

DOCKETED

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RETI 2.0 Western Outreach Project

Las Vegas Workshop 9/1/2016

SouthWestern Power Group

- ⚡ **Independent developer of utility-scale generation and transmission in the Desert Southwest**
- ⚡ **Project Manager/Developer of SunZia**
- ⚡ **Based in Phoenix, staff of ten: 175 years of experience, in business for 16 yrs**
- ⚡ **Major References:**
 - ~ 2,400 MW CCGT Panda Gila River power plant (in operation)
 - ~ 1,000 MW CCGT Bowie Power Station (permitted)
 - ~ 600 MW Lignite CFB Rockdale Power Plant (in operation)
 - ~ 200 MW (DC) Solar PV power project (in operation)
- ⚡ **Owned by MMR Group in Baton Rouge, LA**

MMR Group

- ⚡ **Construction services firm based in Baton Rouge, LA**
- ⚡ **22 offices in USA, Canada & overseas**
- ⚡ **In business +25 years; owned by senior management**
- ⚡ **Approximately 5,000 employees**
- ⚡ **One of the largest electrical contractors in the US**
- ⚡ **Built over 30,000 MWs of generation**
- ⚡ **Majority owner of SunZia**

Project Summary

- ⚡ **515 mile, 500kV independent transmission project**
- ⚡ **Two separate AC lines rated at 3,000 MW of transfer capacity**
- ⚡ **Delivers high-quality renewable energy to Pinal Central with access to the PV hub and the load centers of Phoenix and Tucson**
- ⚡ **5 project sponsors, including 3 electric utilities**
- ⚡ **Total project cost estimated at \$2 billion for 2 AC lines**
- ⚡ **Anchor Tenant has been selected for 1,500 MW**
- ⚡ **Commercial operation by December 2020 for 100% PTCs**

