

APPENDIX H.

Visual Simulations

*Note: The images on pages 4 through 42 of this appendix contain visual simulations that could not be made compliant with the Rehabilitation Act's Section 508 Accessibility Standards. These visual simulations were used to assess the levels of visual contrast potentially resulting from implementation of the SSEP. The results of this assessment are described in Chapter 4, Section 4.17 Visual Resources.

Appendix H: Visual Simulations

This appendix presents the visual simulations of the potential project impacts from the Sonoran Solar Energy Project (SSEP). Simulations are used to evaluate the accuracy of predicted visual effects and to determine the effectiveness of mitigation recommendations. Seven locations for simulations were chosen to illustrate the range of potential SSEP contrast associated with moderate and high sensitivity viewers. These locations represent each sensitive viewer type (travel route, recreation area, and residences), its typical viewing conditions (level or superior), and associated distance zone (foreground/midground or background). Table H.1 summarizes the selected visual simulation key observation points (KOP) and their locations.

Table H.1 Visual Simulation KOPs and Location

Recreation Areas	Location
KOP 1	North Maricopa Mountains Wilderness
KOP 2, 19	Sonoran Desert National Monument
KOP 3	Margie's Cove Road, West
KOP 18	Sierra Estrella Wilderness, Quartz Peak Trail
Travel Routes	
KOP 7	SR-85
Residences	
KOP 13	Ocotillo Road

Two sets of simulations are presented in this appendix:

1. Simulations of the Proposed Action, which include visual simulations representative of concentrated solar thermal (CST) technology as considered under the Proposed Action, Alternative A: Reduced Water Use, and Alternative B: Reduced Footprint.
2. Simulations of Sub-alternative A1: Photovoltaic (PV), which include visual simulations of the PV considered under this sub-alternative.

Both sets of simulations include multiple versions from some KOPs in order to compare the proposed gen-tie alignment and the new Gen-tie Line Option presented in the final EIS (see Map 28). Depending on the location of the simulation, the solar field and the gen-tie may or may not be illustrated. The No Action alternative is represented by the existing condition shown for both technologies.

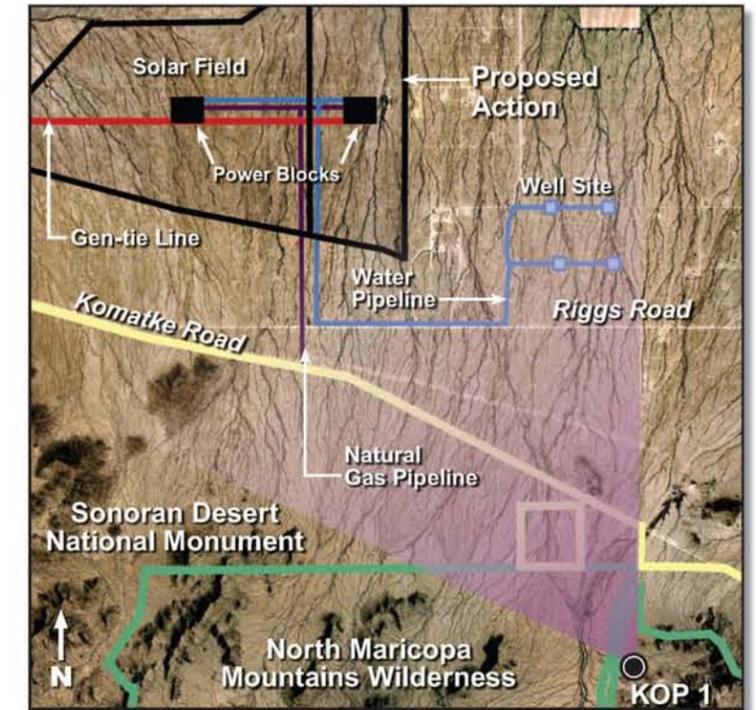
The simulation process consists of three phases: photography and data collection, 3D model development, and rendering. The photography and data collection phase consists of photographing the project site from KOPs selected by the visual specialist and in consultation with the Bureau of Land Management (BLM) during visual resource inventory efforts. For each, simulation location data are collected and used throughout the simulation process. The photography uses a lens focal length of 50 mm, which most accurately represents the perspective and depth-of-field that a human eye perceives. Depending on the conditions of the photograph, the following data are collected: global positioning system (GPS) point for each location photographed; viewing direction, time, date, atmospheric conditions; and the location (using GPS) and dimensions of any landscape element (e.g., existing transmission lines, cars, telephone lines, etc.).

The 3D model development phase begins by modeling or modifying existing 3D models (as provided by the owner's engineers) of the SSEP. In addition, using a combination of GIS and CAD programs, digital elevation models (DEM) of the Project Area are prepared. The final model of the SSEP consists of the 3D model accurately located on the DEM, and includes the photographed GPS locations. The final model is imported into a compositing and rendering software suite, which uses the photograph GPS locations to set up virtual cameras. Once all items are present in the rendering program, the photograph associated with the simulation is imported and the perspective of the photograph is matched. Materials are added to the models using real-world accurate representations and include textures and reflectivity. The exact time of day and the date that the photograph was taken is also set during this phase, resulting in accurate lighting and shadows.

The rendering phase of the simulation process consists of using rendering software to calculate the lighting, shadows, perspective, and materials associated with the SSEP. The output of a render is an image format, which is then brought into Adobe Photoshop for finalization.



Existing Condition - Superior view facing northwest from North Maricopa Mountains Wilderness toward the BLM-designated utility corridor and the Buckeye Hills



Photograph Location: Photograph was taken from KOP approximately 1 mile south of the junction of Komatke Road and Tank Road. Project is approximately 3.9 miles from KOP location.



Proposed Condition - Proposed Action 250 MW power block and 125 MW power block with boiler option and associated switchyards, thermal energy storage tanks, Generation Tie Line, and solar fields

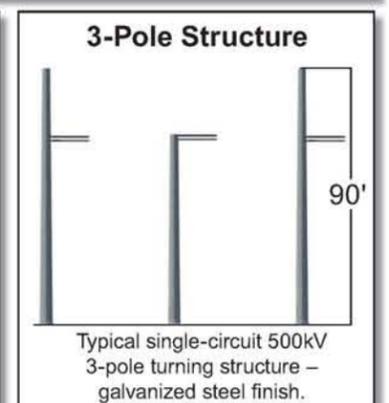
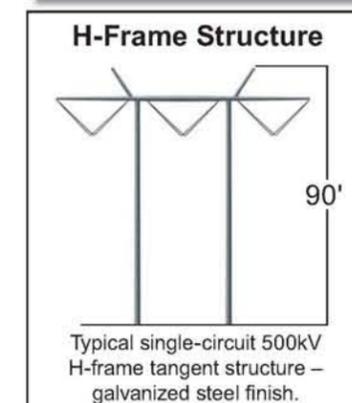
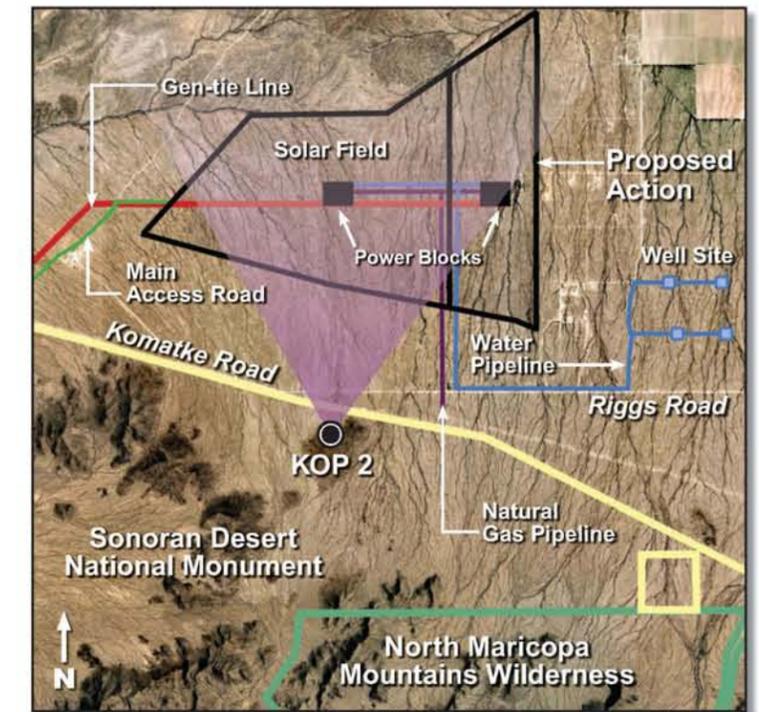


Photo Date and Time: 9-10-09, 10:07 a.m. Focal Length: 50mm
 Structure models that were used in the simulations were created using 3D Models provided by Worley Parsons and Electrical Consultants, Inc.
 This simulation represents initial project design that will be refined and finalized throughout the NEPA process.





Existing Condition – Superior view facing north from within Sonoran Desert National Monument toward BLM-designated utility corridor and the Buckeye Hills



Photograph Location: Photograph was taken from KOP approximately 0.2 mile south-southwest of Komatke Road. Project is approximately 1.5 miles from KOP location.



Proposed Condition – Proposed Action 250 MW power block and 125 MW power block with boiler option and associated switchyards, thermal energy storage tanks, Generation Tie Line, and solar fields

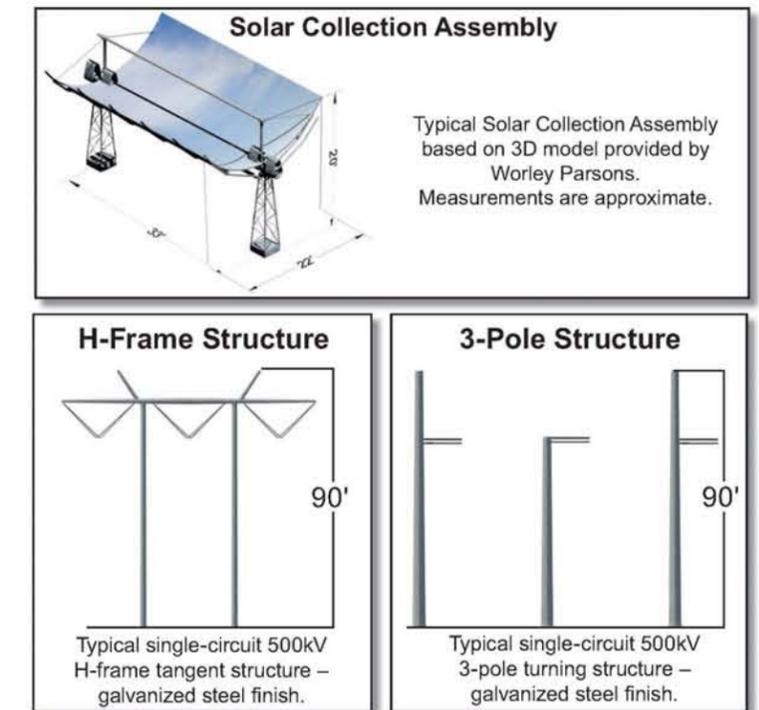
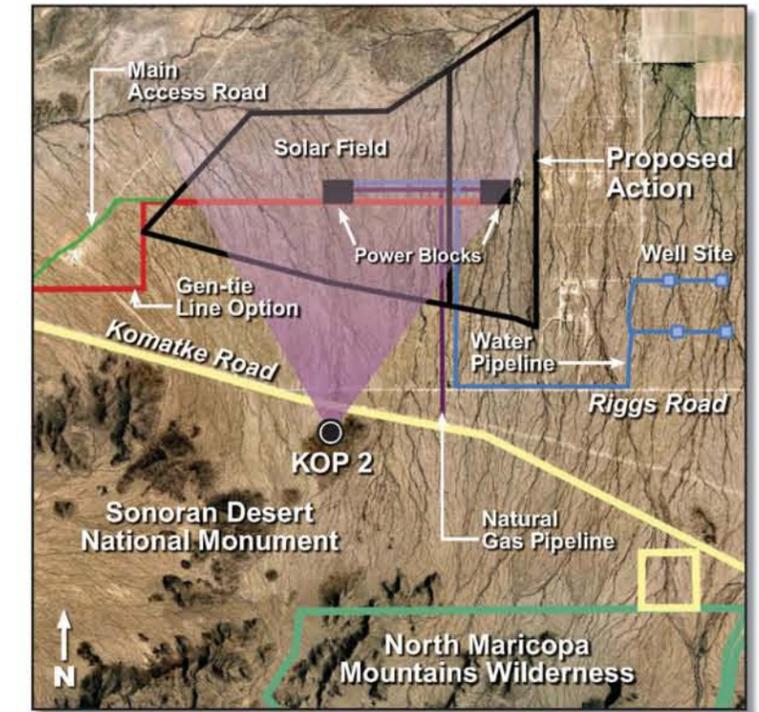


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 Structure models that were used in the simulations were created using 3D Models provided by Worley Parsons and Electrical Consultants, Inc.
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Existing Condition – Superior view facing north from within Sonoran Desert National Monument toward BLM-designated utility corridor and the Buckeye Hills



Photograph Location: Photograph was taken from KOP approximately 0.2 mile south-southwest of Komatke Road. Project is approximately 1.5 miles from KOP location.



Proposed Condition – Proposed Action 250 MW power block and 125 MW power block with boiler option and associated switchyards, thermal energy storage tanks, Generation Tie Line Option, and solar fields

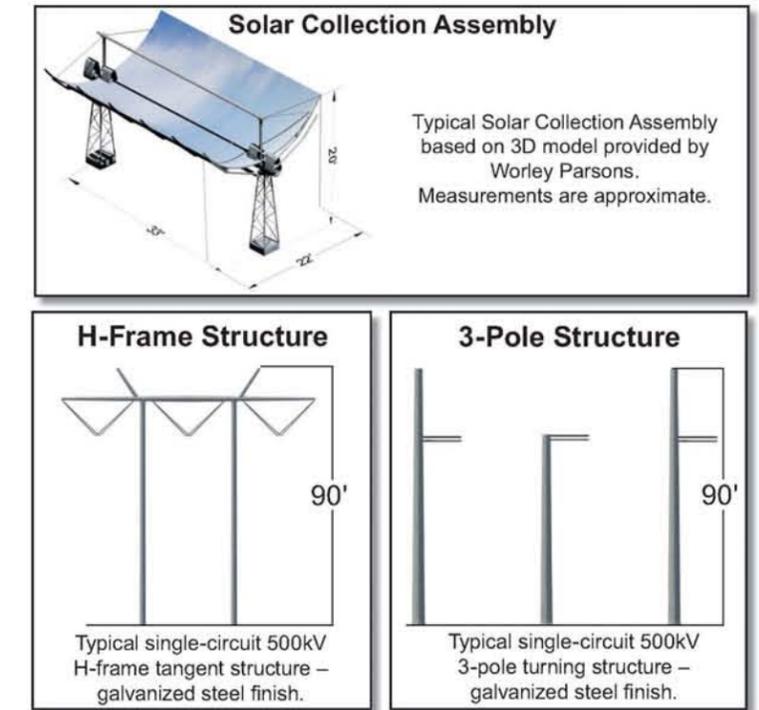
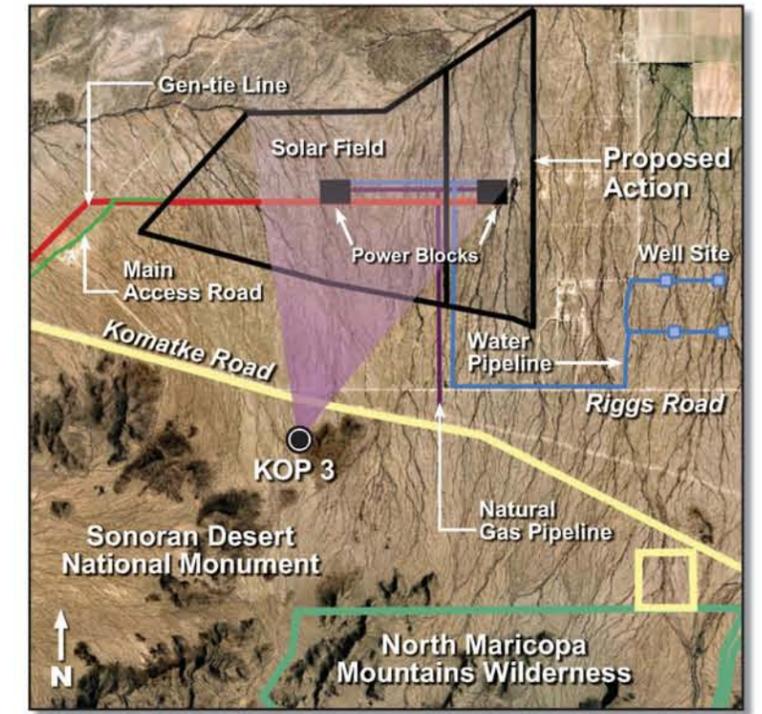


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 Structure models that were used in the simulations were created using 3D Models provided by Worley Parsons and Electrical Consultants, Inc.
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Existing Condition – Level view facing north, north-east from within Sonoran Desert National Monument toward BLM-designated utility corridor and the Buckeye Hills



Photograph Location: Photograph was taken from KOP approximately 0.2 mile south of Komatke Road and Margie's Cove Road West. Project is approximately 1.5 miles from KOP location.



Proposed Condition - Proposed Action 250 MW power block and 125 MW power block with boiler option and associated switchyards, thermal energy storage tanks, Generation Tie Line, and solar fields

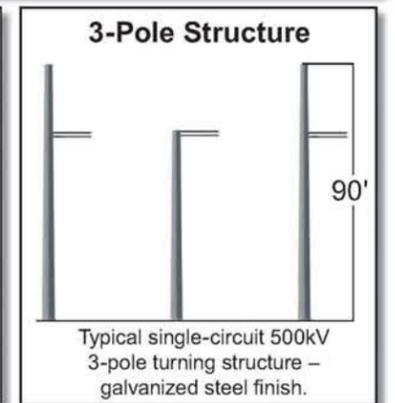
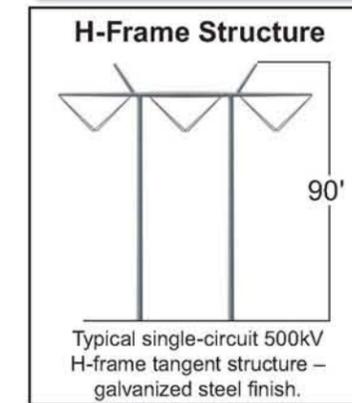
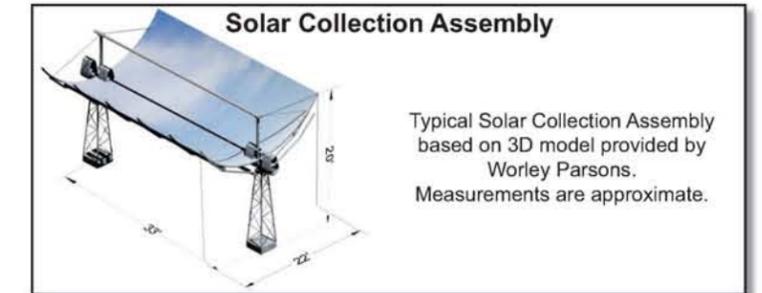
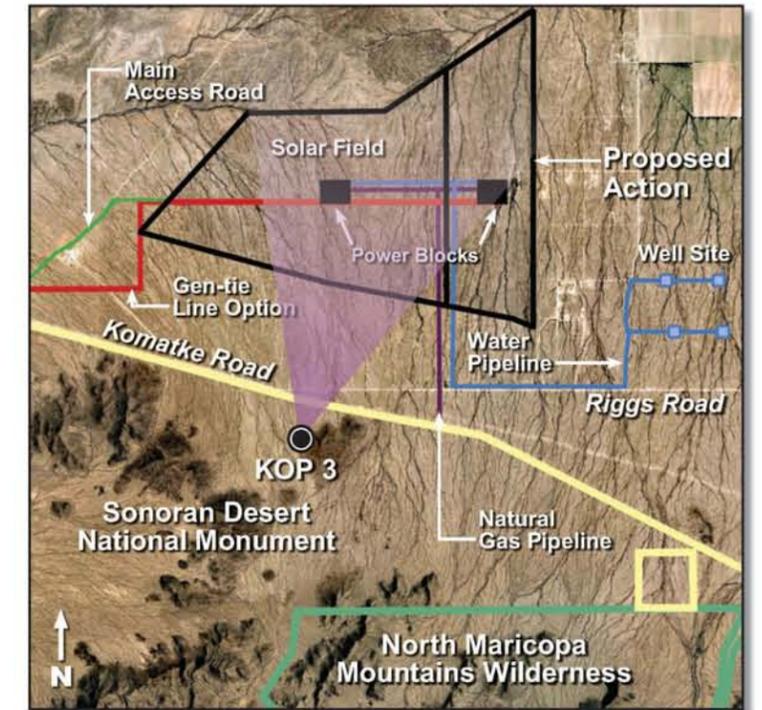


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 Structure models that were used in the simulations were created using 3D Models provided by Worley Parsons and Electrical Consultants, Inc.
 This simulation represents initial project design that will be refined and finalized throughout the NEPA process.





Existing Condition – Level view facing north, north-east from within Sonoran Desert National Monument toward BLM-designated utility corridor and the Buckeye Hills



Photograph Location: Photograph was taken from KOP approximately 0.2 mile south of Komatke Road and Margie's Cove Road West. Project is approximately 1.5 miles from KOP location.



