BONNEVILLE POWER ADMINISTRATION

BPA Attachment K Planning Process

Planning Meeting II

November 18, 2021

Agenda

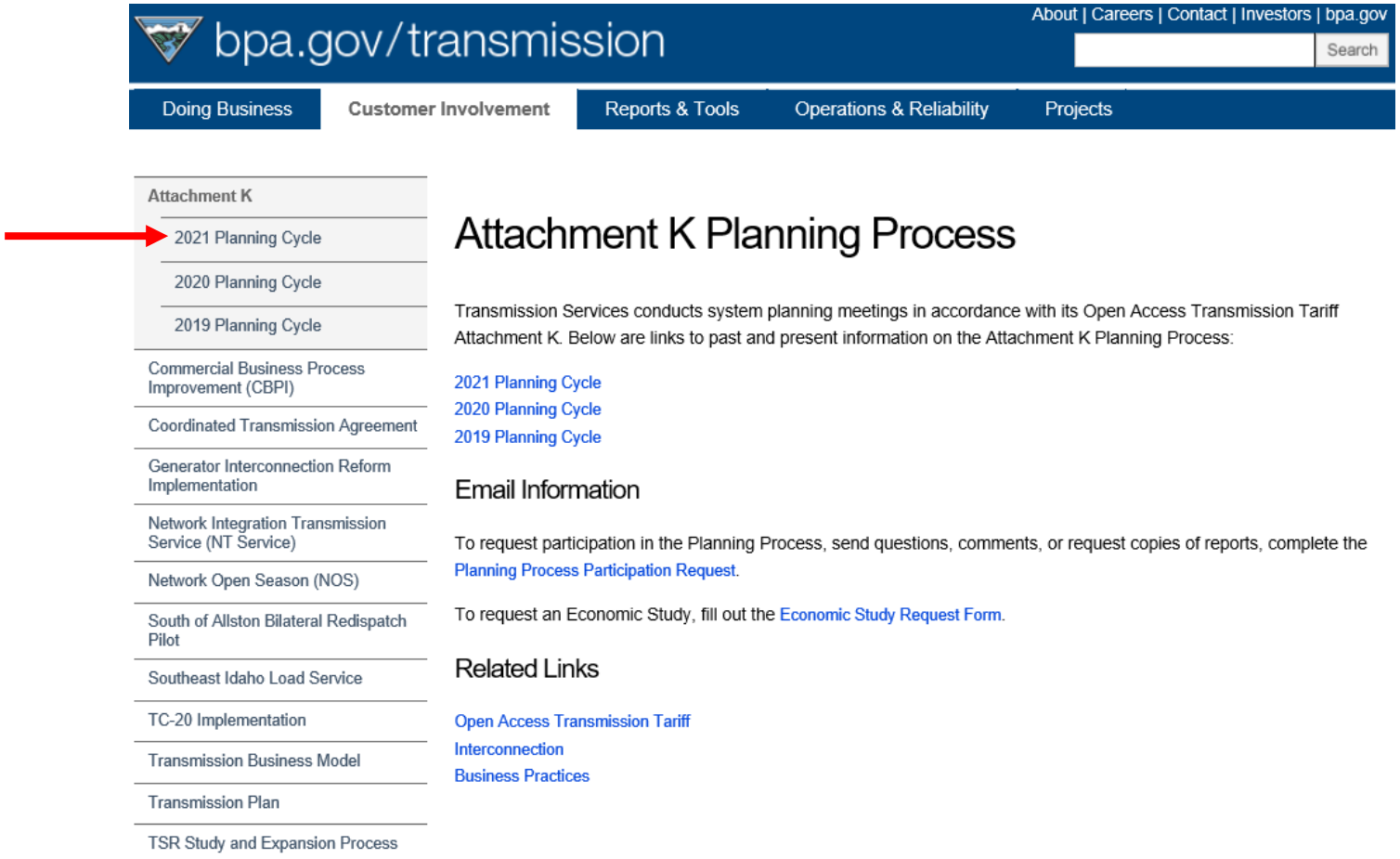
- Introductions
- Attachment K Planning Cycle – 2021
- Attachment K Website
- Economic Study Requests
- Draft Plans of Service for Transmission
- Project Updates
  - Significant Energized Projects
  - Significant Planned Projects
- Next Steps

