Longview Energy Exchange, LLC

8th BTA Workshop I

Docket No. E-00000B-13-0002

Transmission Plan and Feasibility Study

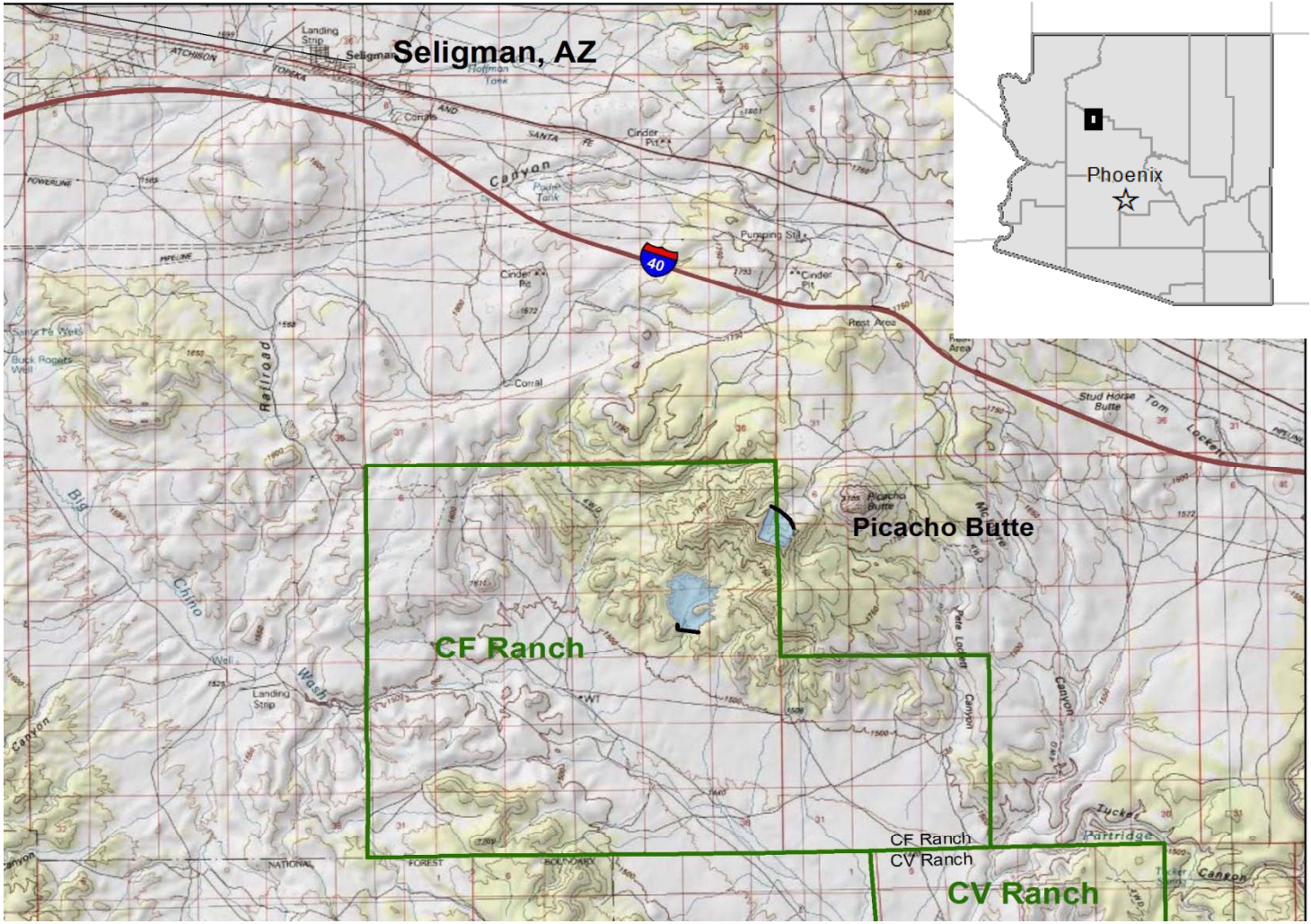
Presented by Mark Watson on behalf of

Jerry D. Smith
P&R Consulting LP

May 15, 2014

LEE Project Location

Longview Energy Exchange



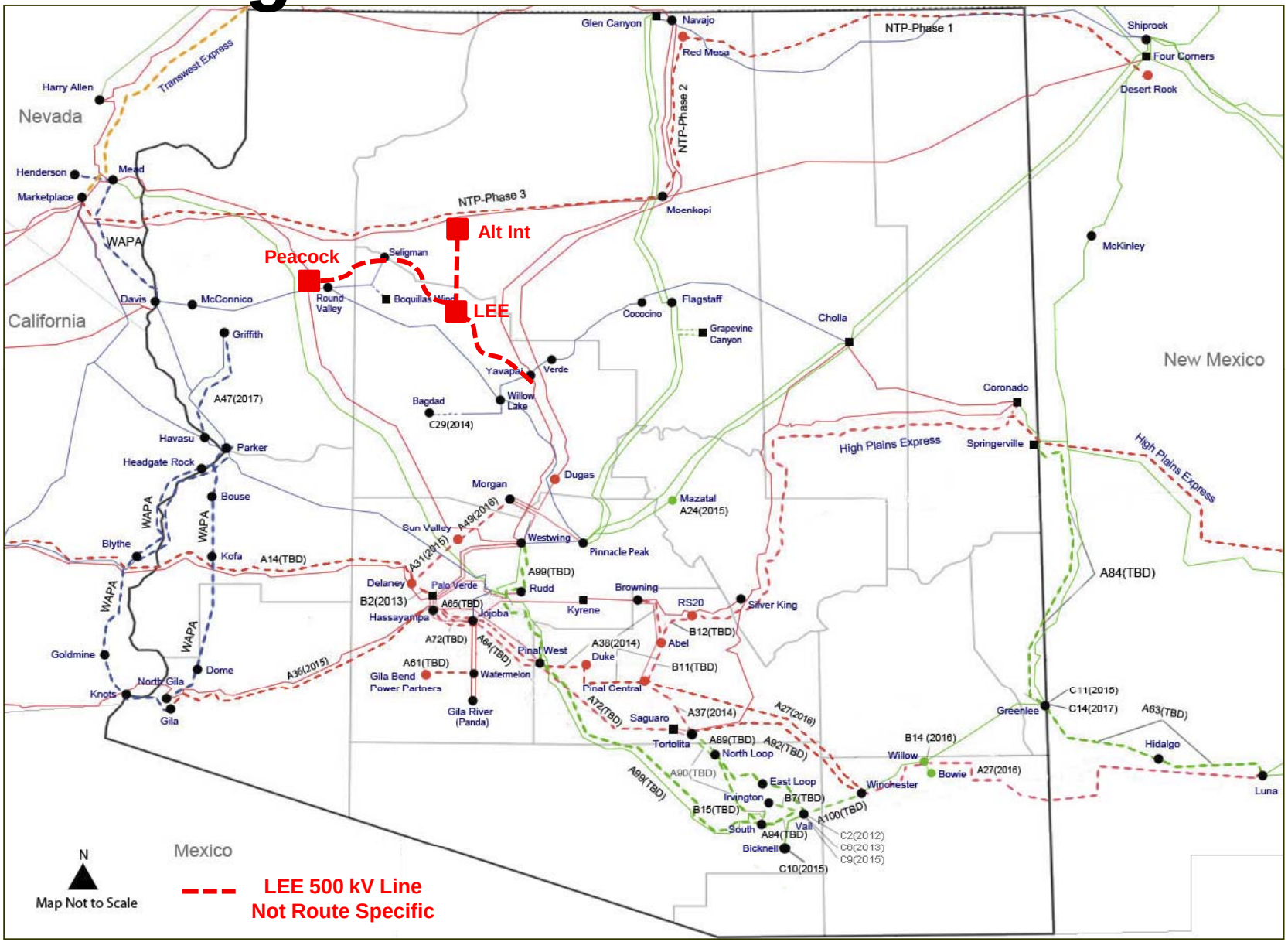
LEE Transmission / Plant Functional Framework

Longview Energy Exchange

- LEE is a 2000 MW wholesale load 12 hrs/day
- Source of 24 GWHr daily pumping load undetermined – preferably renewables
- Plant owners, operators and off-takers undetermined
- Grid operations benefit from LEE Plant development irrespective of ownership
- LEE not interested in being a TO / TP

Longview Transmission Plan

Longview Energy Exchange



Longview Transmission Plan

Longview Energy Exchange

Longview Energy Exchange plans to construct the following 500 kV transmission lines to interconnect its 2000 MW hydroelectric pumped storage project to the Arizona EHV grid by 2021:

- LEE to Peacock interconnecting with Mead to Perkins 500 kV (~50 mi.) and LEE to Yavapai interconnecting with the Navajo Transmission System (~40 mi.) or
- LEE to interconnect with a new Moenkopi to Eldorado line Switchyard (~30 mi.)