Proposed Condition - Proposed Action 250 MW power block and 125 MW power block with boiler option and associated switchyards, thermal energy storage tanks, Generation Tie Line Option, and solar fields

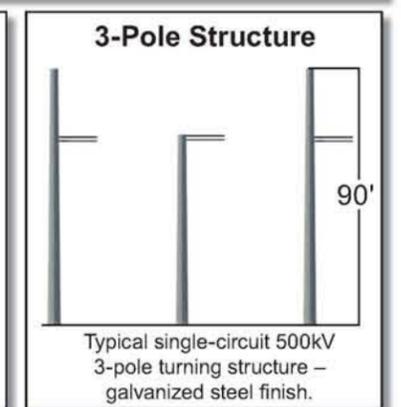
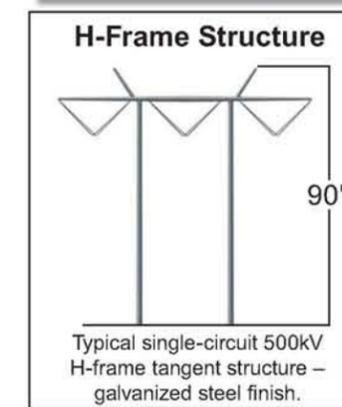
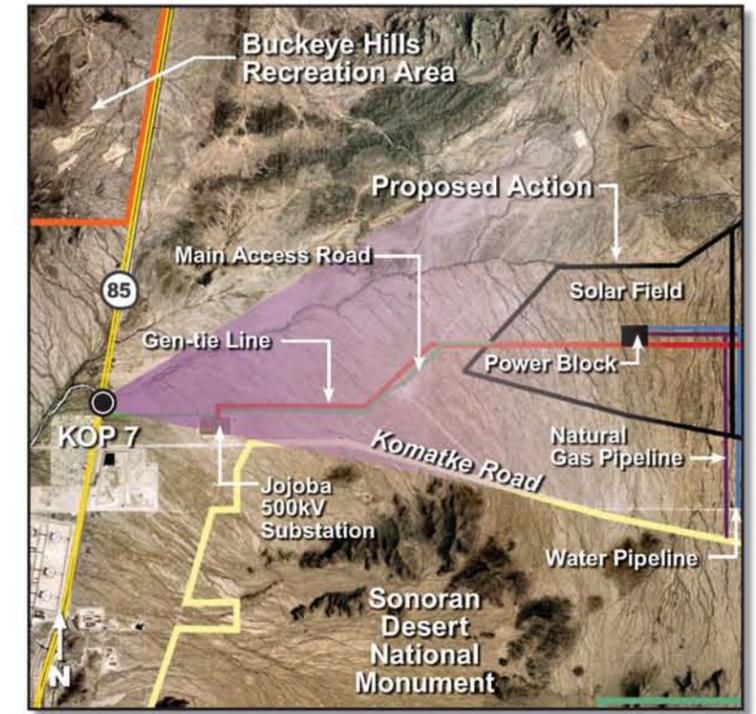


Photo Date and Time: 8-31-09, 2:43 p.m. Focal Length: 50mm
 Structure models that were used in the simulations were created using 3D Models provided by Worley Parsons and Electrical Consultants, Inc.
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Existing Condition - Level view facing east from State Route 85 (northbound) toward BLM-designated utility corridor, the existing Jojoba switchyard, and Rainbow Valley



Photograph Location: Photograph was taken from KOP in northbound lane of State Route 85. Project is approximately 4.0 miles from KOP location.



Proposed Condition - Proposed Action 250 MW power block and 125 MW power block with boiler option and associated switchyards, thermal energy storage tanks, solar fields, and Generation Tie Line connecting to the Jojoba 500kV Substation

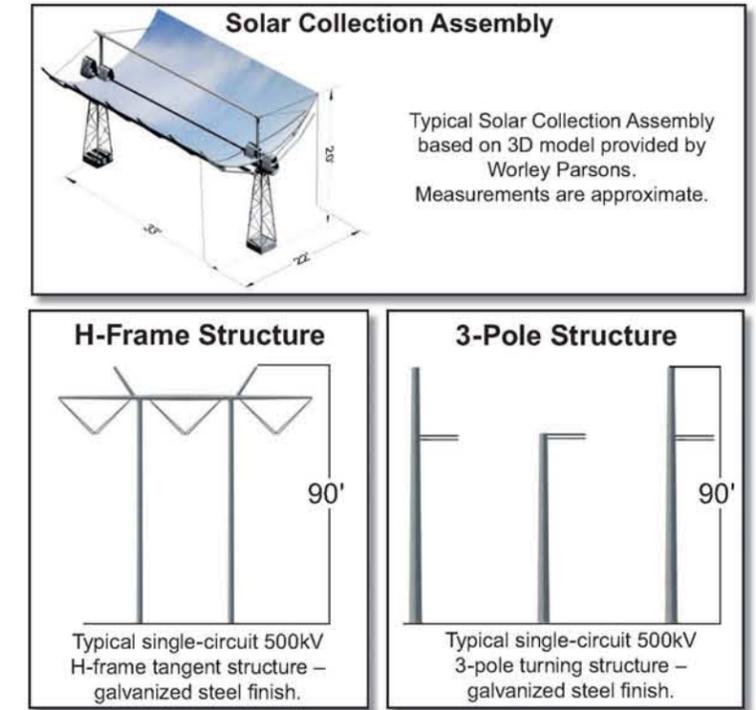
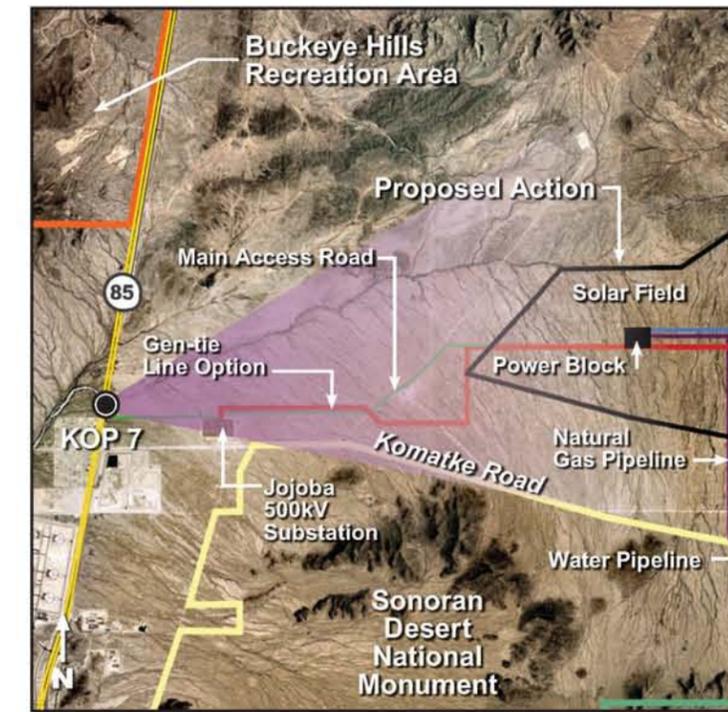


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 Structure models that were used in the simulations were created using 3D Models provided by Worley Parsons and Electrical Consultants, Inc.
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Existing Condition - Level view facing east from State Route 85 (northbound) toward BLM-designated utility corridor, the existing Jojoba switchyard, and Rainbow Valley



Photograph Location: Photograph was taken from KOP in northbound lane of State Route 85. Project is approximately 4.0 miles from KOP location.



Proposed Condition - Proposed Action 250 MW power block and 125 MW power block with boiler option and associated switchyards, thermal energy storage tanks, solar fields, and Generation Tie Line Option connecting to the Jojoba 500kV Substation

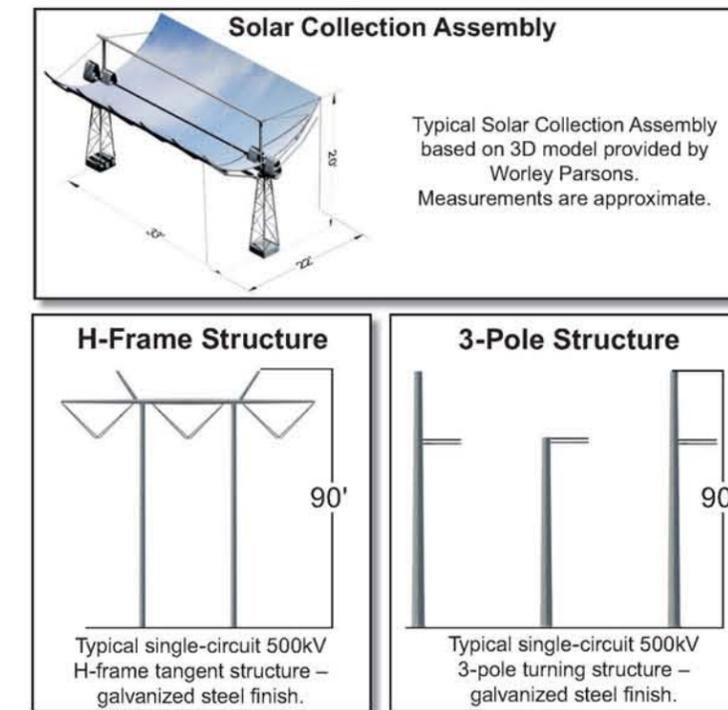
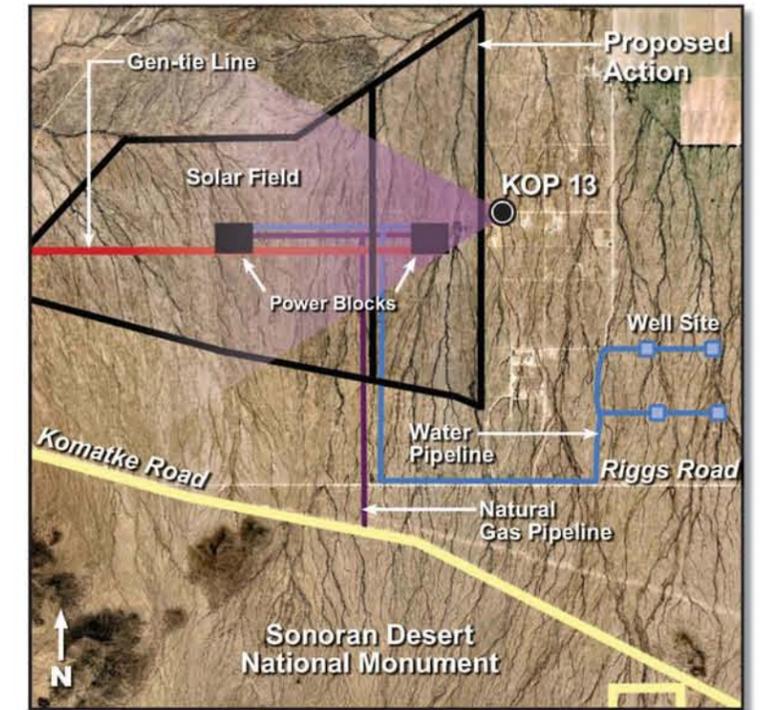


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 Structure models that were used in the simulations were created using 3D Models provided by Worley Parsons and Electrical Consultants, Inc.
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Existing Condition - Level view facing west from Ocotillo Road residences toward BLM-designated utility corridor and the Buckeye Hills



Photograph Location: Photograph was taken from KOP on Ocotillo Road. Project is approximately 0.1 mile from KOP location.



Proposed Condition - Proposed Action 250 MW power block and 125 MW power block with boiler option and associated switchyards, thermal energy storage tanks, Generation Tie Line, and solar fields

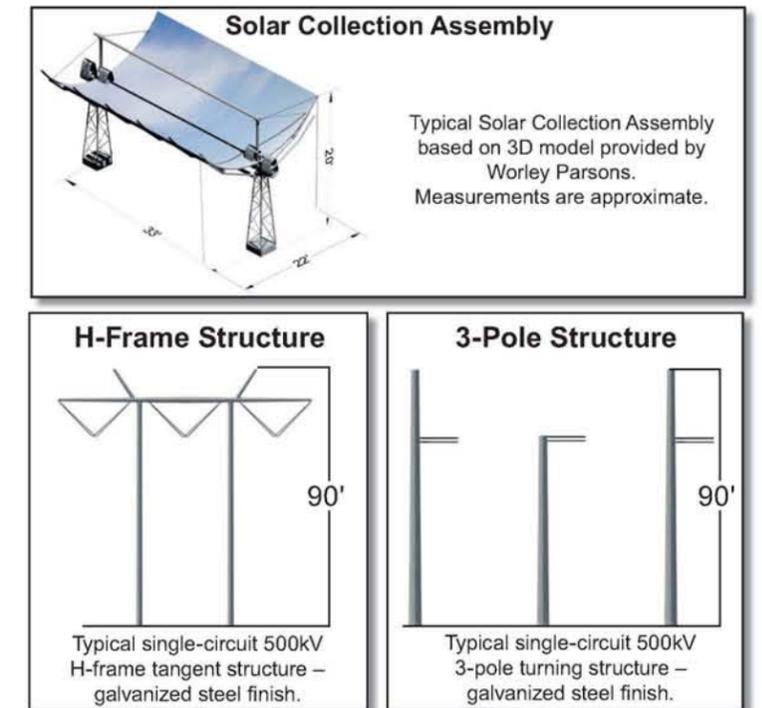
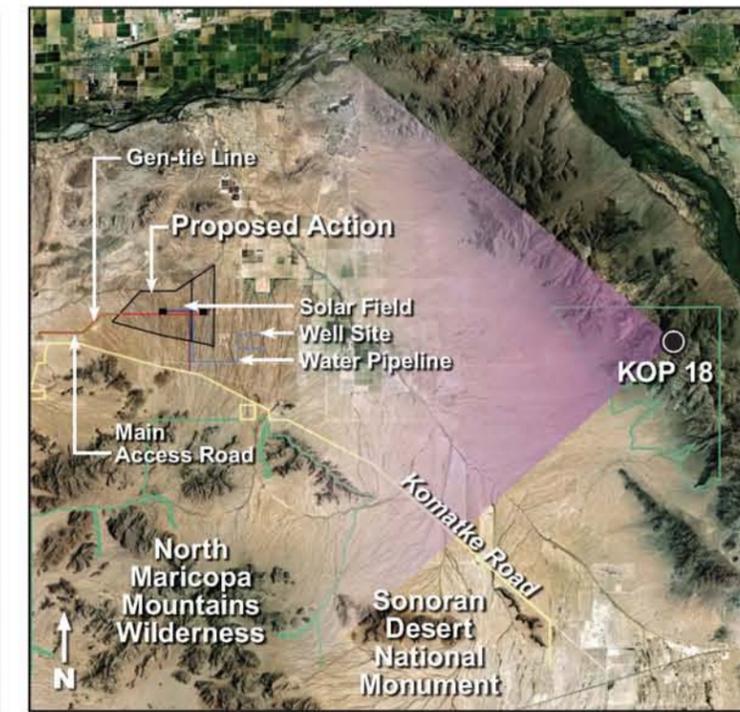


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 Structure models that were used in the simulations were created using 3D Models provided by Worley Parsons and Electrical Consultants, Inc.
 This simulation represents initial project design that will be refined and finalized throughout the NEPA process.





Existing Condition – Superior view facing west from the Quartz Peak Trail, within the Sierra Estrella Wilderness, toward BLM-designated utility corridor and Rainbow Valley



Photograph Location: Photograph was taken from KOP on top of Quartz Peak Trail. Project is approximately 17 miles from KOP location.



Proposed Condition – Proposed Action 250 MW power block and 125 MW power block with boiler option and associated switchyards, thermal energy storage tanks, Generation Tie Line, and solar fields

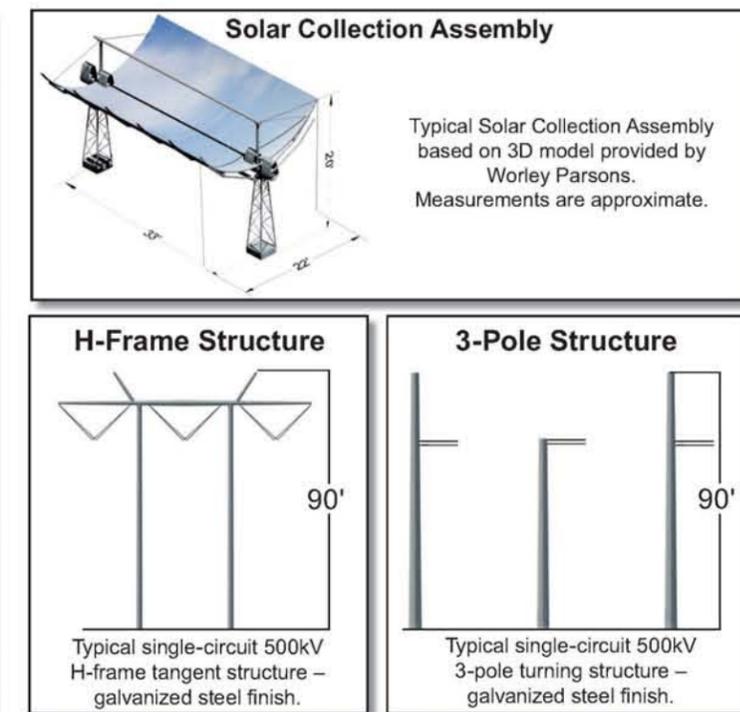
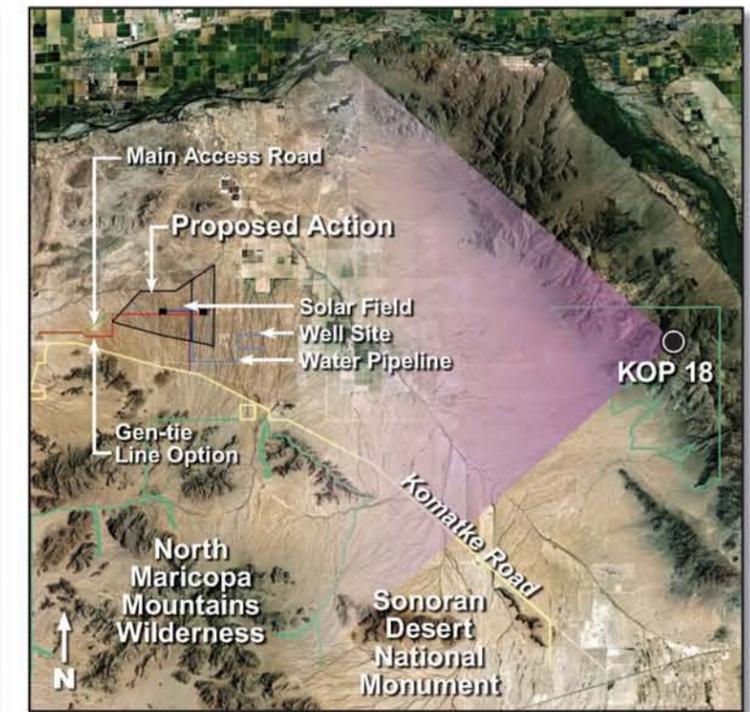


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 Structure models that were used in the simulations were created using 3D Models provided by Worley Parsons and Electrical Consultants, Inc.
 This simulation represents initial project design that will be refined and finalized throughout the NEPA process.





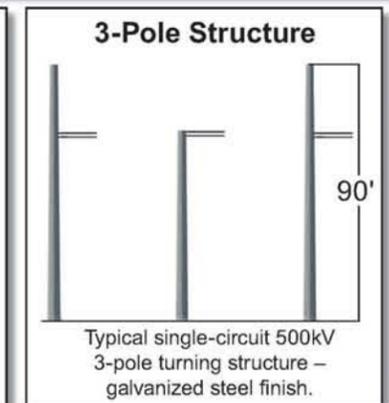
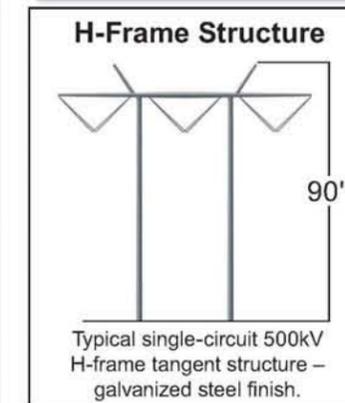
Existing Condition – Superior view facing west from the Quartz Peak Trail, within the Sierra Estrella Wilderness, toward BLM-designated utility corridor and Rainbow Valley

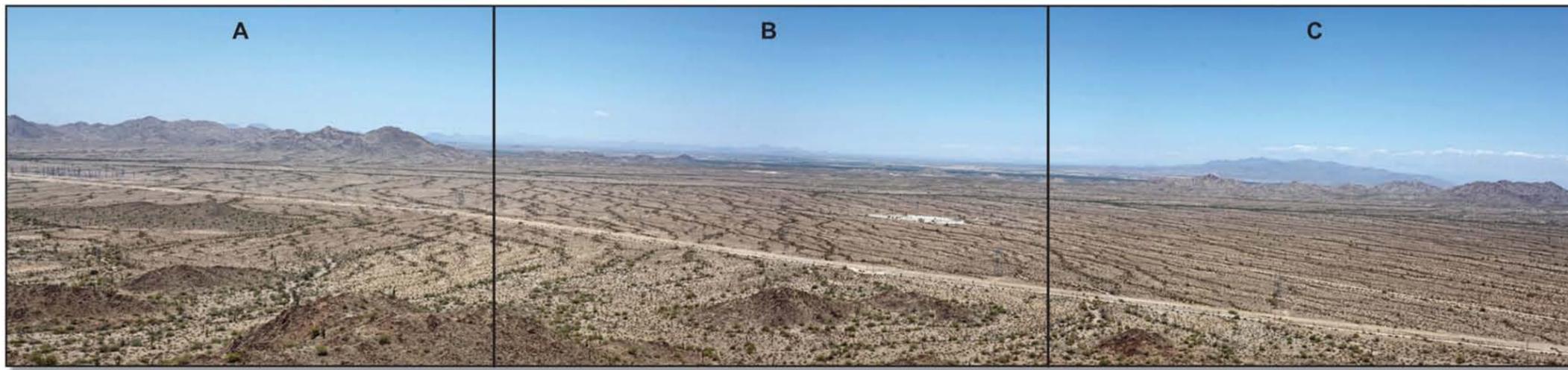


Photograph Location: Photograph was taken from KOP on top of Quartz Peak Trail. Project is approximately 17 miles from KOP location.

