Southern California Edison
WODUP A.13-10-020

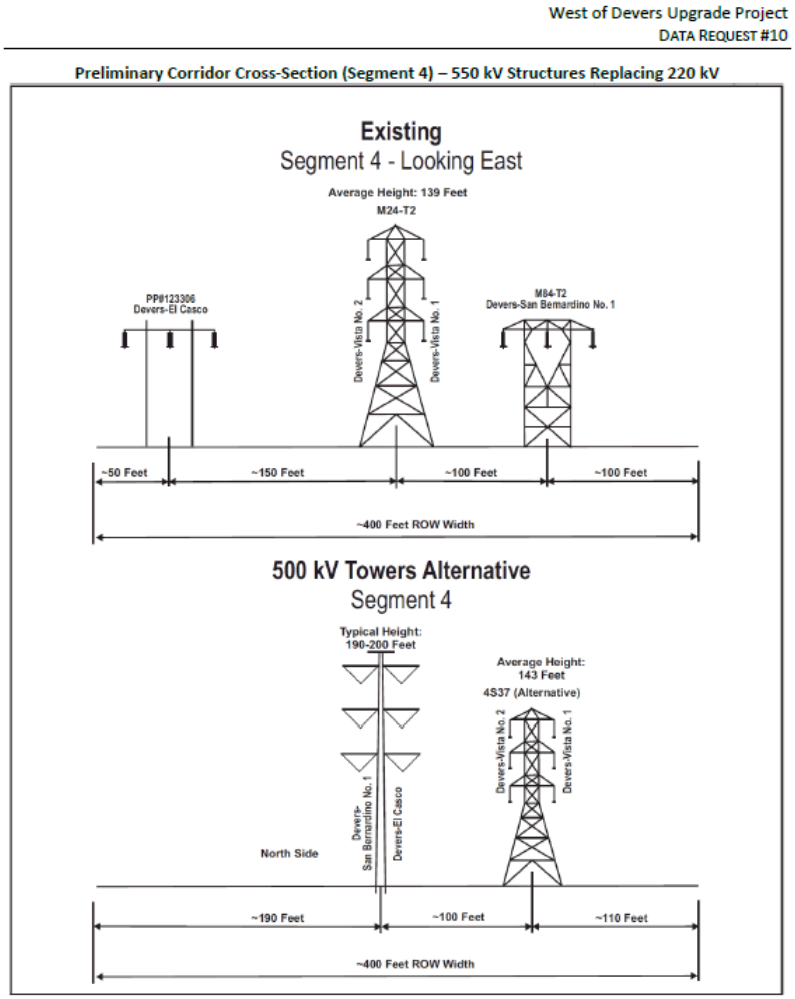
DATA REQUEST SET A.13-10-020 WODUP ED-SCE-10

To: ENERGY DIVISION
Prepared by: Scott Lacy, P.E.
Title: Project Engineer
Dated: 12/05/2014

Question ALT-20a:

Given the general description of the configuration of 220 kV and 500 kV structures shown in the figure on the following page, please answer the following questions:

(A) Please review the preliminary cross-section (presented below), and comment on the assumptions on tower heights and separation of structures.



Response to Question ALT-20a:

In general, the assumptions on tower heights and separation of structures as represented in the cross section for this specific segment of the WOD corridor appear appropriate. However, absent further detail regarding the scope of the proposal for the 500 kV alternative shown, SCE is not able to describe all the potential impacts, concerns and potential feasibility issues of such assumptions and ultimate design.

For example, based on the cross section, SCE could assume that the CPUC is proposing to use 500 kV double circuit TSP structures for the Devers-San Bernardino and Devers-El Casco 220 kV lines across the entire 48-mile WOD corridor or a large portion thereof. Under this scenario, SCE would have multiple concerns and feasibility issues that would need to be assessed. For instance, installing 500 kV structures across Segment 5 would be legally infeasible as SCE does not have the necessary property rights to install 500 kV structures across the Morongo Reservation. Based on several previous responses to CPUC data requests by SCE and Morongo as well as briefings and meetings SCE and Morongo have conducted with the Energy Division, SCE believes that the CPUC understands this constraint related to what SCE is allowed to construct across the Morongo Reservation as part of the Proposed Project. However, and again under this scenario, if 500 kV structures are also proposed in Segments 4 and 6 that border the Morongo Reservation, those structures may never be able to operate at 500 kV, as routing a 500 kV line through the Morongo Reservation may not be feasible. If a future need for a 500 kV line materializes at some point, and SCE is not able to obtain an agreement with the Morongo regarding routing such a line across the Reservation, then SCE would have to explore other options similar to the system alternatives included in SCE's PEA. These other options may not allow SCE to use any of the 500 kV structures. Additionally, if SCE were successful in obtaining a future agreement with the Morongo on the routing of a future 500 kV line across the Reservation, the location of that routing may be significantly different than the locations of the proposed 220 kV structures that would traverse the Reservation as part of the Proposed Project. Significant changes in the location of routing a potential future 500 kV line across the Reservation could impair SCE's ability to align that routing with the predetermined placement of 500 kV structures that border Segments 4 and 6 requiring SCE to either move those structures or to leave them in place and only operate the line at 220 kV.

