

# Mount Tom Retirement Transmission System Modifications – Update –

Planning Advisory Committee Meeting

April 19, 2017

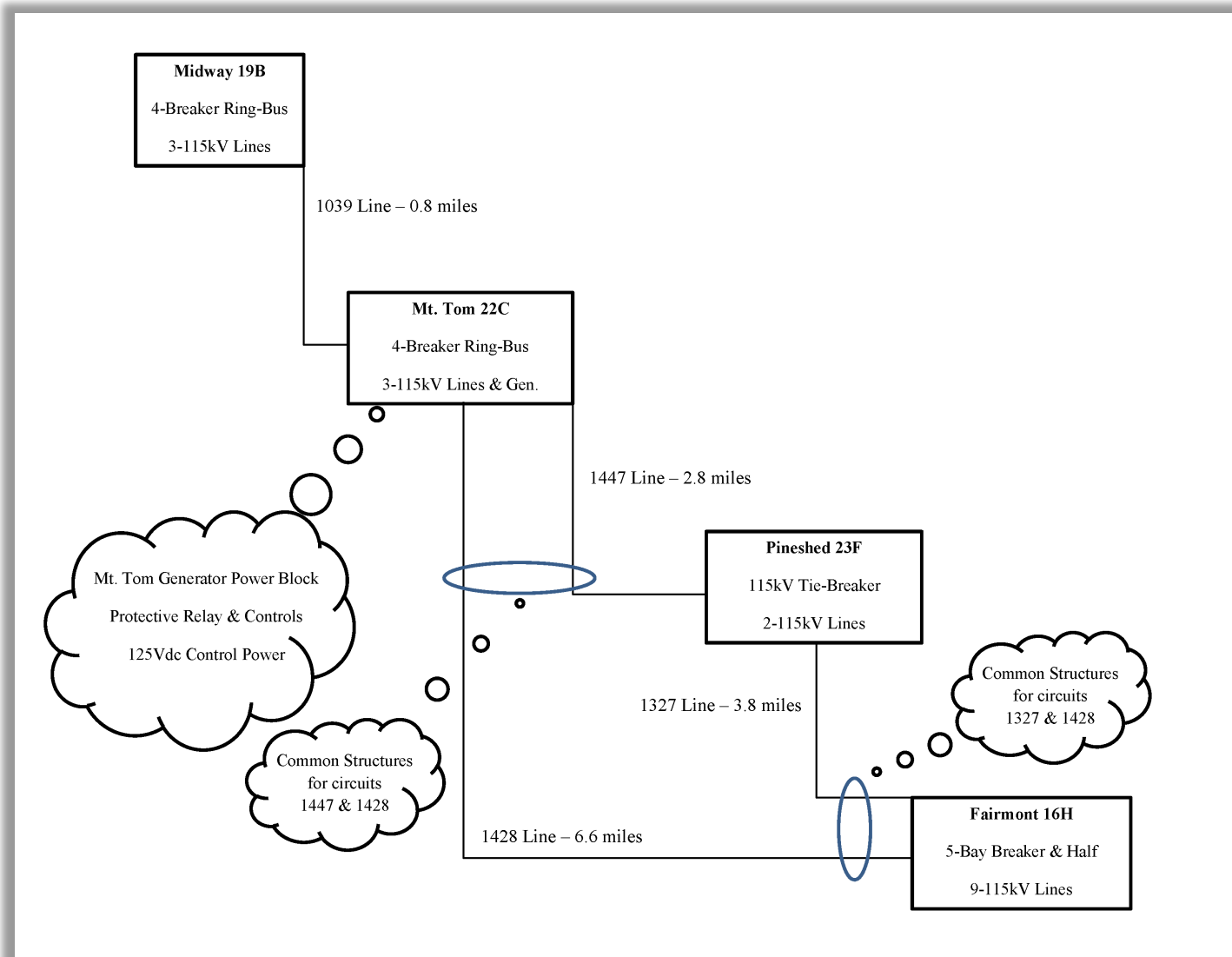
# Purpose

- Provide update regarding proposed transmission modifications to address the retirement of the Mount Tom Generation Station
- Previous Mount Tom Retirement Transmission System Modifications PAC presentation delivered on August 17, 2016
  - [https://www.iso-ne.com/static-assets/documents/2016/08/a4\\_mt\\_tom\\_retirement\\_tranmission\\_modification.pdf](https://www.iso-ne.com/static-assets/documents/2016/08/a4_mt_tom_retirement_tranmission_modification.pdf)
- Present a new recommended solution

# Background

- The Mount Tom Generating Station went into service in the late 1950s.
- The station was converted to coal in the 1980s.
- The generation consists of a single unit with an output of 146-MW.
- The station is connected to the 115-kV transmission system with a four circuit breaker ring bus with three line terminals; 1039 (to Midway), 1447 (to Pineshed), and 1428 (to Fairmont).
- The transmission system protective relays, controls, and DC control power source are located within the generating station.
- The station is considered a Bulk Electric System facility.

