APS North Peoria Facilities Siting Project

Open House

WELCOME! Please Sign In



Project Overview and Need



Project Overview

- Phase I (Estimated In-Service 2021)
 - One new 69/12kV substation (W03)
 - One double-circuit 69kV powerline from the planned W03 substation to the existing Raceway to Calderwood 69kV powerline located in the eastern portion of the Project study area
- Phase II (Estimated In-Service 5-10+ years)
 - One 230/69/12kV substation (TS14)
 - Two 69/12kV substations (W04, W05)
 - 230kV interconnection (less than two spans) from the existing Sun Valley to Morgan 500/230kV transmission line to the planned TS14 substation
 - 69kV powerlines with looped connections to/from W03, W04, W05, and TS14 substations







Project Need

- Provide additional, separate, 69kV and 230kV power sources, allowing the system to serve new development and increased electricity use within existing developments
- Improve reliability in the area by adding additional 69kV and 230kV facilities, strengthening the regional electrical system, and helping to prevent potential outages
- Provide operating flexibility by creating new loops and sources into the area



Electricity From the Power Plant to the Customer





Project Description and Design Considerations



Project Description

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 - Two 69/12kV substations (W04, W05)
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 - 69kV powerlines with looped connections to/from W03, W04, W05, and TS14 substations
- A new 69kV powerline route will require right-of-way or easement up to 60 feet wide, and construction of new steel monopoles approximately 60-70 feet tall (may include 12kV underbuild)
- A new 69kV substation will require an approximate 3-5-acre site. A new 230kV substation will require an approximate 15-20-acre site.



Existing and Proposed Typical Structures

Depiction of proposed typical 69kV double circuit monopole in comparison to existing transmission structures near the Vistancia community





Typical Structures





Typical Substations





Technical Considerations



Electric and Magnetic Fields (EMF)

Electric Field

Fields created by voltage on the transmission line that can cause an electric charge to build up on insulated objects near the line. This can create nuisance shocks (much like walking across carpet and touching a door handle) to individuals touching grounded objects near the line.

The standard for maximum electrical field value outside of the powerline right-of-way is 5.0kV/m. The value calculated for this project is less than 0.5kV/m.

Magnetic Field

Fields that are created by ALL devices that use, carry, or generate electricity. Magnetic fields drop off dramatically as distance from the source increases. To date, no federal or Arizona state standards have been established for magnetic field levels.

APS recognizes the public concern for magnetic fields and has included those considerations in the design of this project. For this project, the calculated value for magnetic field at the edge of the right-of-way is approximately 9mG.

APS continues to monitor U.S. and international studies regarding EMF, and offers free in-home measurements of EMF levels to all APS customers.



Magnetic Fields



Lateral Distance (feet)



Planning Process



NOVEMBER 2018





Steps Completed, and Next Steps in Planning Process

- Opportunities and constraints analysis
- Alternative route/location identification
- Agency briefings and public open houses
- Detailed inventory
- Impact assessment
- Preliminary alternative comparison
- Collect, respond, and document public and agency comments ongoing
- Final route/location selection early 2019



Factors Considered in Route Identification

- Minimize impact to sensitive resource areas
 - Existing residences, schools, etc.
- Maximize use of siting opportunities
 - Parallel existing and planned linear features, including roads, transmission and power lines, and canals



Preliminary Facility Siting Criteria

Existing Land Use and Visual Resources						
Constraints						
Constraints	Sensitivity Level					
Existing Land Use and Visual Resources						
Residential Low Density	High					
Residential Medium Density	High					
Residential High Density	High					
Subdivision Under Construction	High					
Schools/Educational Facilities	High					
Parks, Trails, and Designated Scenic Roads	High					
Recreation (golf course, race track, paintball park, etc.)	Moderate					
Open Space/Greenbelt	Moderate					
Commercial	Moderate					
Public/Quasi-public	Moderate					
Transportation (Roadways)	Moderate					
Agriculture/Corral/Stocktank	Low					
Construction Laydown Area/Nursery	Low					
Industrial/Mining	Low					
Canal	Low					
Utility Facilities (substations, pump stations, water treatment, comm., flood control, etc.)	Low					