Attachment K Planning Cycle - 2021

- **Customer Meeting I** — **April 30, 2021**
  - 2020 Transmission Plan
  - 2021 Planning Assumptions, Criteria, Methodology
  - Economic Study Requests
- **Posting I** — **Summer 2021**
  - Summary of 2021 System Assessment Results and Conceptual Solutions
- **Customer Meeting II** — **November 18, 2021**
  - Draft Plans of Service and Cost
- **Posting II** — **December 2021**
  - 2021 BPA Transmission Plan

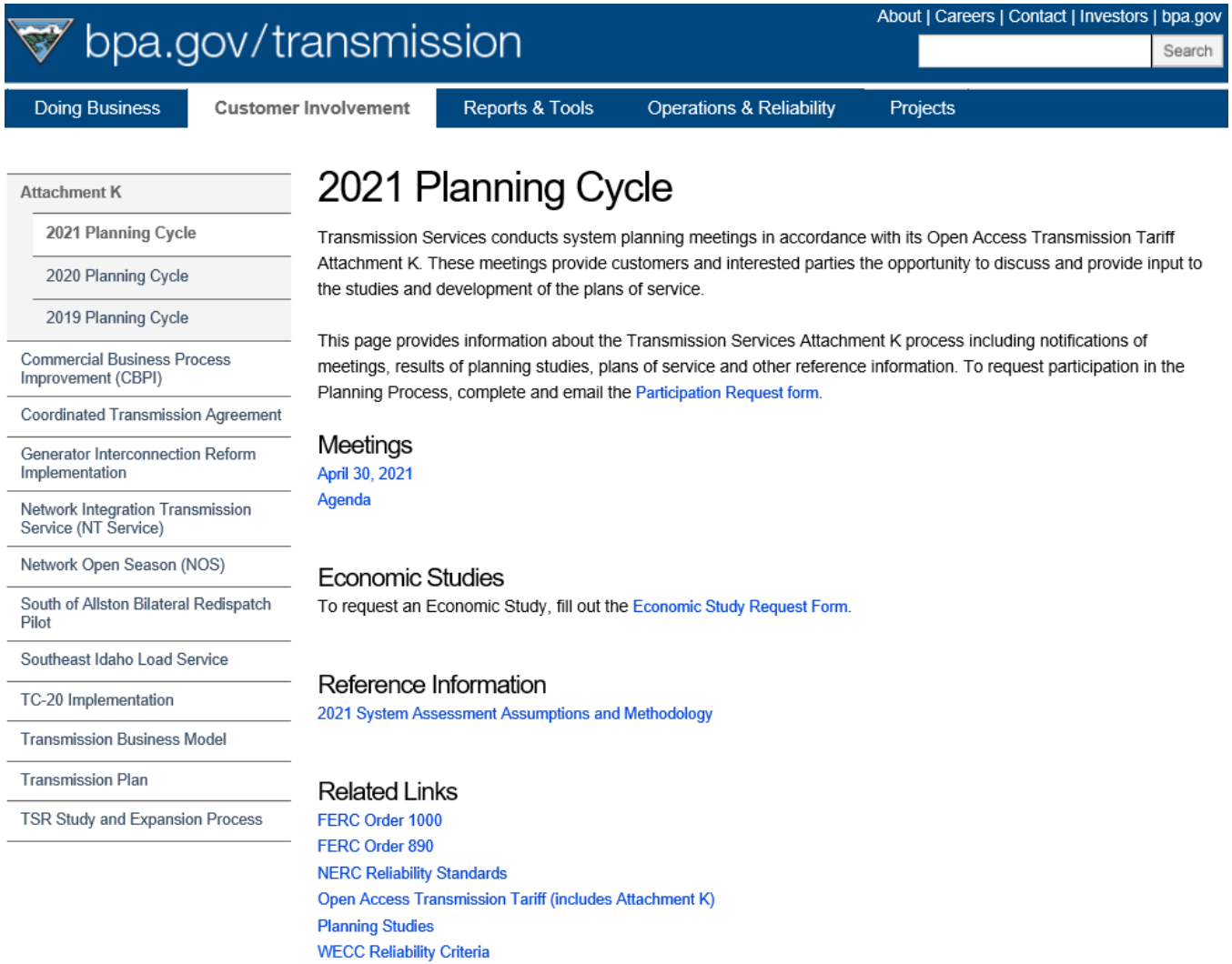
BPA's Attachment K Planning Process Website

https://www.bpa.gov/transmission/CustomerInvolvement/AttachmentK/Pages/default.aspx



