



Transmission Planning & Engineering
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March 28, 2023

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Subject: APS 2023 Annual Progress Report for Planning Coordination

In accordance with the reporting guidelines established by the WECC Planning Coordination Committee, the following Annual Progress Report with changes to Arizona Public Service (APS) Company's system for the 2024-2033 periods are being reported. These projects are not expected to have significant impacts on the operation of the WECC interconnected electric system, and therefore APS requests a Waiver of "Significant Impact" status for these transmission projects. These projects have been modelled in the Ten-Year Plan submittal to the Arizona Corporation Commission. All the projects proposed are for serving local load while maintaining or enhancing the reliability of the local transmission system.

| Project Name | Description | Purpose | Expected In-service Date |
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| Serrano Solar and Storage Project 230kV Generation Tie Line | The APS-owned portion of the route will begin where the line crosses the west side of the Saguaro generation plant-controlled access boundary, east of Interstate 10. From there, the line will travel an additional 0.75 miles to the point of interconnection at Saguaro substation. | To connect the Serrano Solar and Storage Project substation to the Saguaro substation. The APS portion of the project is due to the tie line sharing structures with existing APS lines and traversing through controlled access areas within the Saguaro Power Plant property. | 2024 |
| Rabbit Canyon 500kV Switchyard and Lines | Lines will be extended from the Moenkopi-Cedar Mountain 500kV line to the new Rabbit Canyon 500kV switchyard located within Township 26N, Range 5E, Section 21 and north of the southern limit of the Moenkopi-Cedar Mountain 500kV right of way. | To interconnect multiple generation interconnection projects to the Moenkopi-Cedar Mountain 500kV line. | 2024 |
| Dromedary 230kV Switchyard and Lines | The existing Palm Valley-Trilby Wash 230kV line will be cut into the planned Dromedary switchyard, located at the northwest corner of Camelback Road and Cotton Lane in Glendale, using two double circuit monopole structures. The Palm Valley-Trilby Wash 230kV line will become the Palm Valley-Parkway 230kV line in 2024, following the completion of Parkway 230kV Lines project and prior to the completion of the Dromedary 230kV | To provide electric energy to a new high-load customer. | 2025 |

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| | switchyard. The monopoles used for the cut-in of Dromedary switchyard will be capable of carrying both the existing 230kV line and the planned second circuit between Palm Valley and Parkway substations. | | |
| Runway Additional 230kV Lines | The new double circuit 230kV line to Runway substation will cut into the existing White Tanks-West Phoenix 230kV line, just north of West Buckeye Road. It will generally head southwest along an existing transmission corridor and then west to the Diamond 230kV substation, spanning approximately 2.5 miles. From Diamond substation it will head north along Litchfield Road to Lower Buckeye Road, then west on Lower Buckeye Road to MC 85. The line will head southwest along MC 85 before turning south to Runway substation. Diamond substation will be cut into the future Runway-West Phoenix 230kV line, which will be located on the south side of the new double circuit structures. | To provide electric energy to a new high load customer in the area. | 2026 |
| Proving Ground Solar and Storage 500kV Interconnection | The generation tie line will exit the step-up substation at 500kV. The 500kV generation tie line will route along the north side of Palomas Road for approximately 3,000 feet terminating in the Hoodoo Wash switchyard. Approximately 1,000 feet will be collocated on Hassayampa-North Gila 500kV line as it enters the Hoodoo Wash switchyard. | To connect the Proving Ground Solar and Battery Storage project to the Hoodoo Wash switchyard. | 2026 |
| West Camp Wind Gen-Tie Project | The line will extend from the West Camp Wind collector substations generally north to the Point of Change of Ownership (POCO) between West Camp Wind and APS, located on the first structure outside of a new APS switchyard located south of the Cholla-Mazatzal 345kV line. Lines will be extended from the switchyard to the Cholla-Mazatzal line to cut the line in and out of the new switchyard. | To connect the West Camp Wind Farm generation project to the Cholla-Mazatzal 345kV line. | 2026 |
| Sun Valley to Outer Circle 230kV Line | The line would originate at the Sun Valley Substation and head north to the existing Sun Valley-Morgan 500kV alignment. From there, the line will head generally north and east, utilizing the open circuit position on the existing Sun Valley-Morgan 500kV line structures. The line will terminate at the Outer Circle substation, located on the southeast corner of the 235th Avenue alignment and Grand Avenue, northwest of the City of Surprise. | To provide electric energy to growing load demands in the northwest Surprise and Wittmann areas, including proposed new logistics and industrial loads. In addition, this new 230/69kV source substation will reduce loading constraints and provide greater reliability for the Wickenburg, Morristown, Wittmann and Surprise areas. | 2027 |

