MINUTES FOR THE STUDY SESSION
ASHLAND CITY COUNCIL
Monday, August 18, 2014
Siskiyou Room, 51 Winburn Way

Mayor Stromberg called the meeting to order at 5:31 p.m. in the Siskiyou Room.

Councilor Morris, Rosenthal, Voisin, Lemhouse, and Marsh were present. Councilor Slattery was absent.

1. Look Ahead review
City Administrator Dave Kanner reviewed items on the Look Ahead.

2. Presentation on Electric System Ten-Year Planning Study
IT/Electric Director Mark Holden explained the study was an independent review of the electric distribution system to ensure it had the capabilities to provide reliable, safe, and economical electric service for the future.

CVO Electrical Systems Electrical Engineers David Castor and Michael Antonishen provided an overview of the 10-Year Plan. The study reviewed historical system issues from the 2003 and looked forward 10 years. They also looked at how prior loads matched study predictions, the affect the recession had on use, equipment, system model development, and improvements over the past ten years. They established planning criteria, developed a load forecast and a system analysis based on the loads, and analyzed contingency plans that resulted in their recommendations. They continued with a presentation that included:

Purpose
- Independent system review and analysis
- Focus on electrical system infrastructure
- Provide recommendations for economical, reliable service now and in the future

Study Structure
- Load Forecast
- Planning & Design Criteria
- Analysis of Existing System
    - Transmission, Substations, Distribution
- System Modeling & Analysis
- Identify need Improvements & Recommendations

System Overview
- Power purchased from BPA
- Looped 115 kV transmission service from PacifiCorp
- 3 Substations
    - 1 BPA owned (Mountain Avenue)
    - 2 PacifiCorp owned (Ashland, Oak Knoll)
- City owned and operated distribution system

The City purchased energy from Bonneville Power Administration (BPA) and PacifiCorp provided the physical connection. Three substations supplied power to the city, Ashland, Mountain and Oak Knoll. BPA owned the Mountain Substation and the transformer and the City owned the 12-4-7 kV (12,470 kilowatt voltage).

Improvements Since 2003
- PacifiCorp improved looped transmission sources
- SCADA at Mountain Ave, Ashland, Oak Knoll – all substations now in SCADA
- Mountain Ave rack expansion added additional feeders and provided more flexibility
- Many distribution system improvements for facilities & practices
- Protection, Control & Facility upgrades at Reeder Gulch

- Complete list included in Section 2 of report

Planning Criteria

- Single-Contingency Reliability

If a major piece of equipment was lost, the system could feed the entire customer base with only a brief outage.

- Equipment Capacity (Substation, Feeder, Conductor)
    - Normal & Emergency
    - Weather Extremes

Summer peak maximum load was as high as winter peak in Ashland.

- Winter & Summer ratings
- Voltage Levels

Load Forecast

- Electric system must be adequately sized to serve the maximum expected (peak) demand
- Electric Power Demand sensitive to temperature
- Plan for a one in 10 year hot (105) or cold (8) weather event – based on 50 years of weather data for the area
- Main data sources:
    - City of Ashland & Jackson county Comprehensive Plans
    - BPA & PacifiCorp
    - Oregon Climate Service

BPA used different assumptions and looked at load forecasts for every customer with a zero load gain. Weather events were not as big a factor and BPA focused on distributing power to multiple areas fairly. Two major drivers CVO Electrical Systems looked at for peak demand were climate and population. Conservation measures, the cost of energy, and social patterns also affected peak demand predictions.

Tables & Graphs

- Historical Growth Data – Population Growth, Energy Use, and Peak Demand 2003-2013
- Average Weather & Demand Jan 2003 – Jan 2014

Ashland power use was approximately 87% residential based on meters.

- Yearly Peak Demand 2003-2013
- Energy Growth vs. Population
- Load Forecast & Capacity 2003-2023

CVO Electrical Systems explained it was very difficult to predict weather trends and focused more on population. Council noted population had not fluctuated that much over a 10-year period and that suggested energy use was more climate driven. CVO Electrical Systems clarified the system needed a base to be prepared for a certain level of use. Other factors that determined Load Forecast & Capacity included annexations, urban growth boundary changes, zoning changes, and large facilities. Climate change will have a major affect but currently for population was the main factor for Ashland. The recession affected energy usage nationwide.

Power Flow Analysis

- Modeled existing systems
- Distributed loads according to existing and forecasted loading (Peak 5, 10 years)
- Loss of substation and loss of feeder circuit with load transfers
- Identified overload & low voltage conditions in all scenarios

Power Flow results

- Normal configuration, Peak Load
- Normal configuration, 5 & 10-year growth

- Loss of feeder
- Loss of substation transformer
    - Failure of Mountain Avenue Sub Transformer or Ashland Sub Transformer could create problems at peak loads

Observations & Recommendations

- Transmission System:
    - Improvements over last 10 years result in reliable quality service to City – much stronger than 10 years ago
- Substations:
    - Purchase Mountain Avenue Substation ($1,290,000-$1,645,000)
    - Expand Mountain Avenue sub with second transformers and associated equipment ($1,008,000) and Ashland well connected

Substation Ownership

- **Mountain Avenue Substation**
    - City presently owns 12.47 kV equipment, BPA owns primary breaker and transformer
    - Utility Delivery Charge = $1.399/kW/Month (increasing)
    - Yearly charge for Mountain Avenue: $224,714 (2013 numbers)
    - Purchase would include 0.8 mile of 115 kV transmission line that serves Mountain Avenue

The primary driver for purchasing the substation was economic along with the control to provide for the customers better. BPA owned the distribution equipment and charged the City a monthly utility delivery charge that totaled $224,714 in 2013. Purchasing the substation would eliminate that charge and offset operating costs yearly. Owning the substation would incur maintenance costs. BPA intended to increase the utility delivery charge yearly, the increase for 2013 was 25%. Mr. Holden estimated staffing and operating costs of owning the substation were $175,000-$180,000 annually.

- **Ashland Substation**
    - General Transfer Agreement (GTA) = $0.82/kW/Month (increasing)
    - Yearly charge for Ashland: $86,031 (2013 numbers)
    - Existing City distribution rack is inside PacifiCorp substation. It is 1960s vintage and needs to be replaced

Ashland Substation Options

1. Replace existing 12.47kV distribution rack and related equipment (~$250,000) this addresses safety concerns but will not eliminate the GTA charge
2. Building new substation across Nevada Street (additional $1,200,000) this would eliminate GTA charge

Mr. Holden thought the costs could be built within the existing rate structure, additional impact, if any, would be under 1%. This did not include purchasing the substation. There were other strategies to deal with peak demand. The City could manage the peak demand but not incorporating at least some of the changes put the City at risk for a single event.

Meeting adjourned at 7:09 p.m.

Respectfully submitted,
Dana Smith
Assistant to the City Recorder