Potential Transmission Interconnections

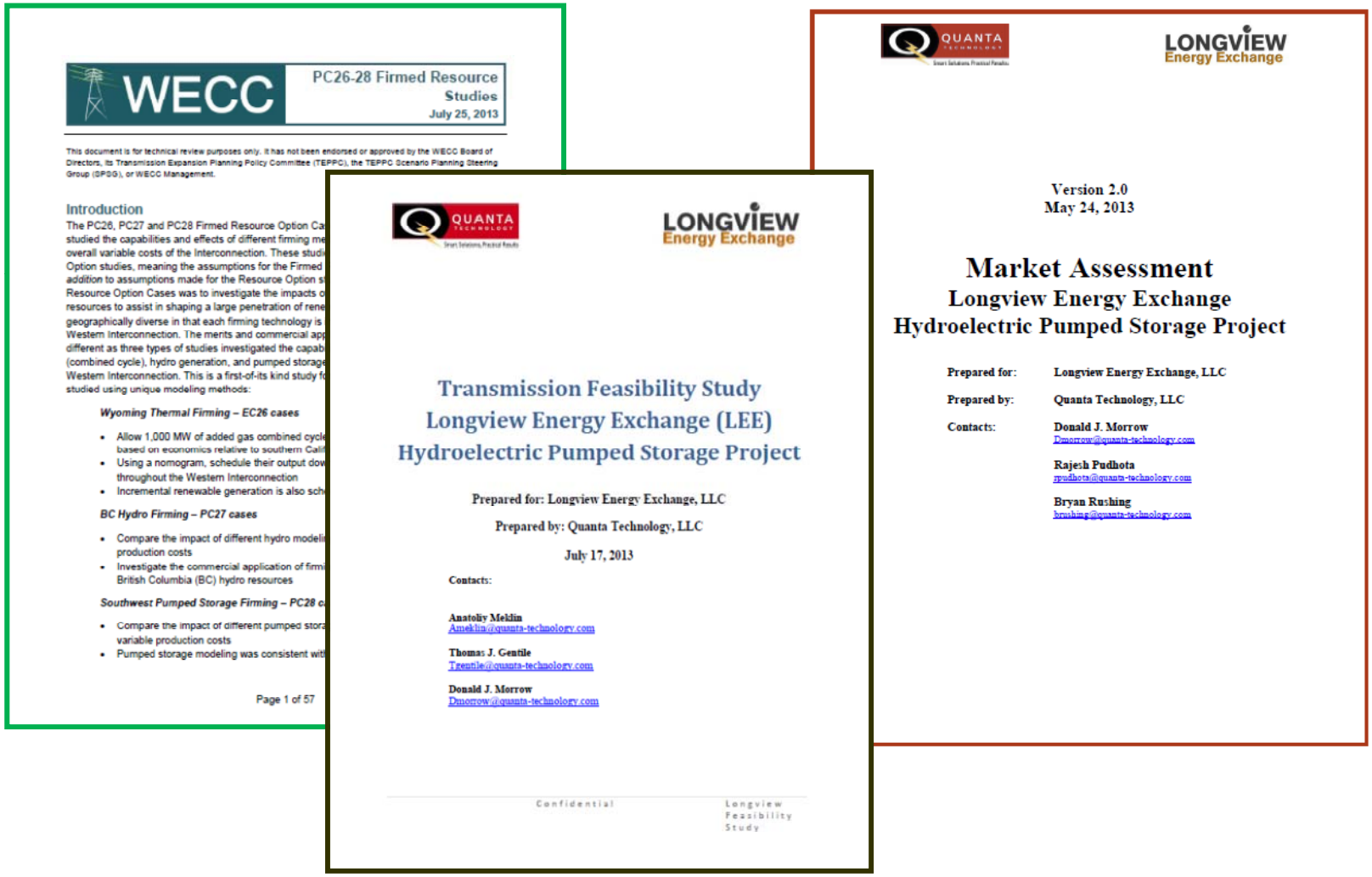
Longview Energy Exchange

Three preliminary transmission corridors are under consideration:

- A 500 kV line traversing northerly to interconnect with the existing Arizona Public Service owned and operated Eldorado-Moenkopi 500 kV line or a planned and sited new Dine Navajo Transmission Project 500 kV line from Moenkopi to Marketplace.
- A 500 kV line traversing westerly to interconnect with an existing Western Area Power Administration owned and operated 230 kV line from Prescott to Peacock to be upgraded to 500 kV.
- A 500 kV line traversing easterly to interconnect with two Navajo Southern Transmission 500 kV lines owned by participants of the Navajo Generating Plant and operated by Arizona Public Service.

Technical Studies Completed

Longview Energy Exchange



WECC

PC26-28 Firmed Resource Studies

July 25, 2013

This document is for technical review purposes only. It has not been endorsed or approved by the WECC Board of Directors, its Transmission Expansion Planning Policy Committee (TEPPC), the TEPPC Scenario Planning Steering Group (SPSG), or WECC Management.

Introduction

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QUANTA TECHNOLOGY

LONGVIEW Energy Exchange

Transmission Feasibility Study
Longview Energy Exchange (LEE)
Hydroelectric Pumped Storage Project

Prepared for: Longview Energy Exchange, LLC

Prepared by: Quanta Technology, LLC

July 17, 2013

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Confidential

Longview Feasibility Study

QUANTA TECHNOLOGY

LONGVIEW Energy Exchange

Version 2.0
May 24, 2013

Market Assessment
Longview Energy Exchange
Hydroelectric Pumped Storage Project

Prepared for: Longview Energy Exchange, LLC

Prepared by: Quanta Technology, LLC

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Highlights of Technical Studies

Longview Energy Exchange

- **WECC 2023 Firmed Resource Study:**

  Longview is effective and competitive with gas-fired Wyoming units and BC Hydro units in firming additional 12,000 GWh of renewables in WECC

  http://www.wecc.biz/committees/BOD/TEPPC_2022_StudyReport_PC26-28_Firming.docx

- **Longview Market Assessment: proprietary report**

  Market is sufficiently robust to generate Longview revenue that yields a financially viable project IRR

- **Longview Transmission Feasibility:** http://longviewee.com/

  Planned Transmission Alternatives are financially viable with technically comparable performance

Transmission Feasibility Study

Longview Energy Exchange

- Performed by Quanta Technologies
- Used WECC base cases:
  - 2018 HS / 2016 LS for Alt. 1 and 2
  - 2023 HS1a / 2022 LSp1s for Alt. 2 and 3
- Adjusted pre-project load by ± 2000 MW to account for LEE gen / load
- Power flow only

Market Scenarios Studied

Longview Energy Exchange

Summary of Market Scenarios (MW) Load Adjustments

	LEE Generation 2000 MW			LEE Pumping 2000 MW		
Market Scenario	1*	2	3	1*	2	3
Market Location						
East[1]	700	1,400	600	-720	-1,400	-600
West[2]	1,300	600	1,400	-1,270	-600	-1,400
Total	2,000	2,000	2,000	-1,990	-2,000	-2,000