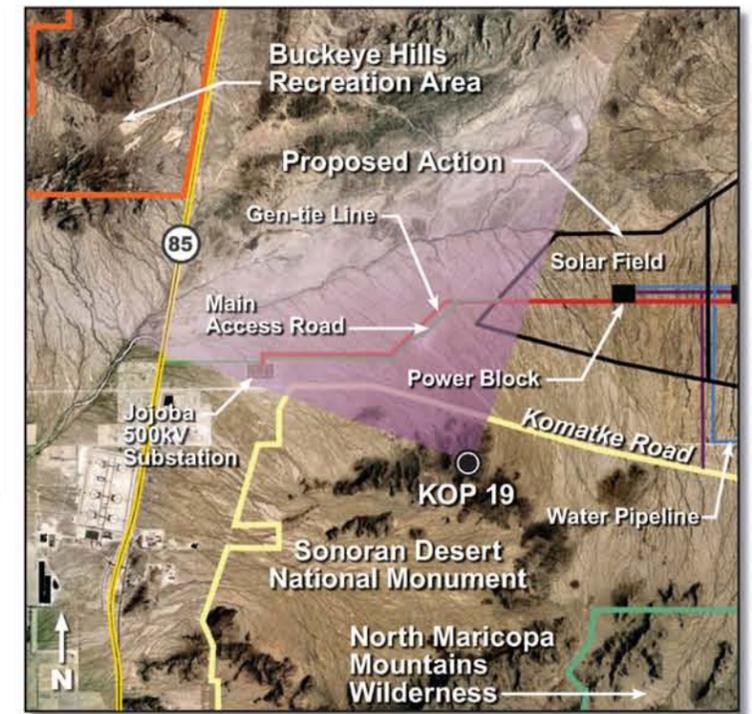


Proposed Condition – Proposed Action 250 MW power block and 125 MW power block with boiler option and associated switchyards, thermal energy storage tanks, Generation Tie Line Option, and solar fields

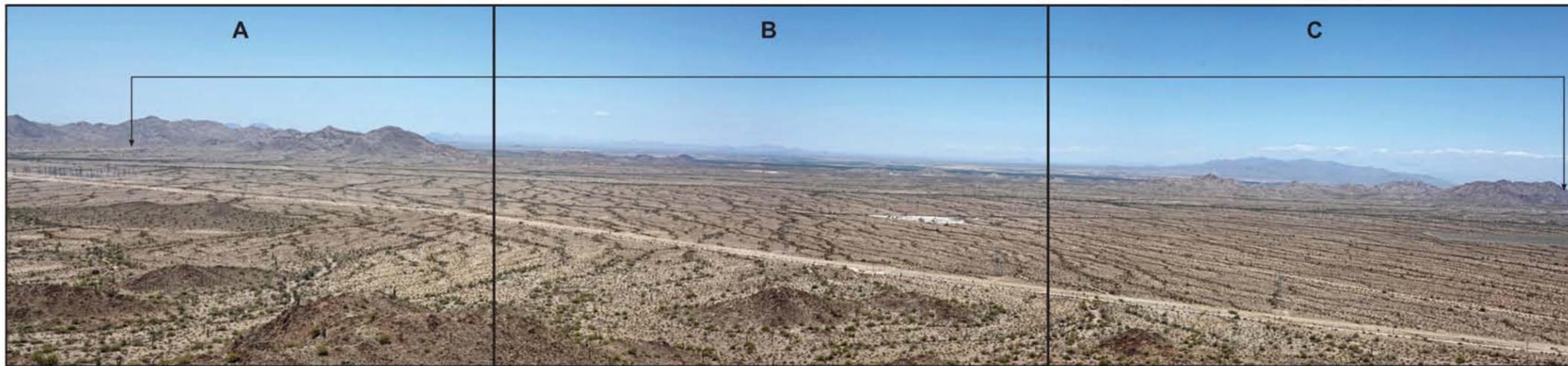




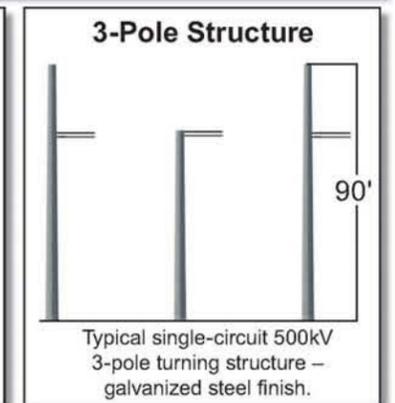
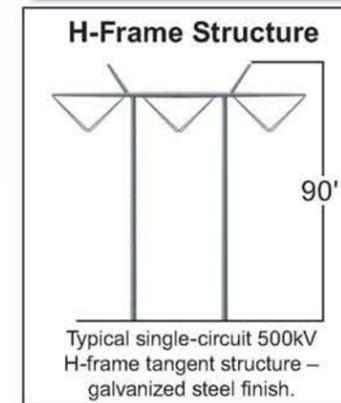
Existing Condition – Superior view facing northwest from within the Sonoran Desert National Monument toward BLM-designated utility corridor, the existing Jojoba 500kV Substation, and the Buckeye Hills



Photograph Location: Photograph was taken from within the Sonoran Desert National Monument. Gen-tie Line is approximately 1.6 miles from KOP location.



Proposed Condition – Generation Tie Line interconnecting the Jojoba 500kV Substation to the Proposed Action power blocks with associated switchyards and solar fields



Sonoran Solar Energy Project

KOP 19 Proposed Action and Generation Tie Line View 1

Photo Date and Time: 5-20-11, 11:54 a.m. Images above are 3 photographs taken at 50mm focal length stitched into a panorama. Structure models that were used in the simulations were created using 3D Models provided by Worley Parsons and Electrical Consultants, Inc. This simulation represents initial project design that will be refined and finalized throughout the NEPA process.



Existing Condition – Superior view facing northwest from within the Sonoran Desert National Monument toward BLM-designated utility corridor, the existing Jojoba 500kV Substation, and the Buckeye Hills



Photograph Location: Photograph was taken from within the Sonoran Desert National Monument. Gen-tie Line is approximately 1.6 miles from KOP location.



Proposed Condition – Generation Tie Line interconnecting the Jojoba 500kV Substation to the Proposed Action power blocks with associated switchyards

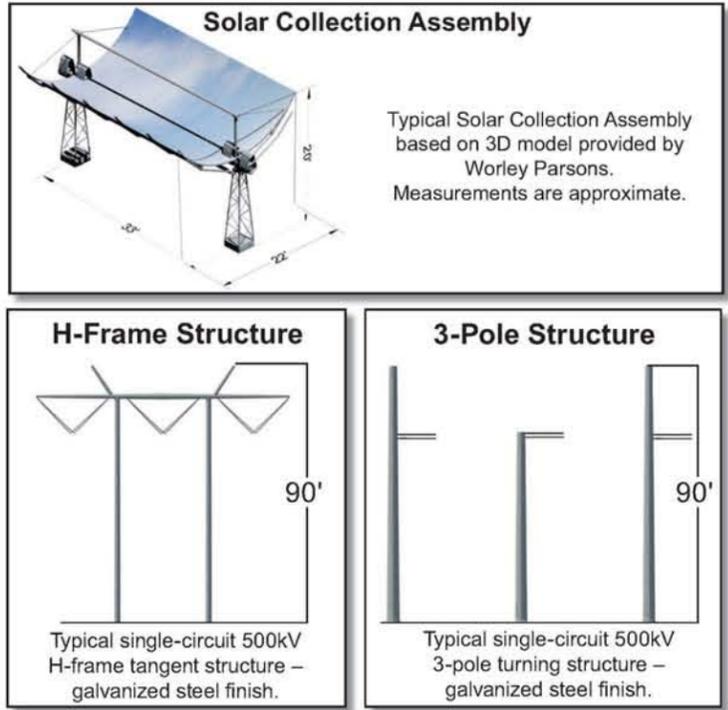
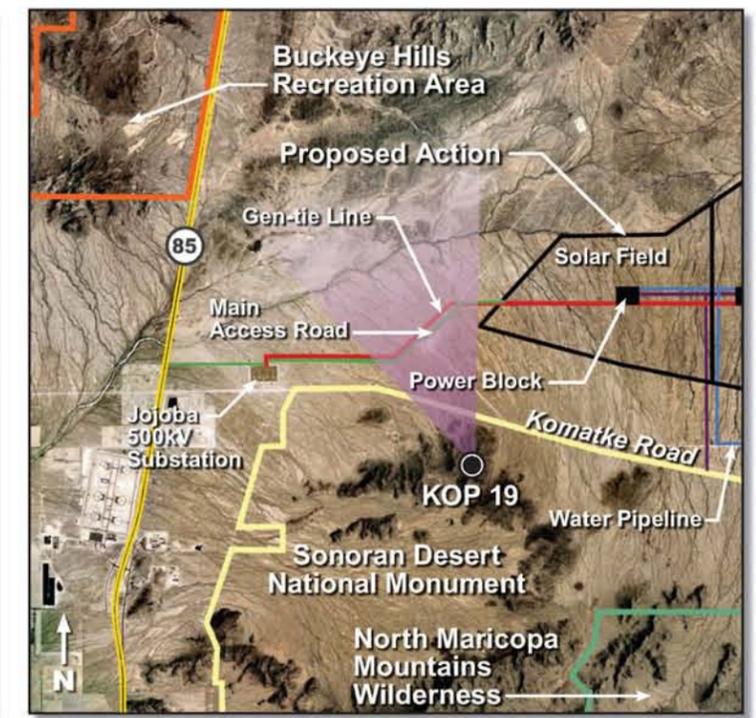


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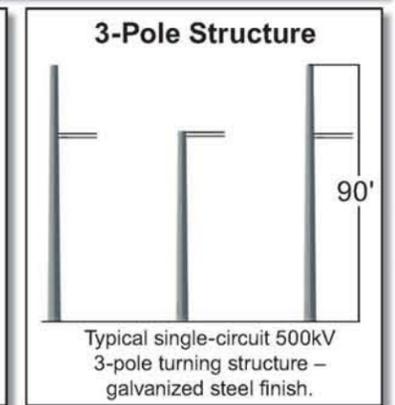
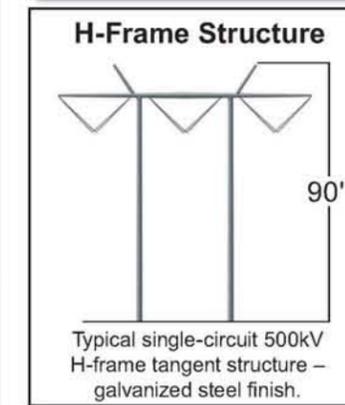
Existing Condition – Superior view facing northwest from within the Sonoran Desert National Monument toward BLM-designated utility corridor, the existing Jojoba 500kV Substation, and the Buckeye Hills



Photograph Location: Photograph was taken from within the Sonoran Desert National Monument. Gen-tie Line is approximately 1.6 miles from KOP location.

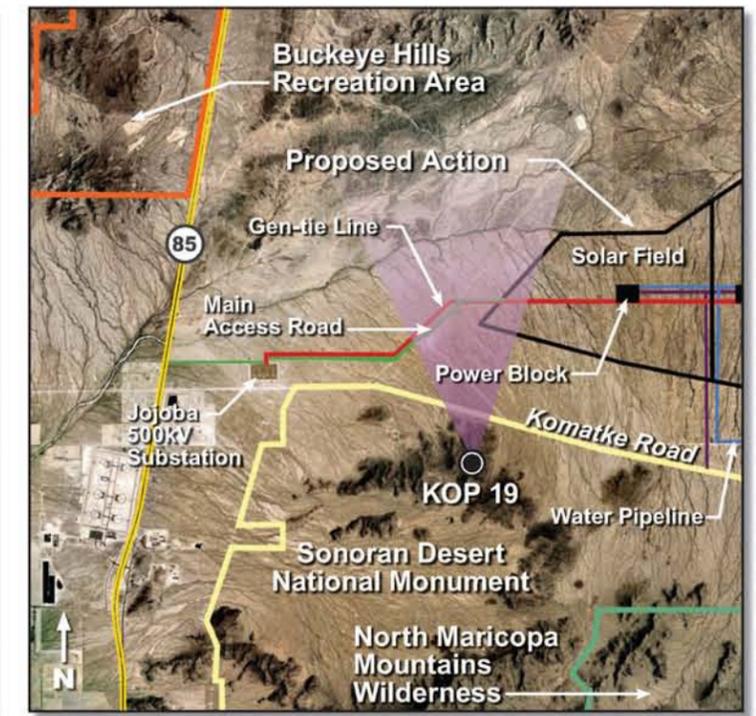


Proposed Condition – Generation Tie Line interconnecting the Jojoba 500kV Substation to the Proposed Action power blocks with associated switchyards





Existing Condition – Superior view facing north from within the Sonoran Desert National Monument toward BLM-designated utility corridor, the existing Jojoba 500kV Substation, and the Buckeye Hills



Photograph Location: Photograph was taken from within the Sonoran Desert National Monument. Gen-tie Line is approximately 1.6 miles from KOP location.



Proposed Condition – Generation Tie Line interconnecting the Jojoba 500kV Substation to the Proposed Action power blocks with associated switchyards and solar fields

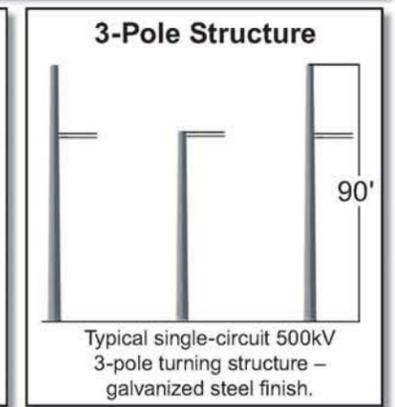
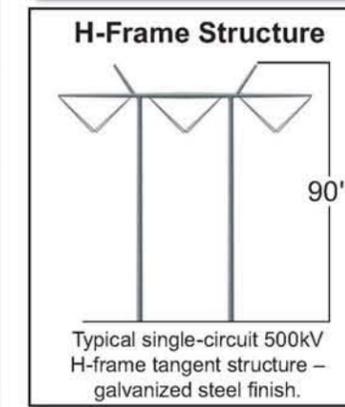
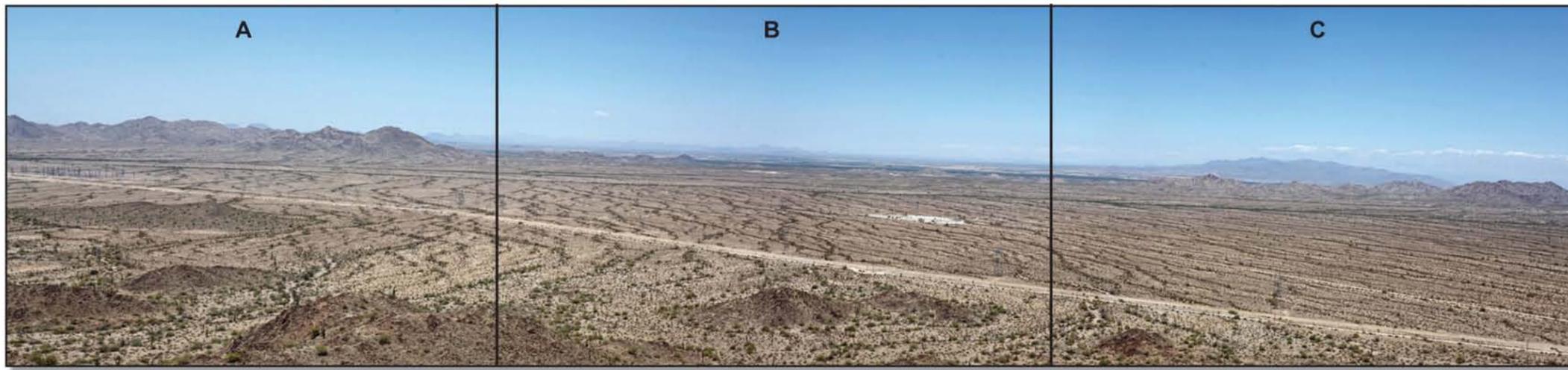
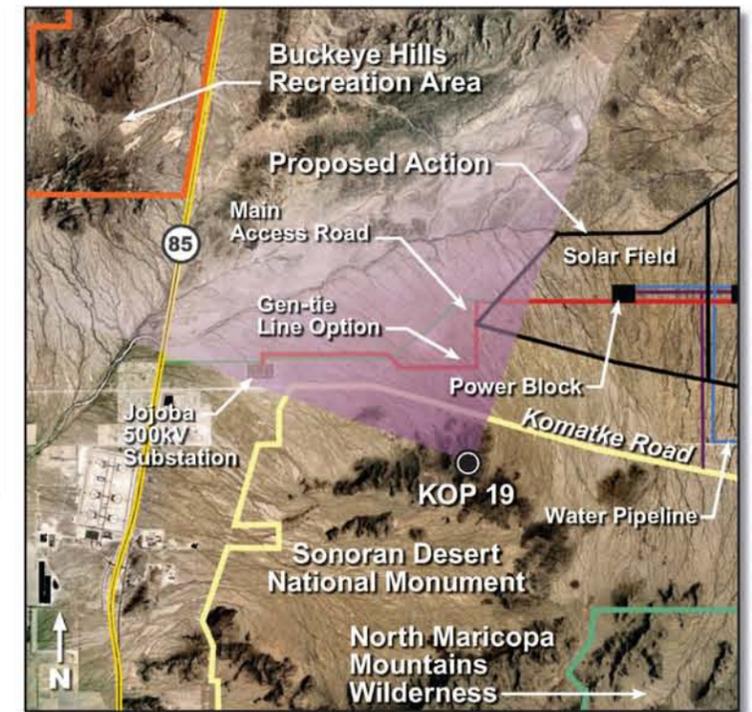


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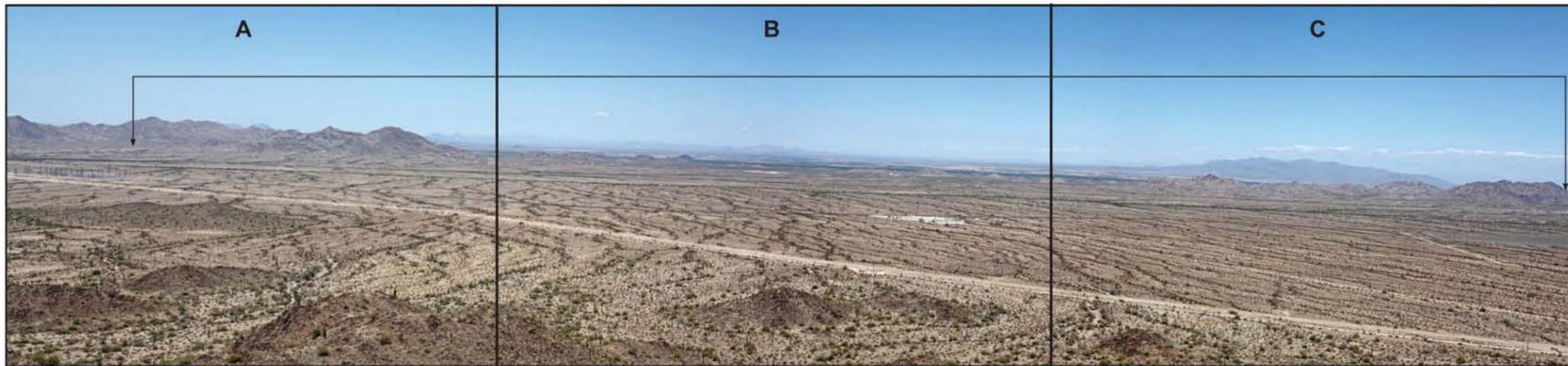




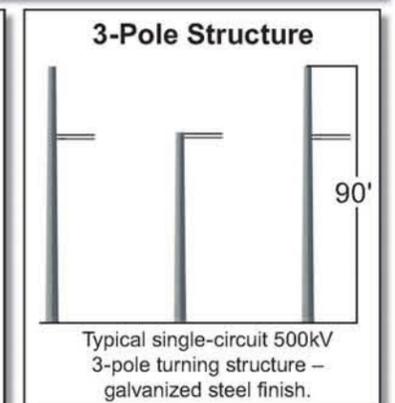
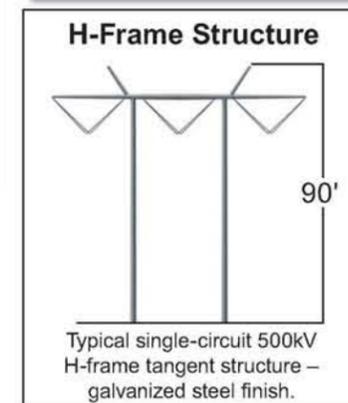
Existing Condition – Superior view facing northwest from within the Sonoran Desert National Monument toward BLM-designated utility corridor, the existing Jojoba 500kV Substation, and the Buckeye Hills



Photograph Location: Photograph was taken from within the Sonoran Desert National Monument. Gen-tie Line Option is approximately 1.2 miles from KOP location.