Navigating BPA's Attachment K Planning Process Website

https://www.bpa.gov/transmission/CustomerInvolvement/AttachmentK/Pages/2021-Planning-Cycle.aspx



BPA's Attachment K Planning Process Website

- **E-mail Information**
  - ***PlanningParticipationRequest@bpa.gov***
  - ***PlanningEconomicStudyRequest@bpa.gov***
- **Meetings**
  - Meeting announcements, agendas, etc.
- **Economic Studies**
  - Requesting and Tracking Economic Studies
- **Reference Information**
  - Materials associated with the Planning Process, participation forms, etc.
- **Related Links**
  - Links to information related to the Planning Process

Economic Study Requests

- What is an Economic Study?
  - Studies may be requested to address congestion issues or the integration of new resources and loads.
- How are Requests for Economic Studies submitted?

  PlanningEconomicStudyRequest@bpa.gov
- Requests may be submitted any time…

  Requests submitted after October 31 will be considered in the next prioritization process.
- BPA will complete up to two Economic Studies per year at its own expense.
- There were no Economic Study Requests received during the study cycle which closed on October 31, 2021.

CFR Customers

BPA is providing contracted Transmission Planning services for the following NT customers who have Coordinated Functional Registrations (CFR) with NERC.

- Klickitat County PUD
- Lewis County PUD
- Northern Wasco County PUD
- Pend Oreille PUD
- Umatilla Electric Cooperative
- Whatcom PUD
- Lower Valley Energy

New for 2022 SA

Draft Plans of Service (2021 Planning Cycle)

- Most of the draft plans of service on the following slides, have been developed to maintain compliance with the applicable planning reliability standards and criteria
- The following standards and criteria were applied in development of the proposed corrective action plans:
  - **NERC Reliability Standard TPL-001-4**
    (North American Electric Reliability Corporation)
  - **WECC Reliability Criteria TPL-001-WECC-CRT-3.2**
    (Western Electricity Coordinating Council)
- The remaining plans of service provide needed equipment upgrades or improve Operational or Maintenance Flexibility

Draft Plans of Service (2021 Planning Cycle)

- BPA's 2021 System Assessment for the load areas was based on current and qualified past studies from 2020 as allowed by the NERC TPL Reliability Standard
- The transmission system was divided into 27 load service areas and 18 paths/interties
- There were two corrective action plans (plans of service) identified from the 2021 System Assessment
- Several of the projects identified from previous System Assessments have updated schedules
- These updates are shown on the following slides

  Bold text indicates a schedule or status change compared with last year's update.

Draft Plans of Service

from the 2021 System Assessment

Portland Area

Project	Schedule
Keeler 230 kV Bus Sectionalizing Breaker Addition • Adds a bus sectionalizing breaker at Keeler to split the bus into 3 sections.	**2026**

Fossil/DeMoss Area

Project	Schedule
Condon Wind RAS • Modifications to amount of generation dropped by existing RAS	**2022**

Project Updates

Seattle/Tacoma Area

Project	Schedule
Tacoma 230 kV Bus Tie and Auxiliary Bus Section Disconnect Switch (O&M Flexibility)	2021
Raver 500/230 kV Transformer Addition	Completed
Tacoma 230 kV Series Bus Section Breaker Addition	2021
Monroe-Novelty 230 kV Line Upgrade	**2023**

Southwest Washington Coast

Project	Schedule
Holcomb-Naselle 115 kV Line Upgrade	Completed

Project Updates

Portland Area

Project	Schedule
Carlton 230 kV and 115 kV Breaker Additions (O&M Flexibility)	2022
Troutdale 230 kV Series Bus Sectionalizing Breaker Addition	2025
Pearl 230 kV Series Bus Sectionalizing Breaker Addition	2029
Forest Grove-McMinnville 115kV Line Upgrade (O&M Flexibility)	2023

Eugene Area

Project	Schedule
Alvey 115 kV Bus Section Breaker Addition (O&M Flexibility)	2022
Alvey-Dillard Tap 115 kV Line Rebuild (O&M Flexibility)	2023

