI goal	85 minutes	
SAIFI goal	<85	

ATTACHMENT F

Reliability Considerations for Municipalization
02/20/13

I. INTRODUCTION

One of the criteria of Section 198 of the Charter is that the city would provide reliable electric power as set forth in the Charter metrics[1]. Given the importance of this issue, a separate analysis and working group was formed to address questions about reliability. Specialized engineers were hired to evaluate the system and its condition, provide recommendations on needed improvements, identify regulatory reliability requirements, and recommend best practices to ensure reliable electrical service.

Reliability is a term used to describe the level of uninterrupted service an electric power utility provides. Reliability depends on a combination of the quality of the physical infrastructure as well as the ability of the utility to control the system and respond to failures. Certain elements of reliability are governed by federal and regional regulations. The staff has worked internally and with the Reliability Working Group to develop a plan that would allow a city-owned electric utility to provide better reliability than currently provided by Xcel, as well as meeting regulatory requirements.

The analysis of reliability has been considered in terms of formulating the plan for separating from the Xcel system, start-up of the utility, the capital replacement schedule and energy resource plans. In addition, the human, organizational and financial resources that would be needed for ongoing administration, operation, maintenance, monitoring, control, dispatch, project management, customer service and response procedures have been addressed in the modeling of municipal utility options with the intent of assuring reliable electrical service if a municipal electric utility is created.

A separation plan has been developed based on service area boundaries that serve the city and minimize areas of separation on existing feeders. The plan maintains the vast majority of the existing system configuration, including looping and redundancy features that are integral to maintaining high reliability. At the substations, the city would acquire the equipment on the "low-side" of the transformers and Xcel would maintain the "high-side" equipment and the transformers. This division of responsibility for equipment at substations is common where the distribution system is operated by a different entity than the transmission system. Any necessary interfaces to the external distribution grid outside of the substations would be accomplished by deploying switched, metered interconnections to provide backup and redundancy for both Xcel and city feeders. Where such interconnections are not feasible, additional infrastructure would be constructed to establish and/or maintain looping, redundancy, and reliability enhancing features.

Note: it was later decided by City Council that the City should acquire the transmission loop along with the substation "high side" equipment.

Federal regulations have positively influenced the reliability of the interconnected transmission and generation system within the United States. Energy (generation) resource plans and associated transmission capabilities would comply with all regulations, maintain a 15 percent

[1] Maintain comparable electric equipment, facilities and services as those of Xcel at time of acquisition, which will be designed to achieve the same System Average Interruption Duration Index (SAIDI) of 85 and a System Average Interruption Frequency Index (SAIFI) of .85; maintain an adequate reserve margin of 15%; and meet applicable North American Electric Reliability Corporation (NERC) compliance requirements.

reserve margin and provide adequate on-line and off-line reserves with the intent of ensuring a reasonable (one day in 10 years) loss of load expectation.

Appendix F-1 presents a compilation of the various issues and analysis considered by the Reliability Working Group in a question and answer format. The following is a summary of some of the important aspects of the analysis.

II. RELIABILITY INDICES

Electric power system reliability is commonly measured based on the following indices:

The System Average Interruption Duration Index (SAIDI) measures the total interruption duration over a given time period (typically one year) for the average customer:

$$SAIDI = \Sigma(ri * Ni) / NT$$

Where,
SAIDI = System Average Interruption Duration Index
Σ = Summation function
ri = Restoration time, minutes
Ni = Total number of customers interrupted
NT = Total number of customer served

The System Average Interruption Frequency Index (SAIFI) is defined as the average number of times that a typical customer is interrupted during a specific time period (typically one year). SAIFI is determined by dividing the total number of customers interrupted in a time period by the average number of customers served. The resulting unit is "average number of interruptions per customer."

$$SAIFI = \Sigma(Ni) / NT$$

Where,
SAIFI = System Average Interruption Frequency Index
Σ = Summation function
Ni = Total number of customers interrupted
N_T = Total number of customers served

Based on Xcel Energy Quality of Service (QSP) reports, the following metric indices were established by City Council in November 2012.

- SAIDI: 85
- SAIFI: 0.85

These metric indices are slightly better than the four-year average for the Xcel Energy Boulder region. Appendix F-2 is a copy of the Xcel Energy QSP Report dated Jan. 17, 2012.

ATTACHMENT F

The electric power system may be categorized as:

1. Distribution - less than100 kilovolts (kV)
2. Transmission -100 kV and greater
3. Generation or Resource mix

The distribution system is defined as that portion of the electrical power system downstream of the substation high-side disconnect switch. Within the United States, distribution systems have the greatest impact on overall system performance as measured by SAIDI and SAIFI. Distribution systems constitute the vast majority of the "mileage" of the electric system and thus offer the greatest exposure to hazards, faults and failures. The interconnected transmission system and generation are designed for failure contingencies that would be uneconomical for distribution systems. The influence of extreme weather events is generally quantified separately (not included in SAIDI and SAIFI) due to the low probability of occurrence and economic and practical constraints preventing design of systems to withstand such events.

City staff interviewed and collected data from other Northern Colorado Front Range Public Power Utilities including Longmont and Fort Collins. These agencies use a variety of performance indices and metrics, some of which are targeted at reliability. Table 1 presents an abbreviated summary of this information. Appendix F-3 presents the data compiled to date.

Table 1 – Comparison Data

	Longmont	Fort Collins	Boulder
Service Area Population	86,000	147,000	111,000
Service Area Employment	49,000	97,000	97,000
Service Area (square miles)	49	56	44
Metered customers	37,000	64,000	62,000
Circuit Miles	594	855	569
Miles Overhead	149	17	213
Miles Underground	445	838	356
SAIDI	38	17	85
SAIFI	0.69	0.45	0.85

As shown, Longmont and Ft. Collins report better overall distribution system reliability as measured by SAIDI and SAIFI than Xcel Energy in the Boulder region.

A 2011 Institute of Electrical and Electronics Engineers (IEEE) benchmarking study attempted to help utilities quantify and improve their system reliability. This study reported a wide range of performance across the United States as measured by SAIDI and SAIFI. Figures 1 and 2 present the survey results for the day-to-day distribution system performance as measured by SAIDI and SAIFI without considering the influence of extreme events. The colors represent different regions of the United States and the dark blue represents the southwest region of which Colorado is a part.