Moreover, SCE could also assume that the use of 500 kV structures in Segment 4 and any other segment would preclude the use of other sized transmission lines, should the need develop to site and build additional transmission lines through the WOD corridor. As explained in SCE's response to Data Request Set # 7, Question No. ALT-15.A, it is unknown at this time whether the remaining portion of the ROW would be configured as a single-circuit or double-circuit transmission line, or even what voltage those additional facilities would ultimately be should the need arise for additional transmission capacity beyond the Proposed Project. Additionally, and assuming the 500 kV structures are proposed to operate at 500 kV at some future point in time, the use of 500 kV lines would require the conversion of existing 220 kV substations to contain 500 kV capability or the construction of a new substation that contains 500 kV capability. Limiting SCE's ability to site and build additional transmission lines to only 500 kV in predetermined locations for a need that may not occur for many years runs counter to prudent

transmission planning.

As also explained in SCE's PEA, Section 1 Purpose and Need, "…it is possible that future energy development in the Blythe and Desert Center areas may require future transmission upgrades, although the scope of such futures upgrades, if any, is not known at this time. The Proposed Project would be configured in a manner that would not preclude possible future use of the existing WOD corridor in the event that additional transmission line upgrades become necessary. This would be done by placing the two sets of double-circuit transmission towers for the Proposed Project near the edge of the existing WOD corridor (primarily within the existing ROW width) in order to leave room within the existing ROW for future transmission. This approach is consistent with prudent transmission planning and would help minimize future environmental impacts by reducing the need for new or expanded ROW. If additional transmission upgrades become necessary in the future, this approach would help minimize the possibility of subsequent teardown and rebuilding activities to make room within the existing WOD corridor. Such need for future transmission within the existing WOD corridor has not yet been identified in any study." Therefore, SCE believes that any future transmission line project, regardless of voltage (220 kV, 500 kV, etc.) should be placed in the remaining northern portion of the right-of-way through this Segment 4 area.

Without further detail regarding the scope for this 500 kV alternative, it does not seem to be a practical modification because it could be infeasible, may never be allowed to operate at 500 kV, and would limit SCE's ability to site and build additional transmission lines to voltages that could best serve the future need.

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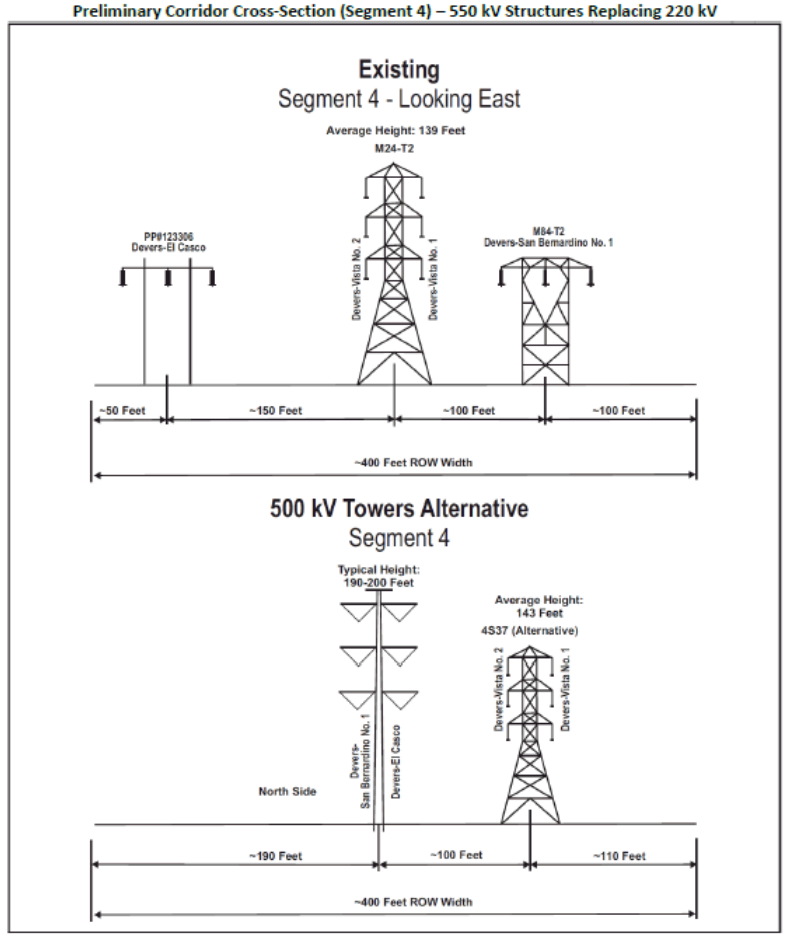
Question ALT-20b:

Given the general description of the configuration of 220 kV and 500 kV structures shown in the figure on the following page, please answer the following questions:

(B) For 500 kV TSPs to be installed in this corridor, and assuming the structure separation defined in (A) above between the 500 kV line and the new 220 kV structures, what would be the average span length?



