SunZia Southwest Transmission Project

SunZia Southwest Transmission Project

Presenter: Tom Wray, Project Manager of the SunZia Southwest Transmission Project

Tom Wray will provide an overview of the SunZia Project's proposed location and the progress made after five years of development efforts. The SunZia Project is a planned extra high voltage transmission facility that consists of two 500 kV lines and up to three substations in New Mexico. The project extends from central New Mexico to south-central Arizona and will provide up to 4,500 megawatts of transmission capacity, creating an export market opportunity for New Mexico's energy resources. SunZia's proposed location was specifically designed to access New Mexico's stranded renewable energy resources that do not have access to existing transmission infrastructure. Resolution of matters concerning White Sands Missile Range is underway and is a necessary pre-condition for this privately-funded project to move forward. After obtaining all federal and state permits, construction of SunZia should commence during 2015 allowing the project to be in-service by 2018.

SunZia Southwest Transmission Project

Tom Wray
Project Manager

Las Cruces, New Mexico
January 13, 2014

Las Cruces City Council
Work Session

Project Sponsors

SouthWestern Power/ MMR Group

Salt River Project

Shell Wind Energy

Tri-State G&T

Tucson Electric Power

Project Summary

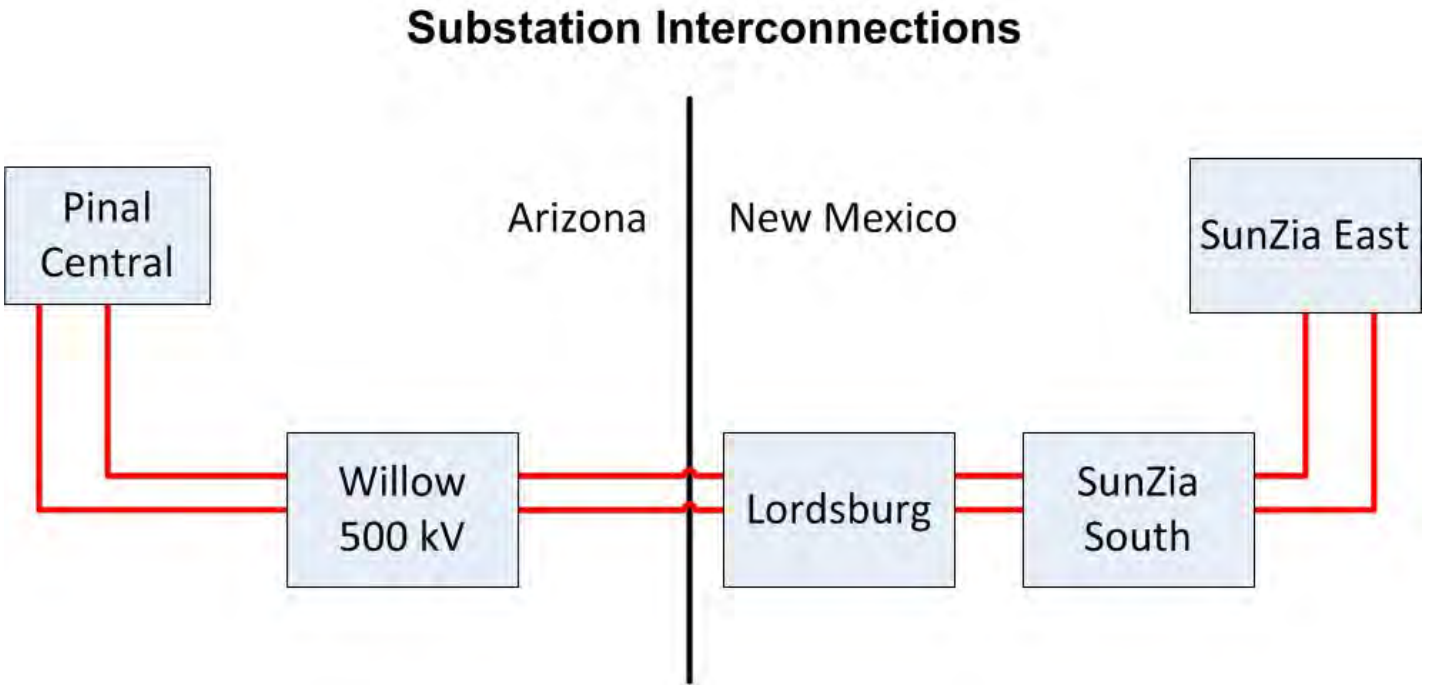
- 515 mile, 500 kV independent transmission project
- Brings high-quality renewable energy to western markets
- WECC granted Phase 3 status in Mar 2011, which affirmed a rating of 3,000 MW for two 500 kV AC lines
- Obtained Declaratory Order from FERC in May 2011
- One of 7 pilot projects supported by the Federal Rapid Response Team for Transmission (RRTT), announced Oct 2011
- Letter of Intent with First Wind for up to 1,500 MW of transmission capacity
- Total capital cost estimated at $2 billion
- Commercial operation expected by 2018

Proposed Facilities

Configuration Options:

~ Two 500 kV AC lines (3,000 MW)

~ OR one 500 kV AC and one 500 kV DC line (4,500 MW)