Project Sponsors



**SouthWestern Power/
MMR Group**



A UniSource Energy Company

Tucson Electric Power

Shell WindEnergy



Shell Wind Energy

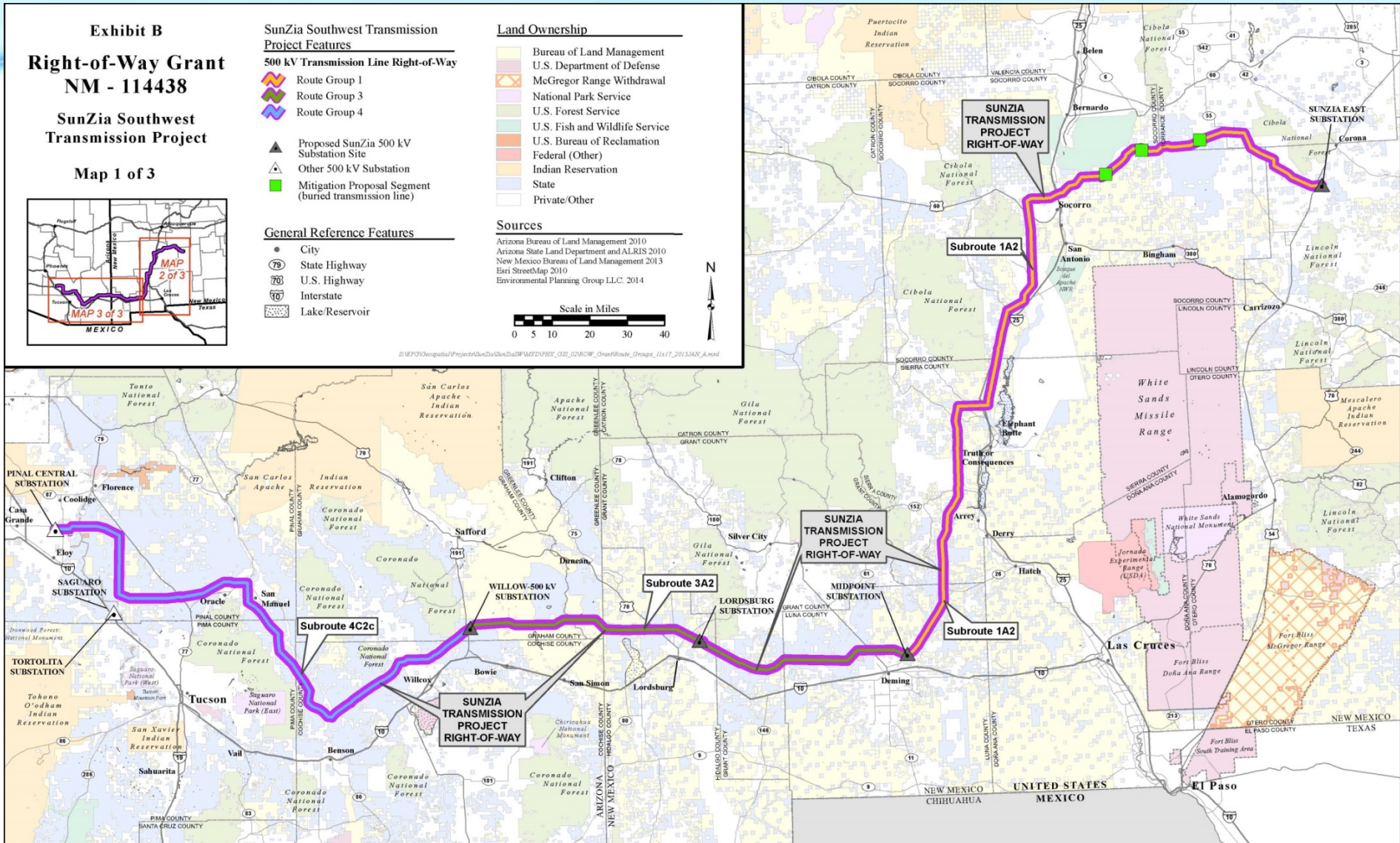


Salt River Project



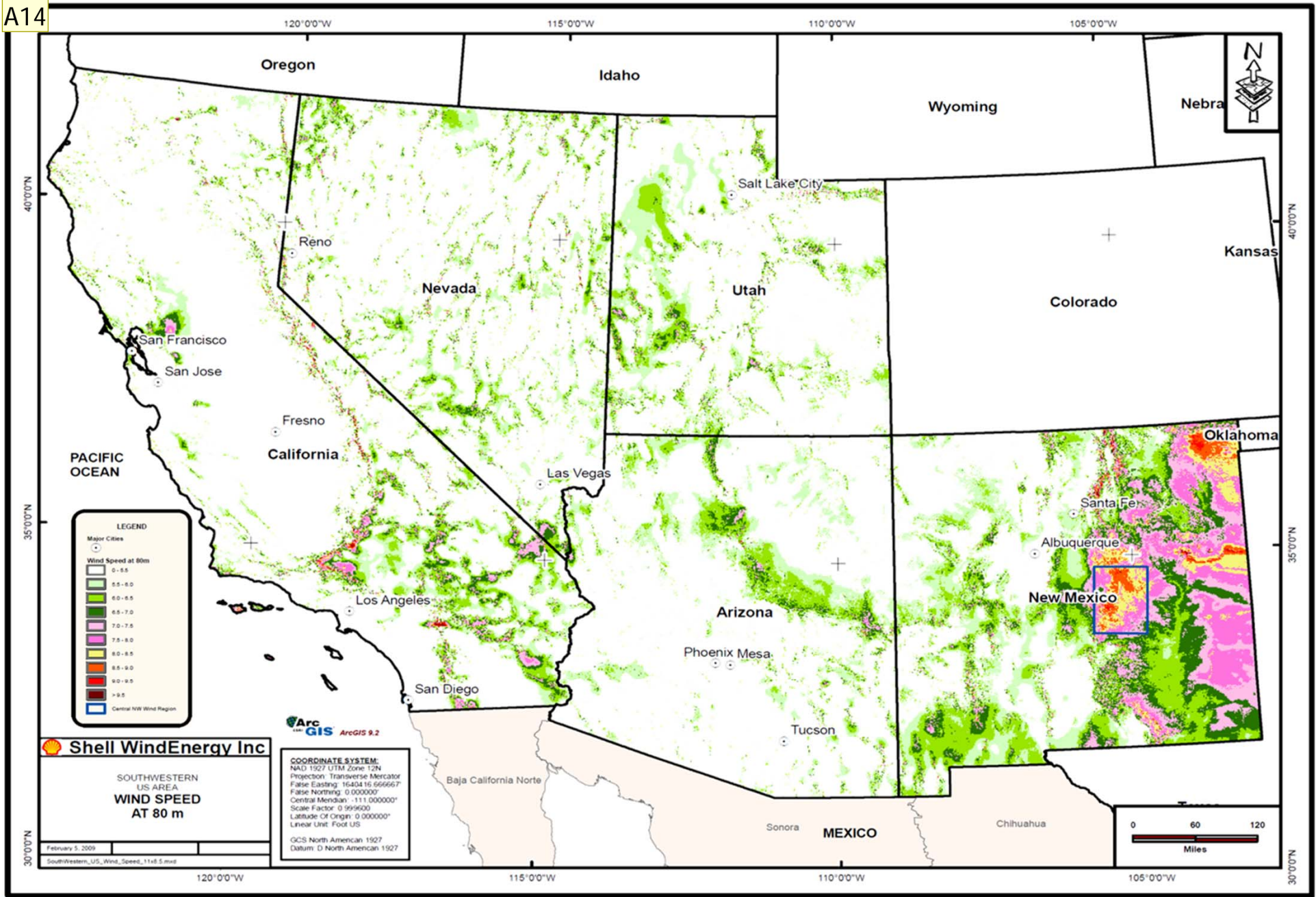
Tri-State G&T

Record of Decision Alignment



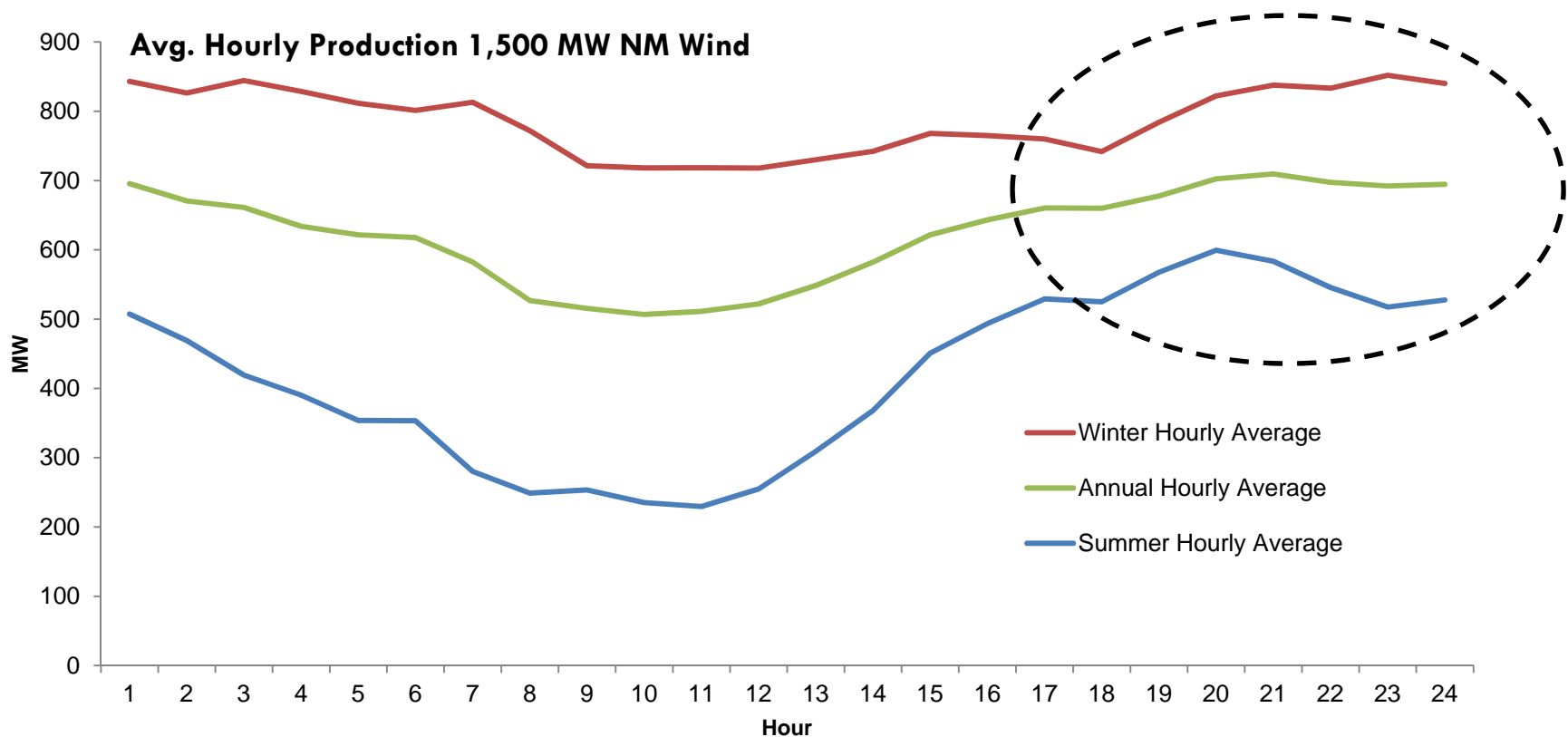
New Mexico Wind Resource

- ⚡ **New Mexico's wind resource proximate to SunZia's eastern terminus is among the highest quality wind energy resource in the West.**
 - Expected net capacity factors are between 45% and 50%.
- ⚡ **The Western Governors' Association has estimated there is in excess of 10,000 MWs of developable wind energy in this area of New Mexico.**
- ⚡ **The New Mexico wind resource is a high-quality and the geographically-closest wind to the markets of California and Arizona.**