Proposed Condition – Generation Tie Line Option interconnecting the Jojoba 500kV Substation to the Proposed Action power blocks with associated switchyards and solar fields



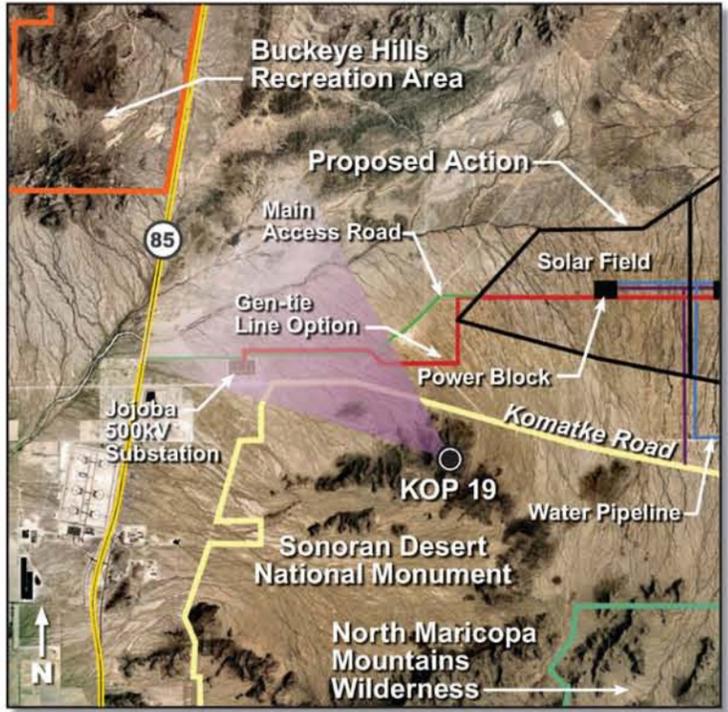
Sonoran Solar Energy Project

KOP 19 Proposed Action and Generation Tie Line Option View 1

Photo Date and Time: 5-20-11, 11:54 a.m. Images above are 3 photographs taken at 50mm focal length stitched into a panorama. Structure models that were used in the simulations were created using 3D Models provided by Worley Parsons and Electrical Consultants, Inc. This simulation represents initial project design that will be refined and finalized throughout the NEPA process.



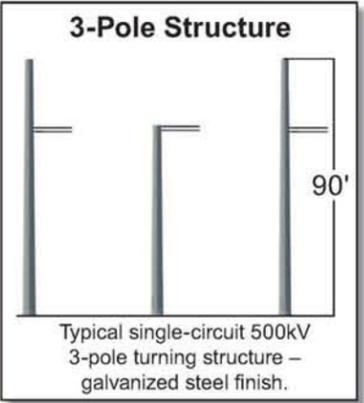
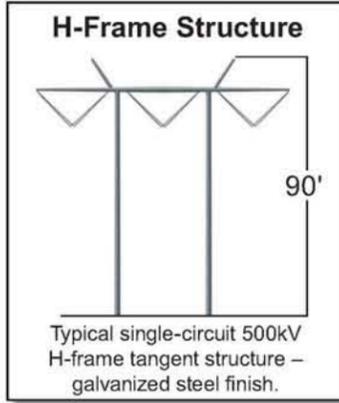
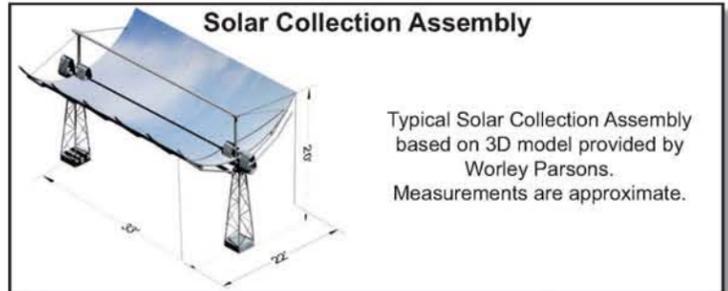
Existing Condition – Superior view facing northwest from within the Sonoran Desert National Monument toward BLM-designated utility corridor, the existing Jojoba 500kV Substation, and the Buckeye Hills



Photograph Location: Photograph was taken from within the Sonoran Desert National Monument. Gen-tie Line Option is approximately 1.2 miles from KOP location.



Proposed Condition – Generation Tie Line Option interconnecting the Jojoba 500kV Substation to the Proposed Action power blocks with associated switchyards



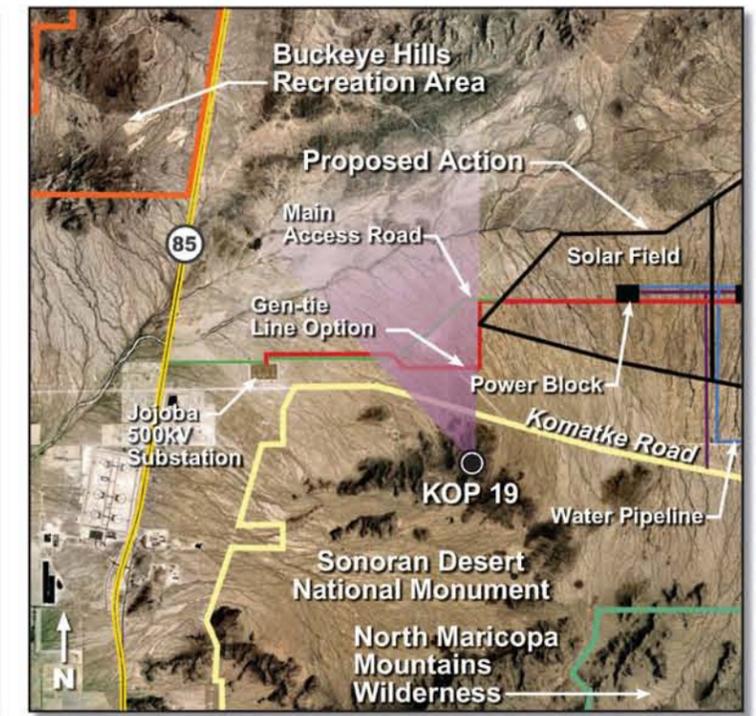
Sonoran Solar Energy Project

KOP 19 Proposed Action and Generation Tie Line Option View 1a

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 Structure models that were used in the simulations were created using 3D Models provided by Worley Parsons and Electrical Consultants, Inc. This simulation represents initial project design that will be refined and finalized throughout the NEPA process.



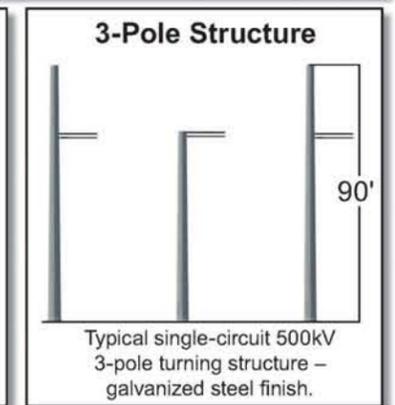
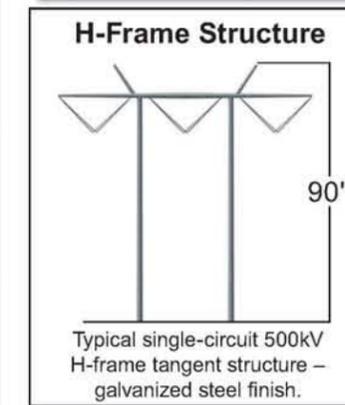
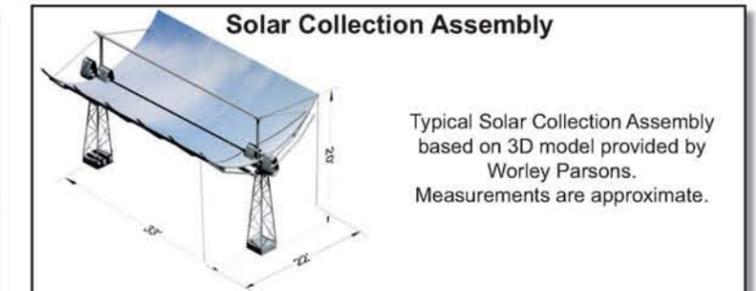
Existing Condition – Superior view facing northwest from within the Sonoran Desert National Monument toward BLM-designated utility corridor, the existing Jojoba 500kV Substation, and the Buckeye Hills



Photograph Location: Photograph was taken from within the Sonoran Desert National Monument. Gen-tie Line Option is approximately 1.2 miles from KOP location.



Proposed Condition – Generation Tie Line Option interconnecting the Jojoba 500kV Substation to the Proposed Action power blocks with associated switchyards



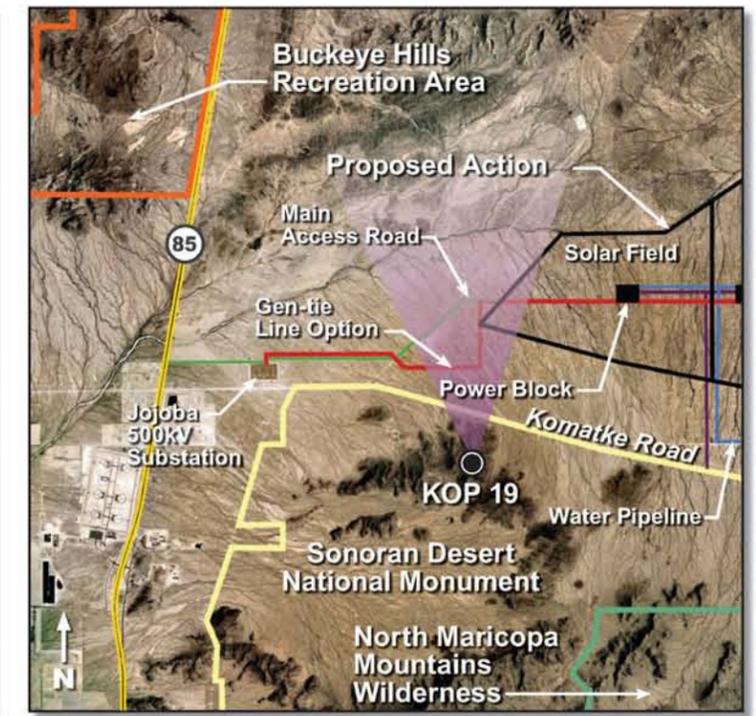
Sonoran Solar Energy Project

KOP 19 Proposed Action and Generation Tie Line Option View 1b

Photo Date and Time: 5-20-11, 11:54 a.m. Focal Length: 50mm
 Structure models that were used in the simulations were created using 3D Models provided by Worley Parsons and Electrical Consultants, Inc.
 This simulation represents initial project design that will be refined and finalized throughout the NEPA process.



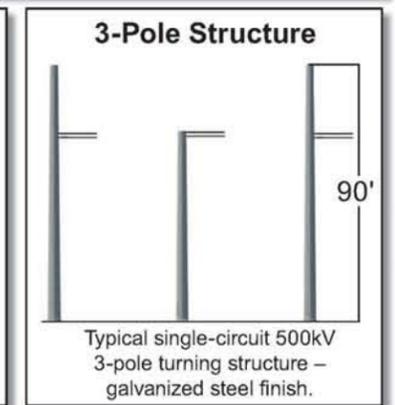
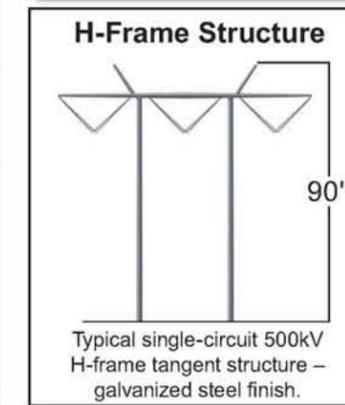
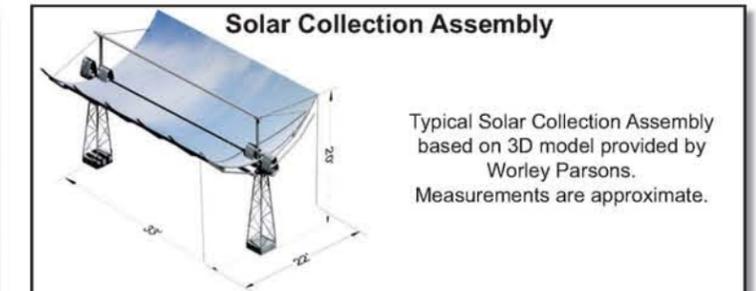
Existing Condition – Superior view facing north from within the Sonoran Desert National Monument toward BLM-designated utility corridor, the existing Jojoba 500kV Substation, and the Buckeye Hills



Photograph Location: Photograph was taken from within the Sonoran Desert National Monument. Gen-tie Line Option is approximately 1.2 miles from KOP location.



Proposed Condition – Generation Tie Line Option interconnecting the Jojoba 500kV Substation to the Proposed Action power blocks with associated switchyards and solar fields



Sonoran Solar Energy Project

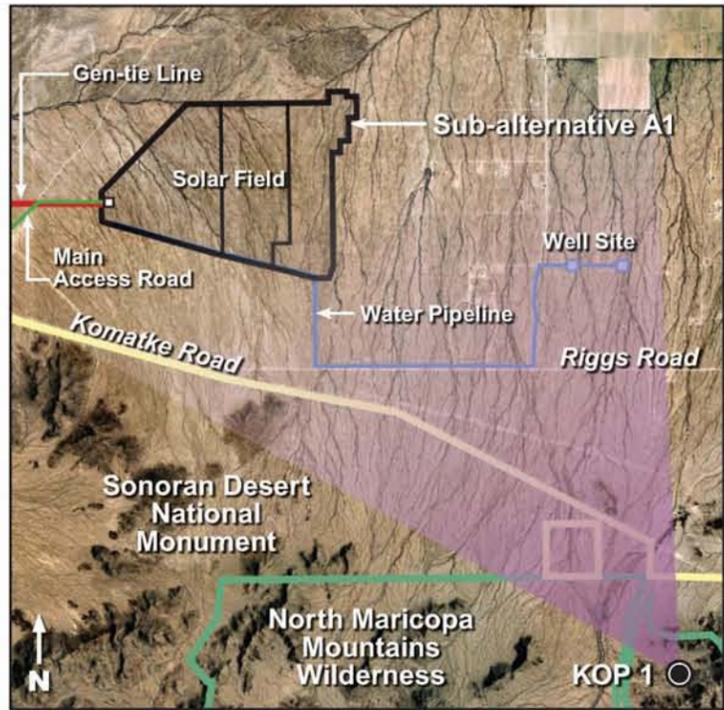
KOP 19 Proposed Action and Generation Tie Line Option View 1c

August 2011

Photo Date and Time: 5-20-11, 11:54 a.m. Focal Length: 50mm
 Structure models that were used in the simulations were created using 3D Models provided by Worley Parsons and Electrical Consultants, Inc.
 This simulation represents initial project design that will be refined and finalized throughout the NEPA process.



Existing Condition – Superior view facing northwest from North Maricopa Mountains Wilderness toward the BLM-designated utility corridor and the Buckeye Hills



Photograph Location: Photograph was taken from KOP approximately 1 mile south of the junction of Komatke Road and Tank Road. Project is approximately 4.8 miles from KOP location.



Proposed Condition – Sub-alternative A1: Photovoltaic and Generation Tie Line with inverter/transformer unit containers and 34.5kV feeder bus lines

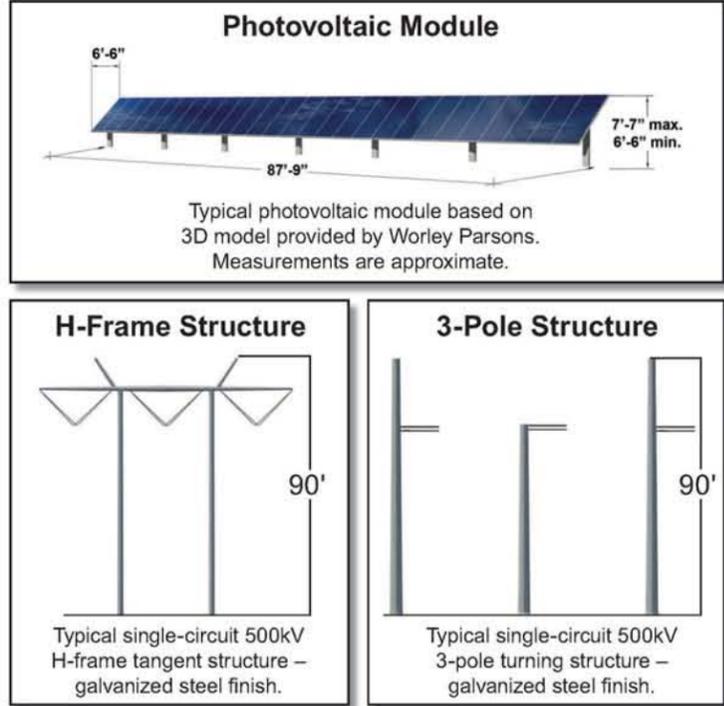
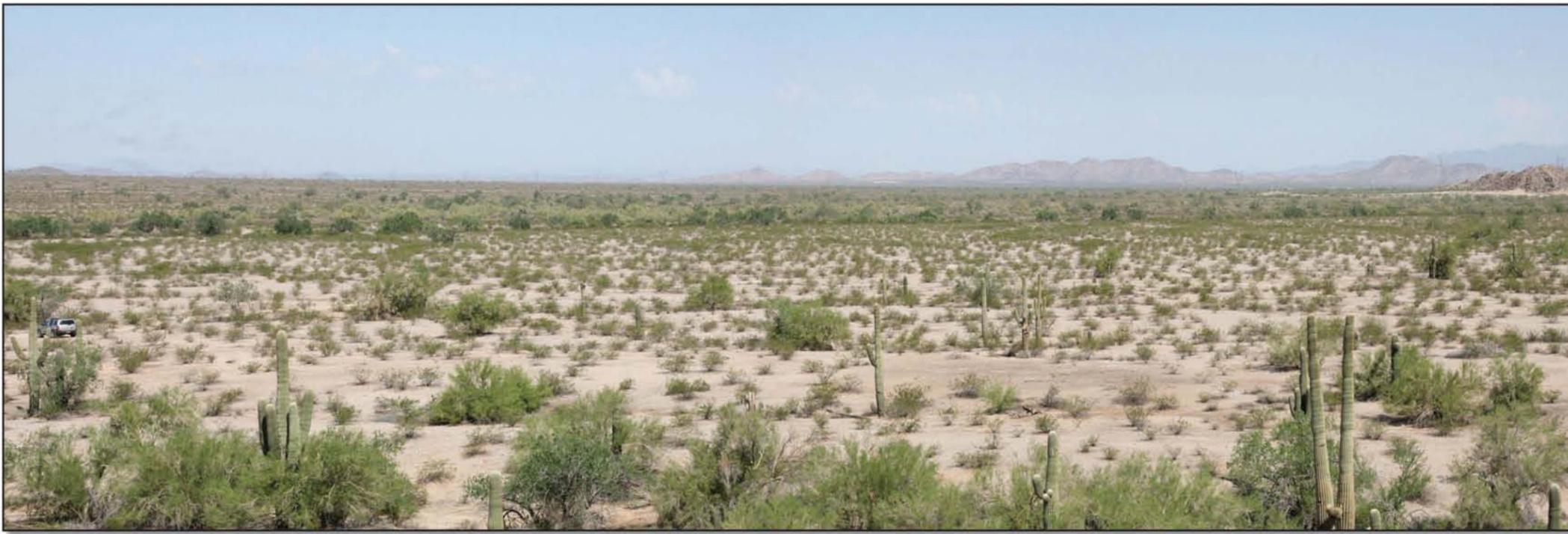
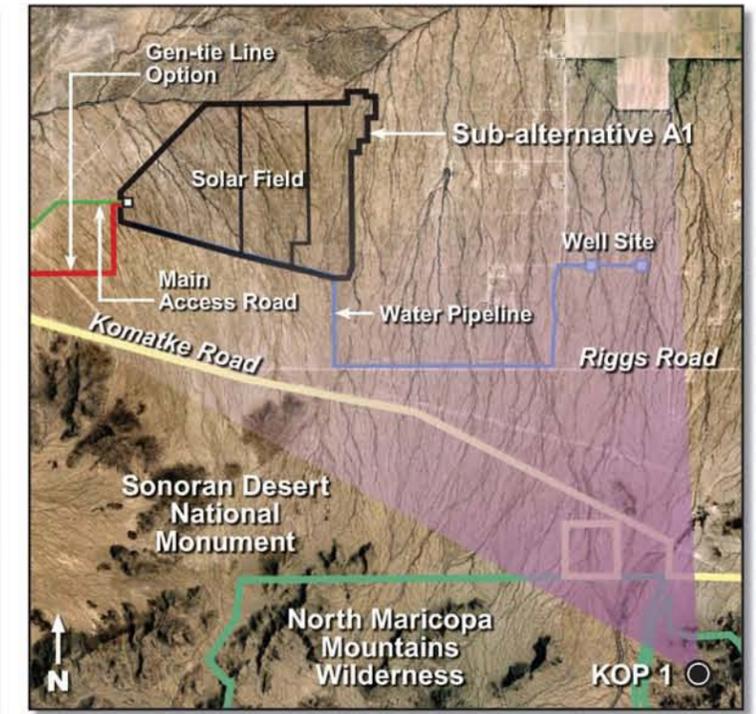


Photo Date and Time: 9-10-09, 10:07 a.m. Focal Length: 50mm
 Structure models that were used in the simulations were created using 3D Models provided by Worley Parsons and Electrical Consultants, Inc.
 This simulation represents initial project design that will be refined and finalized throughout the NEPA process.