All Alternatives Studied

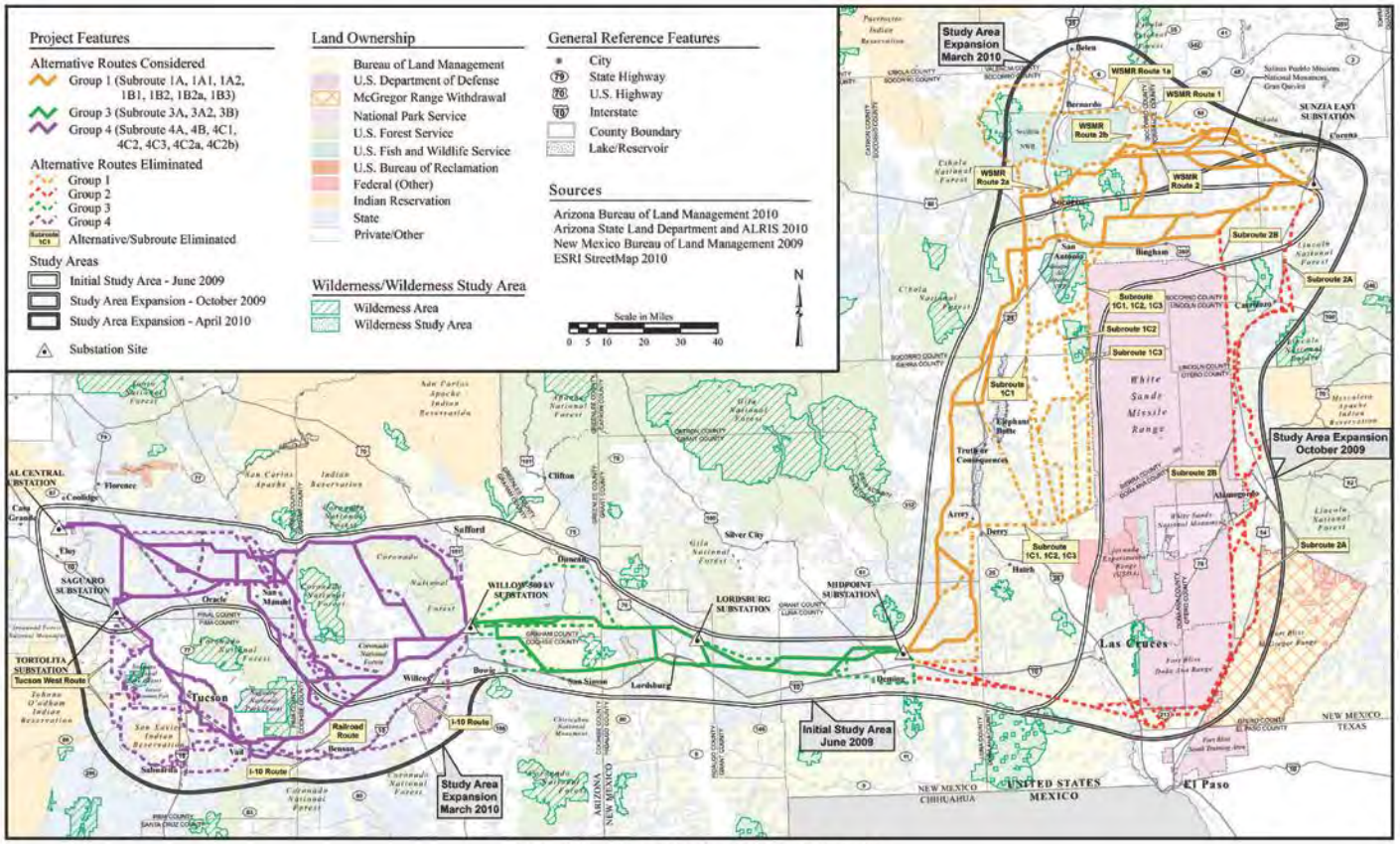


Figure 2-7. Alternatives Considered but Eliminated

BLM Preferred Alternative

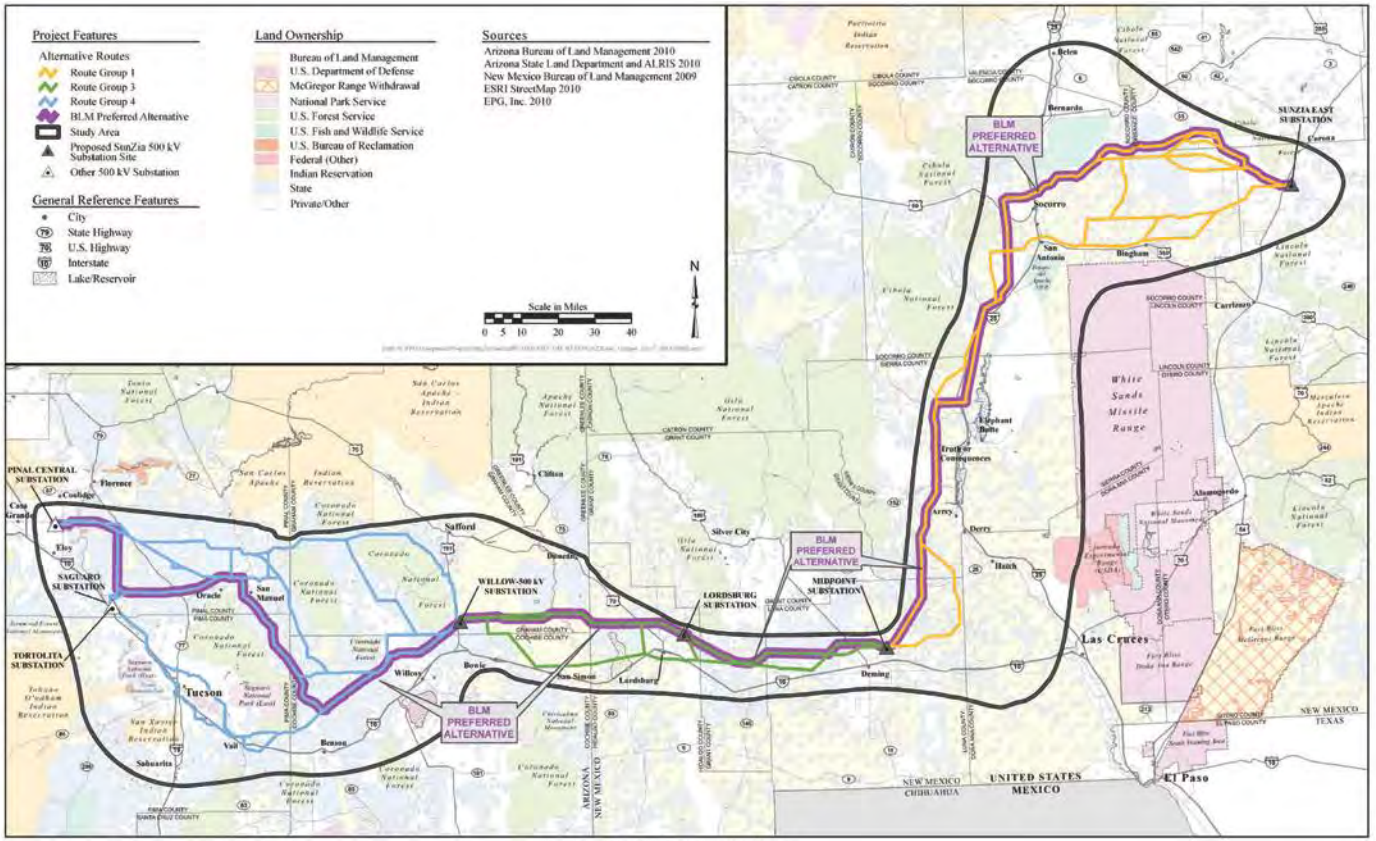


Figure 2-3. Alternative Routes

Project Conception to Operation

10 Years

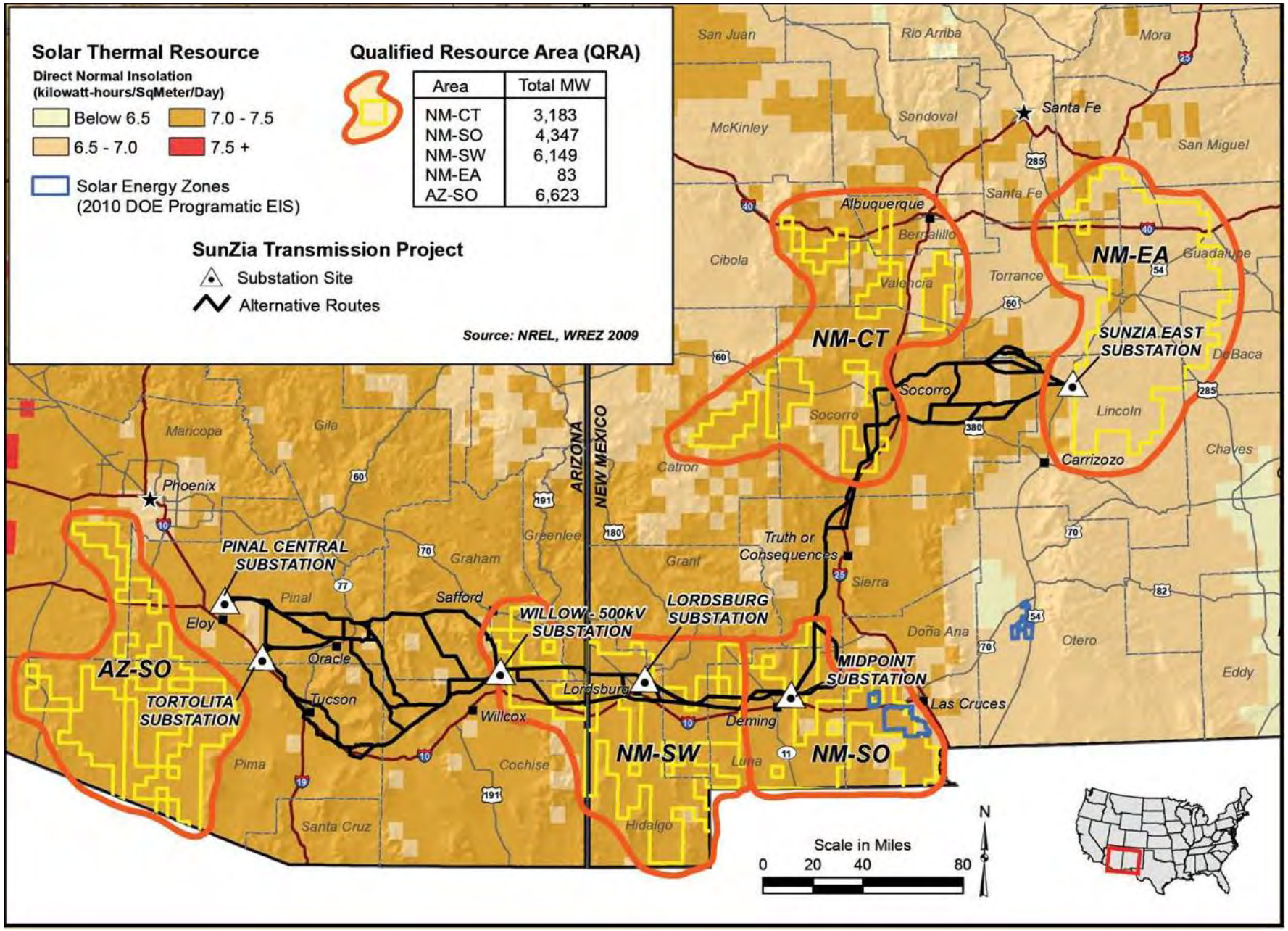
MILESTONES	DATE	DURATIONS
Concept emerges in regional planning	Starting 2006	**Pre-Permitting** **2 years**
Sponsors sign MOA	April 2008	
Submit BLM SF-299 ROW Application	Sept 2008	**Federal Permitting** **4 years** (estimate)
Initiate Scoping	May 2009	
Draft EIS	May 2012	
Final EIS	June 2013	
Record of Decision	Q1 2014	
State permits	Q2 2014	**State Permitting** **1 year** (estimate)
Financial Close	2014	
Final Design, ROW Acquisition, Procurement, & Construction	2015	
COD	2018	