Figure 1 - SAIDI Index Survey, Distribution Only
(2011 IEEE Benchmarking Study)

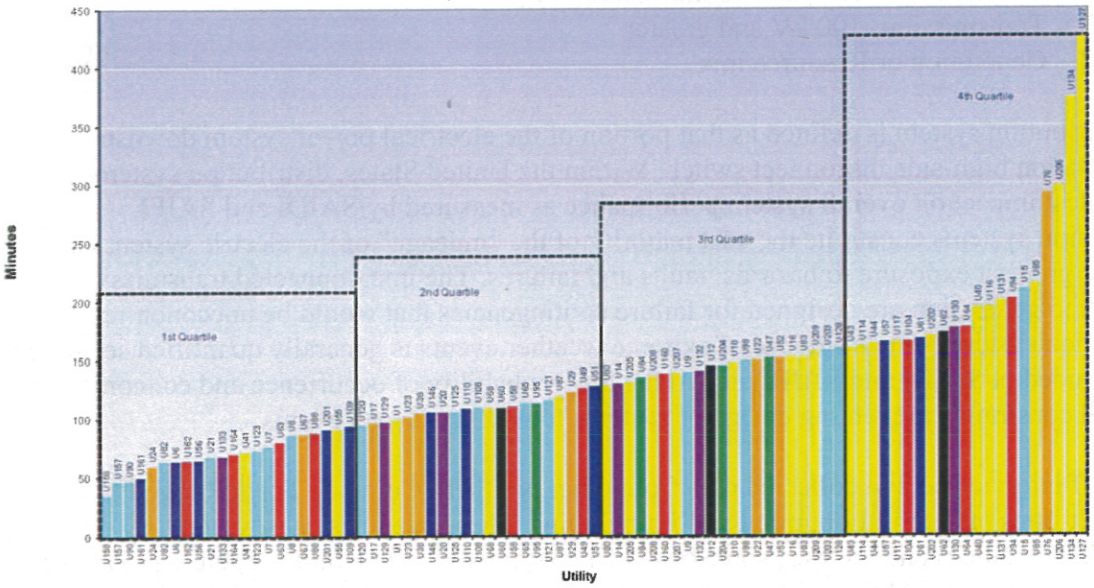
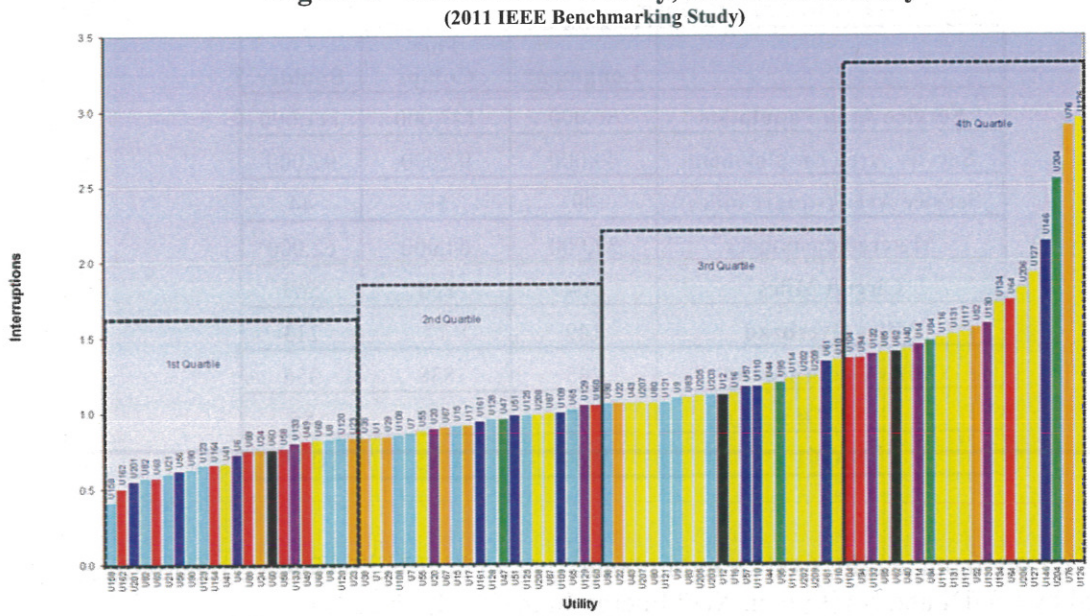


Figure 2 - SAIFI Index Survey, Distribution Only
(2011 IEEE Benchmarking Study)



Figures 3 and 4 present the influence of transmission and extreme events. As depicted in pink, transmission system impacts are relatively insignificant whereas the impacts of extreme weather events (as depicted in gray) are significant and vary considerably across the United States with the northeast and mid-Atlantic regions being more highly impacted by extreme weather events, such as hurricanes and ice storms.

Figure 3 - SAIDI Index Survey, Including Transmission and Extreme Events
(2011 IEEE Benchmarking Study)

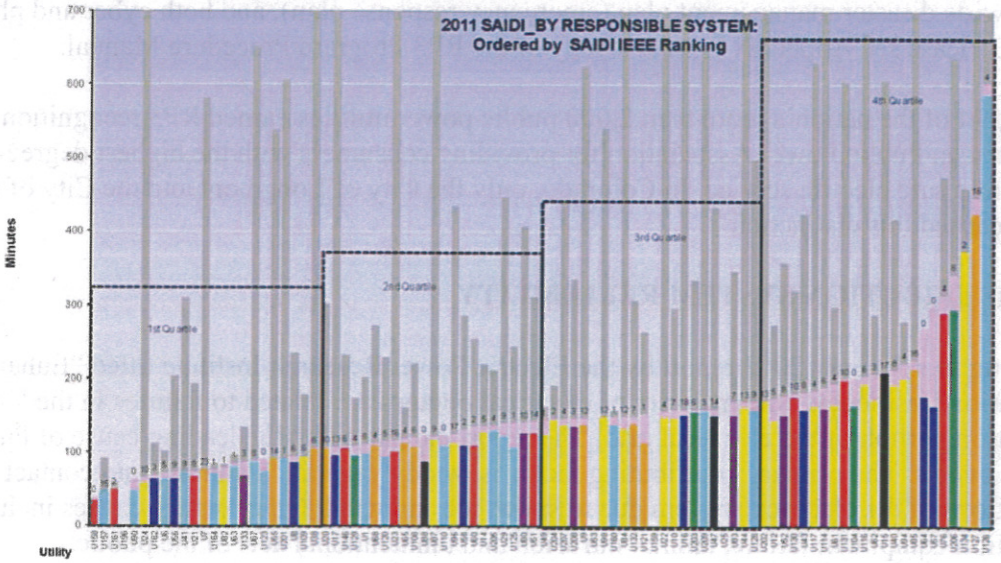
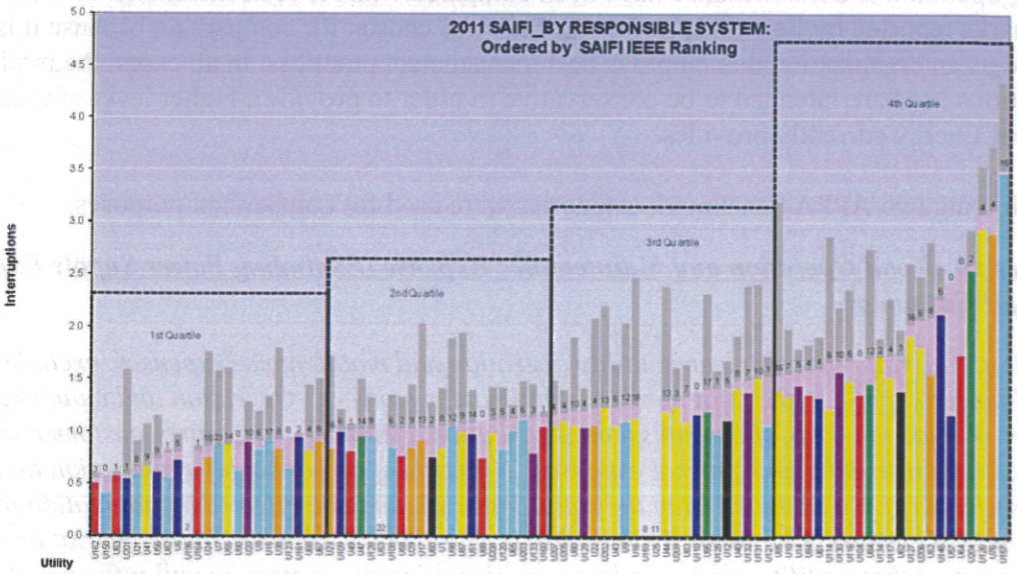