Planned Land Use and Visual Resources							
Constraints							
Constraints	Sensitivity Level						
Residential – Final Plat	High						
Residential – Preliminary Plat	Moderate						
Residential – General Plan	Moderate						
Commercial – Final Plat	Moderate						
Commercial – Preliminary Plat	Low						
Commercial – General Plan	Low						
Commercial, Resort/Hotel – General Plan	Moderate						
Commercial, Mixed Use – General Plan	Low						
School/Education Facilities – Final Plat	High						
Schools/Education Facilities – General Plan	Moderate						
Industrial – General Plan	Low						
Transportation (Roadways) – Final Plat	Moderate						
Transportation (Roadways) – Preliminary Plat	Low						
Transportation (Roadways) – General Plan	Low						
Recreation Trail – General Plan	Moderate						
Park/Golf Course – Final Plat	Moderate						
Park/Golf Course – General Plan	Low						
Open Space – Final Plat	Moderate						
Open Space – Preliminary Plat	Low						
Open Space – General Plan	Low						
Preserve – General Plan	Moderate						
Public/Quasi-public – General Plan	Low						

Opportunities							
Opportunities	Opportunity Level						
Overhead Transmission Powerline Corridors	High						
Overhead 12kV Distribution Line (suitable for co-location)	High						
Canal	High						
Highways (State Route)	High						
Arterial Roadways (with Jurisdictional Franchise Agreement)	High						
Arterial Roadways (without Jurisdictional Franchise Agreement)	Moderate						
Utility Facilities (substations, pump stations, water treatment, comm., flood control, etc.)	Moderate						











Environmental Studies Overview

- Land Use existing/future land use and jurisdictional planning guidelines
- Visual sensitive viewers (residences, parks, and travel routes)
- Cultural final routes will be designed to minimize impacts to culturally sensitive sites
- Biology final routes will be designed to minimize impacts to sensitive habitat























	AP	'S No	rth P	Peoria	Facilitie	s Siting	Study
		10.001		Com	parison	Overall	December detter
10	Land Use	visual	NOW	engineering	constructability	Compatibility	Consequential Elimination
20							Consequential Elimination
30 40							Consequential Elimination Eliminate
50 60							Eliminate Retain for Eurther Analysis
70							Consequential Elimination
80 90							Eliminate Eliminate
100							Eliminate
120							Eliminate
130 140							Eliminate Conseguential Elimination
150							Consequential Elimination
170							Eliminate
180 190							Eliminate Eliminate
200							Consequential Elimination
220							Retain for Further Analysis
230 240							Retain for Further Analysis Consequential Elimination
250							Retain for Further Analysis
260							Retain for Further Analysis
265 270							Retain for Further Analysis Retain for Further Analysis
275 280							Retain for Further Analysis Retain for Further Analysis
285							Retain for Further Analysis
290 300							Retain for Further Analysis Retain for Further Analysis
310							Retain for Further Analysis
320							Retain for Further Analysis
325 330							Retain for Further Analysis Retain for Further Analysis
335							Retain for Further Analysis
345							Retain for Further Analysis Retain for Further Analysis
350 355							Retain for Further Analysis Retain for Further Analysis
360							Retain for Further Analysis
370							Retain for Further Analysis Retain for Further Analysis
375 380							Retain for Further Analysis Retain for Further Analysis
385							Retain for Further Analysis
395							Retain for Further Analysis Retain for Further Analysis
400 410							Retain for Further Analysis Retain for Further Analysis
420							Retain for Further Analysis
430							Retain for Further Analysis Retain for Further Analysis
450 460							Consequential Elimination
470							Retain for Further Analysis
480 485							Retain for Further Analysis Retain for Further Analysis
490 495							Retain for Further Analysis Retain for Further Analysis
500							Retain for Further Analysis
505							Retain for Further Analysis Retain for Further Analysis
515 520							Consequential Elimination Retain for Further Analysis
525							Eliminate
530							Eliminate Retain for Further Analysis
540 545							Eliminate Consequential Elimination
550							Retain for Further Analysis
555 560							Retain for Further Analysis Eliminate
565 570							Eliminate Eliminate
575							Retain for Further Analysis
580 585							Eliminate Consequential Elimination
590 595							Retain for Further Analysis Retain for Further Analysis
600							Retain for Further Analysis
610							Retain for Further Analysis Retain for Further Analysis
620 630							Retain for Further Analysis Retain for Further Analysis
635							Retain for Further Analysis
640 660							Retain for Further Analysis Retain for Further Analysis
690 700							Eliminate
720							Consequential Elimination
730 740							Consequential Elimination Consequential Elimination
750 760							Consequential Elimination Retain for Further Analysis
770							Consequential Elimination
800 820							Eliminate Consequential Elimination
840 850							Retain for Further Analysis
870							Consequential Elimination
880 D10							Consequential Elimination Eliminate
D20							Eliminate
D30 D40							Retain for Further Analysis Eliminate
D50							Retain for Further Analysis
D70							Eliminate
D80							Retain for Further Analysis
Dau							neudin for Further Analysis
D90 D100							Retain for Further Analysis
D90 D100 D110 D120							Retain for Further Analysis Retain for Further Analysis Retain for Further Analysis
D90 D100 D110 D120 D130							Retain for Further Analysis Retain for Further Analysis Retain for Further Analysis Retain for Further Analysis