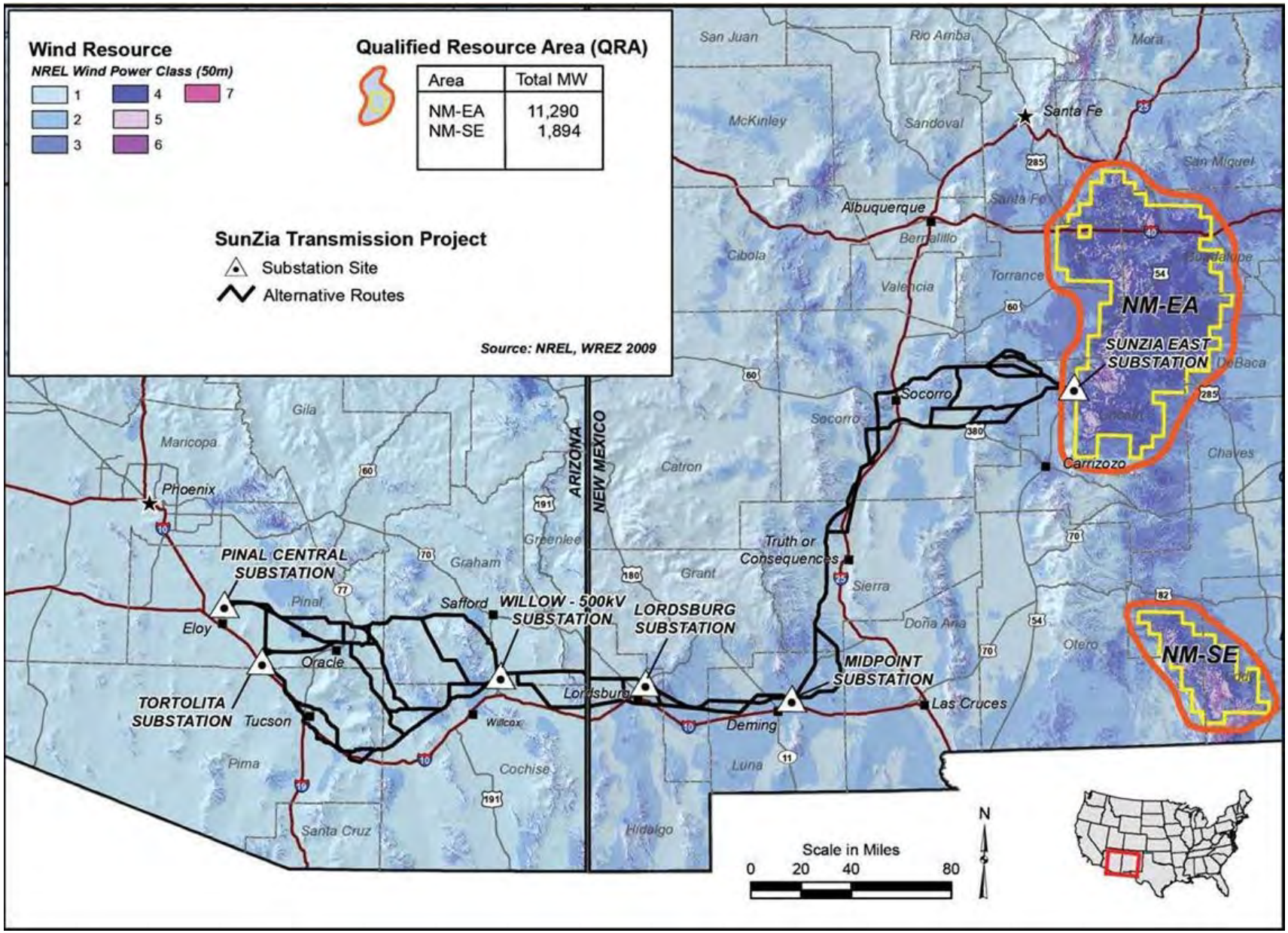
Clear Project Purpose

- To transport electricity generated by power generation sources – primarily renewables – to western power markets and load centers
- To increase power reliability and transfer capability in the Desert Southwest
- To enhance domestic energy security
- To meet growing demand for renewable energy

Clear Project Need

- **Provide access for local utilities to renewable energy supplies**
- **Renewable Energy Standards (RES)**
  - ~ Mandate for regulated utilities
    - AZ 15% by 2025
    - NM 20% by 2020
    - CA 33% by 2020
- **Southwest Area Transmission Subregional Planning Group (SWAT)**
  - ~ Studies and plans the transmission system in the southwest
  - ~ Determined existing transmission capacity in southeastern AZ and southwestern NM is limited
  - ~ Identified need for 500 kV transmission line in area of proposed SunZia Project


Solar Thermal Resource
Direct Normal Insulation
(kilowatt-hours/SqMeter/Day)
Below 6.5
7.0 - 7.5
6.5 - 7.0
7.5 +
Solar Energy Zones
(2010 DOE Programatic EIS)
Qualified Resource Area (QRA)
Area | Total MW
NM-CT | 3,183
NM-SO | 4,347
NM-SW | 6,149
NM-EA | 83
AZ-SO | 6,623
SunZia Transmission Project
Substation Site
Alternative Routes
Source: NREL, WREZ 2009
San Juan
Rio Arriba
Mora
Santa Fe
McKinley
Sandoval
San Miguel
Albuquerque
Santa Fe
Bernalillo
Cibola
Valencia
Torrance
Guadalupe
NM-EA
NM-CT
SUNZIA EAST SUBSTATION
DeBaca
Socorro
Lincoln
Carrizozo
Chaves
Maricopa
Gila
Phoenix
ARIZONA
NEW MEXICO
Catron
Greenlee
Graham
Grant
Truth or Consequences
Sierra
PINAL CENTRAL SUBSTATION
Pinal
Safford
Eloy
WILLOW - 500kV SUBSTATION
LORDSBURG SUBSTATION
Doña Ana
Otero
Oracle
AZ-SO
MIDPOINT SUBSTATION
Eddy
Lordsburg
TORTOLITA SUBSTATION
Tucson
Willcox
Las Cruces
Deming
Pima
Cochise
NM-SW
Luna
NM-SO
Santa Cruz
Hidalgo
N
Scale in Miles
0 20 40 80


Wind Resource
NREL Wind Power Class (50m)
1
2
3
4
5
6
7
Qualified Resource Area (QRA)
Area
Total MW
NM-EA
11,290
NM-SE
1,894
SunZia Transmission Project
Substation Site
Alternative Routes
Source: NREL, WREZ 2009
NM-EA
SUNZIA EAST SUBSTATION
NM-SE
PINAL CENTRAL SUBSTATION
WILLOW - 500kV SUBSTATION
LORDSBURG SUBSTATION
MIDPOINT SUBSTATION
TORTOLITA SUBSTATION
Phoenix
Tucson
Albuquerque
Santa Fe
Socorro
Carrizozo
Truth or Consequences
Las Cruces
Deming
Lordsburg
Eloy
Oracle
Safford
Wilcox
ARIZONA
NEW MEXICO
San Juan
Rio Arriba
Mora
McKinley
Sandoval
San Miguel
Santa Fe
Bernalillo
Cibola
Valencia
Torrance
Guadalupe
DeBaca
Roosevelt
Chaves
Maricopa
Gila
Pinal
Graham
Greenlee
Catron
Grant
Sierra
Doña Ana
Otero
Luna
Hidalgo
Pima
Cochise
Santa Cruz
Scale in Miles
0
20
40
80
N

Lessons Learned on SunZia

- Actively participate in regional planning forums
- Expose the project plan to the rigors of peer review
- Performed exhaustive fatal flaw analysis before filing SF-299 ROW application in September 2008
- Conducted pre-filing outreach with stakeholders, including the conservation and environmental community
- Exchanged shape-file data and mapping information with interested stakeholders
- Made *avoidance the preferred form of mitigation* in route planning

Lessons Learned on SunZia

Federal Permitting Stage – After Scoping Period

- Expand scoping effort, as needed to add reasonable/feasible alternatives to NEPA analysis
- Adjust and re-evaluate the acceptability of alternatives after applying reasonable/feasible mitigation
- Develop a regional study area that encompasses the potential range of reasonable/feasible alternate routes
- In addition to jurisdictional exclusion areas, alternate routes should be identified that avoid areas of "high environmental constraints" and wild land values

Lessons Learned on SunZia

Federal Permitting Stage

- Avoid sensitive areas (i.e. forests, parks, national monuments, Native American lands, Wilderness Areas, ACECs, conservation easements, etc.)
- Avoid difficult areas (i.e. river crossings, mountainous terrain, etc.)
- Maximize opportunities to parallel existing linear facilities (i.e. transmission lines, roads, pipelines, etc.)
- Maximize use of public lands, where possible
- Resolve potential conflicts with military installations as early as possible at both the local installation and DOD levels
- Avoid densely populated areas and alignments triggering environmental justice issues
- Utilize programmatic agreements where possible to achieve compliance (cultural resources; wildlife habitat mitigation, etc.)

