



AGENDA
Washington Electric Utilities Advisory Board
MARCH 21, 2018
6:00 PM

Call to Order

Invocation

Roll Call

Approval of Minutes – February 21, 2018 (**page 2**)

Approval/Amendments to the Agenda

- I. Comments from the Public:
- II. Feedback from the Council:
- III. Correspondence and Special Reports:
- IV. Old Business:
 - A. Update – Slatestone Substation, Progressive Engineering
 - B. Discussion – Follow-up Capabilities of the OMS System
- V. New Business:
 - A. Discussion – Long Range Plan Update and Implementation
 - B. Discussion – Unaccounted Kilowatt Hours (16,378,620) Source Audit Report (City of Washington most recent audit)
 - C. Discussion – Long Range Status Reports, Booth & Associates, Page VII-5 through VII-10, F.1. thru 6; VII-12 item F.12. (**page 4**)
 - D. Monthly Reports – Line Crew Activities:
 1. Normal Hours
 2. Projects
 3. Outages
 4. After Hours and Holidays
 - a. Outages
- VI. Any other items from the City Manager or his designee:
- VII. Any other items from the Chair or other members of the Board:
 - A. Request/Consideration – Chair to attend upcoming meeting of WEU & Tideland regarding OMS and system monitoring capabilities
- VIII. Adjournment:

The Washington Electric Advisory Board met on Wednesday, February 21, 2018 at 6:00pm in the City Council Chambers at the Municipal Building. Present were: Chair; Stewart Rumley; Vice chair; Pat Griffin; John Taylor; Rudolph Burns; Vann Knight; Nicholas McKinley. John Taylor, the Bath representative was absent. The Washington Park seat remains vacant.

Also present were: Councilmember Roland Wyman (Council Liaison); Councilmember Doug Mercer; Electric Director; Jeff Clark; City Manager; Bobby Roberson; and Admin Support, Wanda Modlin.

Chair Rumley called the meeting to order, Board member Pat Griffin delivered the Invocation.

APPROVAL OF MINUTES:

Approved by consensus of the board as presented

APPROVAL/ADMENTS TO THE AGENDA:

Approved by consensus as presented

COMMENTS FROM THE PUBLIC:

Councilmember Doug Mercer briefed the Board that he had proposed a 5% rate decrease at the last Council meeting. He based his request on the rate reduction WEU received when NCEMPA sold its generating assets to Duke and the yearly wholesale rate increases which were predicted at that time have never happened. He also call the Council's attention to the consensus recommendation concerning the transfer policy made last month by the Commission.

FEEDBACK FROM THE COUNCIL: NONE

CORRESPONDENCE AND SPECIAL REPORTS: NONE

OLD BUSINESS:

- Electric Director, Jeff Clark provided updates on the FY2017 CIP projects. The only concern expressed about these items was how would the projects not completed in the FY2017 CIP affect what is planned for FY2018.
- Mr. Clark updated the Board on the .7 mile line replacement project between BCCC and Douglas Crossroads. The project has been ongoing for over a year.

NEW BUSINESS:

- The Board reviewed the WEUB FY2018 Capital Improvement Program maintenance and construction items. Mr. Clark provided a detailed explanation of each item. There was some discussion of the Slatestone Substation. Load wise this is the smallest in our system and its replacement at this time was questioned. Mr. Clark advised the Substation was unsafe, which is confusing since its priority was and has been placed after the Hwy 32 tieline and the Slatestone 34.5IKV rebuild projects.
- Jeff Clark briefed the commission on an updated transmission line mileage. The updated value was determined by a light duty employee driving the entire system and recording the mileage. When queried if this would be available from the soon to be finished GIS project he replied it would.
- City Manager Roberson provided an update on a new industry moving to Washington. Mr. Clark provided an update about the SCADA/GIS/CIS/OMS. At the present time, WEU is unable to provide outage data on its distribution system in a meaningful, timely, and accurate manner. The

addition of the Outage Management System (OMS) will provide this capability. Additionally, the system will archive the data which will give WEU the capability to identify areas which may require new or upgraded facilities to prevent power outages. Jeff estimates the system will be up and running by January 2019.

ANY OTHER BUSINESS FROM THE CITY MANGER OR HIS DESIGNEE:

- None

ANY OTHER BUSINESS FROM THE CHAIR OR MEMBERS OF THE BOARD:

- Chairman Rumley reminded the City Manager and the two Council Members in attendance of Washington Park vacant seat on the Commission.