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| Sundance to Pinal Central 230kV Line | Approximately one quarter mile of the Sundance to Pinal Central 230kV has been constructed from Sundance switchyard to the Electrical District #2 Fault 69kV Substation. A new APS substation, TS33, will be cut into this line within the Sundance Generation Plant property and along the approved alignment of the project. From TS33, a single circuit line will be extended south to Randolph Road. From Randolph Road, the line will head west to the Curry Road alignment. The line will then head south on the Curry Road alignment to the south side of the Duke-Pinal Central 500kV line right of way. From that point, the line will head east to Pinal Central, paralleling the Duke-Pinal Central 500kV line. Single circuit lines will be constructed to be capable of a future second circuit. | To provide an alternative route for Sundance area generation to reach the Phoenix Metropolitan load pocket and to increase operational flexibility and support future growth in Pinal County. | 2027 |
| Bagdad 230kV Transmission Line | The Mead Phoenix Project Q01 substation will tap the Mead-Perkins 500kV line approximately 4 miles southeast of the intersection of US 93 and SR 97. From Mead Phoenix Q01, a new 230kV line will head generally north for approximately 15 miles to the new TS31 substation. At TS31, voltage will be stepped down to 69kV to serve a new high load customer. | To provide electric energy to a new high-load customer. The in-service date is predicated on the date required by the customer to energize new load. | 2027 |
| Bianco 230kV Lines | The future Bianco substation, located east of Bianco Road and between Clayton Road and SR84 in Casa Grande, will be cut in and out of the of existing Santa Rosa-Desert Basin 230kV line. The new section of the Santa Rosa-Bianco 230kV line will head generally south from the existing line to Bianco substation paralleling Bianco Road. The new section of the Desert Basin-Bianco 230kV line will head generally south from the existing line in a new alignment between Bianco Road and Ethington Road. The new line sections will be constructed with capability to add a future second circuit. | To support continued load growth in Pinal County, especially new manufacturing and industrial customers in the Casa Grande area. Significant load increases in the Pinal County area over the past several years, coupled with anticipated continued growth are leading to projected thermal overloads on Pinal County 69kV lines. The projected overloads can be resolved through the addition of Bianco substation. The Bianco project will also fix existing paired element limitations at the Casa Grande substation. | 2028 |
| TS22 Project | The TS22 substation is planned to be located generally northwest of the intersection of 51st Avenue and Dove Valley Road and will be adjacent to the double circuit transmission poles carrying | To provide electric energy to a new high-load customer and ultimately additional future high-load customers. | 2029 |

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| | the Raceway-Avery 230kV line and the Morgan-Pinnacle Peak 500kV line. The project will cut the new substation in and out of the existing 230kV and 500kV lines. | | |
| Panda to Freedom 230kV Line Rebuild | Heading north from Panda substation to Jojoba substation, the line will be rebuilt generally using a new alignment west of the existing Gila River-Jojoba 500kV lines. The rebuilt line will be constructed using monopoles capable of supporting a second future 500kV line. From Jojoba to the Gila River, the line will be rebuilt in a new alignment adjacent to the existing line. In this section the new line will share structures with the planned Jojoba-TS21 500kV line. North of the Gila River, the Panda-Freedom 230kV line and Jojoba-TS21 500kV line will head east on shared structures in a new alignment generally paralleling the Gila River. From a point generally south of Freedom substation, the new Panda-Freedom 230kV line will head generally north in a new alignment, terminating at Freedom and separate from the Jojoba-TS21 500kV line route. This final section will utilize monopole structures capable of carrying a future second 230kV circuit. | To alleviate projected loading constraints on the existing Panda-Freedom line due to new high-load customers in Metro Phoenix and generation additions in the vicinity of the Gila River and Panda substations. The rebuilt line will also support continued customer growth in the Buckeye area and increase access to diverse generation resources. | 2031 |
| Pinnacle Peak to Ocotillo 230kV Line Rebuilds | Rebuild the two sets of double circuit lines on existing structures between Pinnacle Peak and Ocotillo substations. The APS Pinnacle Peak-Ocotillo 230kV line, Pinnacle Peak-Cactus 230kV line, and Cactus-Ocotillo 230kV line will be rebuilt along with the SRP lines sharing the structures (the SRP Pinnacle Peak-Brandow and Brandow-Ward 230kV lines). The lines will likely be rebuilt in the existing alignment. APS is evaluating a possibility of using 500kV construction for at least one future circuit to increase future capacity in the corridor. | To replace the existing structures between Pinnacle Peak and Ocotillo. This rebuild will replace aging towers to ensure continued reliability and safety and increase capacity in the Metro Phoenix load pocket. | 2031 |
| Jojoba-Rudd 500kV Line | The Jojoba-Rudd 500kV line will exit Jojoba substation and join with the Panda-Freedom 230kV line, sharing double-circuit structures with that line. Both lines will head generally north, paralleling the existing Panda-Freedom 230kV alignment until they reach the area north of the Gila River. From there, the lines will head generally east, staying north of the Gila River until a point south of Freedom substation, where the lines will split. From this point, the Jojoba-Rudd line will head generally northeast to the future TS21 substation, targeted in an area south | To provide an additional EHV source to the Phoenix Metropolitan area, which is experiencing rapid economic development. This line helps maintain compliance with NERC Reliability Standards and support load growth. In addition, this new source will provide customers greater access to a diverse | 2032 |