Lessons Learned on SunZia

Federal Permitting Stage

- Accept the fact that mitigation costs are project costs
- Both on- and off-site mitigation should be considered
- Operating period evaluation of on-site mitigation recommended to assess effectiveness and make corrections
- Be prepared to revise mitigation plans if results sought are ineffective

Economic Impact Assessment

Jointly prepared by:

Economic and Business Research Center
Eller College of Management
The University of Arizona
Tucson, Arizona

Arrowhead Center, Inc.
New Mexico State University
Las Cruces, New Mexico

Economic Impacts during Construction in New Mexico

SunZia Alone		Renewable Projects		AC/AC		AC/DC		Renewable Projects		SunZia Alone
3,900	+	20,700	=	**24,600**	JOBS	**34,900**	=	30,800	+	4,100
$ 275M	+	$1.15B	=	**$ 1.4B**	WAGES & SALARIES	**$ 2B**	=	$1.75B	+	$ 290M
$ 65M	+	$ 80M	=	**$ 145M**	STATE & LOCAL TAXES	**$ 214M**	=	$119M	+	$ 95M

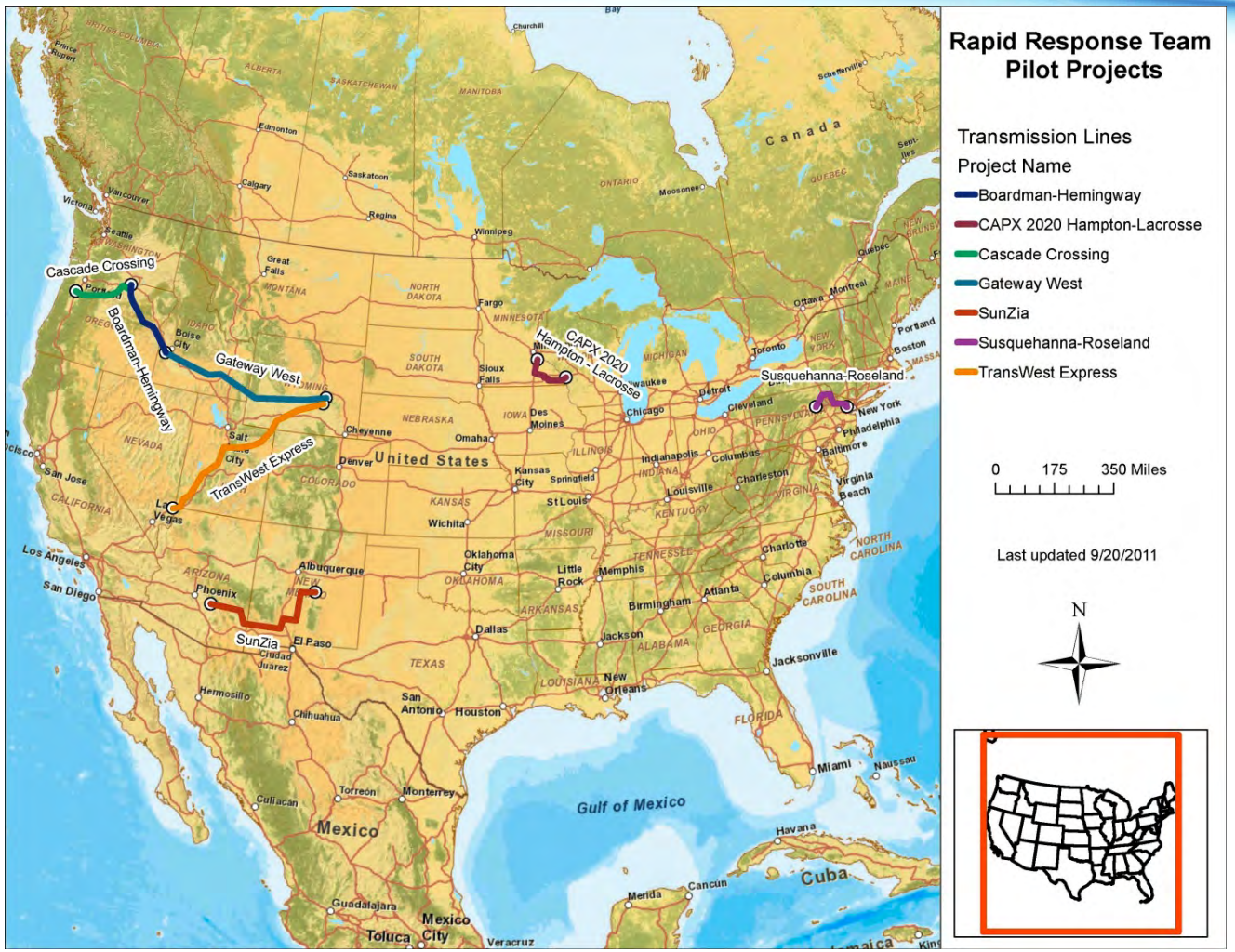
These figures present the values associated with the Project and the cumulative values for Project + 610 MW (AC/AC) and Project + 360 MW (AC/DC).

Economic Impacts during O&M in New Mexico

SunZia Alone		Renewable Projects		AC/AC		AC/DC		Renewable Projects		SunZia Alone
40	+	290	=	**330**	JOBS	**500**	=	450	+	50
$ 2M	+	$ 15M	=	**$ 17M**	WAGES & SALARIES	**$ 28M**	=	$25M	+	$3M
$ 8M	+	$ 45M	=	**$ 53M**	PROPERTY TAXES	**$ 93M**	=	$80M	+	$13M

These figures present the values associated with the Project and the cumulative values for Project + 1,810 MW (AC/AC) and Project + 3,850 MW (AC/DC).