# Existing System



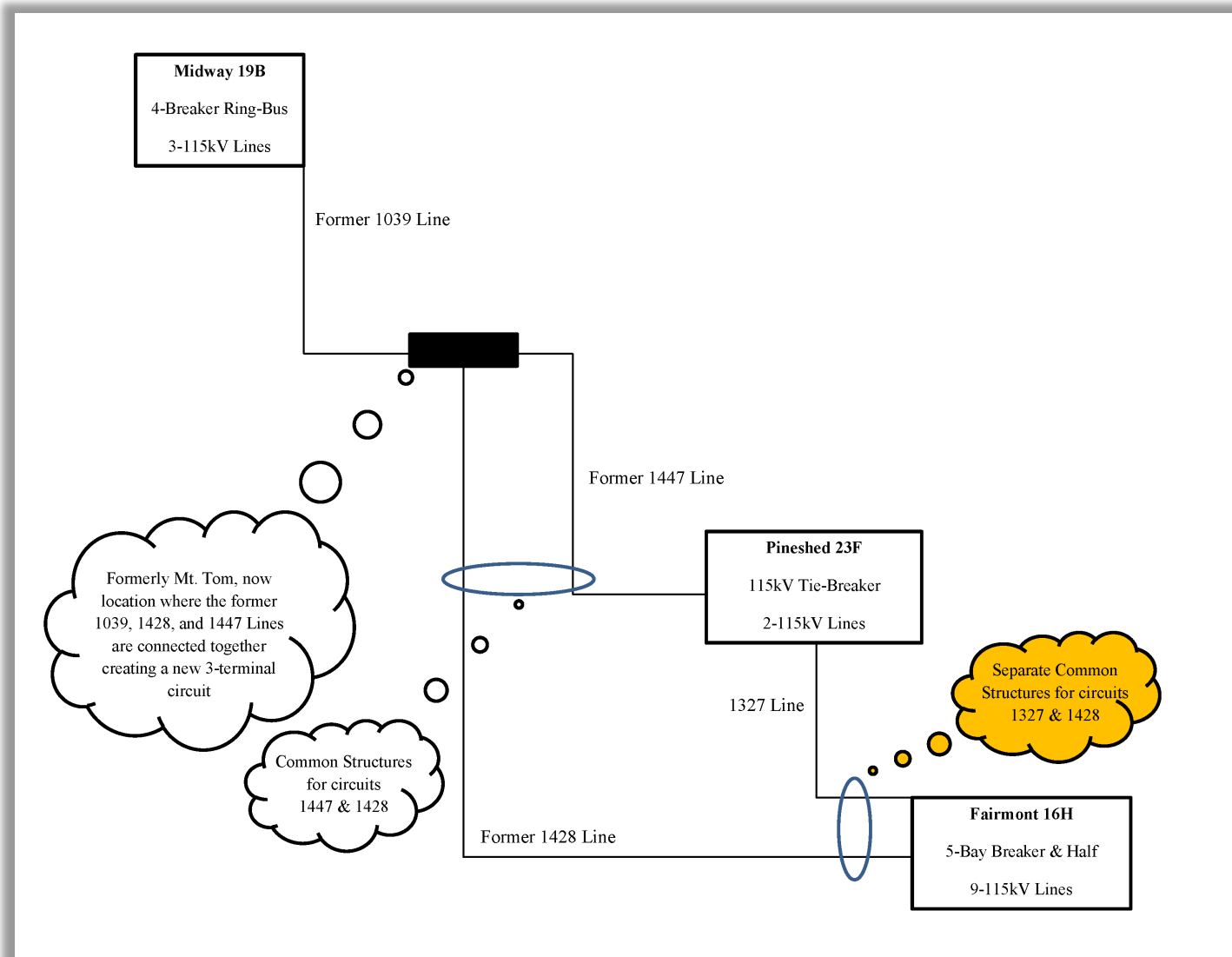
# Problem Statement

- Dynegy is the current owner of the Mount Tom generating station.
- Dynegy has notified Eversource WMA of an effective retirement date of June 1, 2018.
- Dynegy plans to demolish and remove the generating facility in its entirety.
- The area 115-kV transmission system (Midway, Pineshed, & Fairmont) will remain in-service.
- The transmission system protective relays, controls, and DC control power source are located within the generating station and must be removed/relocated/replaced should the Mount Tom 115-kV switchyard remain in-service.

# Previous Recommended Solution

- Retire and remove Station and Switchyard and reconfigure the 1039, 1428, and 1447 lines into a three-terminal 115-kV line with terminals at Midway, Pineshed, and Fairmont.
- Estimated Cost: \$3.7M (-25%/+50%)
- The previously recommended solution would expose the Pineshed load to an additional N-1 contingency (1327/1428 DCT) that would result in the disconnection of all of the Pineshed load.
- ISO-NE and Eversource no longer support the previously preferred solution.
- The solution alternatives were re-evaluated to select a new recommended solution.