Project Updates

Olympic Peninsula Area

Project	Schedule
Kitsap 115 kV Shunt Capacitor Relocation	2023
Shelton-Fairmount 115 kV No.1 Line Upgrade	2022
Shelton-Fairmount 115 kV No.2 Line Upgrade	Completed

Longview Area

Project	Schedule
Longview 230/115 kV Transformer Bank Addition	Completed

Mid-Columbia Area

Project	Schedule
Columbia-Rapids 230 kV Line Construction	**2023**
Columbia 230 kV Bus Tie and Bus Section Breaker Addition (O&M Flexibility)	**2023**

Project Updates

Walla Walla Area

Project	Schedule
Tucannon River 115 kV Shunt Reactor (15 Mvar) Addition	2025

Umatilla Area

Project	Schedule
Jones Canyon 230 kV Shunt Reactor (40 Mvar) Addition	2025

Centralia / Chehalis

Project	Schedule
Silver Creek 230 kV Bus Section Breaker Addition	**2023**

Project Updates

Southeast Idaho/Northwest Wyoming Area

Project	Schedule
Spar Canyon 230 kV Reactor Addition (O&M Flexibility)	**2023**

North Idaho Area

Project	Schedule
Troy 115 kV Shunt Capacitor Addition	2023

Project Updates

South Oregon Coast Area

Project	Schedule
Fairview 115 kV Shunt Reactor Addition	**2022**
Toledo 230 kV and 69 kV Bus Tie Additions (O&M Flexibility)	2023
Wendson 115 kV Bus Tie Breaker Addition (O&M Flexibility)	2023

Okanogan

Project	Schedule
Grand Coulee-Foster Creek 115 kV Line Upgrade	2022

Project Updates

Raver to Paul

Project	Schedule
St. Clair-South Tacoma 230 kV Disconnect Switch Upgrade	2022

Puget Sound to Canada Path

Project	Schedule
Monroe 500 kV Line Re-terminations	Completed

West of Cascades North (WOCN) Path

Project	Schedule
Schultz-Raver 500 kV No. 3 and No. 4 Series Capacitors	Beyond 2029

Significant Energized Projects

Longview 230/115 kV Transformer Addition

Description

This project added an additional 230/115 kV transformer at Longview substation.

Energization

The project was energized in August 2021.

Project Cost

The project cost was $11,259,000

Significant Energized Projects

Holcomb-Naselle 115 kV Rebuild

Description

This project re-conductored the entire Holcomb-Naselle 115 kV line in Southwest Washington Coast to higher-rated conductor.

Energization

The project was energized in November 2020.

Project Cost

The project cost was $13,100,000.

Significant Energized Projects

Monroe 500 kV Line Re-terminations

Description

This project increases reliability and operational flexibility in the Puget Sound area. This project adds a new 500 kV bay at Monroe Substation and re-terminates the following 500 kV lines at Monroe: the Chief Jo-Monroe line into bay 5 and the Custer-Monroe No.2 line into bay 4. This essentially reconfigures Monroe into a double-breaker, double-bus layout for improved reliability.

Energization

Completed June 2021

Project Cost

The project cost was $10,800,000

Significant Planned Projects

Schultz-Wautoma Series Capacitors

Description

This project is necessary to increase South of Allston (SOA) available transfer capability and improve operations and maintenance flexibility for SOA and I-5 corridor paths. The project will add a series capacitor on the Schultz-Wautoma 500 kV line at Wautoma Substation.