- ⚡ **The New Mexico wind resource typically picks up in the late afternoon and thus is complimentary/supportive of declining solar PV production (i.e., helps resolve the Duck Curve problem).**
- ⚡ **New Mexico's wind resource delivered over SunZia to the Palo Verde hub is expected to be the most competitively-priced wind energy in the West.**



Expected NM Wind Project Production Profile

NM Wind Profile Ramps Up in Critical Evening Hours



Project Overview

- ⚡ **Most advanced, independent transmission project in the West: 10 years in development, key permits in-hand, ROW acquisition underway, Anchor Tenant selected, PPA discussions indicate significant interest.**
- ⚡ **Phased approach: First, single-circuit, 1500 MW, 500kV AC project (current focus) followed by second, single-circuit project later (either AC or DC)**
- ⚡ **515 miles between SunZia East (central NM) and Pinal Central (metro-Phoenix) with added substations in Luna county, NM and Graham county, AZ**
- ⚡ **Firm service from Pinal Central to Palo Verde is available on existing system**
- ⚡ **Total project cost of \$1.0bn for the first single-circuit 500kV AC project**
- ⚡ **Final Plan of Development (POD) has commenced (required for NTP)**
- ⚡ **Start of construction in Q2 2018 with an in-service date of Q4 2020.**

Rights of Way Status

- ⚡ **Federal ROW grant signed by SunZia in August 2016. Covers 185 miles (36% of total).**
- ⚡ **Arizona State Land ROW application submitted in August 2016. Covers 131 miles (25% of total).**
- ⚡ **New Mexico State Land ROW under discussion. Expect to submit application in Q4 2016. Covers 89 miles (17% of total).**
- ⚡ **Arizona Private ROW underway with notices to ~ 50 landowners sent. Covers 18 miles (3% of total).**
- ⚡ **New Mexico Private ROW underway with title research on ~ 150 landowners. Covers 93 miles (18% of total).**