Figure 4 - SAIFI Index Survey, Including Transmission and Extreme Events
(2011 IEEE Benchmarking Study)



III. OTHER INDUSTRY RELIABILITY BENCHMARKS AND PROGRAMS

The American Public Power Association (APPA) has developed and hosts the Reliable Public Power Provider (RP_3®) Program. The purpose of the RP3 Program is to encourage public power utilities to operate an efficient and reliable distribution system by demonstrating proficiency in

four important disciplines: reliability, safety, work force development and system improvement. Utilities submit an application to the RP3 program for a peer-evaluation review.

Key elements of the Reliability section include reliability indices, a mutual aid agreement, a system-wide disaster management plan (emergency response plan), and both cyber and physical security. Please see Appendix F-4 for a copy of the RP3 Program Procedure Manual.

In 2012, 94 of the nation's more than 2,000 public power utilities earned RP3 recognition from the American Public Power Association for providing consumers with the highest degree of reliable and safe electric service. In Colorado, only the City of Longmont and the City of Fort Collins earned this distinction.

IV. DISTRIBUTION SYSTEM RELIABILITY

According to a January 2013 report by the Electric Power Research Institute titled "Enhancing Distribution Resiliency," the majority of electrical outages are related to failures in the local distribution portion of the electrical grid. The report indicates that the leading cause of failure is weather events. The primary contributing factor is woody vegetation coming into contact with live portions of the electrical system due to snow, ice and wind. Other outage causes include distribution equipment failure, animal intrusion and unintentional acts of the public.

Sufficient resources must be dedicated to the ongoing operation and maintenance of the distribution system, including response to failures. The assumptions used for modeling of ongoing operation and maintenance have been compared with APPA benchmarks as well as benchmarks reported by Fort Collins. Fort Collins was chosen for comparison because it is regarded as an organization that employs best management practices. In all cases, the modeling assumptions used are intended to be conservative in order to provide a higher level of reliability than Xcel Energy currently provides.

The following two APPA benchmark categories were used for comparison purposes:

Category 10 - Total Operation and Maintenance Expense (Excluding Power Supply Expense) per Retail Customer

Definition: The ratio of total electric utility operation and maintenance expenses, excluding all costs of power supply, to the total number of ultimate customers. Operation and maintenance expenses include the costs of transmission, distribution, customer accounting, customer services, sales and administrative and general expenses. The costs of power supply (generation and purchased power) are excluded from the ratio. This ratio may be affected by population density and the mix of customers between various classes (residential, commercial, industrial or other). Also, the extent that a utility services a large number of resale customers will influence the ratio.

Category 10 = Total O&M Expense (Excluding Power Supply Expense)							
	Boulder Modeled $/year	Boulder Modeled $/customer	Estimated Xcel Energy Base Case $/year	Estimated Xcel Energy Base Case $/customer	Ft. Collins (2009 $)	APPA Median West Region (2012 $)	APPA Median 50K-100K customers (2012 $)
1st Quartile	NA	NA	NA	NA	NA	$340	$319
Median	$22,656,744	$362.51	$19,709,313	$315.35	$260	$480	$402
3rd Quartile	NA	NA	NA	NA	NA	$617	$498

Based on this benchmark, the modeled funding for total O&M expense is lower than the APPA median but higher than Fort Collins. The anticipated Boulder service area (estimated 62,500 customers over approximately 44.4 square miles and 569 circuit miles) is more densely populated than the Fort Collins service area (reported 64,200 customers over 56 square miles and 855 circuit miles) and may be more densely populated than the median APPA comparison base. For this reason, an additional comparison is made based on circuit mile.

Category 15 - Distribution Operation and Maintenance Expenses per Circuit Mile

Definition: The ratio of total distribution operation and maintenance expenses to the total number of circuit miles of distribution line. This measures the total distribution costs associated with each circuit mile of distribution line used to deliver power to customers. Distribution costs include expenses associated with labor, supervision, engineering, materials and supplies used in the operation and maintenance of the distribution system. The ratio will be affected by population density, the mix of customer classes served by the utility, the dispersion of customers within the utility's service territory, and the proportion of underground and overhead distribution lines.

Category 15 = Distribution O&M Expenses per Circuit Mile							
	Boulder Modeled $/year	Boulder Modeled $/circuit mile	Estimated Xcel Energy Base Case $/year	Estimated Xcel Energy Base Case $/circuit mile	Ft. Collins (2009 $)	APPA Median West Region (2012 $)	APPA Median 50K-100K customers (2012 $)
1st Quartile	NA	NA	NA	NA	NA	$4,270	$6,678
Median	$9,176,997	$16,128	$4,949,548	$8,699	$10,284	$6,088	$9,426
3rd Quartile	NA	NA	NA	NA	NA	$13,494	$12,910

Based on this benchmark, the modeled funding for distribution O&M expense is significantly higher than for either Fort Collins or the APPA comparison base.

In addition to the conservative modeling assumptions for ongoing O&M, an aggressive capital replacement schedule has been formulated that would provide for accelerated replacement of system components because of age and deterioration. Undergrounding of existing overhead electrical infrastructure would also continue under the modeling assumptions.

Attachment E presents the start-up and ongoing operation and maintenance cost assumptions used in the financial modeling. These cost assumptions can be compared to APPA benchmarking data as presented in Appendix F-5 - APPA Selected Financial and Operating Ratios of Public Power Systems, 2011 Data.

A utility start-up work plan would be developed that, if executed, would provide for a smooth transition of electric service to the customers. Appendix F-6 presents an outline of steps necessary to assure reliability during the transition, start-up and first several years of operation of a potential new municipal electric utility.