Expected Energization

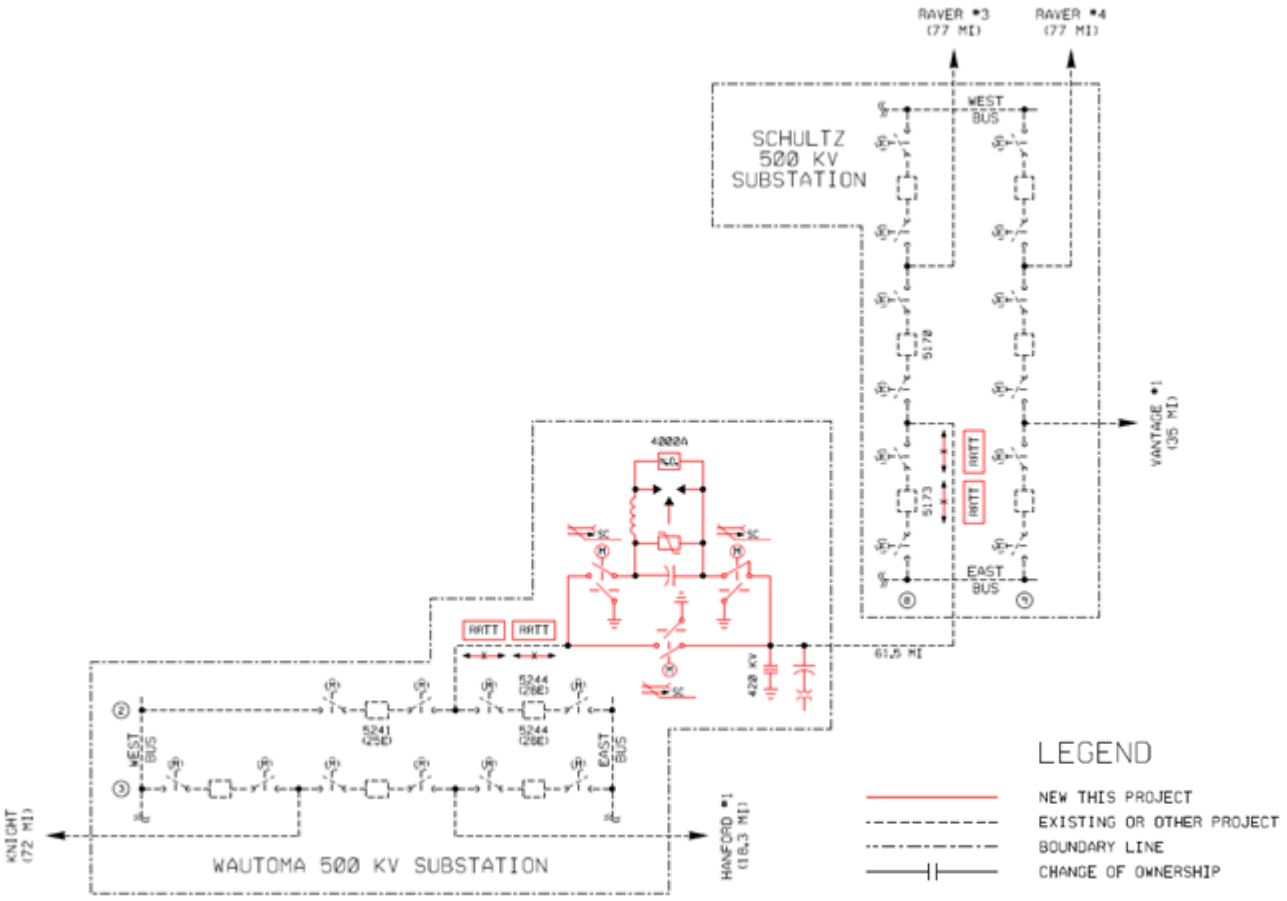
2023

Estimated Cost

$30,000,000

Significant Planned Projects

Schultz-Wautoma Series Capacitors



Significant Planned Projects

Tri-Cities Load Area Projects

Description

The following projects are planned for the Tri-Cities Load Area:

- McNary-Paterson Tap 115 kV Line
- Richland-Stevens Drive 115 kV Line
- South Tri-Cities Reinforcement

McNary-Paterson Tap – This project adds a new 115 kV bay at McNary and a parallel 115 kV line from McNary to Plymouth Tap (i.e. Paterson Tap; 2 miles).

Richland-Stevens Drive – This project constructs a double-circuit 115 kV line from Richland to Stevens Drive switching station (3 miles).

South Tri-Cities Reinforcement - This project constructs a 500 kV substation on the Ashe-Marion #2 500 kV line with a 500/115 kV transformer, and a 115 kV line to Badger Canyon (17 miles).