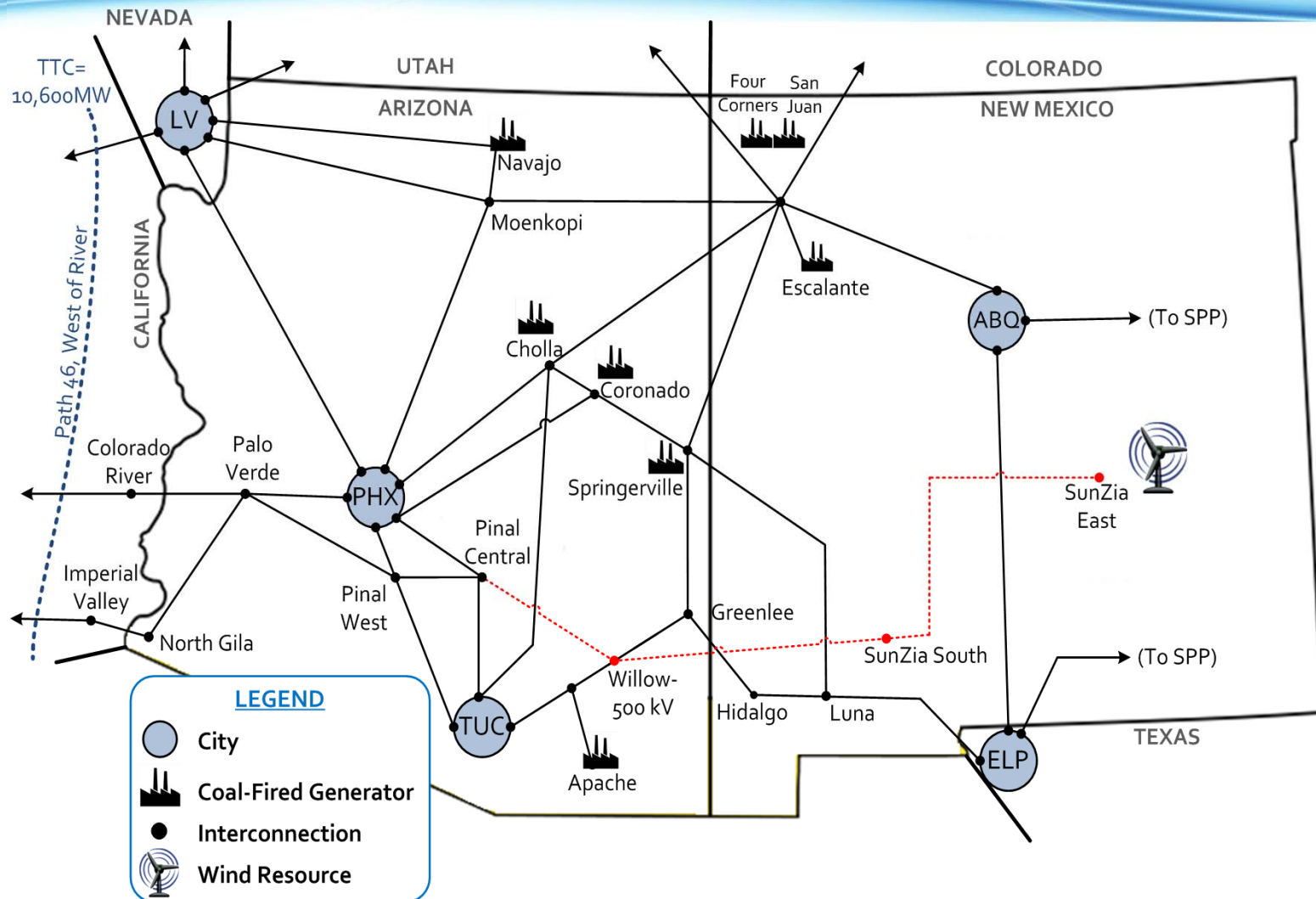
Development Milestones Ahead

Estimated Date	Milestone
2016	Negotiate Precedent Agreement and TSA with Anchor Tenant Firm up customer interest in PPAs & ownership in SunZia
2017	PPAs for SunZia's Anchor Tenant New Mexico – Location Control Permit
2016 – 2018	Arizona State Land Department Right-of-Way New Mexico State Land Office Right-of-Way Private Rights-of-Way
2018 - 2020	Construction
2020	Operation

Other Development Progress

- ⚡ Recently selected the Anchor Tenant for 1,500 MW pursuant to FERC Declaratory Order of May 2011
- ⚡ Electrical interconnection at Pinal Central commenced in June 2016. Expect to apply for electrical interconnection at Willow by December 2016.
- ⚡ Final Plan of Development (for BLM) underway: have commenced engineering, resource surveys, ROW access, etc.
- ⚡ Significant long-term owner/investor interest in SunZia

SunZia and Regional Generation



SunZia Attributes

- ⚡ Provides access for AZ and CA to low-cost, high-quality NM wind energy
- ⚡ Diversity and evening ramp-up of NM wind is beneficial
- ⚡ Improves reliability of the regional grid
- ⚡ Major permits in hand, acquiring ROW, Final POD underway
- ⚡ Expect to commence construction in 2018 with COD in 2020
- ⚡ Most advanced independent transmission project in the West