Adjournment:

Meeting was adjourned until March 21, 2018

Reatha B. Johnson – Interim Secretary (252)975-9333

F. Description and Justification for Improvements

The following summarizes major substation and transmission system improvements in the Long-Range Plan by geographic area. Tables 1 through 5 in the Exhibits provide load projections for each substation through the Long-Range Plan transition. These Tables also reflect recommended capacity upgrades at each of the substations, to be completed within that Long-Range Plan step time frame.

1. MAIN SUBSTATION

Step 1 (2013-2017)

- MT3-1 Project completes a three-phase tie between Main and Wharton Substations. This will allow loads on the Clarks Neck circuit to be shifted to Wharton.
- MT4-1 Project will rebuild and relocate the 5th Street and 2nd Street feeders.
- MT4-2 Project will rebuild the dual circuit line, upgrading both the 12.5 kV and 34.5 kV circuit.

Step 2 (2018-2022)

- MT3-2 Project will begin the process of replacing the Downtown Underground facilities.
- MT4-3 Project upgrades conductor to 336 ACSR, completing a large conductor, inter-substation tie line.

Step 3 (2023-2032)

- MT3-2 Project will begin the process of replacing the Downtown Underground facilities.
- MT4-4 Project multiphases a heavily-loaded single-phase tap to improve phase-load balance and system coordination.

MT4-5 Project multiphases a heavily-loaded single-phase tap, improving phase-load balance and area coordination.

2. WHARTON SUBSTATION

Step 1 (2013-2017)

WH-1 Project rebuilds existing line to three-phase 336 ACSR to assist in refeeding the Pactolus circuit.

WH-2 Project rebuilds existing line to three-phase 336 ACSR to assist in refeeding the Pactolus circuit.

WH-3 Project creates a three-phase 336 tie line that will aid in shifting load from the Highway 264 circuit to the Proposed Highway 17 Substation.

WH-4 Project creates circuit exits from the Proposed Highway 17 Substation that will tie to the Wharton Substation.

Step 2 (2018-2022)

WH-5 Project rebuilds existing line with dual circuit three-phase 336 ACSR with the top circuit at 34.5 kV, creating a 34.5 kV tie with the Proposed Highway 17 Substation.

WH-6 Project multiphases a heavily-loaded single-phase tap, improving phase-load balance, voltage and coordination.

WH-7 Project rebuilds existing line with dual circuit three-phase 336 ACSR with the top circuit at 34.5 kV, creating a 34.5 kV tie with the Proposed Highway 17 Substation.

WH-8 Project will upgrade the Wharton Substation to place the second transformer and bus in service.

Step 3 (2023-2032)

WH-9 Project creates a large wire inter-circuit tie line improving voltage at circuit extremities.

3. FOREST HILLS SUBSTATION

Step 1 (2013-2017)

FH-1 Project will re-route the High School circuit exits.

FH-2 Rebuild existing line with dual circuit three-phase 336 ACSR. Project creates a large conductor 12.5 kV and a 34.5 kV tie between the Forest Hills and Slatestone Road Substations.

Step 2 (2018-2022)

FH-3 Install 3 - 167 kVA voltage regulators to improve voltage at circuit extremities.

FH-4 Replace the existing transformer with 20 / 37.3 MVA unit removed from the Eastern Substation.

Step 3 (2023-2032)

FH-5 Project will multiphase a heavily-loaded single-phase tap improving phase-load balance and coordination.

FH-6 Project will multiphase a heavily-loaded single-phase tap improving phase-load balance and coordination.

4. EASTERN SUBSTATION

Step 1 (2013-2017)

- EA-1 Project will upgrade existing lines to 336 ACSR to create a large conductor, inter-substation tie line.
- EA-2 Install a 115 kV to 34.5 kV, 45 / 84 MVA transformer, effectively moving the 34.5 kV load on the eastern portion of the system to the Eastern Substation.
- EA-3 Project will rebuild line to dual circuit three-phase 336 to create a new circuit to split loads on the John Small circuit and tie into the Main Substation Market Street circuit.

Step 2 (2018-2022)

- EA-4 Project will upgrade existing lines to 336 ACSR to create a large conductor, inter-substation tie line.
- EA-5 Replace the existing transformer with a 115 kV to 12 kV, 20 MVA transformer, moving this load to the 115 kV system relieving load on the 115 kV to 34.5 kV transformer.

