Pinal Central to Tortolita 500kV Transmission Line
Pinal Central to Tortolita 500kV Transmission Line

Alignment with Need and UNS Energy Goals

- Increase electrical system reliability
- Increase safety for both public and construction crews
- Reduce impacts to the environment

- Import capabilities to carry electricity from other power sources to meet service demand of the Tucson Metropolitan area
- Reduce costs
Line Siting 2007-2012

Arizona Corporation Commission – Certificate of Environmental Compatibility (CEC)

Study Area

• Alternatives Analysis
  • Natural and Biological Resources
  • Historic and Cultural Resources
  • Scenic and Visual Resources
  • Current and Future Land Use
  • Noise and Potential Interference with Communication Signals

• Extensive Public Involvement
  • Community Leader Briefings
  • Stakeholder Group
  • Public Open Houses
  • Fact Sheet/newsletter mailings
  • Telephone Information Line
  • Internet Web site, including online comment form
Web Map Service for Collaboration

http://maps.westlandresources.com/maps/pcto/
LAND RIGHTS

PUBLIC AGENCIES & UTILITIES
• 17 Federal & State Agencies
• 5 Utilities & UPRR
• 2 Local Governments
• 7 Tribal Consultations

PRIVATE LAND RIGHTS & CONSULTATIONS
• 28 Rights of entry from private land owners
• 27 BIA private land owner canal road consents
• 13 Private easements
• 16 Consultations with ranchers and farmers
• 270 Notices sent for ground rod consents and project updates
• **0 Condemnations**
Engineering Reduces the Footprint

• Incorporated biological, cultural, and hydrological data to avoid sensitive areas
• Increased span length to reduce the number of required structures
  ➢ Fewer structures
• Freestanding monopole structures incorporated in design
  ➢ Fewer foundations and no guy wires
• Located structures adjacent or close to existing roads
Construction Further Reduces the Footprint

- Bid specification contained strong and clear environmental controls
- Construction Period Maps used to protect sensitive areas
- Full-time environmental, cultural, stormwater monitors
- Helicopter usage to minimize ground disturbance for stringing operations
- Further reduction of work pad and pulling sites by contractor
  - Reduced both number of sites (40%) and size
  - Reduced acreage cleared by 30%
- Be flexible - allow for changes in the field
- Saved time and money
Minimal Footprint During Construction
Work Pad Size Reduction
Existing Road Usage
Foundation Drilling/Material Laydown & Placement
Tight Working Quarters - Foundations
Structure setting
Helicopter Usage
Bird’s Eye View – Conductor Installation
Pulling Site Restoration
Blending the natural and built environments
Field Measures to Reduce Impacts
Cultural Resources

- Surveyed and devised a protection plan
- Engineering able to avoid most sites
- Data recovery at 2 unavoidable sites, this material went to Az St Museum

Protection during Construction

- Avoidance flagging with large buffers around sites
- Monitors when crew near sites and weekly
Biological Species of Concern - Lesser long-nosed bat

- Endangered species, Saguaro is a primary food source
- Westland Resources and Sargent & Lundy assessed the number of saguaro to be affected by the project
- Devised a salvage effort to keep the removed saguaros within the Santa Cruz Basin (next presentation)
Tucson shovel-nosed snake

- FWS Candidate for listing, very little known
- AZ Game & Fish conducted a research study
- 50 trap arrays/1,600 trap nights. No TSNS found
- Educated construction crew about the species
Botanical Resources

• Reduced structure pads and work zones
• New Roads/Access paths designed to avoid dense riparian, saguaros, and smaller cacti as much as possible
• Conducted a very successful plant salvage

Photos: Robin Lewellyn, 2015
Greenup Zone along Central Arizona Project (CAP)

- Consulted with Bureau of Reclamation to shift a structure out of dense vegetation
- Overland Travel, no new access road
- Reduced pad size and built it prior to nesting season
Construction Maps

Developed to show crews project features, notification requirements, and natural resource concern areas.

Legend:
- Cultural Resources Monitor Required
- Proposed Transmission Structure
- El Paso Natural Gas Line
- Existing Access Roads
- Proposed Access Roads
- Temporary Access Roads
- Pull Site
- Construction Pads
- SWPPP BMPs
- 165' Right-of-Way

Cultural Resources Monitor Required
- Saguaro to be removed

New Construction is Limited to West Side of Fence

Electric Line and Gas Pipeline Crossing

GPM Galesi: Pull Site Near the Construction Access

EPMG at least 2 weeks prior to the start of construction Monitor may be required
Any construction within 100' of the pipeline
Follow EPMG specification for this crossing

The contractor is required to contact "Blue Stake" (4-800-723-5338) 48 hours prior to any construction activity to determine accurate utility locations.
Stormwater Pollution Prevention Measures

- 330 Washes to protect – maintain natural flow, prevent erosion
- Straw wattles and Berms, put locations on Construction maps (xxx)
- Weekly Inspections for compliance and repairs
Environmental Monitor Activities

- Gave Environmental Awareness Training to all Crews
- Invaluable in being the “eyes and ears” on the ground
- Worked with contractor as work zones were being cleared
- Checked equipment and work zones for animals
- Removed animals safely off site and educated workers
- Set buffer zones around nesting birds and monitored disturbance

Photos: Robin Lewellyn, 2015
Post Construction Restoration

- Stabilized soil at pads and roads by compaction (must remain accessible for long-term maintenance)
- Restored altered washes to natural flow
- Harrowed temporary work areas to capture rainfall and improve natural reseeding rate
- Due to big Fall rains native vegetation was reestablishing within weeks
Results of our Success Story

MINIMIZED DISTURBANCE FOOTPRINT
• 82% of the 41 mile long ROW undisturbed
• 69 miles existing roads used; 18 miles constructed
• Minimized impacts on sensitive biological and cultural resources

ENVIRONMENTAL PLANNING
• 235 crew trained in environmental awareness
• Selective clearing avoided 600 acres of native habitat and 1200+ saguaros
• 900+ cacti salvaged or avoided
• Avoided $2.7M in construction, plant fees
Thank You to Our Collaborators!

- Arizona Corporation Commission
- Arizona Department of Environmental Quality
- Arizona Department of Agriculture
- Arizona Public Service Corp.
- Arizona State Land Department
- Arizona Game and Fish Department
- Arizona State Parks
- Army Corps of Engineers
- Arizona Department of Transportation
- Atkinson Construction
- Bureau of Indian Affairs
- Bureau of Land Management
- Bureau of Reclamation
- Central Arizona Project
- City of Casa Grande
- City of Coolidge
- City of Eloy
- United States Department of Defense
- DockIt Consulting
- Electric District 2
- Federal Aviation Administration
- Hohokam Irrigation and Drainage District
- Kinder Morgan/El Paso Natural Gas
- Native Resources International
- Old Pueblo Cactus
- Pinal County
- Robinia Biological Services
- Rummel Construction
- Saguaro Cactus
- Salt River Property
- San Carlos Irrigation Project
- San Carlos Irrigation and Drainage District
- Tucson Cactus & Succulent Society
- Town of Marana
- Union Pacific Railroad
- United States Fish and Wildlife Service
- Western Area Power Administration
- WestLand Resources, Inc.