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Supplemental Slides

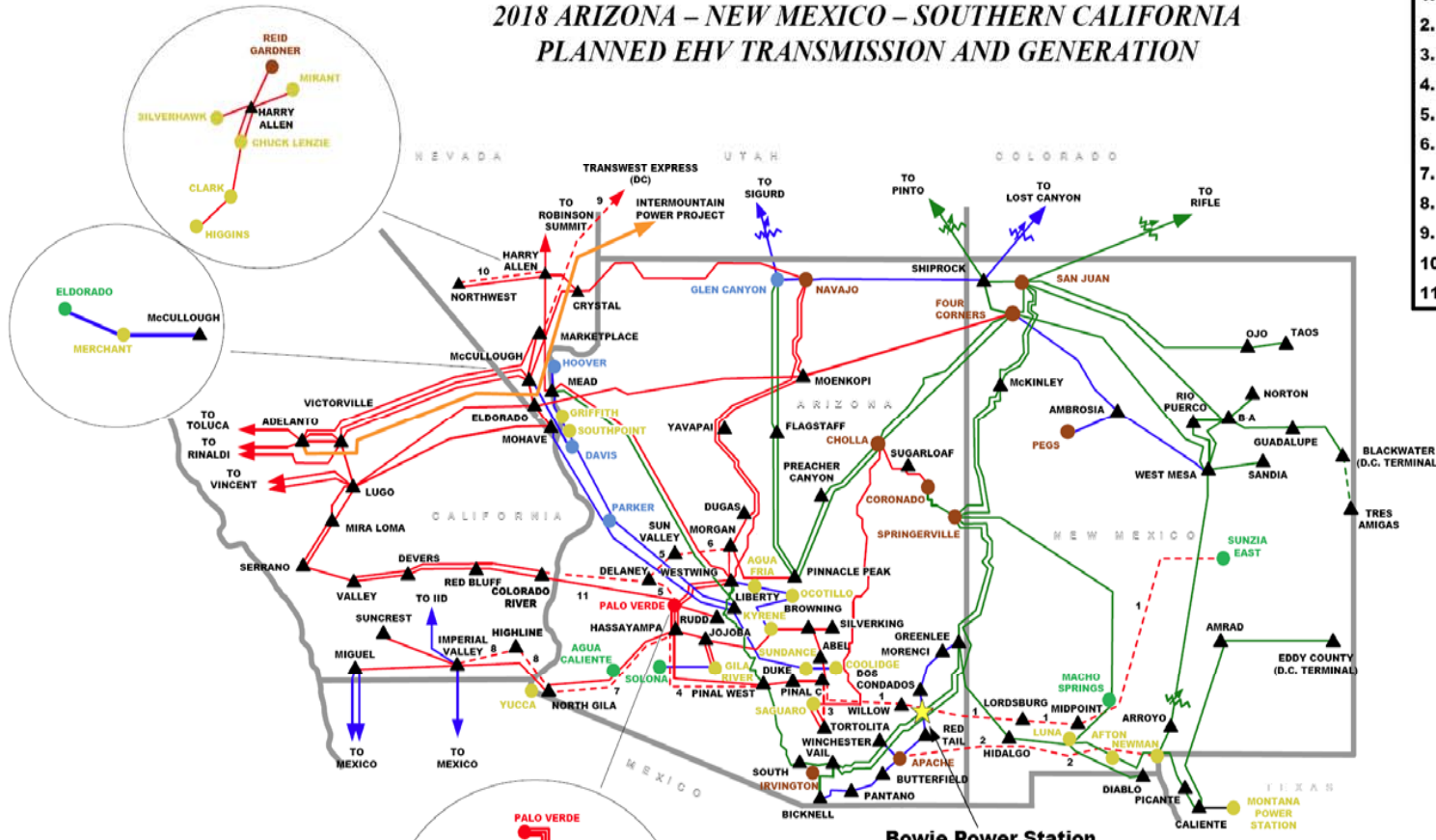
Independent Transmission Projects in NM

Name	Type	Total Cost	Endpoints	Sponsors	ATC MW	Permit Status
Centennial West	900 mi. of 600kV HVDC	\$2,500 million	Guadalupe to Mira Loma (CA)	Clean Line Energy Partners	3,500	SF-299 filed
Lucky Corridor	130 mi. of 345kV	\$260 million	Gladstone to Taos (to FC)	Lucky Corridor LLC	700	Amended SF-299 filed
Southline	240 mi. of 2 x 345kV + 120 mi. of 2 x 230kV upgrades	\$700 million	Afton to Apache (AZ) + Apache to Saguaro (AZ)	Black Forest Partners, Hunt Power	1,000	ROD issued May 2016
SunZia	515 mi. of 2 x 500kV	\$2,000 million	SZ East to Pinal Central (AZ)	SWPG/MMR, Shell Wind & Utilities	3,000	ROD Issued Jan 2015
Tres Amigas	HVDC Superstation	\$2,000 million	n/a	TA, Mitsui, Hennepin	1,500	Unknown
Western Spirit	85 mi. of 345kV + PNM upgrades	\$185 million?	Torrance County to Rio Puerco	Clean Line Energy Partners	1,000	Unknown

500kV Transmission Projects in the West

PROJECT	VOLTAGE (KV)	CAPACITY (MW)	STATES	LENGTH (MILES)	ORIGINATION	TERMINUS	EST. COST (MILLION \$)	SPONSORS	KEY DATES
SUNZIA	500	3,000	NM, AZ	515	SunZia East Substation (NM)	Pinal Central Substation (AZ)	\$2000	SWPG/MMR, SRP, TEP, Tri-State, Shell Wind	NOI – 5/2009 DEIS – 5/2012 FEIS – 6/2013 ROD – 1/2015 COD – 2020?
TRANSWEST EXPRESS	600 (DC)	3,000	WY, CO, UT, NV	730	Carbon County (WY)	Eldorado Valley (NV)	\$3000	Anschutz Corp	NOI – 1/2011 DEIS – 7/2013 FEIS – 5/2015 ROD – Q3/2016? COD – 2020?
GATEWAY WEST	230, 345, & 500	300-1,000	WY, ID	1,000	Windstar Substation (WY)	Hemingway Substation (ID)	TBD	Idaho Power, Rocky Mountain Power	NOI – 5/2008 DEIS – 7/2011 FEIS – 4/2013 ROD – 11/2013 partial COD – 2019 to 2024?