Significant Planned Projects

Tri-Cities Load Area Projects – continued

Estimated Cost and Schedule

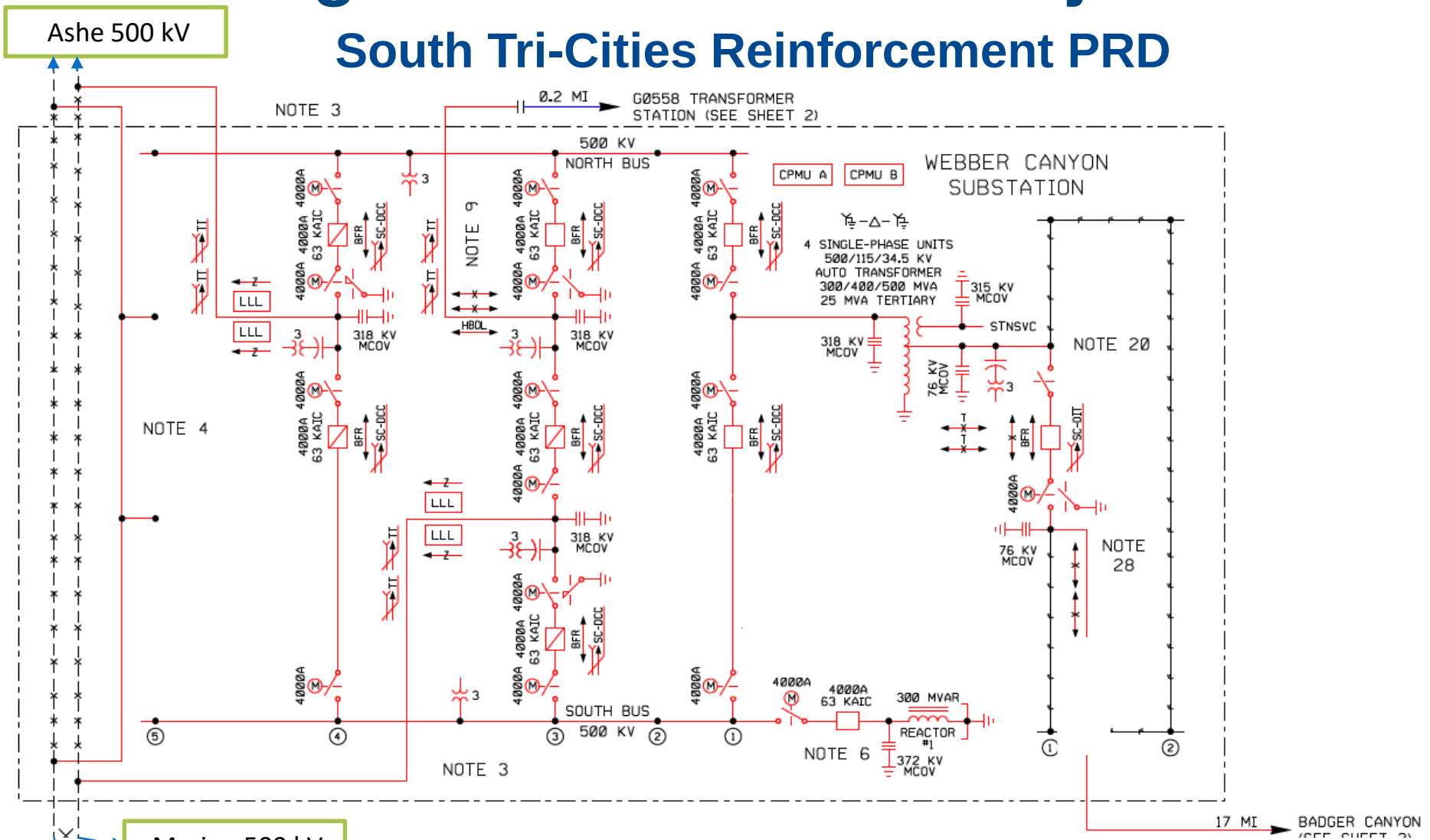
McNary-Paterson Tap is an approved project in design. The estimated project cost and schedule will be refined as the project progresses through design.

Richland-Stevens Drive is an approved project in design. The estimated project cost and schedule will be refined as the project progresses through design.

South Tri-Cities Reinforcement is presently in the scoping phase. The estimated project cost and schedule will be refined as the project progresses through scoping.