Existing Condition – Superior view facing northwest from North Maricopa Mountains Wilderness toward the BLM-designated utility corridor and the Buckeye Hills



Photograph Location: Photograph was taken from KOP approximately 1 mile south of the junction of Komatke Road and Tank Road. Project is approximately 4.8 miles from KOP location.



Proposed Condition – Sub-alternative A1: Photovoltaic and Generation Tie Line Option with inverter/transformer unit containers and 34.5kV feeder bus lines

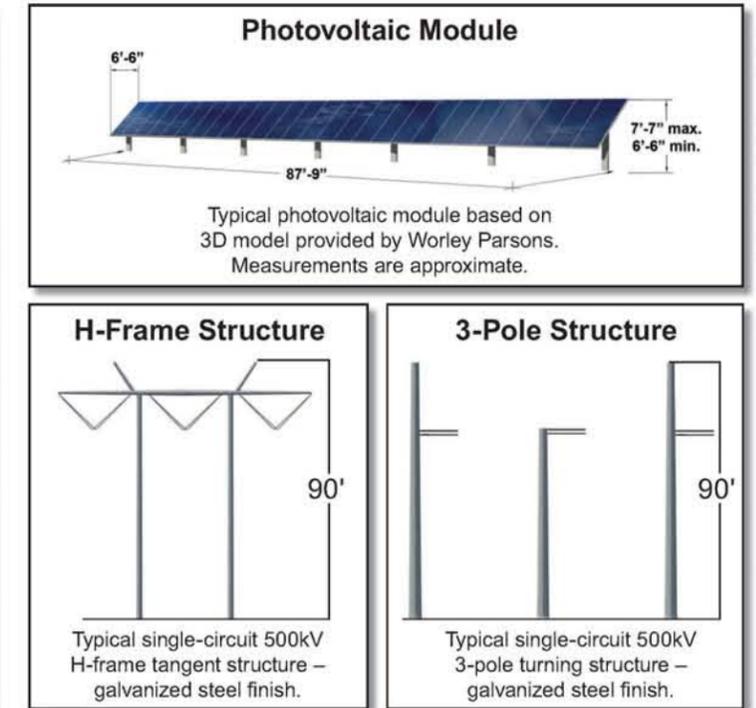


Photo Date and Time: 9-10-09, 10:07 a.m. Focal Length: 50mm
 Structure models that were used in the simulations were created using 3D Models provided by Worley Parsons and Electrical Consultants, Inc.
 This simulation represents initial project design that will be refined and finalized throughout the NEPA process.

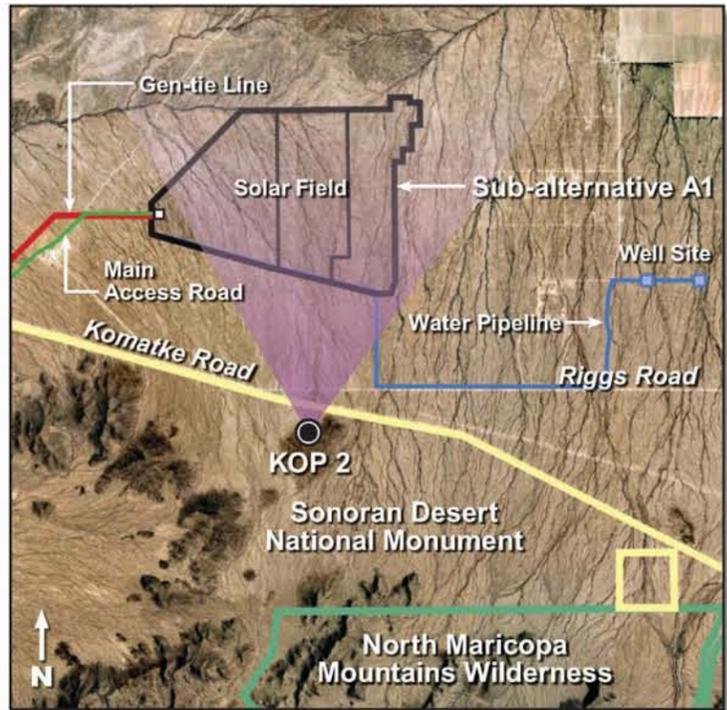


Sonoran Solar Energy Project

KOP 1 Sub-alternative A1: Photovoltaic and Generation Tie Line Option



Existing Condition – Superior view facing north from within Sonoran Desert National Monument toward BLM-designated utility corridor and the Buckeye Hills



Photograph Location: Photograph was taken from KOP approximately 0.2 mile south-southwest of Komatke Road. Project is approximately 1.5 miles from KOP location.



Proposed Condition – Sub-alternative A1: Photovoltaic and Generation Tie Line with inverter/transformer unit containers and 34.5kV feeder bus lines

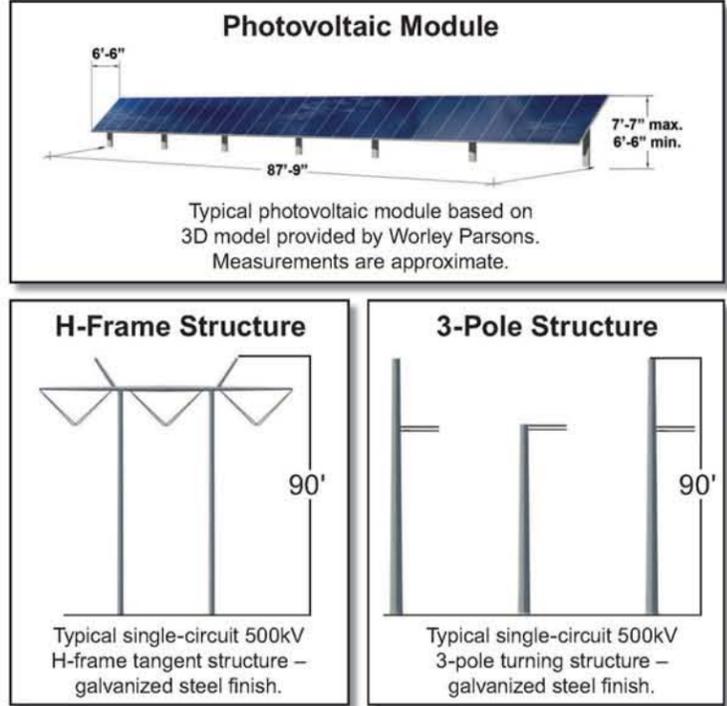
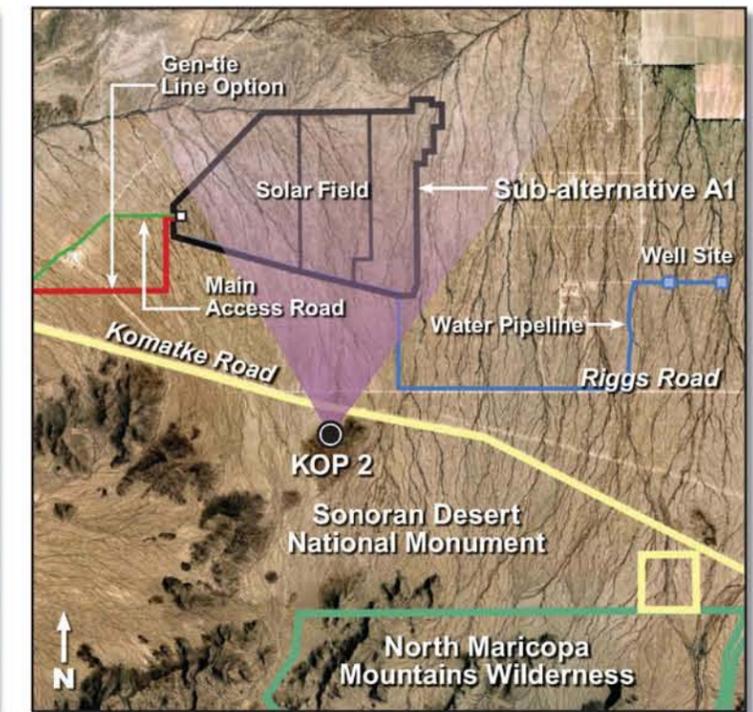


Photo Date and Time: 8-25-09, 10:53 a.m. Focal Length: 50mm
 Structure models that were used in the simulations were created using 3D Models provided by Worley Parsons and Electrical Consultants, Inc.
 This simulation represents initial project design that will be refined and finalized throughout the NEPA process.





Existing Condition – Superior view facing north from within Sonoran Desert National Monument toward BLM-designated utility corridor and the Buckeye Hills



Photograph Location: Photograph was taken from KOP approximately 0.2 mile south-southwest of Komatke Road. Project is approximately 1.5 miles from KOP location.



Proposed Condition – Sub-alternative A1: Photovoltaic and Generation Tie Line Option with inverter/transformer unit containers and 34.5kV feeder bus lines

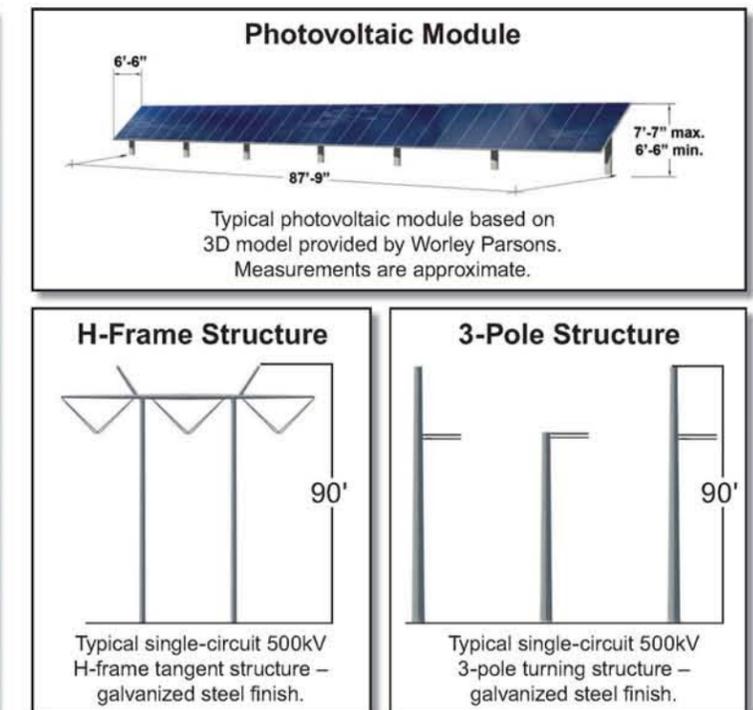


Photo Date and Time: 8-25-09, 10:53 a.m. Focal Length: 50mm
 Structure models that were used in the simulations were created using 3D Models provided by Worley Parsons and Electrical Consultants, Inc.
 This simulation represents initial project design that will be refined and finalized throughout the NEPA process.

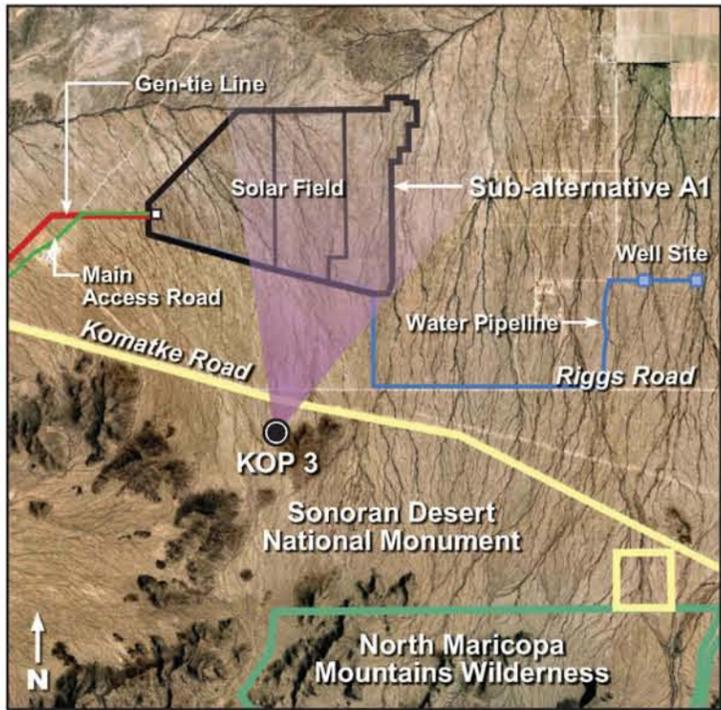


Sonoran Solar Energy Project

KOP 2 Sub-alternative A1: Photovoltaic and Generation Tie Line Option



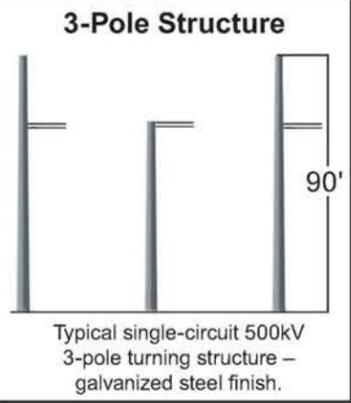
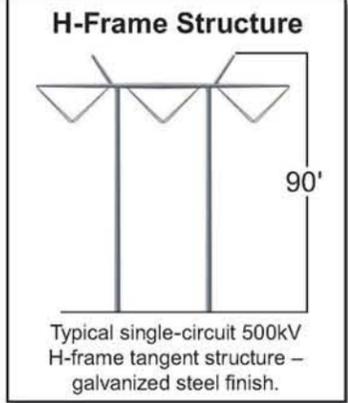
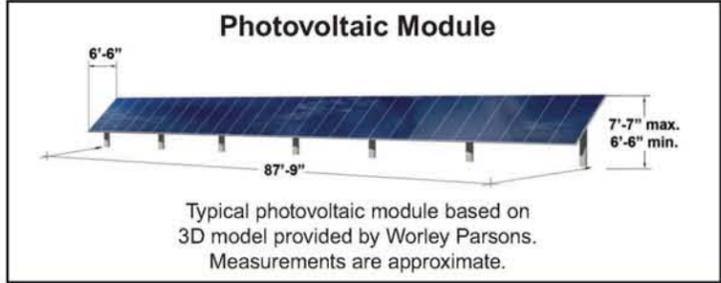
Existing Condition – Level view facing north-northeast from within Sonoran Desert National Monument toward BLM-designated utility corridor and the Buckeye Hills



Photograph Location: Photograph was taken from KOP approximately 0.2 mile south of Komatke Road and Margie's Cove Road West. Project is approximately 1.5 miles from KOP location.



Proposed Condition – Sub-alternative A1: Photovoltaic and Generation Tie Line with inverter/transformer unit containers and 34.5kV feeder bus lines



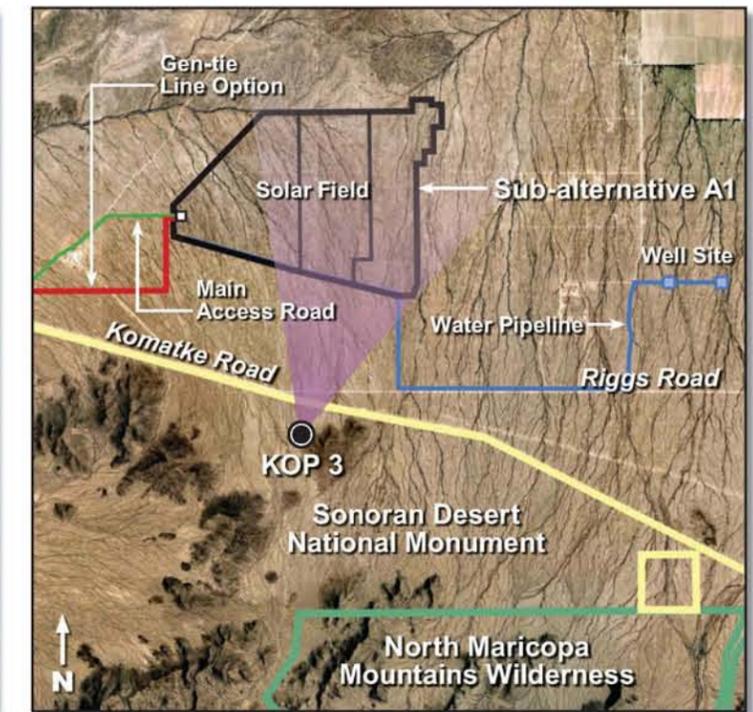
Sonoran Solar Energy Project

KOP 3 Sub-alternative A1: Photovoltaic and Generation Tie Line

Photo Date and Time: 8-31-09, 2:43 p.m. Focal Length: 50mm
 Structure models that were used in the simulations were created using 3D Models provided by Worley Parsons and Electrical Consultants, Inc.
 This simulation represents initial project design that will be refined and finalized throughout the NEPA process.



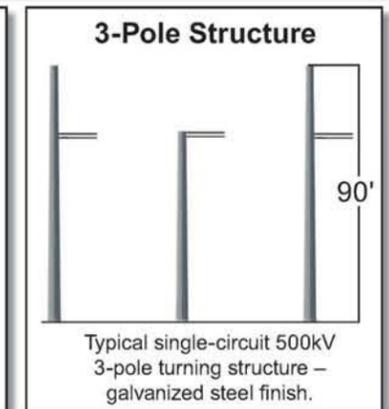
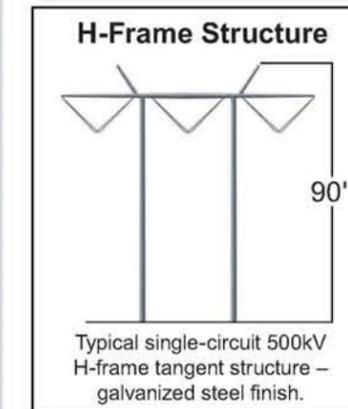
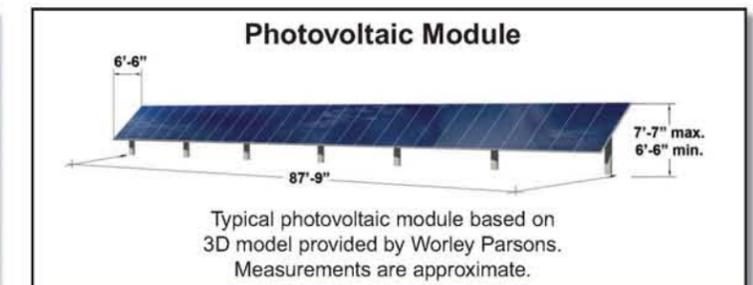
Existing Condition – Level view facing north-northeast from within Sonoran Desert National Monument toward BLM-designated utility corridor and the Buckeye Hills



Photograph Location: Photograph was taken from KOP approximately 0.2 mile south of Komatke Road and Margie's Cove Road West. Project is approximately 1.5 miles from KOP location.