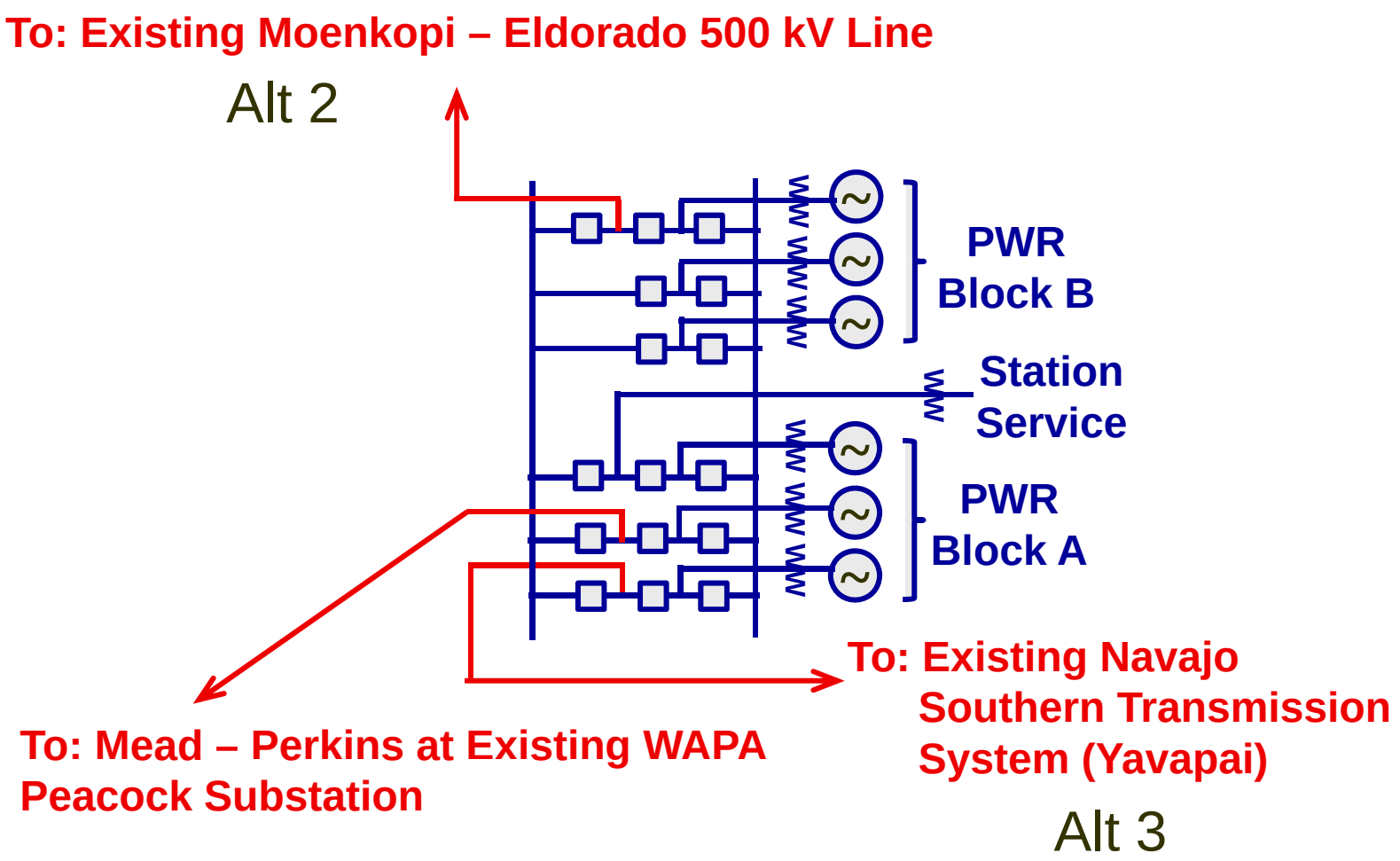
[1] East includes Arizona, New Mexico (and Colorado in Scenarios 2 and 3)

[2] West includes IID, LADWP, Nevada, Southern California, SDG&E

* Load adjusted uniformly in East & West to balance LEE Generation/Pump Load

Potential Transmission Interconnections Studied

Longview Energy Exchange



Study Conclusions

Longview Energy Exchange

- No significant performance difference between the pre-project and post-project cases
- Minor overload and voltage violations are present in both pre-project and post-project cases
- Utility mitigation of pre-project violations are expected to also resolve post-project violations

Study Conclusions (cont.)

Longview Energy Exchange

- Alt 1 eliminated from consideration after Market Scenario 1 studied
  - poorest performing option
  - twice the capital cost
  - uncertainty of 500 kV transformation at Round Valley and Prescott substation sites
- Alt 2 and 3 are financially viable ($360M - $394M) with comparable performance
- Alt 3 slight performance advantage over Alt 2

Next Steps

Longview Energy Exchange

- Transmission Interconnection Studies
- WECC Phased Planned Project Studies
- Environmental Evaluations of Potential Line Routes
- Certificate of Environmental Compatibility Application for Transmission Lines with the Arizona Power Plant and Transmission Line Siting Committee

Accessible Market Hubs -2020[1]

[1] WECC Path Reports – Paths 22, 23, 49, 50, and 51
http://www.wecc.biz/library/StudyReport/Documents/Path_WriteUps.pdf

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