# Alternative 1: revised 3-terminal circuit

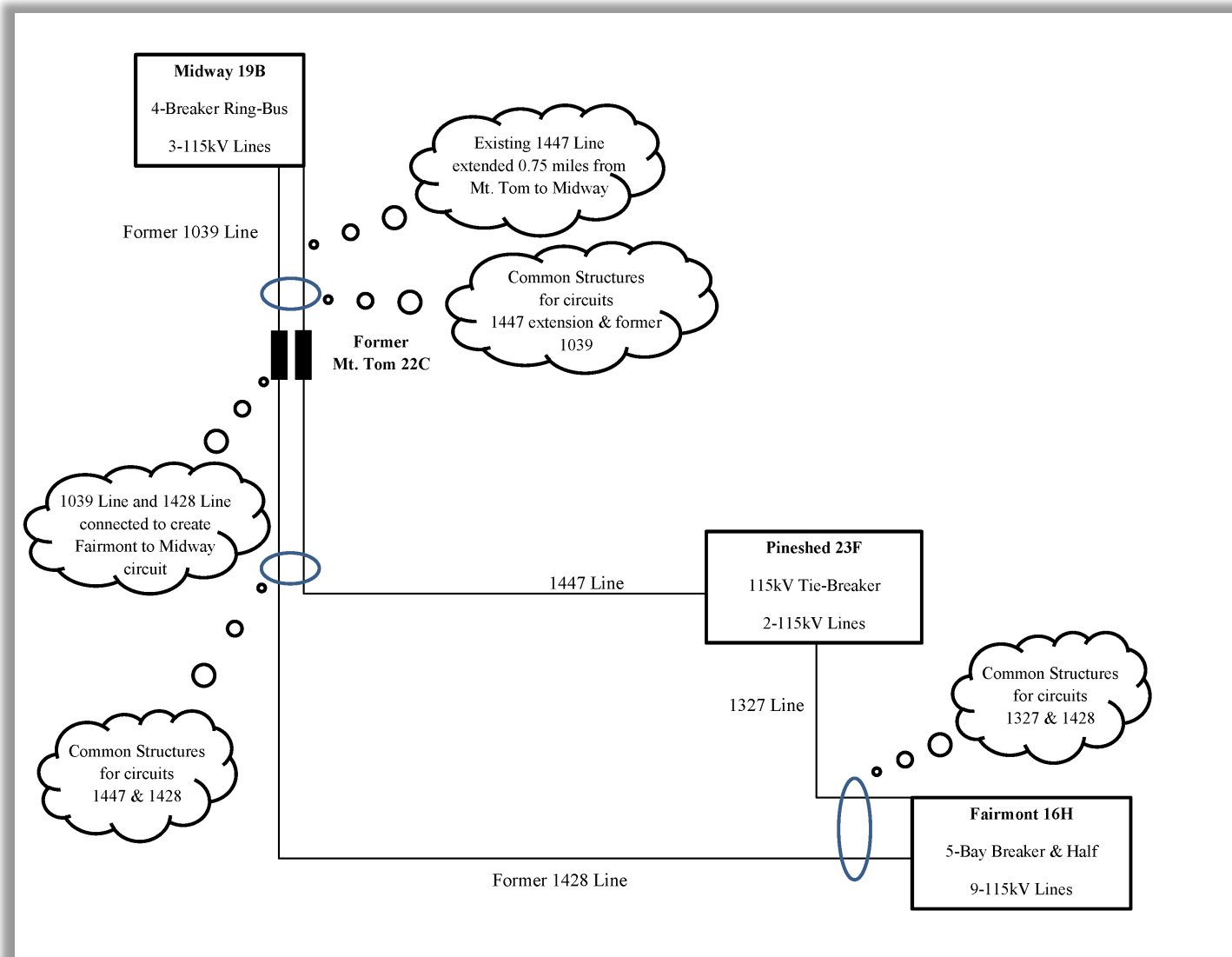


## Alternative 1 (continued)

- Retire and remove Station and Switchyard.
- Reconfigure the 1039, 1428, and 1447 lines into a three-terminal 115-kV line with terminals at Midway, Pineshed, and Fairmont. This requires some new structures.
- Back-up relay protection upgraded for high-speed protection.
- 7.4-miles of OPGW to be installed for high-speed relay communications.
- Install lightning arresters and new wave traps.
- Separate the 1327 and 1428 circuits.
  
- **Estimated Cost: \$9.4M** (-25%/+50%)