	APS North Peoria Facilities Siting Study Route Alternative Comparison Table									
Link No.	Land Use	Visual	ROW	Enginee ring	Construct ability	Overall Compatibility	Composition of Links/Explanation			
PHAS	PHASE I									
N							new, but modification of 250			
N1							new			
N2							new			
N3							new			
N4							255			
N5							280, partly new			
N6							270			
N7							260, 265			
S							60, part of 230			
S1							new			
S2							part of 230			
S3							new			
S4							270, 280			
S5							275, 285			

PHASE II

R1				440, 470
R2				480, 500, 555, 520, 550
R3				485, 605
R4				300, 310
R5				315, 350, 355, 360, 370
R6				parts of 600, D-60, D- 100, and D-110
R7				part of 320, 400, 610
R8				parts of 320 and D-90
R9				390 and D-80
R10				380, part of 640
R11				new
R12				part of 640
R13				635

APS North Peoria Facilities Siting Study Substation Comparison Table									
Substation	Land Use	Visual	ROW	Engine ering	Construct ability	Overall Compatibility	Recommendation		
PHASE I									
W03-1							Retain for Further Analysis		
W03-2							Retain for Further Analysis		
W03-3							Eliminate		
W03-4							Eliminate		
W03-5							Eliminate		
W03-6							Eliminate		

PHASE II				
W04				Retain for Further Analysis
W05				Retain for Further Analysis
TS14				Retain for Further Analysis

Levels of Compatibility

High	Moderate High	Moderate	Moderate Low	Low
Most 📛				➡ Least

Siting Considerations



cultural resources, and biological resources.

















View from Vistancia Blackstone Community looking north-northeast



Simulated Condition View of Phase 1-South Route, S1 Subroute, and Substation 2 from Vistancia Blackstone Community





Photo Date and Time: October 18, 2018, 12:27 p.m. Focal Length: 50mm The original photographs were taken at 50mm or 50mm equivalent, then stitched together to create this panorama,

resulting in a 100-degree field of view.

View Location:

Approximate distance to nearest facility from photo location is 0.40 miles.

Simulations were prepared using information provided by APS. Facility locations, colors, and heights may differ based on final engineering and design.

North Peoria Facilities Siting Study

Simulation from Vistancia Blackstone Community

Phase 1 - South Route, S1 Subroute, and Substation 2 November 2018





View from Vistancia Blackstone Community looking north-northeast



Simulated Condition View of Phase 1-North Route, N1 Subroute, and Substation 2 from Vistancia Blackstone Community





Photo Date and Time: October 18, 2018, 12:27 p.m. Focal Length: 50mm The original photographs were taken at 50mm or 50mm equivalent, then stitched together to create this panorama,

equivalent, then stitched together to create this panorama, resulting in a 100-degree field of view.