V. FEDERAL AND REGIONAL RELIABILITY REGULATIONS

The North American Electric Reliability Corporation's (NERC) mission is to ensure the reliability of the North American bulk power system. NERC is the electric reliability organization (ERO) certified by the Federal Energy Regulatory Commission to establish and enforce reliability standards for the bulk power system. The bulk power system is made up of three main parts: generation, transmission, and load (i.e. customer electric demand).

Meeting the reliability expectations of consumers requires the bulk power system to be planned, designed, constructed, operated, maintained, and restored (as necessary following the loss of electric infrastructure) as described by specific, pre-determined tests or criteria. As such, the bulk power system is evaluated, assessed, and planned to ensure that an adequate supply of electricity is available to meet current and future needs.

The distribution system of a city-owned electric utility is typically classified as Load-Serving Entity (LSE) and as a Distribution Provider (DP). The city could contract with Public Service Company of Colorado or another entity to receive Network Integration Transmission Service meeting federal standards.

NERC is comprised of ten separate regional councils. The city would become either directly or indirectly a member of the Western Electricity Coordinating Council (WECC). The WECC is one of the ten NERC regional councils established to promote the reliable operation of the interconnected bulk power system of the western United States and Canada.

WECC does not publish a recommended or required planning reserve criterion for its member systems, but rather allows individual member systems (including regulatory commissions) to adopt their own planning reserve criteria. WECC does, however, perform Power Supply Assessments (PSAs) of its member systems annually. The purpose of the PSAs is to identify WECC sub-regions that have the potential for electricity supply shortages based on reported demand, resource, and transmission data. During these annual PSA reviews, the city would provide WECC with detailed information regarding its electric system. Municipal power utilities are exempt from the jurisdiction of the state PUC.

Xcel Energy Quality of Service Plan (QSP) Reporting - Boulder Region								7/15/2014
Data compiled by Bob Harberg in reviewing Quality of Service Monitoring and Reporting Plan (QSMRP) annual summary reports								
		2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
	RWT SAIDI - ODI	92.7	98.7	99.1	101	101.1	101.3	100.2
	SAIDI - ODI	110.3	88.8	98.4	88.6	90.5	76.9	91.8
5 Year Running Average						**95.32**	**88.64**	**89.24**
SAIDI = System Average Interruption Duration Index								
ODI = Ordinary Distribution Interruptions								
RWT = Reliability Warning Threshold								
		2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
	ECT		503	2195	625	1417	1042	2923
5 Year Running Average						**948**	**1156**	**1640**
ECT = Electric Coninuity Threshold, >5 (SESI - MEDI - EPUBI)								
OMS = Outage Management System								
SESI = Sustained Electric System Interruptions, SESI = DSI+ SUBI + BULKI								
DSI - Distribution System Interruptions, DSI = CDI + MEDI								
MEDI = Major Event Day Interruptions								
CDI = Common Distribution Interruptions, CDI = ODI + EDI								
ODI = Ordinary Distribution Interruptions								
EDI = Extraordinary Distribution Interruptions								
SUBI = Substation Interruptions								
BULKI = Bulk Supply Interruptions								
MEDI = Major Event Day Interruptions								
EPUBI = Public Damage Interruptions								
		2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
	ERT		0	18	0	3	0	131
5 Year Running Average						**4**	**4**	**30**
ERT = Electric Restoration Threshold, >24 hours (SESI - MEDI - EPUBI - BULKI)								
OMS = Outage Management System								
SESI = Sustained Electric System Interruptions, SESI = DSI+ SUBI + BULKI								
DSI - Distribution System Interruptions, DSI = CDI + MEDI								
MEDI = Major Event Day Interruptions								
CDI = Common Distribution Interruptions, CDI = ODI + EDI								
ODI = Ordinary Distribution Interruptions								
EDI = Extraordinary Distribution Interruptions								
SUBI = Substation Interruptions								
BULKI = Bulk Supply Interruptions								
MEDI = Major Event Day Interruptions								
EPUBI = Public Damage Interruptions								

	2007	2008	2009	2010	2011	2012	2013
Month	**SAIFI - ODI**						
January		0.01	0.08	0.01	0.02	0.06	0.02
February		0.01	0.04	0.03	0.04	0.02	0.07
March		0.02	0.08	0.09	0.05	0.13	0.02
April		0.05	0.08	0.13	0.04	0.03	0.02
May		0.06	0.08	0.11	0.06	0.04	0.08
June		0.14	0.06	0.18	0.06	0.23	0.06
July		0.13	0.1	0.29	0.11	0.11	0.05
August		0.16	0.04	0.08	0.14	0.1	0.06
September		0.09	0.04	0.1	0.07	0.05	0.14
October		0.05	0.16	0.05	0.04	0.05	0.23
November		0.05	0.07	0.02	0.06	0.03	0.03
December		0.05	0.01	0.03	0.08	0.07	0.13
Total		**0.82**	**0.84**	**1.12**	**0.77**	**0.92**	**0.91**
5 Year Running Average					**0.71**	**0.89**	**0.91**

SAIFI = System Average Interruption Frequency Index
ODI = Ordinary Distribution Interruptions

	2007	2008	2009	2010	2011	2012	2013
Month	**CAIDI - ODI**						
January		172.9	70.8	71.9	73.3	104.9	119.1
February		67.9	77.6	91.7	97.6	113.2	42.3
March		138.7	121.2	93.1	111.6	67	87.5
April		66.9	191	42.5	234.4	104	79.4
May		91.9	101.6	84.7	100.6	100.3	82.3
June		105.3	115.9	63.2	107.1	72.5	116.4
July		94	112.1	100	101.9	99.2	73
August		129.1	112.9	72	89	83.8	84.1
September		122.6	81.3	68.9	114.1	92.2	122.2
October		81	108.6	107.9	109.1	117.5	99.6
November		116.6	112	92.4	207.6	80.5	201.3
December		115.1	148.6	75.4	69.1	60.4	118.5
Average		**109**	**113**	**80**	**118**	**91**	**102**
5 Year Running Average					**84**	**102**	**101**

CAIDI = Customer Average Interruption Duration Index
ODI = Ordinary Distribution Interruptions