Proposed Condition – Sub-alternative A1: Photovoltaic and Generation Tie Line Option with inverter/transformer unit containers and 34.5kV feeder bus lines



Sonoran Solar Energy Project

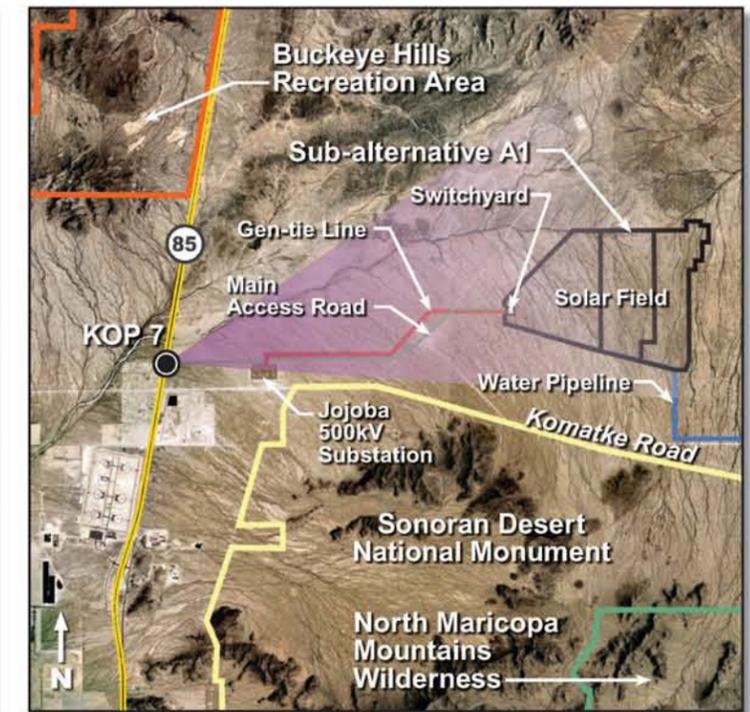
KOP 3 Sub-alternative A1: Photovoltaic and Generation Tie Line Option

August 2011

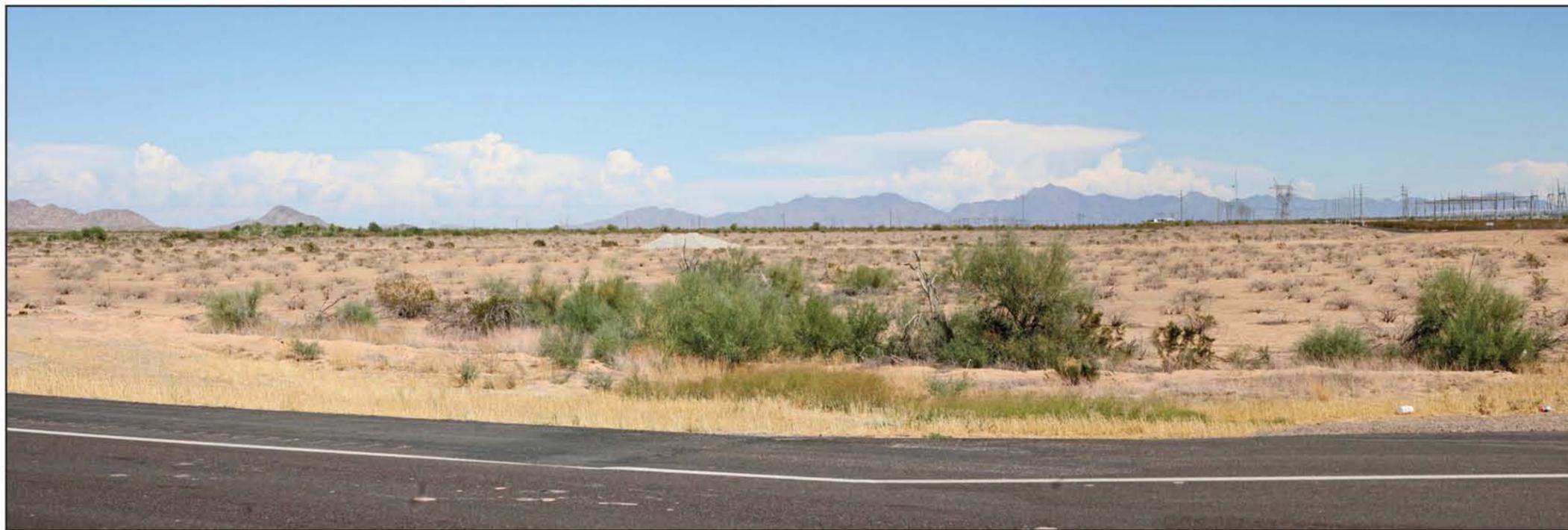
Photo Date and Time: 8-31-09, 2:43 p.m. Focal Length: 50mm
 Structure models that were used in the simulations were created using 3D Models provided by Worley Parsons and Electrical Consultants, Inc.
 This simulation represents initial project design that will be refined and finalized throughout the NEPA process.



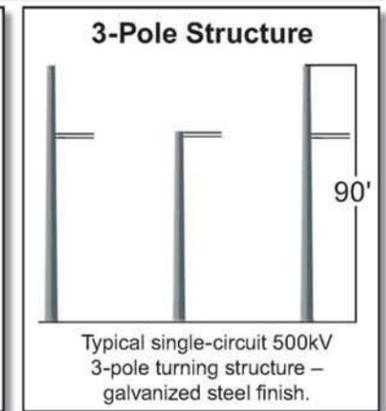
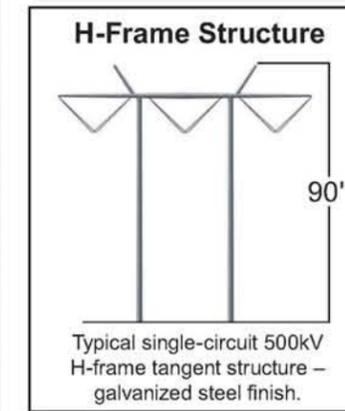
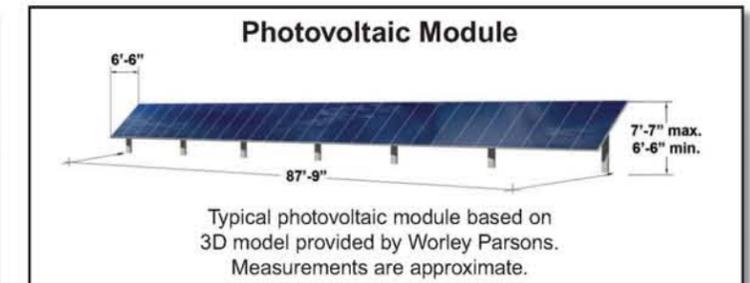
Existing Condition – Level view facing east from State Route 85 (northbound) toward BLM-designated utility corridor, the existing Jojoba 500kV Substation, and Rainbow Valley



Photograph Location: Photograph was taken from KOP in northbound lane of State Route 85. Project is approximately 4.2 miles from KOP location.



Proposed Condition – Sub-alternative A1: Photovoltaic and Generation Tie Line interconnecting the Jojoba 500kV Substation with Sub-alternative A1 switchyard



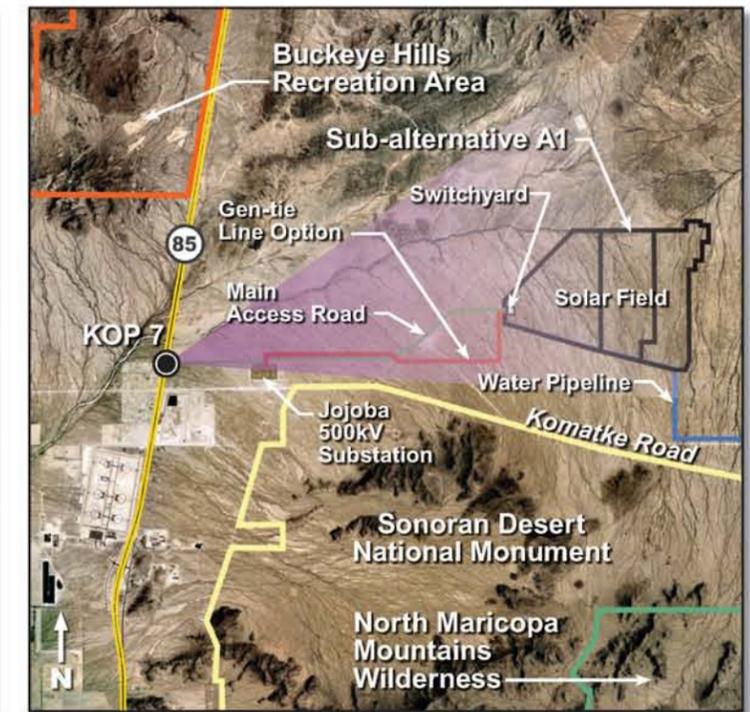
Sonoran Solar Energy Project

KOP 7 Sub-alternative A1: Photovoltaic and Generation Tie Line

Photo Date and Time: 9-10-09, 2:00 p.m. Focal Length 50mm
 Structure models that were used in the simulations were created using 3D Models provided by Worley Parsons and Electrical Consultants, Inc.
 This simulation represents initial project design that will be refined and finalized throughout the NEPA process.



Existing Condition – Level view facing east from State Route 85 (northbound) toward BLM-designated utility corridor, the existing Jojoba 500kV Substation, and Rainbow Valley



Photograph Location: Photograph was taken from KOP in northbound lane of State Route 85. Project is approximately 4.2 miles from KOP location.



Proposed Condition – Sub-alternative A1: Photovoltaic and Generation Tie Line Option interconnecting the Jojoba 500kV Substation with Sub-alternative A1 switchyard

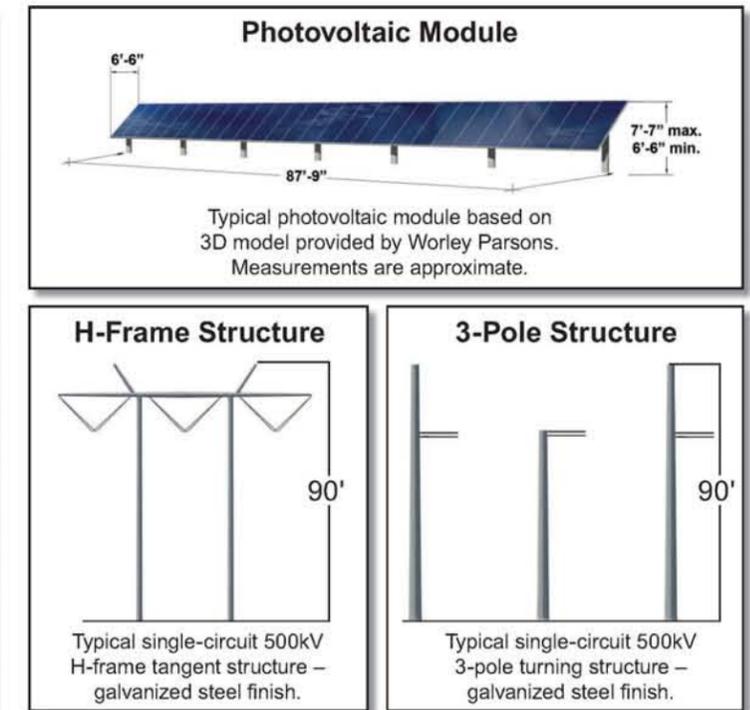


Photo Date and Time: 9-10-09, 2:00 p.m. Focal Length 50mm
 Structure models that were used in the simulations were created using 3D Models provided by Worley Parsons and Electrical Consultants, Inc.
 This simulation represents initial project design that will be refined and finalized throughout the NEPA process.

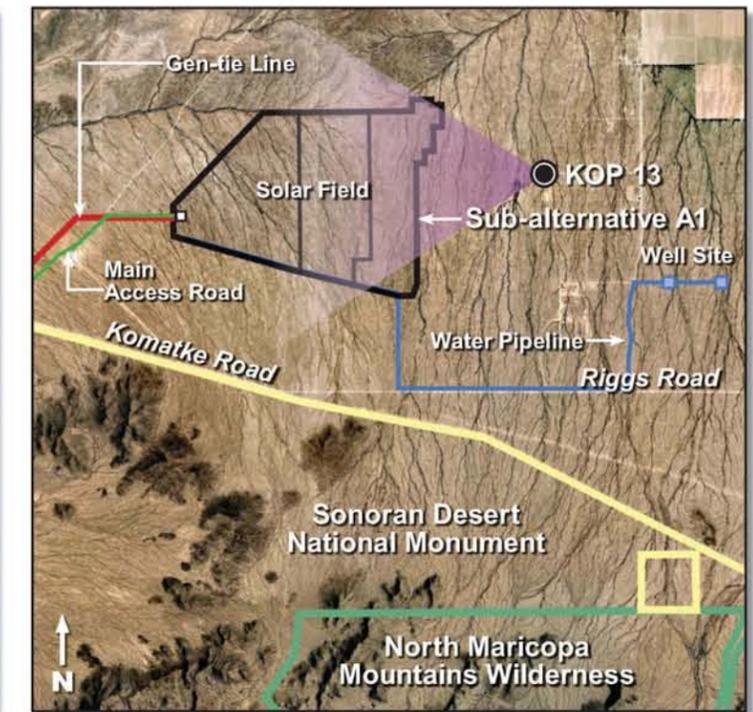


Sonoran Solar Energy Project

KOP 7 Sub-alternative A1: Photovoltaic and Generation Tie Line Option



Existing Condition – Level view facing west from Ocotillo Road residences toward BLM-designated utility corridor and the Buckeye Hills



Photograph Location: Photograph was taken from KOP on Ocotillo Road. Project is approximately 1.1 miles from KOP location.



Proposed Condition – Sub-alternative A1: Photovoltaic and Generation Tie Line with inverter/transformer unit containers and 34.5kV feeder bus lines

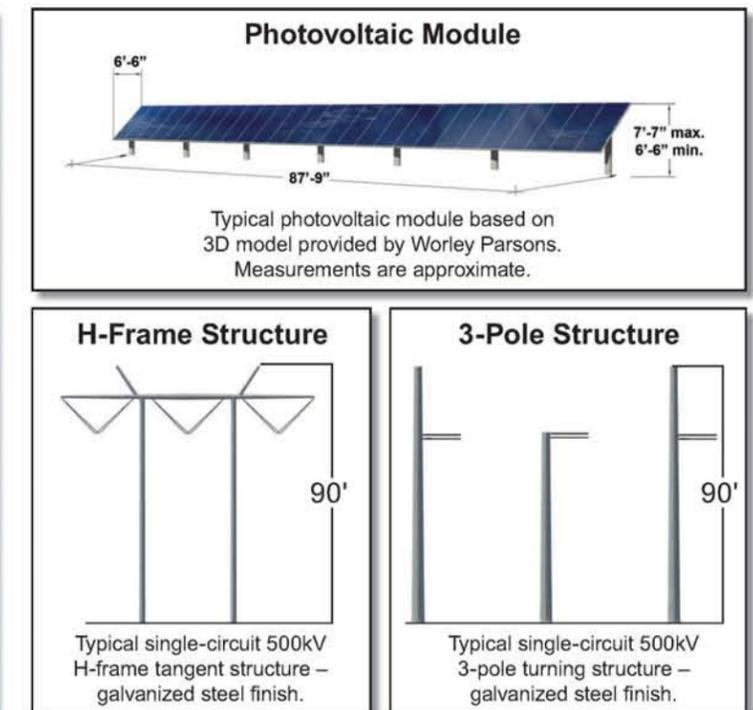
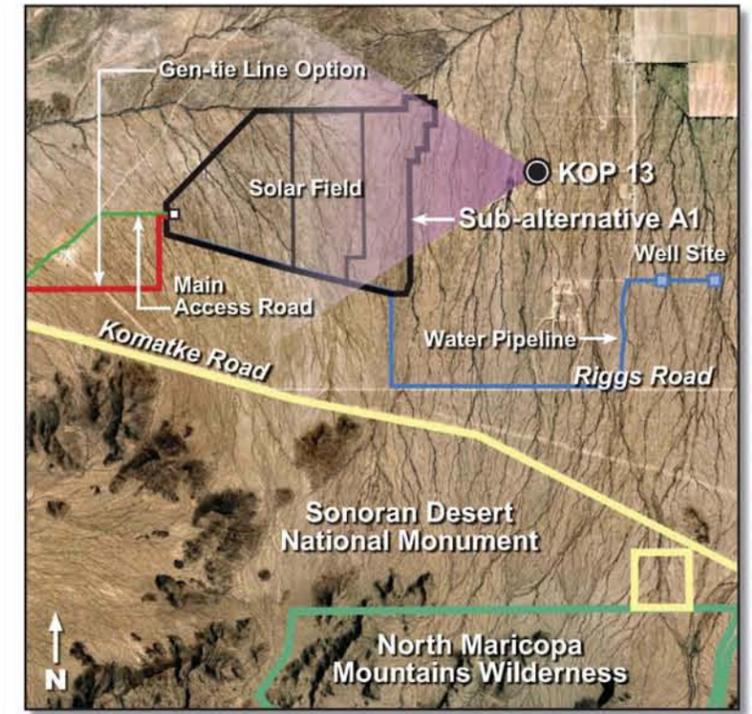


Photo Date and Time: 9-10-09, 12:37 p.m. Focal Length: 50mm
 Structure models that were used in the simulations were created using 3D Models provided by Worley Parsons and Electrical Consultants, Inc.
 This simulation represents initial project design that will be refined and finalized throughout the NEPA process.





Existing Condition – Level view facing west from Ocotillo Road residences toward BLM-designated utility corridor and the Buckeye Hills



Photograph Location: Photograph was taken from KOP on Ocotillo Road. Project is approximately 1.1 miles from KOP location.



Proposed Condition – Sub-alternative A1: Photovoltaic and Generation Tie Line Option with inverter/transformer unit containers and 34.5kV feeder bus lines

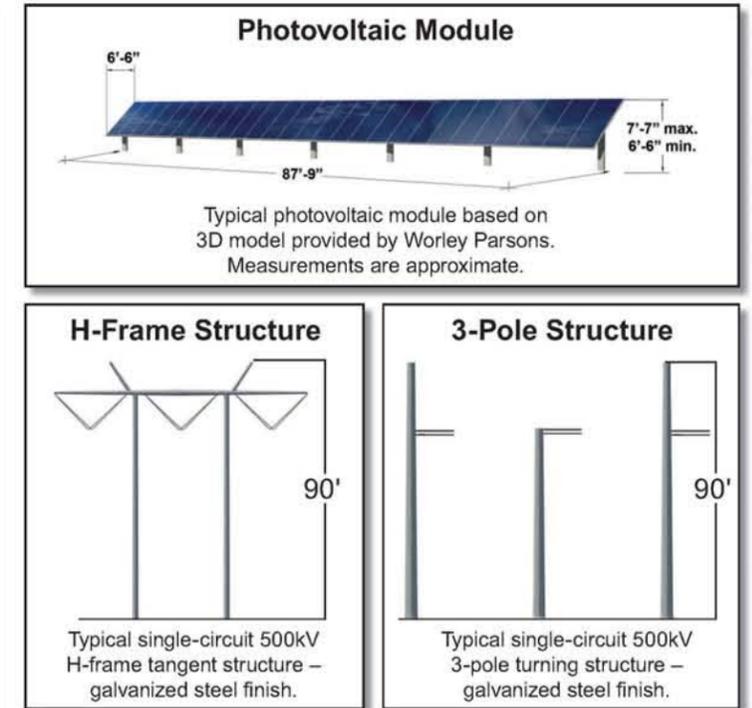


Photo Date and Time: 9-10-09, 12:37 p.m. Focal Length: 50mm
 Structure models that were used in the simulations were created using 3D Models provided by Worley Parsons and Electrical Consultants, Inc.
 This simulation represents initial project design that will be refined and finalized throughout the NEPA process.

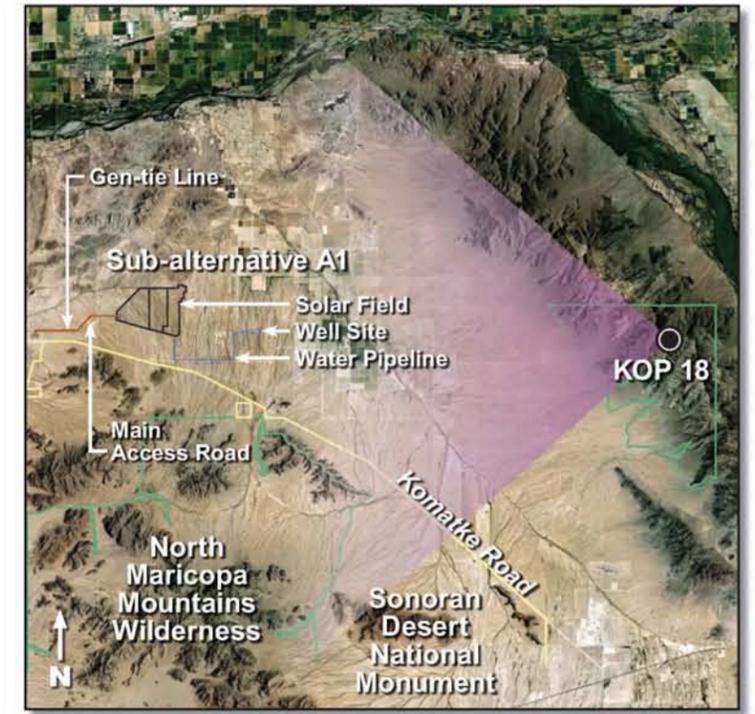


Sonoran Solar Energy Project

KOP 13 Sub-alternative A1: Photovoltaic and Generation Tie Line Option



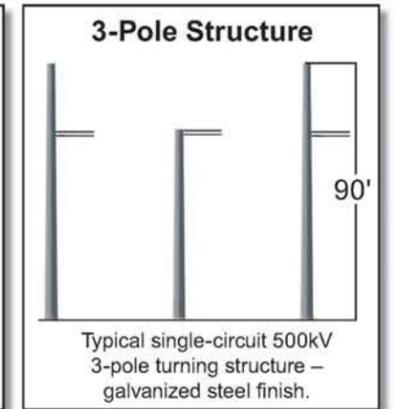
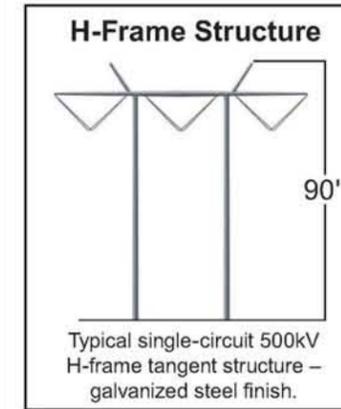
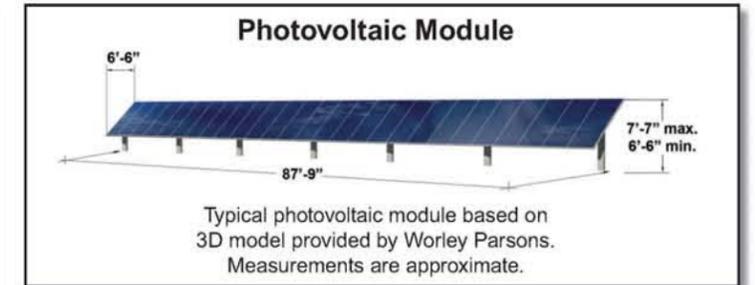
Existing Condition – Superior view facing west from the Quartz Peak Trail, within the Sierra Estrella Wilderness, toward BLM-designated utility corridor and Rainbow Valley



Photograph Location: Photograph was taken from KOP on top of Quartz Peak Trail. Project is approximately 18 miles from KOP location.