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| | <p>of the Palo Verde-Rudd 500kV line corridor and west of Cotton Lane. Between the split with the Panda-Freedom 230kV line and TS21, the new line will be constructed using structures capable of a future second 230kV circuit. From TS21, the line will head generally east to Rudd, paralleling the Palo Verde-Rudd corridor. Circuit arrangement in the corridor from TS21 to Rudd has not yet been determined.</p> | <p>mix of resources from around the region.</p> | |
| Runway-Stratus 230kV Line Cut-In to TS21 | <p>New 230kV lines will be extended south from the Runway-Stratus 230kV line to the TS21 substation to cut the line in and out of TS21. The location of TS21 is targeted in an area south of corridor containing the Runway-Stratus 230kV line and Palo Verde-Rudd 500kV line and west of Cotton Lane.</p> | <p>To support the growing demand from high-load data center customers in the West Valley by connecting the TS21 substation into the 230kV network. The TS21 500/230kV substation and 230kV lines will relieve loading constraints on the Rudd substation and other 230kV lines in the West Valley.</p> | 2032 |
| TS21 to Broadway 230kV Line | <p>A new 230kV line will be extended generally northeast from the future TS21 substation to Broadway Road. From Broadway Road, the line will head east to Broadway substation, paralleling the WAPA 230kV line corridor. The line will be capable of a future second 230kV circuit and 69kV underbuilds.</p> | <p>To support the growing demand from high-load data center customers in the West Valley by connecting the TS21 substation into the 230kV network. The TS21 500/230kV substation and 230kV lines will relieve loading constraints on the Rudd substation and other 230kV lines in the West Valley.</p> | 2032 |
| Four Corners to Cholla to Pinnacle Peak 345kV Line Rebuilds | <p>Rebuild the two existing circuits between Four Corners substation and Pinnacle Peak substation. For most of the route, lines will be rebuilt out of lead to avoid extended system outages.</p> | <p>To replace existing lattice towers along the entire route. This rebuild will replace aging towers to ensure continued reliability and safety, improve deliverability into the Metro Phoenix area, and increase import capability to the Metro Phoenix area from the Cholla substation and the Four Corners region. The increase in capacity of the rebuilt lines will improve access to a diverse mix of resources from the Four Corners region and the southwest. The lines will be constructed to</p> | 2035 |

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| | | accommodate potential conversion to 500kV operation in the future. | |
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The following 5 projects in the 2024-2033 Ten Year Transmission System Plan were provided in previous year transmission plans and currently have waivers granted.

| Project Name | In-service Date |
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| Three Rivers 230kV lines | 2024 |
| Parkway (TS2) 230kV Lines | 2024 |
| Broadway 230kV Lines | 2025 |
| Contrail 230kV Lines | 2025 |
| Hashknife Energy Center Generation 500kV Tie Line Project | 2026 |

All facility additions listed herein are being planned and will be operated in conformance with NERC Planning Standards and WECC System Performance Criteria. If you have any comments or questions about any of the projects, please contact me.

Sincerely,

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