TRANSITION PLAN SCHEDULE OVERVIEW

August 12, 2014

TASK	2014		2015				2016				2017-2019		
	QTR3	QTR4	QTR1	QTR2	QTR3	QTR4	QTR1	QTR2	QTR3	QTR4			
DEFINITIONS													
DAY 1 - Boulder pays for system and has right to collect revenue													
DAY 2 - Full Separation/integration complete												→	2018 QTR3
PLANNING & ENGINEERING													
Systems													
GIS													
SCADA													
Review Xcel SCADA information													
Evaluate SCADA communication protocol											2017 QTR1	↔	2017 QTR3
Implement SCADA system											2017 QTR3	↔	2018 QTR3
Modeling													
Policies/Procedures/Standards													
National Electrical Safety Code (NESC), Occupational Safety and Health Administration (OSHA), Environmental Protection Agency (EPA), "good utility practice," and best practices													
Developer Standards													
Review Xcel Developer Standards													
Develop Boulder Developer Standards													
Interconnection Standards													
Review Xcel Interconnection Standards													
Develop Boulder Interconnection Standards													
Additional Facilities & Services													
Review Xcel Standards for Additional Facilities & Services													
Develop Boulder Standards for Additional Facilities & Services													
Impact Fees and Charges													
Review Xcel Impact Fees and Charges													
Develop Boulder Impact Fees and Charges													
Service Contracts for Large Customers													
Review Xcel Service Contracts for Large Customers													
Develop Boulder Service Contracts for Large Customers													
Substation, Transmission, Distribution Design Manuals													
Review Xcel Substation, Transmission, Distribution Design Manuals													
Develop Boulder Substation, Transmission, Distribution Design Manuals													
Substation, Transmission, Distribution Materials and Construction Standards													
Review Xcel Substation, Transmission, Distribution Materials and Construction Standards													
Develop Boulder Substation, Transmission, Distribution Materials and Construction Standards													
Substation, Transmission, Distribution System Planning Guidelines													
Review Xcel Substation, Transmission, Distribution System Planning Guidelines													
Develop Boulder Substation, Transmission, Distribution System Planning Guidelines													
Meter Maintenance & Testing Standards													
Review Xcel Meter Maintenance & Testing Standards													
Develop Boulder Meter Maintenance & Testing Standards													
Council approval of Engineering Policies (as needed)													
Planning & Engineering Studies													
System Map													
Review Xcel's System Map for Boulder system													
Issue RFP, Determine Contractor, Complete System Map and Inventory													
System Model													
Review Xcel's System Model for Boulder system													
Issue RFP, Determine Contractor, Update System Model consistent with mapping													
Protective Device Coordination													
Review Xcel's Device Protection schemes for Boulder system													
Issue RFP, Determine Contractor, Perform Coordination Study													
Arc Flash Analysis													
Review Xcel's Arc Flash study/incident energy levels for Boulder system													
Issue RFP, Determine Contractor, Perform Arc Flash Study													
Long Range Plan													

TRANSITION PLAN SCHEDULE OVERVIEW

August 12, 2014

TASK	2014		2015				2016				2017-2019		
	QTR3	QTR4	QTR1	QTR2	QTR3	QTR4	QTR1	QTR2	QTR3	QTR4			
Issue RFP, Determine Contractor, Complete Long Range Plan											2018 QTR3	↔	2019 QTR2
CONSTRUCTION, OPERATIONS & MAINTENANCE													
Evaluate construction & operations services to outsource (needs assessment)													
RFI for contract crews													
City/council approval as needed													
Issue RFPs and choose contractors for Construction Contract Crews													
Finalize contracts for Construction Contract Crews; contractor implementation period													
Meter Reading													
Expand water meter reading operations or sub-contract; implement													
Locate and lease 12-15 acres with building(s) for Construction Work Space											2017 QTR1	↔	2018 QTR3
Office Space/Printing/Mail Room/Meeting Room (Construction)													
Indoor Warehouse													
Outdoor Warehouse/ Laydown Yard													
Transformer & Equipment Shop													
Vehicle & Equipment Shelters/Storage													
Meter Shop													
Substation Shop													
Vehicle Service & Maintenance													
Dispatch Center													
SCADA Operations Center											2017 QTR1	↔	2018 QTR3
Emergency Operations Center													
Systems													
Outage Management System													
Evaluate Interim Outage Management Options in advance of Boulder implemented system and SCADA													
Implement Interim Outage Management Technology or coordinate with Xcel													
Meter Data Management													
Review Xcel meter reading technical requirements and communication protocols OR contract with Xcel for meter reading													
Implement Meter Data Collection/Management System OR develop meter data transfer and system testing plan with Xcel													
Inventory													
Warehouse Stock													
Obtain list of unique or critical equipment specific to Boulder territory													
Determine warehouse inventory levels and purchasing requirements to meet scheduled and emergency work													
Stock Warehouse													
Meters													
Determine required metering inventory levels and purchasing requirements to replace meters as part of ongoing maintenance													
Stock meter shop													
Needs assessment for future meter replacement program (input into LRP); compatibility, functionality, etc.)											2017 QTR1	↔	2017 QTR3
Equipment/Tools													
Contract Crew Equipment													
Service Crew Equipment													
Meter Tech Equipment													
Vehicles													
Rolling Stock													
Personal Protective Equipment													
Policies/Procedures/Standards (Construction & Operations)													
System Operations Procedures													
Review Xcel system operations standards													
Develop Boulder system operations procedures													
System Inspection, Maintenance, and Testing Procedures													
Review Xcel system inspection, maintenance, and testing standards and reports for 5 historical years													
Develop Boulder system inspection, maintenance, and testing procedures													
Vegetation Management Plan													
Review Xcel information on vegetation management requirements including clearing cycles and status of Boulder circuits.													
Evaluate existing City practices, determine expansion of City practices or develop separate plan, finalize Vegetation Management Plan													

TRANSITION PLAN SCHEDULE OVERVIEW

August 12, 2014

TASK	2014		2015				2016				2017-2019		
	QTR3	QTR4	QTR1	QTR2	QTR3	QTR4	QTR1	QTR2	QTR3	QTR4			
Outage Response & Emergency Operating Plan													
Obtain SAIDI and SAIFI for Boulder circuits for the most recent 5 historical years													
Evaluate synergies with other City operations and finalize Outage Response & Emergency Operating Plan													
Council Approval of Construction & Operations Policies (as needed)													
POWER SUPPLY													
Policies/Procedures/Standards													
Risk Management Protocols													
REC & Carbon tracking protocols (with sustainability office)													
Resource Planning													
Integrated Resource Planning													
Determine IRP process including: participants, required data, frequency, approval process, need for consultants, etc											2017 QTR1	↔	2017 QTR3
Potential IRP Working Groups											2017 QTR1	↔	2017 QTR3
Colorado Renewable Energy Resource (RES) Compliance Plan													
Develop and implement RES compliance plan based on state requirements											2018 QTR4	↔	2019 QTR2
Load Forecast													
Review 10 years of historical monthly retail load data, by customer class, from Xcel; adjust to delivery points													
Review 10 years of historical DSM & EE energy/capacity displacement from Xcel programs													
Review 10 years of historical generation from third-party owned generation (DG)													
Develop estimate of future generation/displacement from existing and anticipated city owned or third-party DSM/EE/DG for 10 year planning cycle													
Develop current and 10-year summer/winter energy and demand load profile by delivery point													
Evaluate Rocky Mountain Reserve Group participation													
Power Supply													
Power Supply Preliminary Evaluation (RFP Pre-Work)													
Form Power Supply Working Group													
Issue RFP for Power Supply and Transmission Service consultant; choose consultant													
Evaluate Boulder Distributed Generation Potential													
Perform local solar potential capacity analysis													
Create web based solar mapping platform utilizing Lidar or equivalent tool													
Perform Local generation potential capacity analysis (other generation resources, e.g. CHP, biomass, geothermal, etc)													
Establish Short and Long Term Power Supply RFP objectives that meet technical requirements for delivery, cost, environmental priorities and Utility of Future vision													
Contract for Power Supply													
Prepare and Issue RFP for Power Supply													
Receive responses and evaluate bids for Power Supply													
Negotiate Contract/Commit to Power Supply; contingent on trial outcome													
Council approval of Power Supply contract													
Transmission Agreements													
Determine appropriate transmission service													
Provide OATT Application													
Execute OATT agreements for transmission service													
Portfolio Dispatch and Optimization													
Issue RFI for Portfolio Management (Dispatch & Optimization) if required													
Issue RFP for Portfolio Dispatch and contract resources if required													
Implement system requirements for power supply dispatch and coordination with Transmission Owner if required													
CUSTOMER SERVICE													
Issue RFP for call center representative and outsource													
Billing/Collections Staff													
Expand current City operations for electric billing/collections													