Proposed Condition – Sub-alternative A1: Photovoltaic and Generation Tie Line with inverter/transformer unit containers and 34.5kV feeder bus lines



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KOP 18 Sub-alternative A1: Photovoltaic and Generation Tie Line

August 2011

Photo Date and Time: 11-15-09, 12:44 p.m. Focal Length: 50mm
 Structure models that were used in the simulations were created using 3D Models provided by Worley Parsons and Electrical Consultants, Inc.
 This simulation represents initial project design that will be refined and finalized throughout the NEPA process.



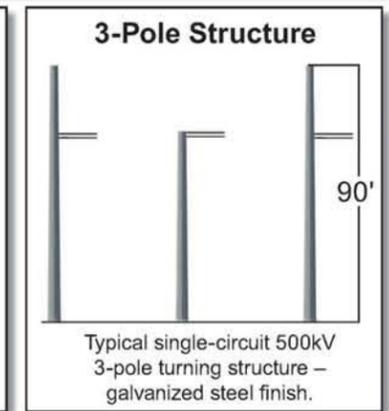
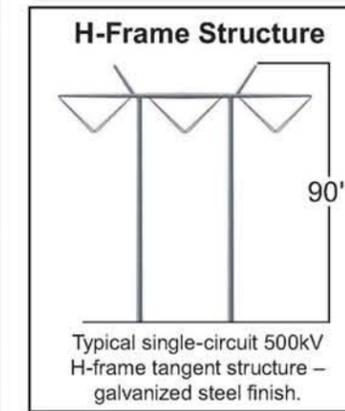
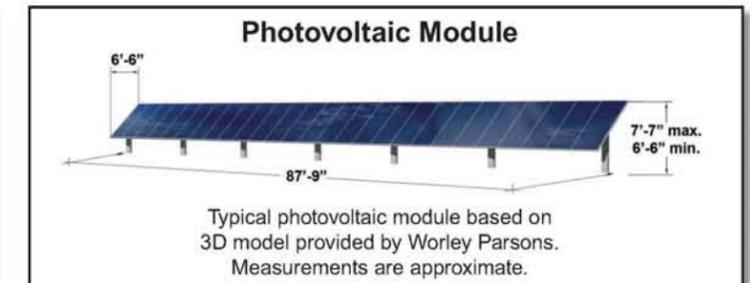
Existing Condition – Superior view facing west from the Quartz Peak Trail, within the Sierra Estrella Wilderness, toward BLM-designated utility corridor and Rainbow Valley



Photograph Location: Photograph was taken from KOP on top of Quartz Peak Trail. Project is approximately 18 miles from KOP location.



Proposed Condition – Sub-alternative A1: Photovoltaic and Generation Tie Line Option with inverter/transformer unit containers and 34.5kV feeder bus lines

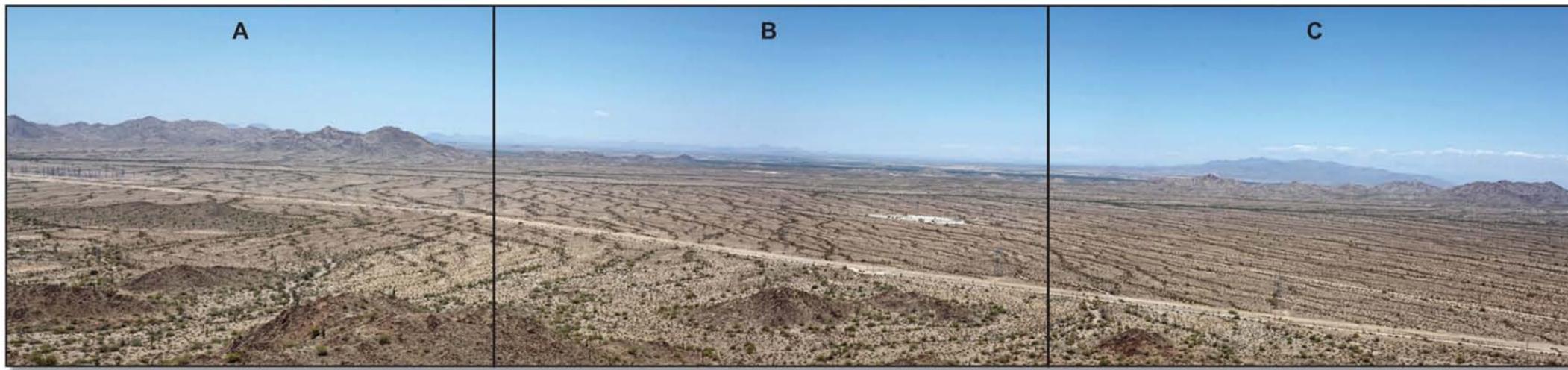


Sonoran Solar Energy Project

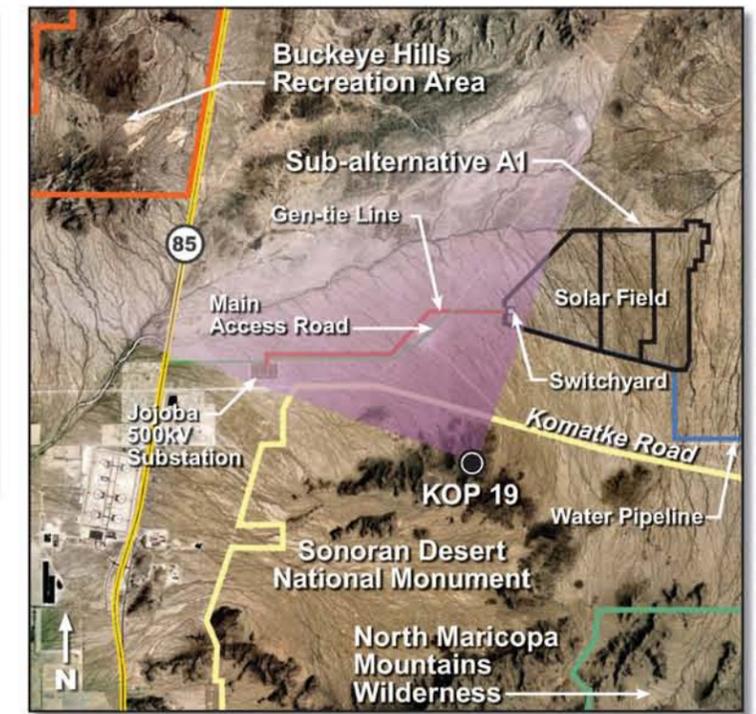
KOP 18 Sub-alternative A1: Photovoltaic and Generation Tie Line Option

August 2011

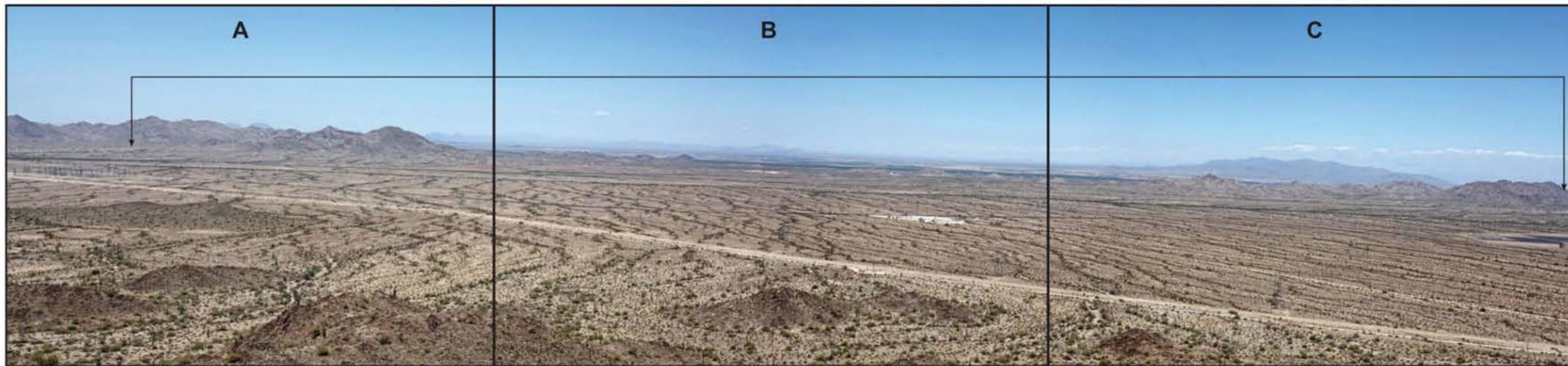
Photo Date and Time: 11-15-09, 12:44 p.m. Focal Length: 50mm
 Structure models that were used in the simulations were created using 3D Models provided by Worley Parsons and Electrical Consultants, Inc.
 This simulation represents initial project design that will be refined and finalized throughout the NEPA process.



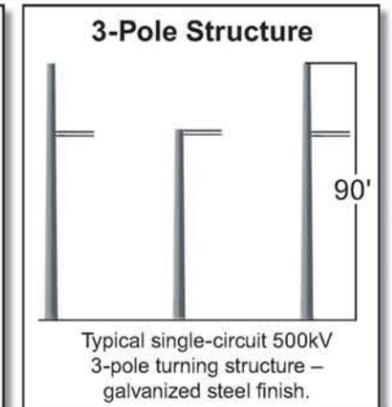
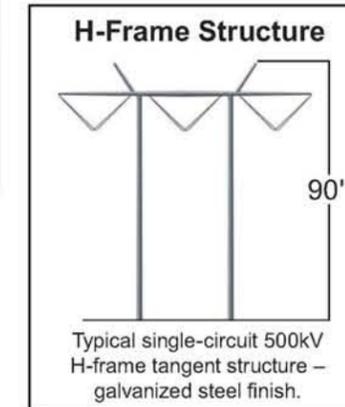
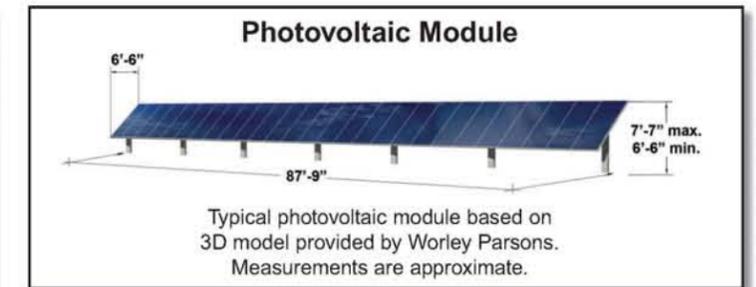
Existing Condition – Superior view facing northwest from within the Sonoran Desert National Monument toward BLM-designated utility corridor, the existing Jojoba 500kV Substation, and the Buckeye Hills



Photograph Location: Photograph was taken from within the Sonoran Desert National Monument. Gen-tie Line is approximately 1.6 miles from KOP location.



Proposed Condition – Generation Tie Line interconnecting the Jojoba 500kV Substation and Sub-alternative A1 switchyard, 34.5kV feeder bus lines, and 300MW photovoltaic array with inverter/transformer unit containers



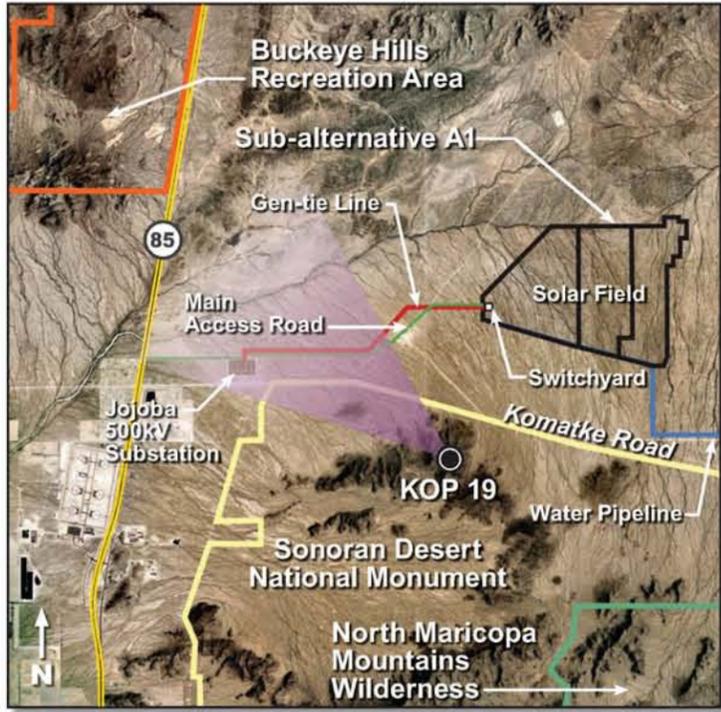
Sonoran Solar Energy Project

KOP 19 Sub-alternative A1: Photovoltaic and Generation Tie Line View 1

Photo Date and Time: 5-20-11, 11:54 a.m. Images above are 3 photographs taken at 50mm focal length stitched into a panorama. Structure models that were used in the simulations were created using 3D Models provided by Worley Parsons and Electrical Consultants, Inc. This simulation represents initial project design that will be refined and finalized throughout the NEPA process.



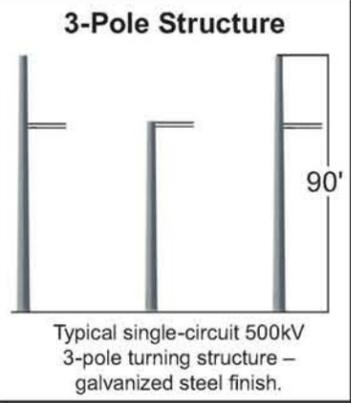
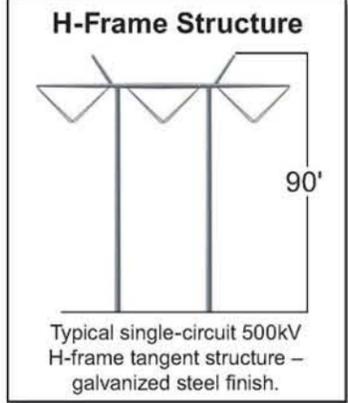
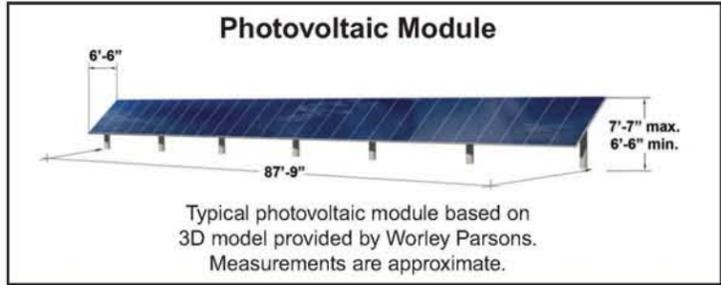
Existing Condition – Superior view facing northwest from within the Sonoran Desert National Monument toward BLM-designated utility corridor, the existing Jojoba 500kV Substation, and the Buckeye Hills



Photograph Location: Photograph was taken from within the Sonoran Desert National Monument. Gen-tie Line is approximately 1.6 miles from KOP location.



Proposed Condition – Generation Tie Line interconnecting the Jojoba 500kV Substation and Sub-alternative A1 switchyard



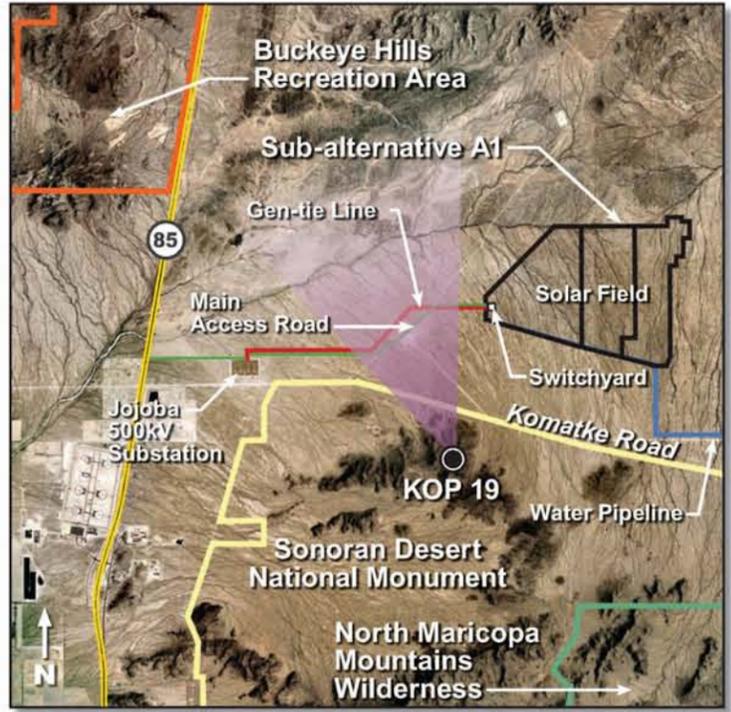
Sonoran Solar Energy Project

KOP 19 Sub-alternative A1: Photovoltaic and Generation Tie Line View 1a

Photo Date and Time: 5-20-11, 11:54 a.m. Focal Length: 50mm
 Structure models that were used in the simulations were created using 3D Models provided by Worley Parsons and Electrical Consultants, Inc.
 This simulation represents initial project design that will be refined and finalized throughout the NEPA process.



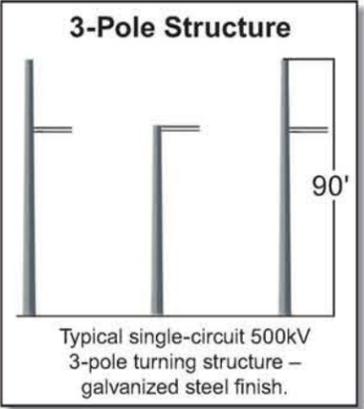
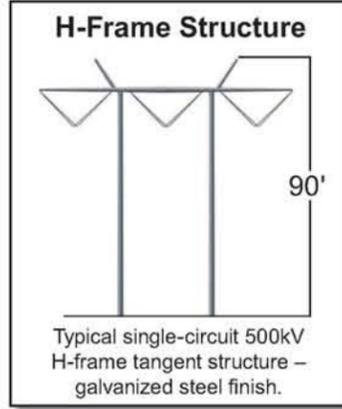
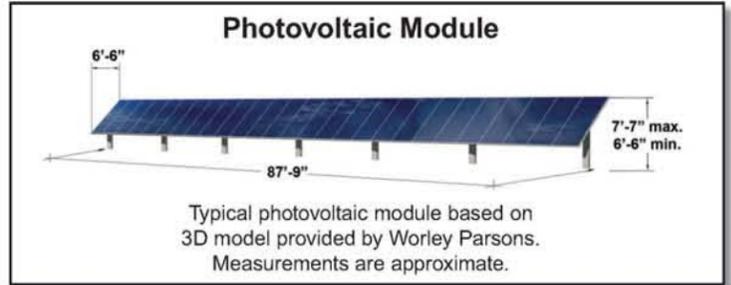
Existing Condition – Superior view facing northwest from within the Sonoran Desert National Monument toward BLM-designated utility corridor, the existing Jojoba 500kV Substation, and the Buckeye Hills



Photograph Location: Photograph was taken from within the Sonoran Desert National Monument. Gen-tie Line is approximately 1.6 miles from KOP location.



Proposed Condition – Generation Tie Line interconnecting the Jojoba 500kV Substation and Sub-alternative A1 switchyard



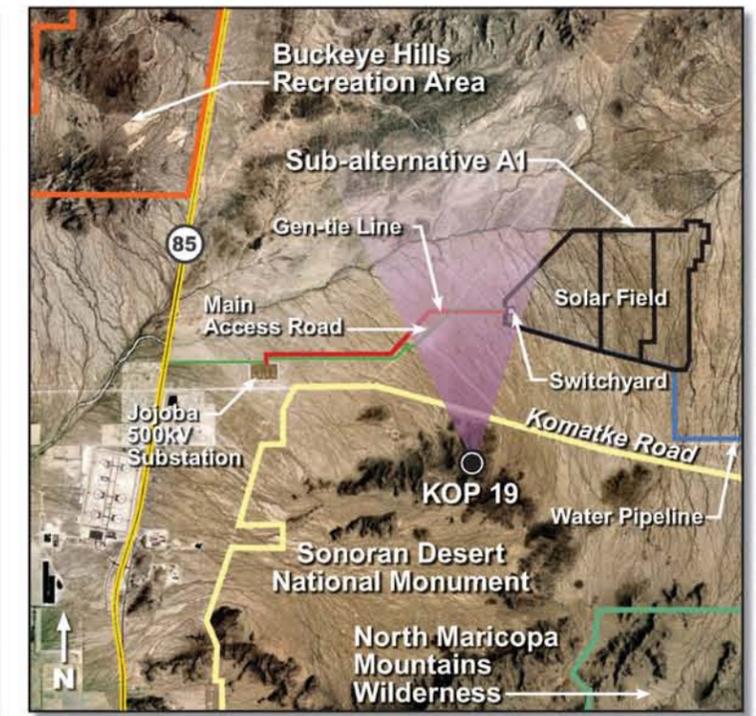
Sonoran Solar Energy Project

KOP 19 Sub-alternative A1: Photovoltaic and Generation Tie Line View 1b

Photo Date and Time: 5-20-11, 11:54 a.m. Focal Length: 50mm
 Structure models that were used in the simulations were created using 3D Models provided by Worley Parsons and Electrical Consultants, Inc.
 This simulation represents initial project design that will be refined and finalized throughout the NEPA process.