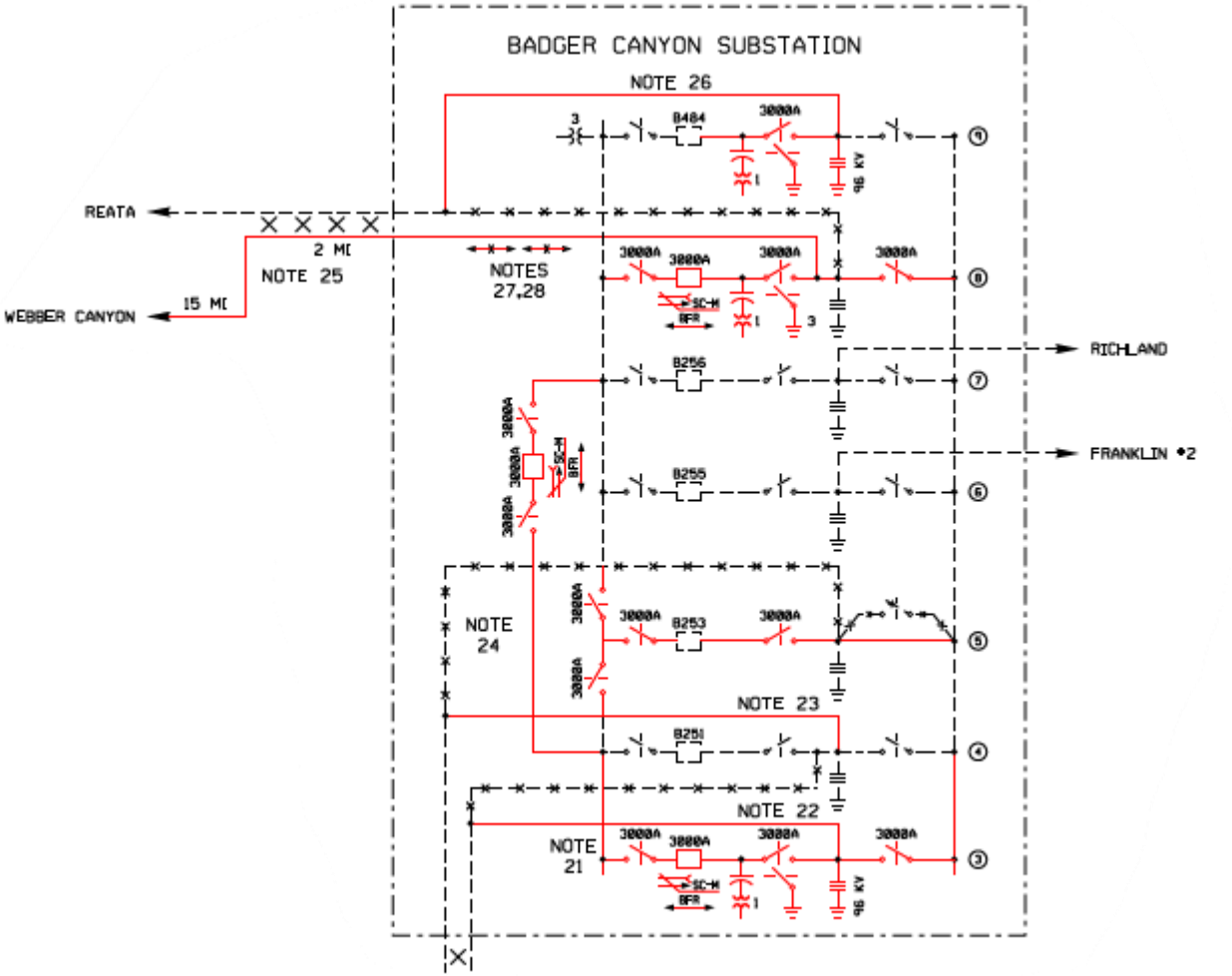
Significant Planned Projects

South Tri-Cities Reinforcement PRD



Significant Planned Projects

South Tri-Cities Reinforcement (sheet 2)