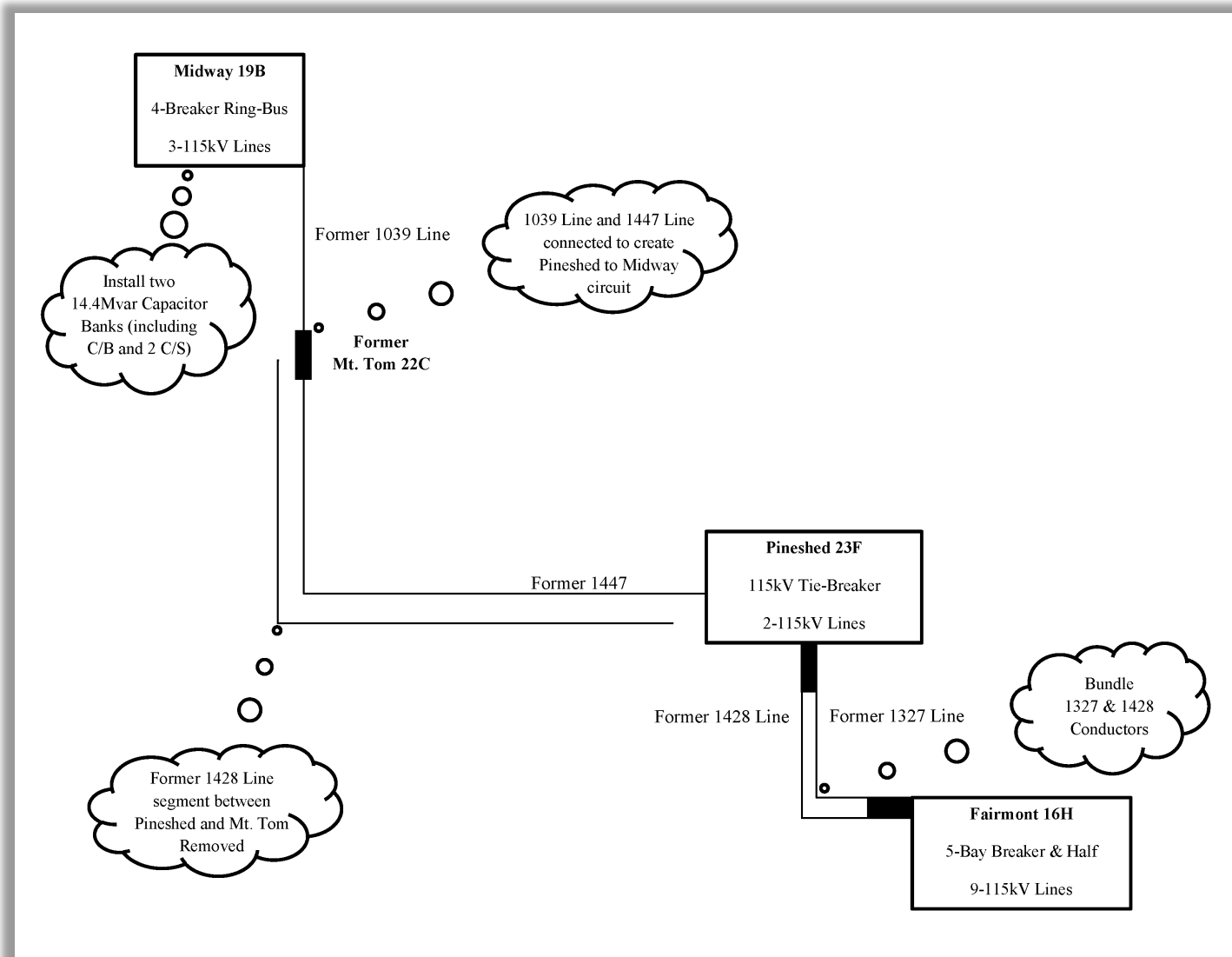
# Alternative 2: new line extension



## Alternative 2 (continued)

- Retire and remove Station and Switchyard.
- Connect the 1039 and 1428 lines into one two-terminal line (Fairmont to Midway).
- Extend the existing 1447 line between Pineshed and Mount Tom to Midway (requires construction of 0.75 miles of new line).
- Install two back-up high-speed protection schemes with new wave traps.
- **Estimated Cost (revised): \$9.0M** (-25%/+50%)