TRANSITION PLAN SCHEDULE OVERVIEW

August 12, 2014

TASK	2014		2015				2016				2017-2019		
	QTR3	QTR4	QTR1	QTR2	QTR3	QTR4	QTR1	QTR2	QTR3	QTR4			
Output Services Inc. (OSI) - printing and mailing bills and notices													
e-Complish/Chase Paymentech - process phone and online credit payments													
JP Morgan Chase - process check payments													
Vanco Services - electronic payments													
Systems													
Customer Information (CIS/Billing)													
Assign Customer Service Manager for project manager of CIS system													
Internal evaluation for CIS system requirements													
Contract with Advanced Utility to configure software for electric billing													
CIS system - Software programming implementation													
Import Customer Account Information and CIS "live" testing with Call Center													
Review Customer Account Information													
Policies/Procedures/Standards													
Customer Service Policies													
Request Xcel's existing customer account policies and charges, deposits, credit checks, disconnection/reconnection, late payments, bill disputes, etc.													
Develop Customer Service policies													
Council approval of Customer Service Policies													
Key Accounts													
Establish criteria for Key Accounts													
Identify and Tag Key Accounts													
Develop Key Account Service Plan													
Customer Account Transition Communication													
Form Communication Working Group													
Develop/revise customer interface platforms and contact information (phone, email, website)													
Launch Customer Transition Communication													
ENERGY SERVICES													
Existing (Xcel) Customer Programs- Billing Transition													
Obtain list of current and anticipated City customers participating in existing Xcel sponsored programs.													
Determine legacy Xcel customers that require program support and ongoing bill credits/compensation (if necessary).													
Incorporate billing methodology to continue credits/compensation to legacy Xcel program participants if necessary.													
Energy Services Development - Day 1													
Form Energy Services working group (energy efficiency and solar)													
Determine Energy Services objectives and preliminary design													
Develop Energy Services budget for 10-year planning cycle													
Identify customer energy services needs													
Perform gap analysis from existing services													
Develop plan to institute energy services as of Day 1 and beyond													
Develop Energy Services													
Engage legal, marketing, customer service, operations, metering, billing, etc.													
Develop Rate Structures or Riders for input into rate development													
Establish Measurement and Verification Guidelines and Methodology													
Public process/Council approval													
Finalize Energy Services													
Market and Launch Day 1 Energy Services													
Branding, Marketing & Communications Plan													
Evaluate need for branding and logo; develop preliminary budget													
Branding design; preliminary marketing/communication plan													
Public Process/Council approval of branding and logo													
Finalize branding and communication plan and budget; identify audience, format, content, and timing													
Launch branding and communication plan													
LEGAL/REGULATORY													

TRANSITION PLAN SCHEDULE OVERVIEW

August 12, 2014

TASK	2014		2015				2016				2017-2019		
	QTR3	QTR4	QTR1	QTR2	QTR3	QTR4	QTR1	QTR2	QTR3	QTR4			
CONDEMNATION PROCESS													
PUC PROCESS													
FERC/NERC/WECC Compliance													
Perform NERC system compliance assessment; confirm proper registration, register with WECC													
Identify and document filing requirements													
Develop Boulder compliance plan													
FINANCE & ACCOUNTING													
Systems													
Resource (Capital) Planning and Financial Management													
Modify/expand Tyler Munis Financial system for electric operation													
Accounting													
Modify/expand Tyler Munis Accounting system for electric operation													
FERC Accounting													
GASB Accounting													
Purchasing													
Asset Management													
Insurance													
Personnel Related Insurance - evaluate current self-insurance coverage and adjust as needed													
Equipment Related Insurance - evaluate current self-insurance coverage and adjust as needed													
Budget													
10-20 year Budget (preliminary/pro forma)													
10-20 year Budget (final for bond issuance)													
Refresh Budget (using final retail rates) for Charter Metrics													
Rates													
Retail Rate Working Group													
Issue RFP and choose contractor for Rate Analysis													
Develop Boulder Rates													
Identify Rate Components and preliminary rate structure													
Cost of Service Study													
Develop Rates (final for bond issuance)													
Public process/Council approval of rates													
Finalize Rates													
FINANCING													
BRIDGE LOAN													
Solicitation													
Council Process													
Bridge Loan Prep													
Bridge Loan Duration													
BONDS													
Bond Prep													
Issue RFP for Bond Underwriter													
Development of official statement													
Rating agency presentations													
Investor presentations/Drafting of disclosure documents													
Issue Bonds													
SUPPORT SERVICES													
Fleet Service Management System													
Administrative Policies													
Human Resources													
HR Staffing Assessment													
Review/revise existing Personnel Policies following HR Staffing Assessment													
IT & Telephone													
Facilities Management													
Fleet Management													
Accident Investigation Procedures													
Incorporate electric operations requirements into current procedures													
Establish/Adopt Safety Policies & Training Programs for electric operations													
INTER-DEPARTMENT ASSESSMENTS											2017 QTR1	↔	2018 QTR3
Governance													
Governance Working Group													
Create Utility Advisory Board													
INTERCONNECTION											2017 QTR1	↔	2018 QTR3