RRTT Pilot Projects

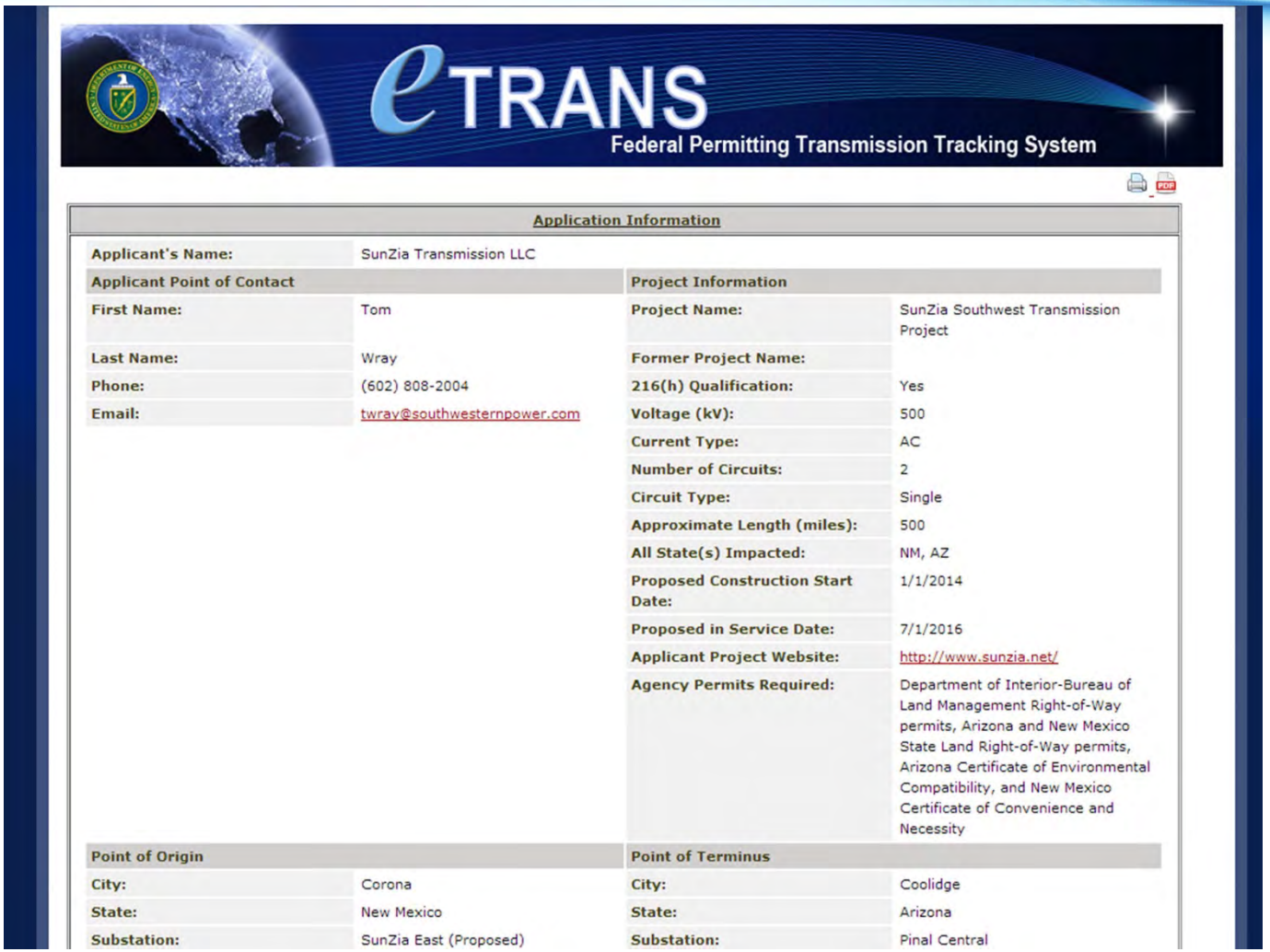


What it means to be an RRTT Project

- **Monthly teleconferences with Department of Interior staff and multiple federal agencies (DOD, DOE, Forest Service, CEQ, etc.)**
  - ~ Provides the Applicant with an opportunity to express concerns to both lead and cooperating agencies in the NEPA process
- **RRTT primary focus:**
  - ~ Maintain NEPA schedule and meet target dates
  - ~ Coordination of the federal and state siting processes

DOE eTrans Website:

http://trackingsystem.nisc-llc.com/etrans/utility/Search.seam



eTRANS
Federal Permitting Transmission Tracking System

Application Information

Applicant's Name:	SunZia Transmission LLC		
Applicant Point of Contact		**Project Information**	
First Name:	Tom	**Project Name:**	SunZia Southwest Transmission Project
Last Name:	Wray	**Former Project Name:**	
Phone:	(602) 808-2004	**216(h) Qualification:**	Yes
Email:	twray@southwesternpower.com	**Voltage (kV):**	500
		Current Type:	AC
		Number of Circuits:	2
		Circuit Type:	Single
		Approximate Length (miles):	500
		All State(s) Impacted:	NM, AZ
		Proposed Construction Start Date:	1/1/2014
		Proposed in Service Date:	7/1/2016
		Applicant Project Website:	http://www.sunzia.net/
		Agency Permits Required:	Department of Interior-Bureau of Land Management Right-of-Way permits, Arizona and New Mexico State Land Right-of-Way permits, Arizona Certificate of Environmental Compatibility, and New Mexico Certificate of Convenience and Necessity
Point of Origin		**Point of Terminus**	
City:	Corona	**City:**	Coolidge
State:	New Mexico	**State:**	Arizona
Substation:	SunZia East (Proposed)	**Substation:**	Pinal Central