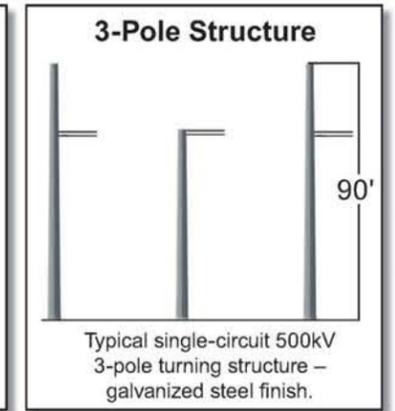
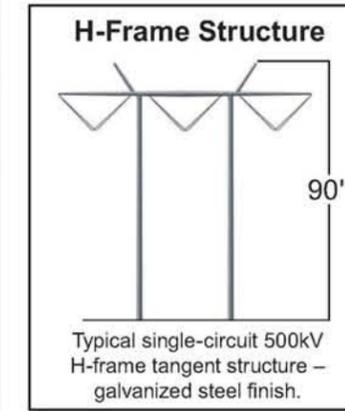
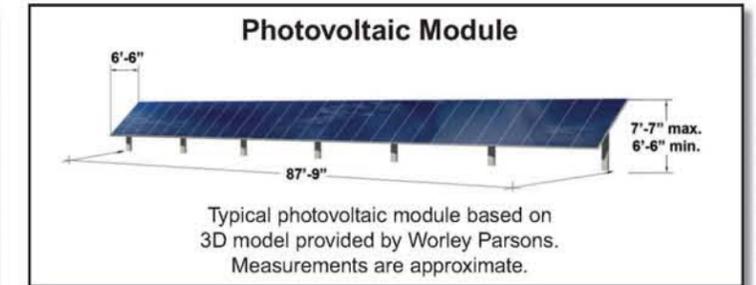
Existing Condition – Superior view facing north from within the Sonoran Desert National Monument toward BLM-designated utility corridor, the existing Jojoba 500kV Substation, and the Buckeye Hills



Photograph Location: Photograph was taken from within the Sonoran Desert National Monument. Gen-tie Line is approximately 1.6 miles from KOP location.



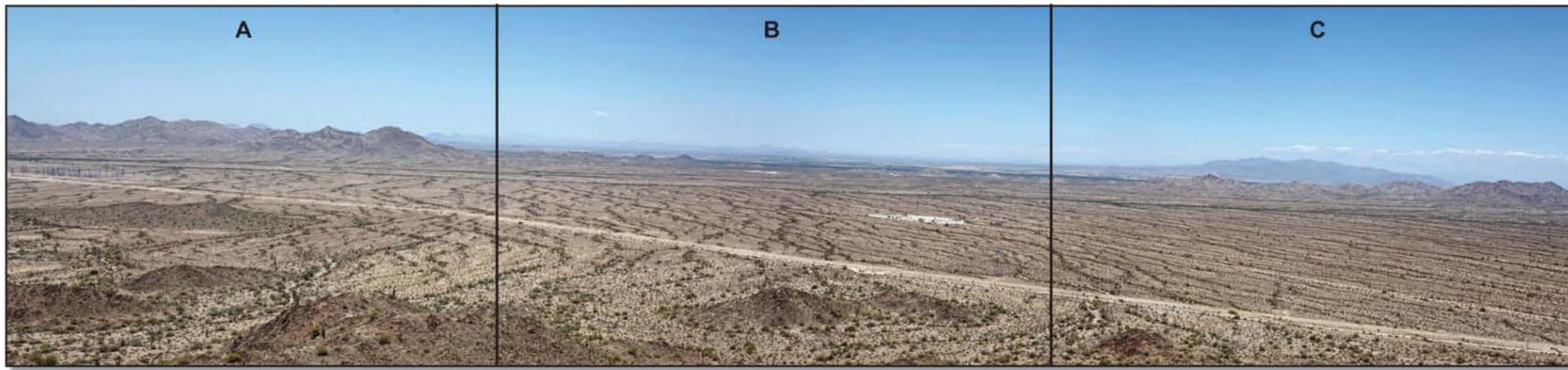
Proposed Condition – Generation Tie Line interconnecting the Jojoba 500kV Substation and Sub-alternative A1 switchyard, 34.5kV feeder bus lines, and 300MW photovoltaic array with inverter/transformer unit containers



Sonoran Solar Energy Project

KOP 19 Sub-alternative A1: Photovoltaic and Generation Tie Line View 1c

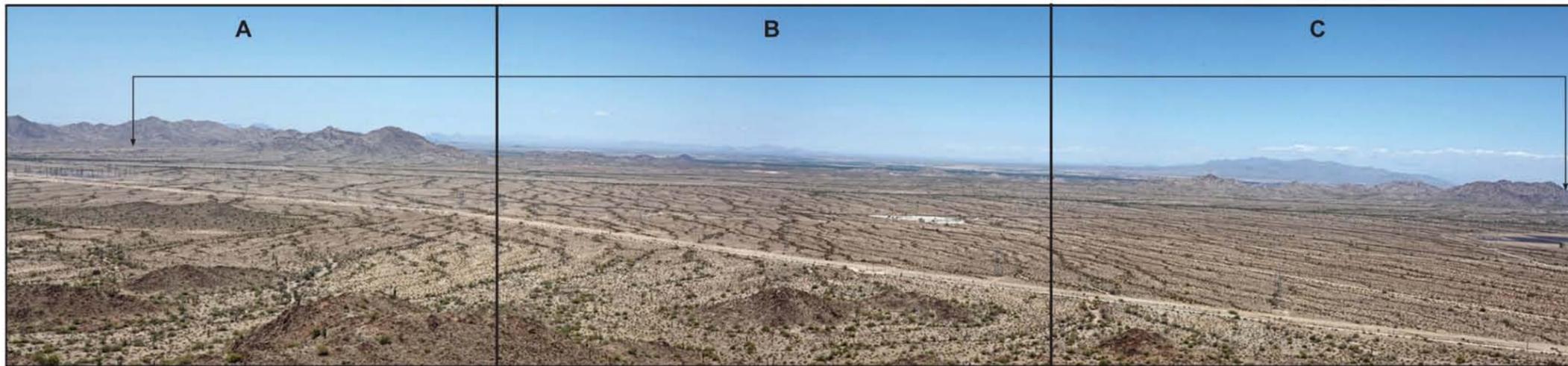
Photo Date and Time: 5-20-11, 11:54 a.m. Focal Length: 50mm
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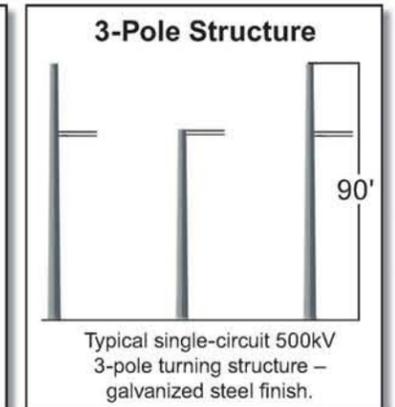
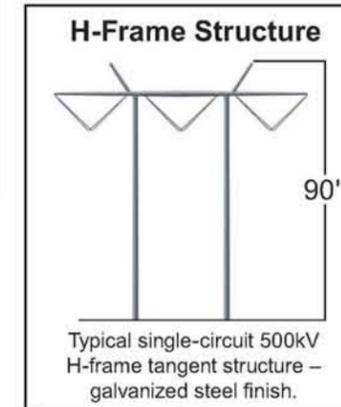
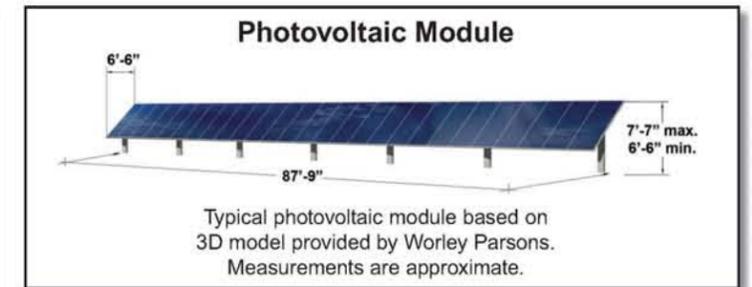
Existing Condition – Superior view facing northwest from within the Sonoran Desert National Monument toward BLM-designated utility corridor, the existing Jojoba 500kV Substation, and the Buckeye Hills



Photograph Location: Photograph was taken from within the Sonoran Desert National Monument. Gen-tie Line Option is approximately 1.2 miles from KOP location.



Proposed Condition – Generation Tie Line Option interconnecting the Jojoba 500kV Substation and Sub-alternative A1 switchyard, 34.5kV feeder bus lines, and 300MW photovoltaic array with inverter/transformer unit containers



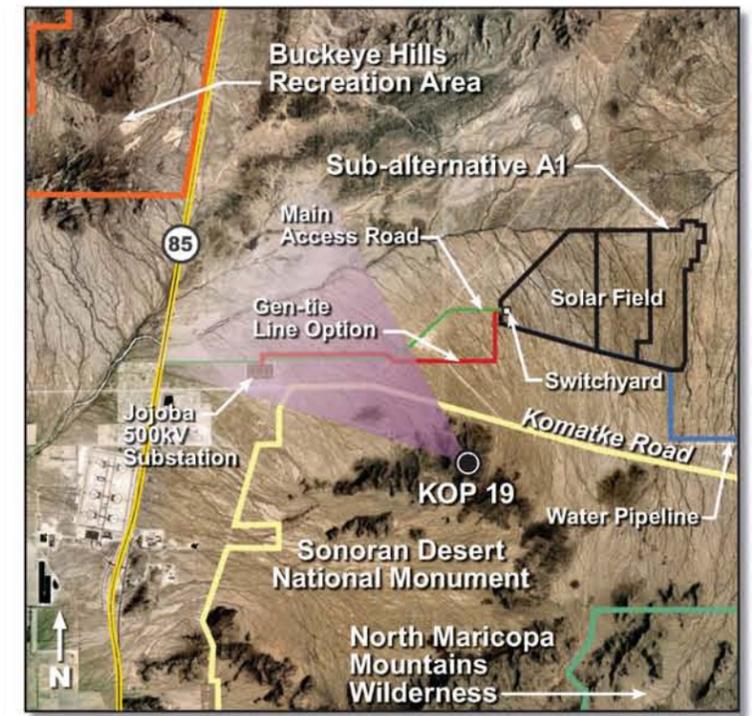
Sonoran Solar Energy Project

KOP 19 Sub-alternative A1: Photovoltaic and Generation Tie Line Option View 1

Photo Date and Time: 5-20-11, 11:54 a.m. Images above are 3 photographs taken at 50mm focal length stitched into a panorama. Structure models that were used in the simulations were created using 3D Models provided by Worley Parsons and Electrical Consultants, Inc. This simulation represents initial project design that will be refined and finalized throughout the NEPA process.



Existing Condition – Superior view facing northwest from within the Sonoran Desert National Monument toward BLM-designated utility corridor, the existing Jojoba 500kV Substation, and the Buckeye Hills



Photograph Location: Photograph was taken from within the Sonoran Desert National Monument. Gen-tie Line Option is approximately 1.2 miles from KOP location.



Proposed Condition – Generation Tie Line Option interconnecting the Jojoba 500kV Substation and Sub-alternative A1 switchyard

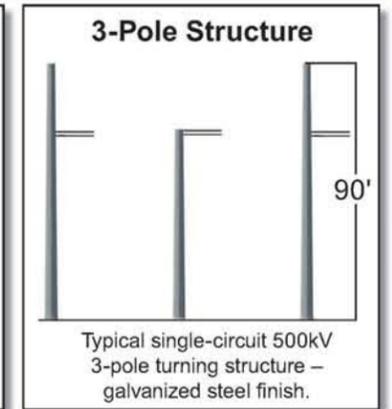
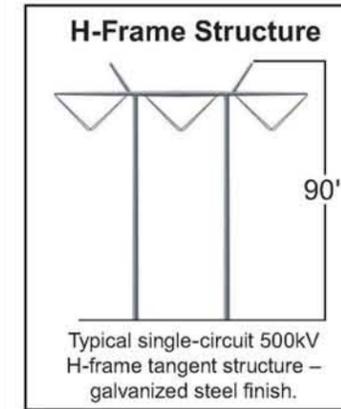
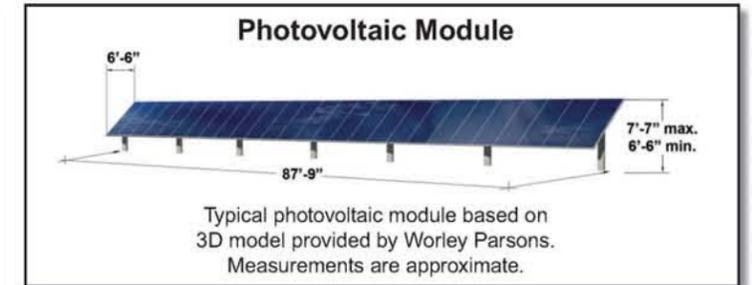
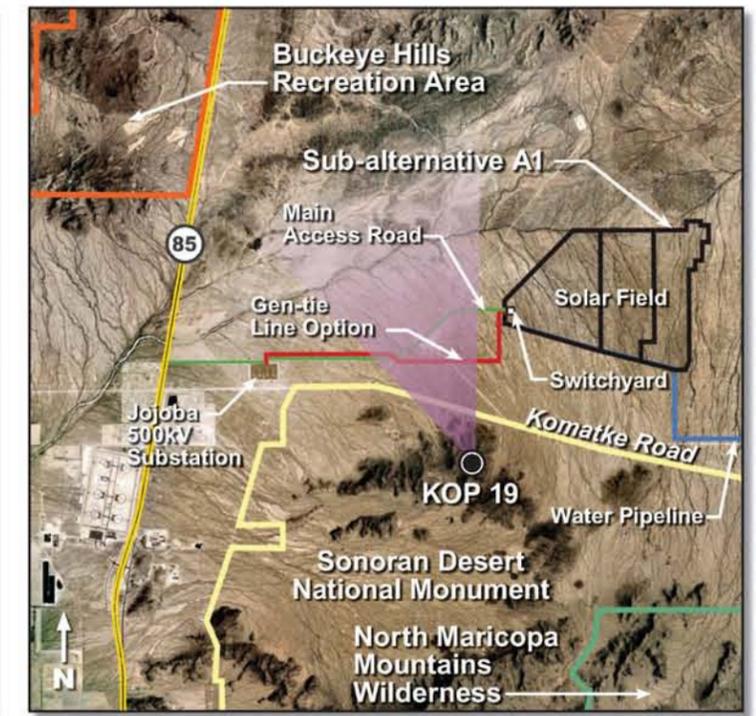


Photo Date and Time: 5-20-11, 11:54 a.m. Focal Length: 50mm
Structure models that were used in the simulations were created using 3D Models provided by Worley Parsons and Electrical Consultants, Inc. This simulation represents initial project design that will be refined and finalized throughout the NEPA process.



Existing Condition – Superior view facing northwest from within the Sonoran Desert National Monument toward BLM-designated utility corridor, the existing Jojoba 500kV Substation, and the Buckeye Hills



Photograph Location: Photograph was taken from within the Sonoran Desert National Monument. Gen-tie Line Option is approximately 1.2 miles from KOP location.



Proposed Condition – Generation Tie Line Option interconnecting the Jojoba 500kV Substation and Sub-alternative A1 switchyard

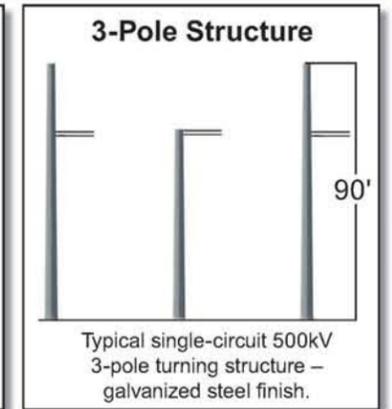
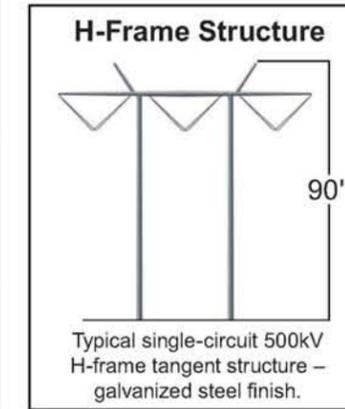
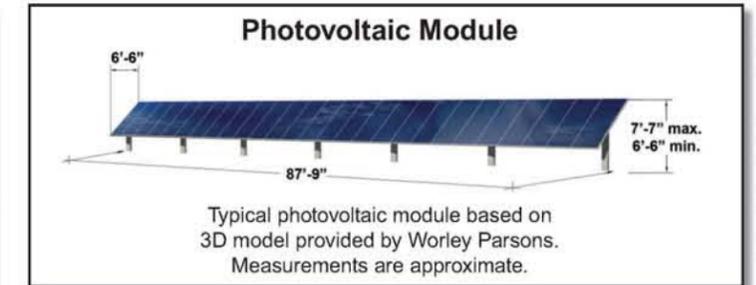
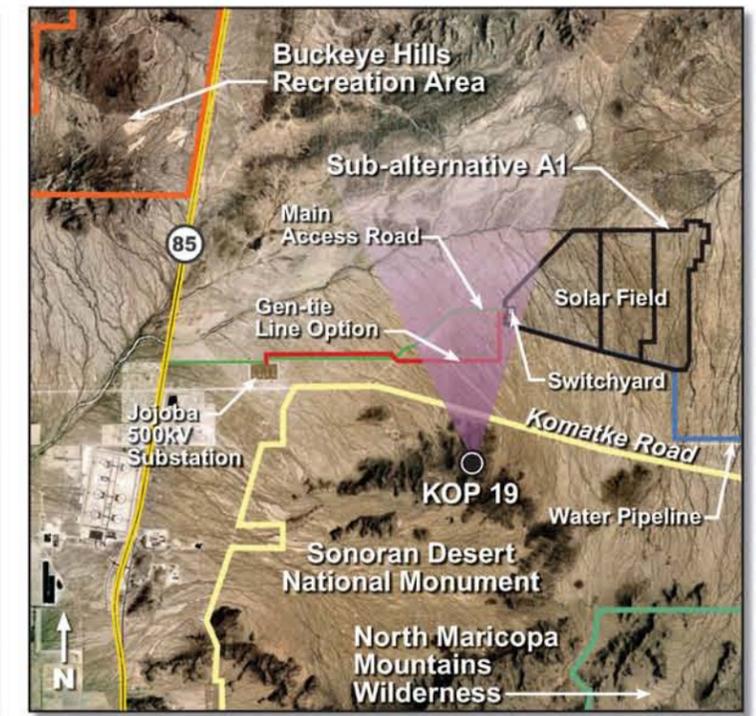


Photo Date and Time: 5-20-11, 11:54 a.m. Focal Length: 50mm
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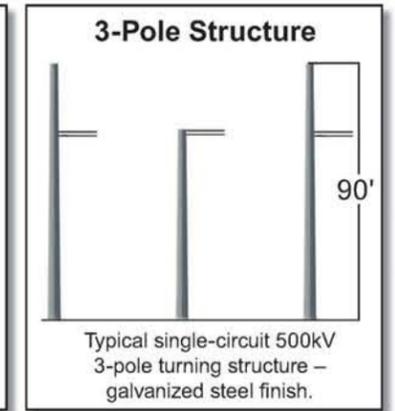
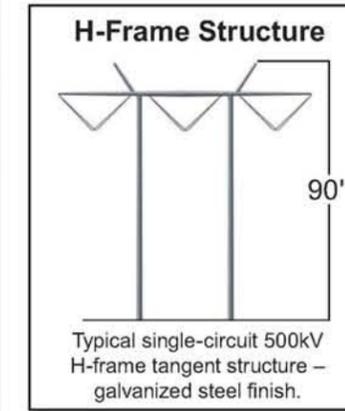
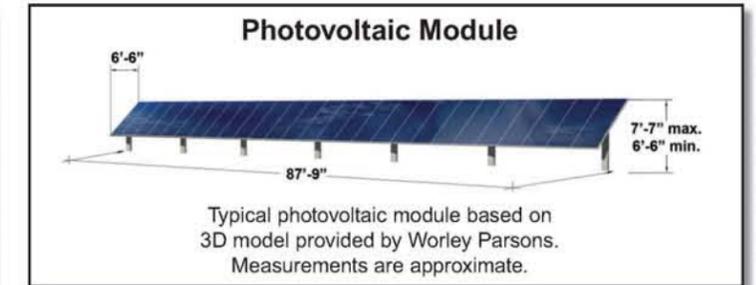
Existing Condition – Superior view facing north from within the Sonoran Desert National Monument toward BLM-designated utility corridor, the existing Jojoba 500kV Substation, and the Buckeye Hills



Photograph Location: Photograph was taken from within the Sonoran Desert National Monument. Gen-tie Line Option is approximately 1.2 miles from KOP location.



Proposed Condition – Generation Tie Line Option interconnecting the Jojoba 500kV Substation and Sub-alternative A1 switchyard, 34.5kV feeder bus lines, and 300MW photovoltaic array with inverter/transformer unit containers



Sonoran Solar Energy Project

KOP 19 Sub-alternative A1: Photovoltaic and Generation Tie Line Option View 1c

Photo Date and Time: 5-20-11, 11:54 a.m. Focal Length: 50mm
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