Step 3 (2023-2032)

- EA-6 Project will multiphase a heavily-loaded single-phase tap improving phase-load balance and coordination.
- EA-7 Project will rebuild the line between Eastern and Forest Hills to add a second 34.5 kV circuit to facilitate contingency load shift on the 34.5 kV system.
- EA-8 Project will multiphase a heavily-loaded single-phase tap, improving phase-load balance and coordination.
- EA-9 Project will multiphase a heavily-loaded single-phase tap, improving phase-load balance and coordination.

- EA-10 Project will multiphase a heavily-loaded single-phase tap, improving phase-load balance and coordination.
- EA-11 Project will rebuild the Washington Park feeder due to the age and condition of facilities.

5. SLATESTONE ROAD SUBSTATION

Step 1 (2013-2017)

- SL-1 Rebuild existing circuit to dual circuit three-phase 336 ACSR (top circuit 34.5 kV) due to age and condition of facilities. Project also corrects low voltage at circuit extremities.
- SL-2 Replace existing single-phase transformers and voltage regulators with a 15 / 28 MVA transformer.

Step 2 (2018-2022)

- SL-3 Project rebuilds the existing line with dual circuit three-phase 336 ACSR. The top circuit is part of a 34.5 kV tie with Whitepost.
- SL-4 Project creates a three-phase 336, 12.5 kV circuit tie with Whitepost, and a 34.5 kV tie between the Slatestone Road and Whitepost Substations.

Step 3 (2023-2032)

- SL-5 Project creates a three-phase 336 ACSR tie between the Slatestone Road and Whitepost Substations.
- SL-6 Project rebuilds existing lines with dual circuit three-phase 336 ACSR, creating both a 12.5 kV inter-substation tie and a 34.5 kV tie line.
- SL-7 Project multiphases a heavily-loaded single-phase tap, improving phase-load balance and coordination.

6. WHITEPOST SUBSTATION

Step 1 (2013-2017)

WP-1 Project rebuilds the existing line to dual circuit three-phase 336 ACSR (12.5 kV and 34.5 kV) due to the age and condition of the facilities.

WP-2 Project rebuilds the existing line to dual circuit three-phase 336 ACSR (12.5 kV and 34.5 kV) due to the age and condition of the facilities.

Step 2 (2018-2022)

WP-3 Project rebuilds the existing line to dual circuit three-phase 336 ACSR creating both a 12.5 kV and 34.5 kV tie with the Slatestone Road Substation.

Step 3 (2023-2032)

WP-4 Project creates a three-phase 336 ACSR tie between the Slatestone Road and Whitepost Substations.

WP-5 Rebuild the Whitepost Substation due to the age and condition of structures.

7. PROPOSED HIGHWAY 17 SUBSTATION

Step 1 (2013-2017)

HWY17-1 Construct the Highway 17 Substation at 115 kV to 12.5 kV. This station will relieve loads on the Wharton and Main Substations.

12. DELIVERY POINT AND TRANSMISSION

Step 1 (2013-2017)

- TR-1 Project will construct 2.5 miles of 115 kV, 795 ACSR transmission line from the Main Substation to the Proposed Highway 17 Substation.
- TR-2 Project will construct 2.8 miles of 115 kV, 795 ACSR transmission line from the Main Substation to the Eastern Substation.
- DP-1 Install two 230 kV to 115 kV, 60 / 112 MVA transformers at the Main Substation. Extension of the 115 kV system will relieve loading on the existing 230 kV to 34.5 kV transformers and the 34.5 kV transmission system for both normal system configuration and contingency conditions.
- TR-3 Project will rebuild the Highland Drive 34.5 kV circuit due to age and condition of facilities.
- TR-4 Project will rebuild the Forest Hills 34.5 kV circuit due to age and condition of facilities.
- TR-5 Construct the Market Street 34.5 kV circuit designed to feed large commercial loads in downtown.
- TR-6 Construct 34.5 kV feeder to serve the Proposed Industrial Park Substation.

Step 2 (2018-2022)

- TR-7 Project will rebuild the Flanders 34.5 kV circuit due to age and condition of facilities.

Step 3 (2023-2032)

- TR-5 Construct the Market Street 34.5 kV circuit.
- TR-8 Project will rebuild the Hamilton Beach 34.5 kV circuit due to age and condition of facilities.
- TR-9 Rebuild the Hamilton Beach 34.5 kV to 4 kV Substation due to age and condition of facilities.
- TR-10 Rebuild the Chocowinity 230 kV Delivery Point due to age and condition of facilities.
- TR-11 Construct the Highway 264 34.5 kV feeder.
- DP-2 Replace the Main Substation T1 and T2 transformers due to age and condition.