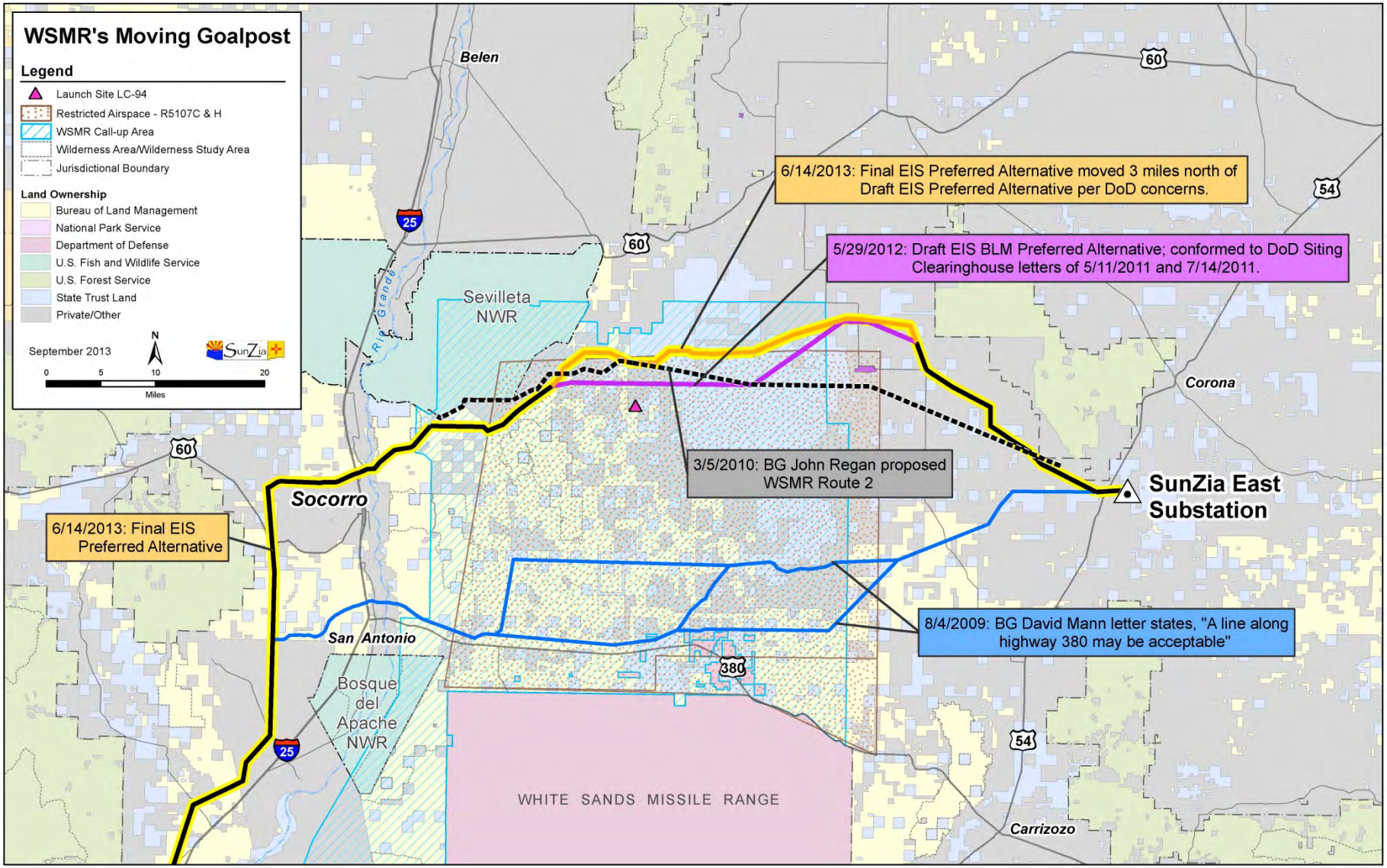
www.sunzia.net

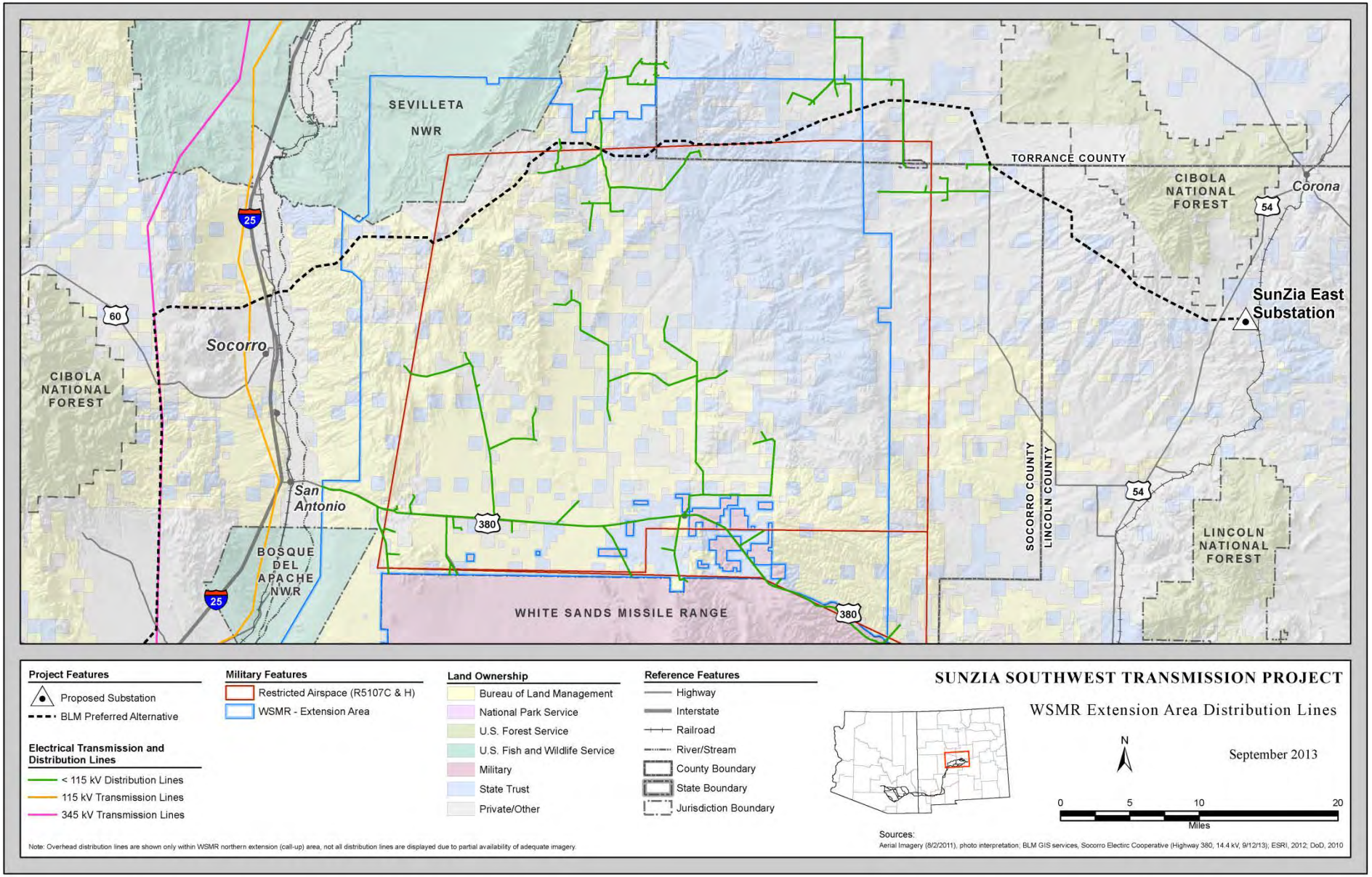
Tom Wray

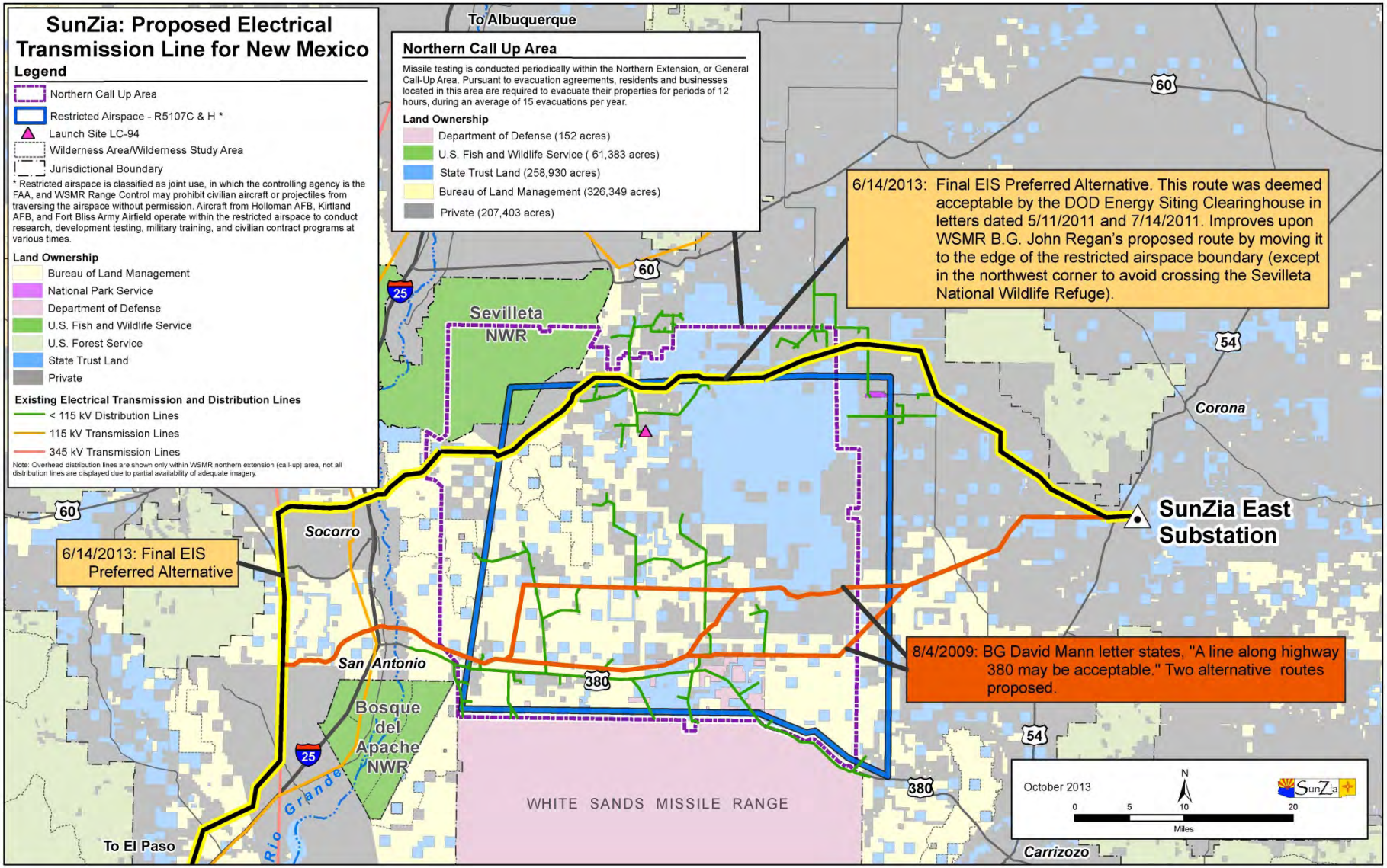
E-mail: twray@southwesternpower.com

Phone: (602) 808-2004

Supplemental Maps

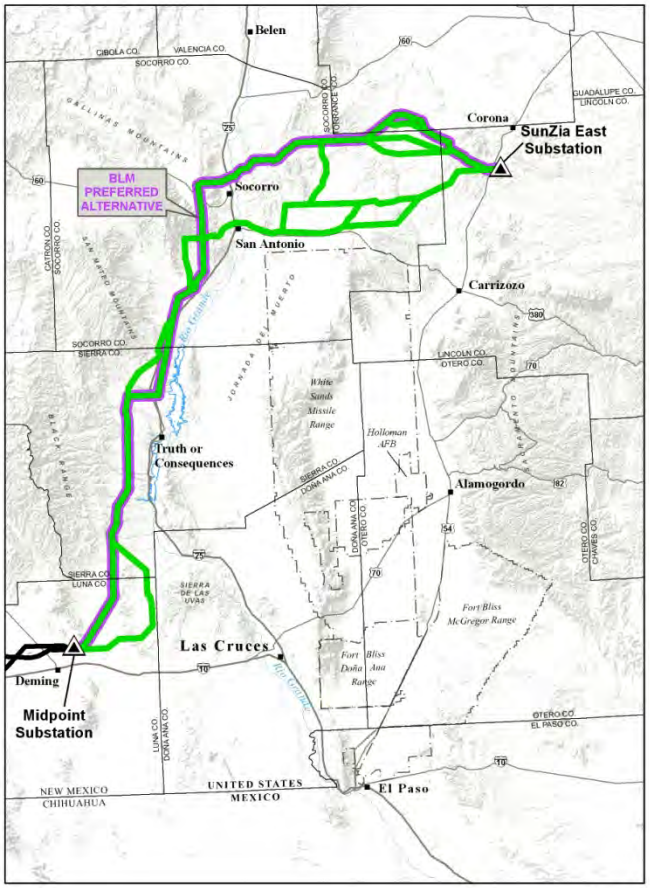

WSMR's Moving Goalpost
Legend
Launch Site LC-94
Restricted Airspace - R5107C & H
WSMR Call-up Area
Wilderness Area/Wilderness Study Area
Jurisdictional Boundary
Land Ownership
Bureau of Land Management
National Park Service
Department of Defense
U.S. Fish and Wildlife Service
U.S. Forest Service
State Trust Land
Private/Other
September 2013
N
0 5 10 20
Miles
Belen
Sevilleta NWR
Rio Grande
Socorro
San Antonio
Bosque del Apache NWR
WHITE SANDS MISSILE RANGE
Corona
Carrizozo
SunZia East Substation
6/14/2013: Final EIS Preferred Alternative moved 3 miles north of Draft EIS Preferred Alternative per DoD concerns.
5/29/2012: Draft EIS BLM Preferred Alternative; conformed to DoD Siting Clearinghouse letters of 5/11/2011 and 7/14/2011.
3/5/2010: BG John Regan proposed WSMR Route 2
8/4/2009: BG David Mann letter states, "A line along highway 380 may be acceptable"
6/14/2013: Final EIS Preferred Alternative
25
60
54
380


SEVILLETA NWR
TORRANCE COUNTY
CIBOLA NATIONAL FOREST
Corona
SunZia East Substation
Socorro
CIBOLA NATIONAL FOREST
San Antonio
BOSQUE DEL APACHE NWR
WHITE SANDS MISSILE RANGE
SOCORRO COUNTY
LINCOLN COUNTY
LINCOLN NATIONAL FOREST
25
60
380
54
Project Features
Proposed Substation
BLM Preferred Alternative
Electrical Transmission and Distribution Lines
< 115 kV Distribution Lines
115 kV Transmission Lines
345 kV Transmission Lines
Military Features
Restricted Airspace (R5107C & H)
WSMR - Extension Area
Land Ownership
Bureau of Land Management
National Park Service
U.S. Forest Service
U.S. Fish and Wildlife Service
Military
State Trust
Private/Other
Reference Features
Highway
Interstate
Railroad
River/Stream
County Boundary
State Boundary
Jurisdiction Boundary
Note: Overhead distribution lines are shown only within WSMR northern extension (call-up) area, not all distribution lines are displayed due to partial availability of adequate imagery.
SUNZIA SOUTHWEST TRANSMISSION PROJECT
WSMR Extension Area Distribution Lines
N
September 2013
0 5 10 20
Miles
Sources:
Aerial Imagery (8/2/2011), photo interpretation: BLM GIS services, Socorro Electirc Cooperative (Highway 380, 14.4 kV, 9/12/13); ESRI, 2012; DoD, 2010


SunZia: Proposed Electrical Transmission Line for New Mexico
Legend
Northern Call Up Area
Restricted Airspace - R5107C & H *
Launch Site LC-94
Wilderness Area/Wilderness Study Area
Jurisdictional Boundary