Working Group: Reliability and Safety	
Purpose: *The Reliability and Safety Working Group will assist city staff in reviewing best practices for operating and maintaining the power delivery system on the first day a local electric utility would operate and beyond. The Working Group will consist of customer stakeholders and industry experts who meet regularly to provide feedback to the city energy team. The group will consist of eight to 10 members appointed based on their skills and qualifications.*	
Anticipated meeting schedule	**Recruitment period:** Through December 19, 2014
	Duration: February through December 2015
	First meeting: February 2015
	Meeting frequency: Monthly; could be more frequent based on group needs. There will be research and analysis outside of meeting times.
Key Questions/Issues to be Discussed by the Group	Based on staff and consultant analysis, provide input on the following issues: • What are the reliability expectations and desires of residential, business and institutional customers? Should special reliability zones be considered for customers with high reliability needs? • What are best practices for on-going administration, operation, maintenance, monitoring, control, dispatch, project management, customer service and response procedures to assure reliable and safe electrical service? • How should distributed generation, demand management, growth and redevelopment be accommodated and managed to assure reliability and safety? • What quality of service benchmarks should be considered? • How should existing city policies and procedures be adapted or supplemented to achieve industry best practices? • What procedures and investments should the city consider to increase the level of reliability and safety?
Tasks & Analysis	Review and provide comments on the following work products: • Scopes of work, results and recommendations of planning and engineering studies • Substation, transmission and distribution planning, design and construction standards • Developer and interconnection standards • RFI/RFPs for outsourcing including construction, operations and maintenance • Outage, inventory, vegetation, response and emergency operations plans • Procedures for system inspection, maintenance and testing
Deliverables/ Milestones	• As identified in Transition Work Plan Schedule
Desired Skills or Representation	• Electric utility engineering and regulatory experience • Procurement, operations and maintenance experience • Representation of large energy customers
Other Working Groups to Potentially Link With	• Resource Acquisition • Energy Services

CITY OF BOULDER, COLORADO

Finance Department/Purchasing Division
1777 Broadway
P.O. BOX 791
Boulder, Colorado 80306

Phone No.: 303- 441-3054
Fax No.: 303- 441-4381
Email: greyc@bouldercolorado.gov

RFQ NO. 10-2015

<u>SUBMISSION DEADLINE</u>: 4:00 PM, TUESDAY, APRIL 7, 2015

RFQ DOCUMENTS
FOR

ONGOING SERVICES
to the
OFFICE OF ENERGY STRATEGY AND ELECTRIC UTILITY DEVELOPMENT

FOR ADDITIONAL INFORMATION CALL:

Robert Harberg, P.E. Principal Engineer -

Utilities (303) 441-3124

harbergb@bouldercolorado.gov

CITY OF BOULDER, COLORADO
OFFICE OF ENERGY STRATEGY AND ELECTRIC UTILITY DEVELOPMENT
REQUEST FOR QUALIFICATIONS AND INFORMATION
NEW ELECTRIC UTILITY – ONGOING SERVICES

The City of Boulder (City) Office of Energy Strategy and Electric Utility Development seeks qualification statements and information (RFQ) from qualified vendors concerning the ability to provide electric utility services and characteristics of those services including but not limited to:

1. Start-up services
2. Operation, maintenance and construction services
3. Customer services
4. Energy and conservation services
5. Energy acquisition and transmission services

Vendors should indicate categories of services for which they are qualified. Vendors do not need to provide qualifications for all categories of services. The city intends to shortlist qualified firms who will be asked to submit a detailed proposal for these services.

Four hard copies and an electronic version of the SOQ are required by 4:00 p.m. on Thursday, April 7, 2015. They should be submitted to:

Heidi Joyce
Office of Energy Strategy and Electric Utility Development
1101 Arapahoe, 1st Floor
Boulder, CO 80304
JoyceH@BoulderColorado.gov

PROJECT BACKGROUND

The City of Boulder is located 35 miles northwest of Denver, with a population of about 100,000 residents. The city is approximately 25 square miles in size, surrounded on all sides by nearly 65 square miles of city-owned open space. Boulder is home to the University of Colorado at Boulder and its more than 30,000 students, faculty and staff; has a vibrant local economy, with significant industry clusters in "clean tech," natural and organic foods, and active living/recreation; and is home to several federal laboratories, including the National Center for Atmospheric Research, National Institute for Standards and Technology, and the National Oceanic and Atmospheric Administration.

The city has a strong and longstanding commitment to environmental stewardship and community sustainability. In 2002, Boulder became one of the first cities in the nation to pass a resolution in support of the Kyoto Protocol, establishing the goal of reducing greenhouse gas emissions to 7% below 1990 levels by 2012. (Later, and after the Kyoto Protocol expired, in July 2013 the goal of reducing greenhouse gas emissions 80 percent by 2050 was introduced and was received positively by City Council, although it has not yet been adopted.)

The Boulder community has worked hard to achieve the climate action goals. In 2006, Boulder voters approved the Climate Action Plan Tax, the nation's first "carbon tax." Boulder has created innovative, nationally acclaimed programs that help the community reduce energy use and greenhouse gas emissions—programs like EnergySmart, curbside composting, and expansion of the local bike trail system. Boulder has one of the most carbon-intensive energy supplies in the country, and to achieve climate action goals the city and its partners have focused primarily on energy efficiency measures, including advising services, rental housing efficiency requirements, financing options, and building energy codes.

In 2011, Boulder voters directed the city to explore options that could deliver clean, reliable, low-cost, local energy to our community. Teams of world-class consultants and community stakeholder working groups undertook an unprecedented analysis of the challenges and opportunities of possible solutions, includingg creating a local electric utility (also called municipalization) rather than continuing to receive electric service from Xcel Energy, Inc.

Voter-approved ballot measures included several conditions that must be met before the city could create a local electric utility. The requirements are that:

- Rates must be equal or less than those offered by Xcel Energy at the time of acquisition.
- The utility must have sufficient revenue to cover operating costs and debt, plus carry a reserve of 25% of the debt amount, referred to as "Debt Service Coverage Ratio."
- Reliability must remain comparable to that being offered by Xcel Energy.
- There must be a plan to increase renewables.
- There must be a plan to decrease greenhouse gas emissions.

An analyses conducted by staff, consultants, and community stakeholder groups and reviewed by an independent third-party reviewer have demonstrated that these requirements can be met given currently available information. The presentation of these analyses and the third party review lead to a Council decision in August 2013 to pursue acquisition of Xcel's electric utility assets. The petition in condemnation is included as Attachment B.

At this time, Boulder plans to submit a petition for the transfer of assets to the Colorado Public Utilities Commission prior to either the negotiated purchase or condemnation action for Xcel's electric utility assets.