BOARDMAN-HEMINGWAY	500	1,000	OR, ID	300	Grassland Substation (OR)	Hemingway Substation (ID)	\$890-\$940	Idaho Power, Pacificorp, BPA	NOI – 9/2008 DEIS – 12/2014 FEIS – Late 2016? ROD – ?
GATEWAY SOUTH	500	1,500	WY, UT	416	Aeolus Substation (WY)	Clover Substation (UT)	TBD	Rocky Mountain Power	NOI – 4/2011 DEIS – 2/2014 FEIS – 5/2016 ROD - ?
DELANEY-COLORADO RIVER	500	TBD	AZ, CA	114	Delaney Substation (AZ)	Colorado River Substation (CA)	\$250?	Starwood, Abengoa	Submitted – 12/2010 Approved – 7/2014 RFP Issued – 8/2014 RFP Award – 7/2015 COD – 2020?

2018 ARIZONA – NEW MEXICO – SOUTHERN CALIFORNIA PLANNED EHV TRANSMISSION AND GENERATION



- PLANNED PROJECTS**
1. SUNZIA SOUTHWEST
 2. SOUTHLINE
 3. PINAL CENTRAL – TORTOLITA
 4. PALO VERDE – PINAL WEST #2
 5. PALO VERDE – SUN VALLEY
 6. SUN VALLEY – MORGAN
 7. HASSAYAMPA – NORTH GILA #2
 8. NORTH GILA – IMPERIAL VALLEY #2
 9. TRANSWEST EXPRESS
 10. HARRY ALLEN – NORTHWEST #2
 11. DELANEY – COLORADO RIVER

GENERATION LEGEND

- COAL ●
- GAS ●
- HYDRO ●
- RENEWABLES ●
- NUCLEAR ●

PALO VERDE

- HAROUAHALA
- MESQUITE
- RED HAWK
- HASSAYAMPA
- ARLINGTON VALLEY

This map reflects the current interconnected SWAT EHV transmission system and planned transmission projects, above 230 kV, as understood by South Western Power Group II, LLC (based upon a SWAT map of 2007), and any errors or omissions are unintended.

POWER PLANT ●

SUBSTATION ▲

EXISTING

- +500KV DC
- 500KV
- 345KV
- 230KV
- Lower Voltages —



Date: January 2014

Original Source: SWAT 2007

Updated by Power Engineers

www.southwesternpower.com