* Restricted airspace is classified as joint use, in which the controlling agency is the FAA, and WSMR Range Control may prohibit civilian aircraft or projectiles from traversing the airspace without permission. Aircraft from Holloman AFB, Kirtland AFB, and Fort Bliss Army Airfield operate within the restricted airspace to conduct research, development testing, military training, and civilian contract programs at various times.
Land Ownership
Bureau of Land Management
National Park Service
Department of Defense
U.S. Fish and Wildlife Service
U.S. Forest Service
State Trust Land
Private
Existing Electrical Transmission and Distribution Lines
< 115 kV Distribution Lines
115 kV Transmission Lines
345 kV Transmission Lines
Note: Overhead distribution lines are shown only within WSMR northern extension (call-up) area, not all distribution lines are displayed due to partial availability of adequate imagery.
To Albuquerque
Northern Call Up Area
Missile testing is conducted periodically within the Northern Extension, or General Call-Up Area. Pursuant to evacuation agreements, residents and businesses located in this area are required to evacuate their properties for periods of 12 hours, during an average of 15 evacuations per year.
Land Ownership
Department of Defense (152 acres)
U.S. Fish and Wildlife Service (61,383 acres)
State Trust Land (258,930 acres)
Bureau of Land Management (326,349 acres)
Private (207,403 acres)
6/14/2013: Final EIS Preferred Alternative. This route was deemed acceptable by the DOD Energy Siting Clearinghouse in letters dated 5/11/2011 and 7/14/2011. Improves upon WSMR B.G. John Regan's proposed route by moving it to the edge of the restricted airspace boundary (except in the northwest corner to avoid crossing the Sevilleta National Wildlife Refuge).
Sevilleta NWR
Corona
SunZia East Substation
6/14/2013: Final EIS Preferred Alternative
Socorro
San Antonio
Bosque del Apache NWR
8/4/2009: BG David Mann letter states, "A line along highway 380 may be acceptable." Two alternative routes proposed.
WHITE SANDS MISSILE RANGE
To El Paso
Rio Grande
Carrizozo
October 2013
N
0 5 10 20
Miles
SunZia
60
25
54
380

ROUTE GROUP 1:

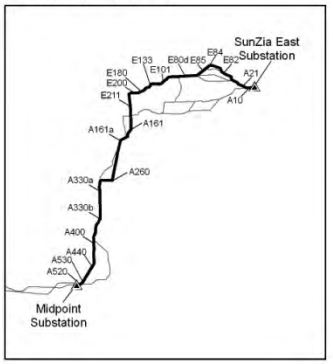
SunZia East Substation to Midpoint Substation



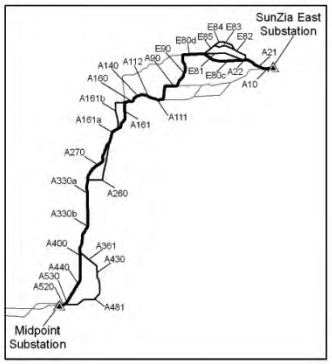
BLM PREFERRED ALTERNATIVE

SUBROUTE 1A - NORTH RIVER CROSSING (219.5 miles)

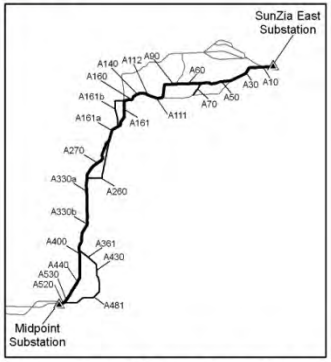
SUBROUTE 1A1 - NORTH RIVER CROSSING (NORTHERN) - (228.8 miles)



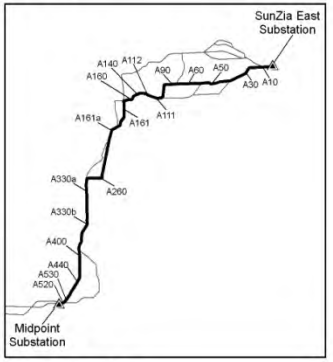
SUBROUTE 1B1 - SAN ANTONIO CROSSING (223.6 miles)



SUBROUTE 1B2 - SAN ANTONIO CROSSING (209.2 miles)



SUBROUTE 1B2a - SAN ANTONIO CROSSING (212.8 miles)



SUBROUTE 1B3 - SAN ANTONIO CROSSING (206.3 miles)