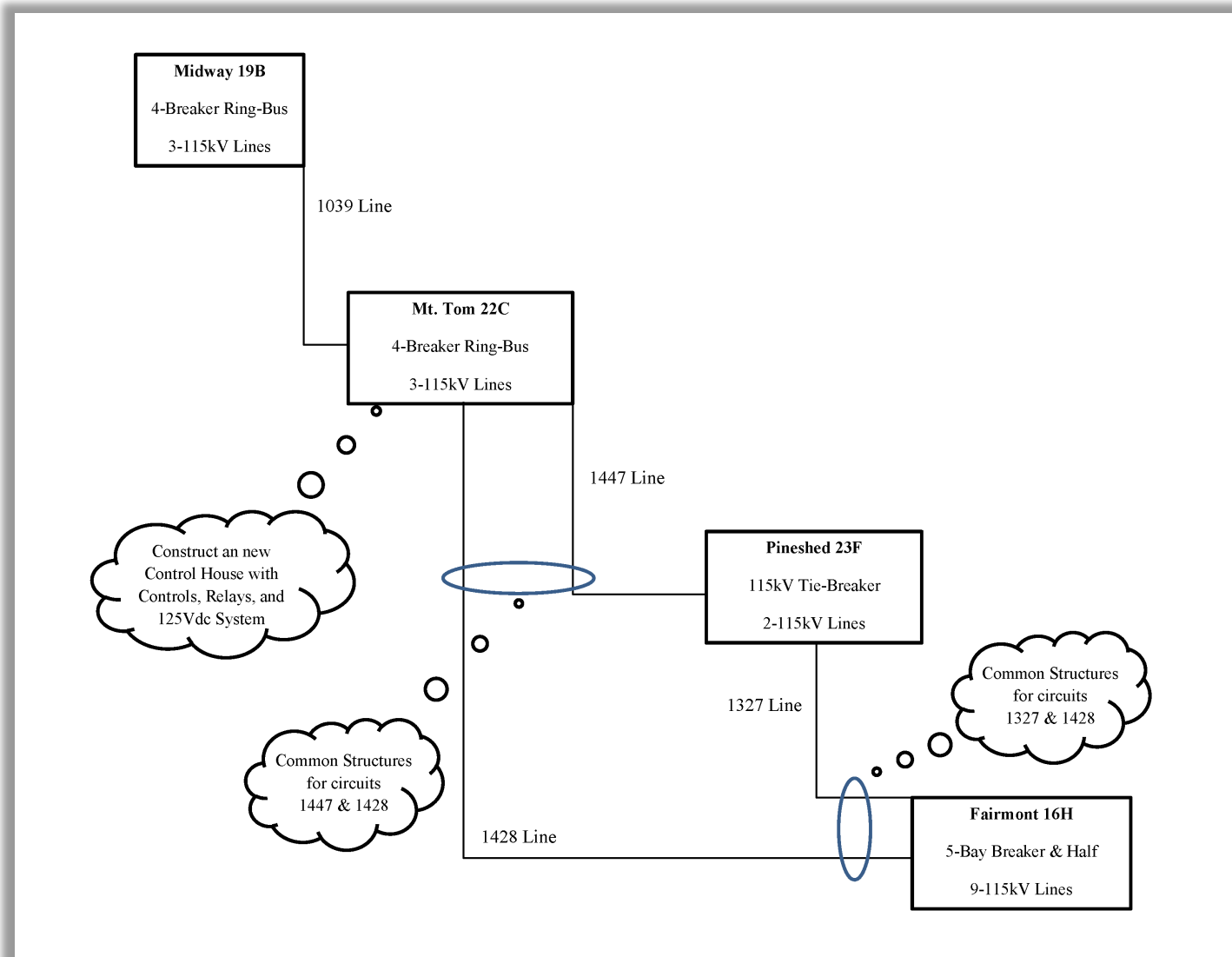
# Alternative 3: line reconfig and caps



## Alternative 3 (continued)

- Retire and remove Station and Switchyard.
- Connect the 1039 and 1447 lines into one two-terminal line (Pineshed to Midway).
- Retire the 1428 line section from Mount Tom to Pineshed and bundle remaining 1428 line with the 1327 line.
- Install two 14.4-Mvar capacitor banks at Midway, including a circuit breaker and associated protective relaying.
- **Estimated Cost (revised): \$10.1M** (-25%/+50%)

# Alternative 4: new control house



## Alternative 4 (continued)

- Retain Switchyard and construct new Control House
- **Estimated Cost (revised): \$7.7M** (-25%/+50%)

# Conclusion

- **Selected Project**

- New Control House (Alternative 3 in August 2016 presentation)
- Cost: \$7.7M (-25%/+50%)

- **Next Steps**

- Submit TCA
- Proposed in-service date of Q1 2018