Significant Planned Projects

Buckley GIS Replacement

Description

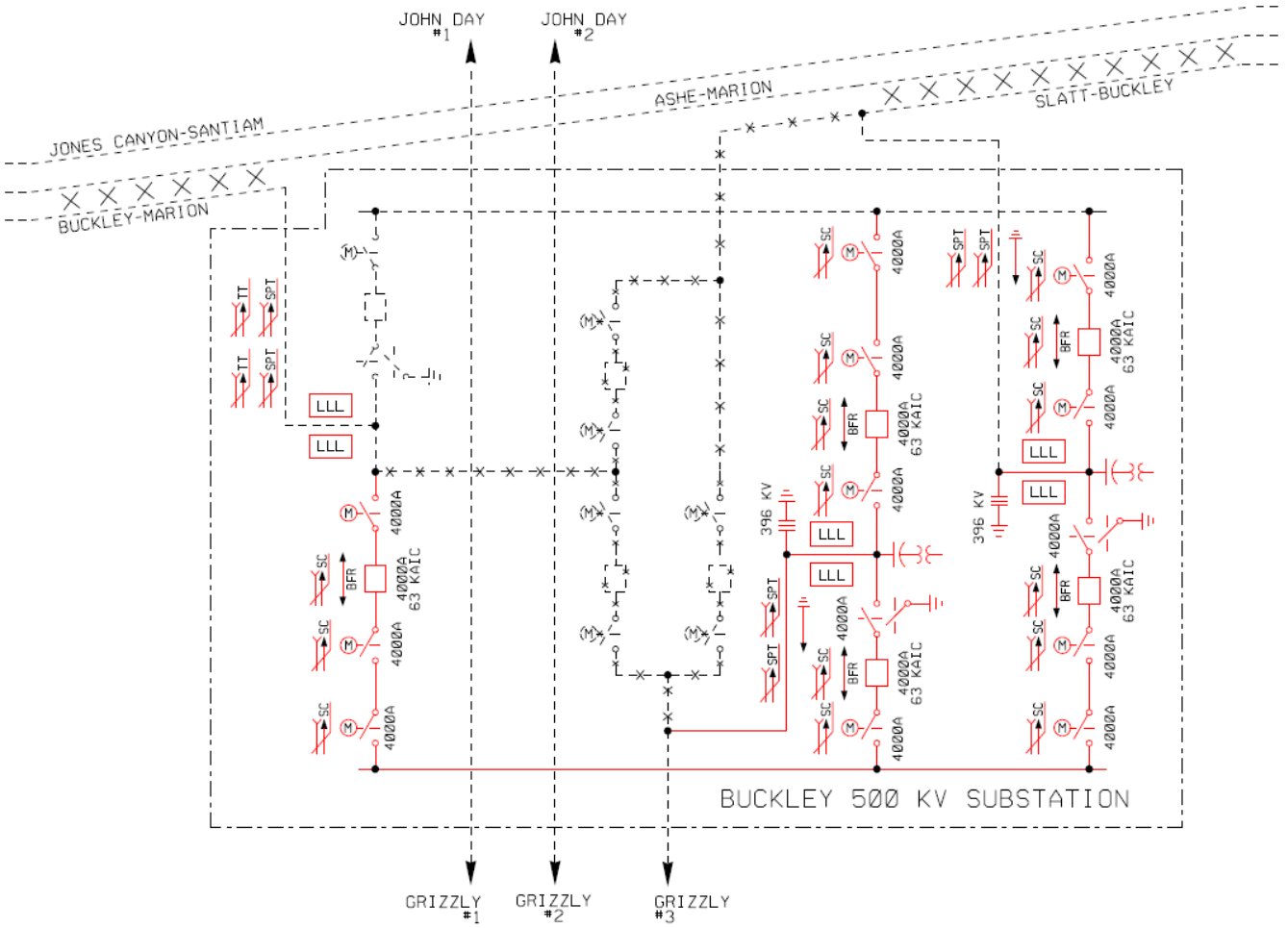
This project is required to replace the Buckley 500 kV Gas Insulated Substation (GIS) with an Air Insulated Substation (AIS). The Buckley GIS has out lived its useful life and will run out of the necessary spare parts to continue its operation in the next 5 years. The long range plan for Buckley is to develop an AIS Substation with three 500 kV bays in arranged in a double breaker double bus configuration for the Buckley-Marion, Slatt-Buckley, and Buckley-Grizzly 500 kV lines.

Estimated Cost and Schedule

This project is under development and will be completed in the longer term planning horizon. The project is presently in the scoping phase. The estimated project cost and schedule will be refined as the project progresses through scoping.

Significant Planned Projects

Buckley GIS Replacement



Next Steps

- **Update the BPA Transmission Plan** based on the 2021 planning cycle and post by the end of December, 2021.

- **Jan.1, 2022 – Begin 2022 Attachment K Planning Cycle**

Sign up to participate in future meetings or receive additional information by:

Filling out the Participation Request form on BPA's Planning Process website and sending it via e-mail to:

PlanningParticipationRequest@bpa.gov