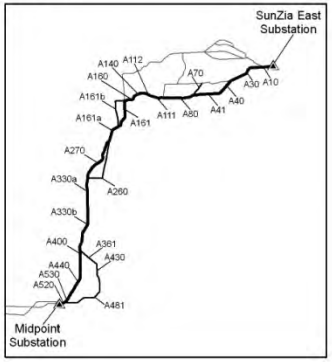
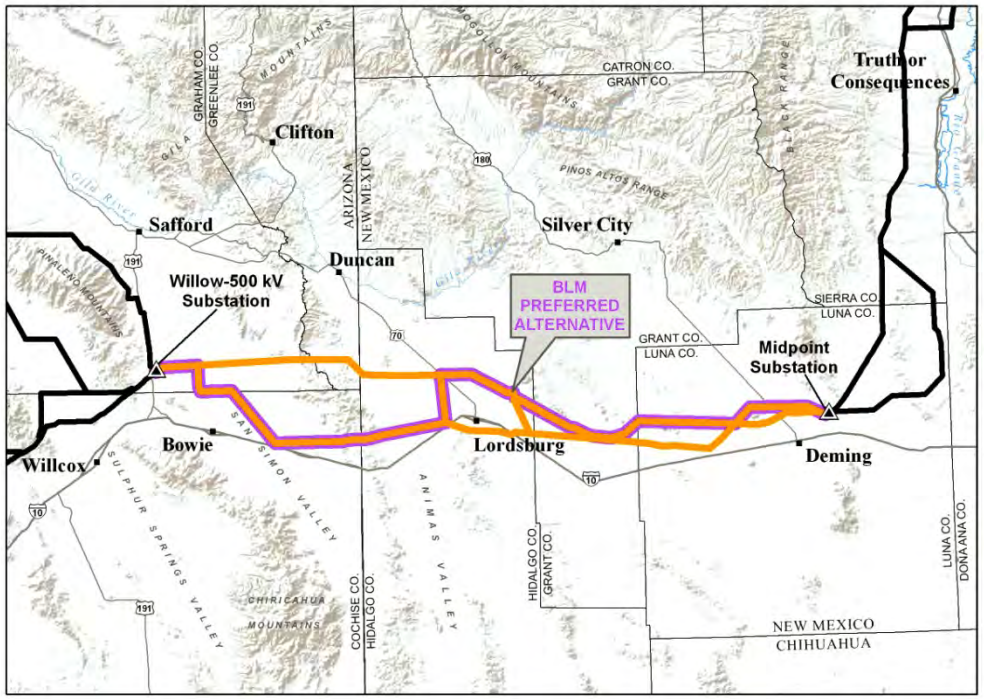


Figure 2-4. Route Group 1: SunZia East Substation to Midpoint Substation

ROUTE GROUP 3: Midpoint Substation to Willow-500 kV Substation



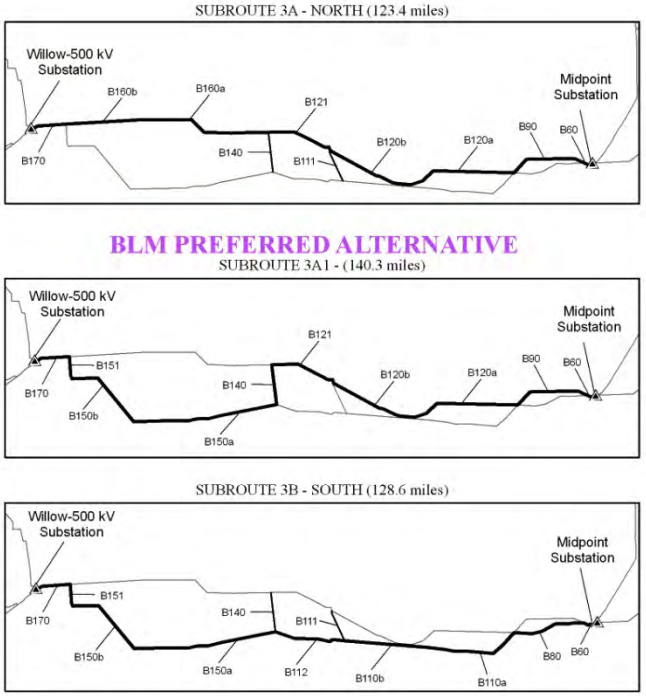
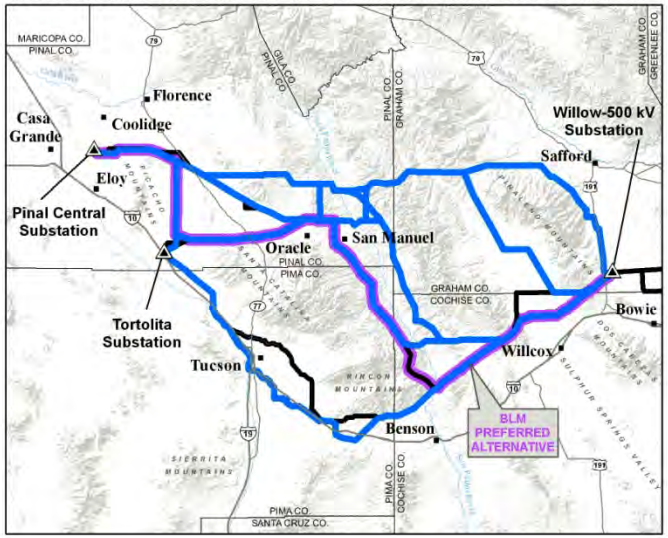
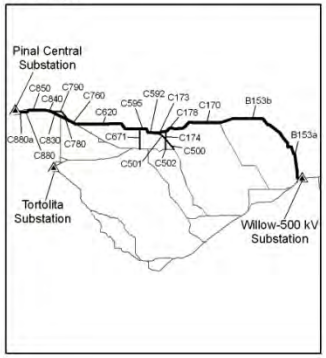


Figure 2-5. Route Group 3: Midpoint Substation to Willow-500 kV Substation

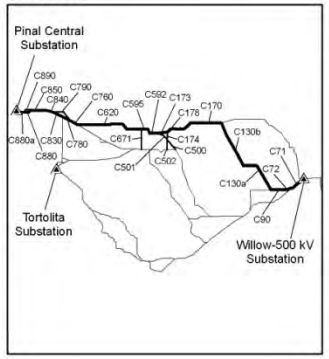
ROUTE GROUP 4: Willow-500 kV Substation to Pinal Central Substation



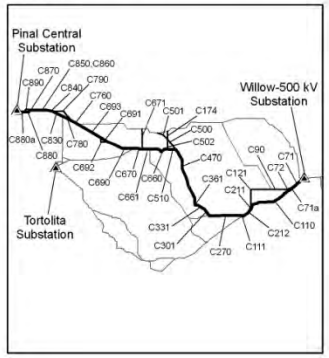
SUBROUTE 4A - NORTH OF MT. GRAHAM
(132.9 miles)



SUBROUTE 4B - SULPHUR SPRINGS VALLEY
(133.0 miles)

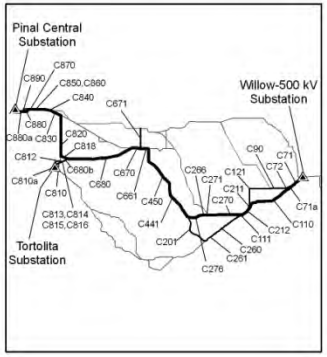


SUBROUTE 4C1 - EAST OF SAN PEDRO VALLEY
(139.0 miles)

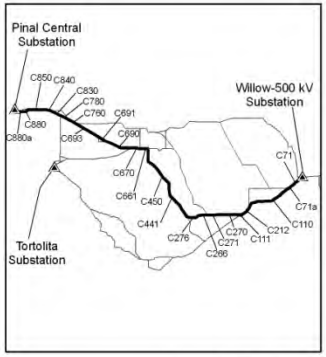


BLM PREFERRED ALTERNATIVE

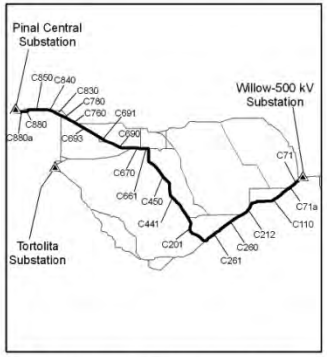
SUBROUTE 4C2 - WEST OF SAN PEDRO VALLEY
(151.8 miles)



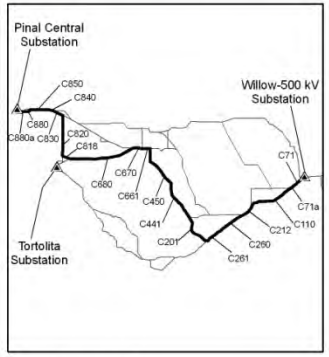
SUBROUTE 4C2a - WEST OF SAN PEDRO VALLEY
(137.8 miles)



SUBROUTE 4C2b - WEST OF SAN PEDRO VALLEY
(147.2 miles)



SUBROUTE 4C2c - WEST OF SAN PEDRO VALLEY
(161.2 miles)



SUBROUTE 4C3 - TUCSON
(172.9 miles)

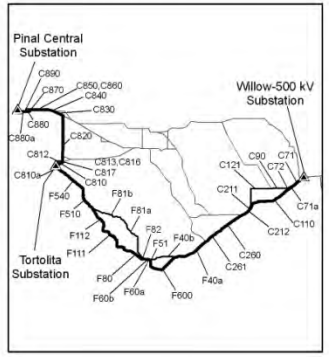


Figure 2-6. Route Group 4: Willow-500 kV Substation to Pinal Central Substation