A transition work plan "Plan" (Attachment C) has been developed that will guide the change from an Xcel-run system to a city-operated local electric utility, should the city acquire the utility as defined in the condemnation petition filed in Boulder District Court. PowerServices, Inc. was hired to create the plan and identify the various tasks, interrelationships and schedule for transition work activities. The step-by-step work plan addresses multiple components such as power supply acquisition, system operations and maintenance, software development and integration, customer interface, and financing. The plan includes recommendations for staffing and outsourcing, along with estimates of key costs of implementation. A plan for interconnection has been developed by Exponential Engineering Company and is integrated with the overall

transition plan. Please note that the schedule anticipated in this plan will need to be revised to account for recent legal rulings. Two critical dates are defined and are anticipated to be delayed as follows:

Day 1 – the date on which the city takes ownership of the electric system and begins collecting revenues (2017 or 2018)
Day 2 – completion of interconnection construction (2019 or 2020)

The plan accounts for the city's key objectives including:

1. Prepare to safely, reliably, and effectively operate electrical system
2. Manage costs, mindful of uncertainties
3. Minimize customer impacts and maximize customer value
4. Proactively identify and mitigate risks
5. Integrate utility within city organization
6. Meet community's Energy Future goals

The plan is built around the basic functions necessary to operate an electric utility. Each function contains a series of steps the city must implement to ensure that appropriate staffing, workspace, skill sets, equipment and materials, and processes are in place by key target dates. The eight functional areas are:

1. Construction, Operations & Maintenance
2. Customer Service
3. Energy Services
4. Finance & Accounting
5. Planning & Engineering
6. Power Supply & Delivery
7. Legal/Regulatory
8. Support Services

Certain functions are anticipated to be provided by the city by leveraging existing departmental capabilities or through other vendor contracts. However, city staff is open to ideas on how to partner on these functions if it provides economies of scale and cost efficiencies. These functions include:

1. Start-up services including - City plans to obtain suitable land and building space for the following:
   a. Warehouse and equipment yard
   b. Monitoring, control and dispatch center
   c. Call center
2. Customer service functions including:
   a. Customer information and billing
   b. Key accounts
   c. Call center services
   d. Inquiries and complaints
3. Energy Services
   a. High level planning and analysis
4. Finance & Accounting

5. Planning & Engineering
6. Power Supply & Delivery
    a. Power purchase negotiations and contracting
    b. Options for planning and operating reserve requirements
7. Legal/Regulatory (all except for NERC, WECC and FERC compliance)
8. Support Services
    a. Human Resources
    b. Information Technology
        i. Billing (Harris CIS Infinity)
        ii. Enterprise Resource Planning (Tyler Munis)
        iii. Enterprise Content Management (Laserfiche)
        iv. Customer Relationship Management (CRM)
        v. Geographic information System (ESRI)
        vi. Radio (Kenwood VHF & Verizon Wireless)
        vii. Telephony (Cisco VoIP)
        viii. Wired/Wireless (Cisco and Verizon)
        ix. Asset/maintenance management /work order system (TBD)

Additional information on the municipalization process is available at:

www.BoulderEnergyFuture.com

SCOPE OF SERVICES

The City of Boulder (City) Office of Energy Strategy and Electric Utility Development seeks statements of qualification and information from vendor(s) to provide ongoing services for a new electric utility. Vendors are not required to provide qualifications for all of the services listed below and may provide qualifications on selected services based on their expertise.

The City will be reviewing the qualifications based on the capability of vendors to deliver reliable, high quality and customer focused services that will contribute to a flexible plan for service that supports and allows for the growth of distributed generation and innovative customer programs:

1. Start-up services, including developing and equipping the necessary support facilities and systems, including:
    a. Warehouse and equipment yard support
    b. Monitoring, control and dispatch center support
    c. Call center support
    d. Information technology hardware and software
    e. Telecommunications
    f. Vehicles, equipment and inventory
2. Operation, maintenance and construction (improvements and upgrades) of existing overhead and underground electric transmission and distribution system components, including an evaluation and recommendations with respect to:
    a. Maintenance and replacement of electric system equipment to include distribution and transmission poles, wires and 115kV to 13.2 kV substation transformers

   b. System monitoring, control and dispatch
   c. Outage management and emergency response
   d. Service connects, disconnects and call out
   e. Planning, engineering and regulatory support
   f. Safety
   g. Vegetation management
   h. Inspection and testing
   i. Mapping and asset management support
   j. Environmental compliance
   k. Information systems support
   l. Provision of vehicles and equipment to support electric operations
   m. Inventory provision and management of materials and supplies
   n. Construction functions to include line extensions, services drops and undergrounding of the distribution system
   o. Meter reading and associated data management
3. Energy services including demand side management and renewable energy services:
   a. Program implementation
   b. Rebate/incentive processing
   c. Contractor/vendor outreach
   d. Customer outreach and education
   e. Data analysis and reporting
4. Energy and transmission services including:
   a. Load forecasting
   b. Resource planning and portfolio management
   c. Scheduling and delivery
   d. Integration of local and distributed generation
   e. Regulatory compliance (FERC, WECC and NERC)
   f. Planning, engineering and regulatory support

SCHEDULE

The following schedule is anticipated:

1. Advertise Request for Qualifications and Information – March 9, 2015
2. Submit Statements of Qualifications and Information – April 7, 2015
3. Evaluate SOQ – April 2015

SOQ REQUIREMENTS

In addition to the requirements described elsewhere in this RFQ all submissions should include:

1. Cover letter briefly describing the firm's history, location, key personnel and unique qualifications.
2. Relevant project experience including name of client, type of services, staffing levels, annual contract value, size of customer base, duration of services, and system characteristics that make the firm uniquely qualified to perform the services requested for the City of Boulder.

3. Relevant experience testifying in regulatory and legal proceedings.
4. Resumes for key personnel who may be assigned to this project including names, location, education, work history, and relevant project experience and organizational chart indicating the key staff members who will be assigned to the project.
5. Approach including a discussion of the schedule control, cost control, coordination with city staff, division of work between city staff and other consultants and other project management elements required to successfully perform the services.
6. Financial capability including banking or credit reference, and a summary of pending lawsuits.
7. Insurance coverage including worker's compensation and employer's liability, commercial general liability and commercial automobile liability limits.
8. References.

Include the following elements of information in the cover letter as a minimum and highlight these items in bold letters:

A. Certification that the information and data submitted is true and complete to the best knowledge of the individual signing the letter.
B. Name, telephone number, e-mail address and fax number of the individual to contact regarding their submittal.
C. The city requires an original signature signed in ink, by an authorized principal, partner, or officer of the firm.

A city selection committee will review the SOQ and select the consultant(s) it feels is(are) the most qualified to furnish the ongoing services to the City of Boulder; however the city reserves the right to conduct interviews with a short-list of firms as necessary.

The city reserves the right to reject any or all SOQ and waive any informalities or irregularities therein. The proposal is prepared at the consultant's expense and becomes a city record and therefore a public record.

Confidential data, if identified as such, will be held confidential upon request, if the request is made as part of the proposal and the document qualifies as exempt from disclosure under the Colorado Open Records Act.

A pre-proposal teleconference call is scheduled for Tuesday, March 17, 2015 at 9:30 a.m. MST. Dial 303-441-3000 and enter the following number: 57709807#. In person meeting attendance is also available at the Boulder Main Library – Boulder Creek Meeting Room, 1001 Arapahoe Ave.

For more information contact:

Robert Harberg, P.E.
Principal Engineer - Utilities
(303) 441-3124
harbergb@bouldercolorado.gov

ATTACHMENTS

Attachment A:	Proposed Electric Utility – General System Characteristics
Attachment B:	Petition in Condemnation
Attachment C:	Energy Future Transition Work Plan