View Location:

Approximate distance to nearest facility from photo location is 0.70 miles.

Simulations were prepared using information provided by APS. Facility locations, colors, and heights may differ based on final engineering and design.

North Peoria Facilities Siting Study

Simulation from Vistancia Blackstone Community

Phase 1 - North Route, N1 Subroute, and Substation 2 November 2018





View from Village at Vistancia looking east



Simulated Condition View of Phase 1-North Route, N2 Subroute, N7 Subroute, and Substation 1 from Village at Vistancia





Photo Date and Time: October 24 2018, 1:58 p.m. Focal Length: 50mm The original photographs were taken at 50mm or 50mm equivalent, then stitched together to create this panorama,

equivalent, then stitched together to create this panorama, resulting in a 100-degree field of view.

View Location:

Approximate distance to nearest facility from photo location is 0.25 miles.

Simulations were prepared using information provided by APS. Facility locations, colors, and heights may differ based on final engineering and design.

North Peoria Facilities Siting Study

Simulation from Village at Vistancia Phase 1 - North Route, N2 Subroute,

N7 Subroute, and Substation 1 November 2018





View from Village at Vistancia looking east



Simulated Condition View of Phase 1-South Route, S2 Subroute, S5 Subroute and Substation 1 from Village at Vistancia





Photo Date and Time: October 24, 2018, 1:58 p.m. Focal Length: 50mm The original photographs were taken at 50mm or 50mm equivalent, then stitched together to create this panorama, resulting in a 100-degree field of view.

View Location:

Approximate distance to nearest facility from photo location is 0.20 miles.

Simulations were prepared using information provided by APS. Facility locations, colors, and heights may differ based on final engineering and design.

North Peoria Facilities Siting Study

Simulation from Village at Vistancia Phase 1 - South Route, S2 Subroute, S5 Subroute, and Substation 1

November 2018





View from Foothills Center Discovery Trail Viewing Platform looking northeast



Simulated Condition View of Phase 2-Route 4 from Foothills Discovery Trail Viewing Platform





Photo Date and Time: October 18, 2018, 11:52 a.m. Focal Length: 50mm The original photographs were taken at 50mm or 50mm equivalent, then stitched together to create this panorama, resulting in a 115-degree field of view.

View Location:

Approximate distance to nearest facility from photo location is 0.06 miles.

Simulations were prepared using information provided by APS. Facility locations, colors, and heights may differ based on final engineering and design.

North Peoria Facilities Siting Study

Simulation from Foothills Discovery Trail Viewing Platform Phase 2 - Route 4

November 2018



Public Comments and Next Steps



Public and Agency Outreach

Outreach is ongoing throughout the process, and has involved:

- Local Homeowners' Associations
- Regional Real Estate Developers
- City of Peoria
- Arizona State Land Department
- Central Arizona Project
- Bureau of Land Management
- Bureau of Reclamation
- Project Newsletters were sent in April and November, and a final newsletter describing the route and substation selections will be sent in early 2019



Public Comment Summary

- Over 300 comments received to date
- Public commenters generally prefer substation and powerline placement as far north, and away from existing residences, and residential views, as possible
- Real Estate Developers requested section lines be followed, where possible
- Arizona State Land Department expressed a preference for use of the Westland Rd. alignment (Phase I South Route)
- Bureau of Reclamation requested no lateral encroachments on their facilities/land
- Bureau of Land Management requested existing utility corridors be used, where possible



Opportunities for Public Information and Comment

- Fill out and return a comment form tonight
- Electronic comment forms and project updates available at: www.aps.com/siting (see North Peoria Facilities Siting Project under "Current Siting Projects")
- Comments can also be sent to Stephen Eich, APS Siting Consultant, at: <u>NorthPeoriaSiting@apsc.com</u>, or by phone at **1-888-352-4365**
- Final route and substation selections expected early 2019