Response to Question ALT-20b:

Tower spotting/placement is dependent upon ground topology, assessment of required clearances above various obstacles, as well as associated wire swing analysis (i.e., blowout) to the adjacent transmission lines. Assuming a similar 500 kV and 220 KV structure alignment through the entire 48 mile WOD corridor (not including the portion of the project that traverses the Morongo Reservation), SCE would need to perform a preliminary design effort for each structure in order to provide an average span length as requested in the question. However, assuming the question is limited to only the flatter portions of Segment 4 (e.g., between Highland Springs Road and Interstate 10), then it would be reasonable to expect that the span lengths for the 500 kV structures would be very similar to the span lengths currently designed for the 220 kV structures.

As explained in SCE's response to Question No. ALT-20a, without further detail regarding the scope for this 500 kV alternative, SCE does not believe the use of 500 kV structures to be a practical modification because it could be infeasible, may never be allowed to operate at 500 kV and would limit SCE's ability to site and build additional transmission lines, should a future need arise, to voltages that could best serve that future need.

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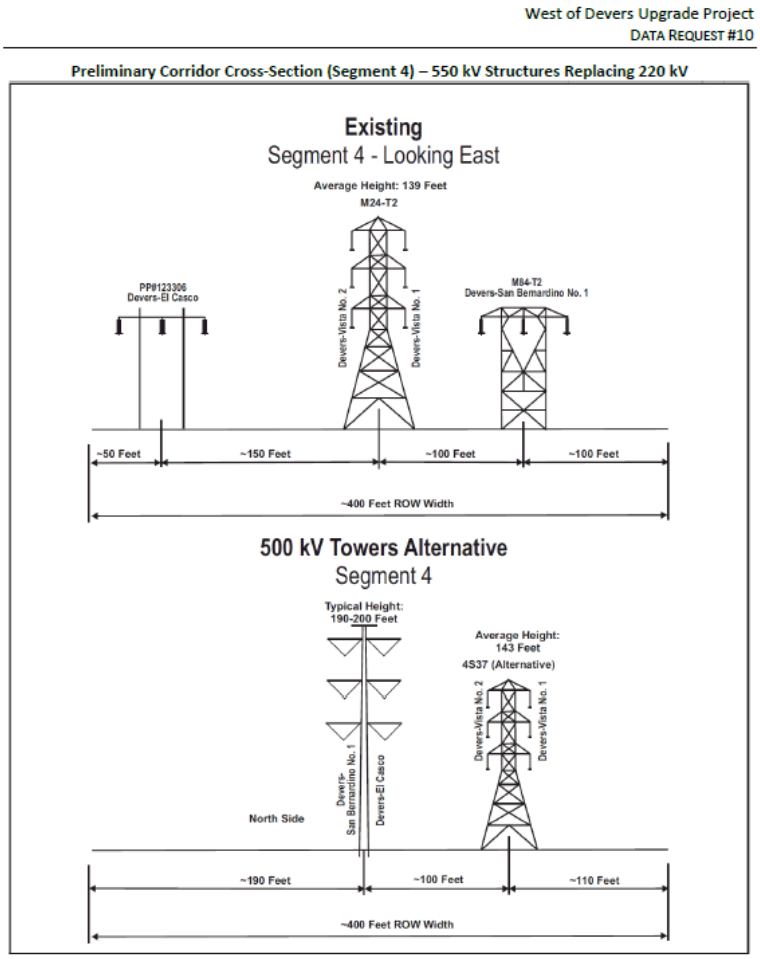
Question ALT-20c:

Given the general description of the configuration of 220 kV and 500 kV structures shown in the figure on the following page, please answer the following questions:

(C) Please explain how 500 kV towers could be in installed in Segment 2 between San Bernardino Junction and the Vista Substation. Would these towers most likely be installed in SCE's southern separate corridor (currently unaffected by WOD-UP), requiring relocation of the existing 115 kV line currently unaffected by the project?



Response to Question ALT-20c:

The use of 500 kV structures in Segment 2 assumes that 500 kV line(s) would need to traverse west of the San Bernardino Junction to Vista Substation, which is not part of SCE's Proposed Project, nor is it known to be a foreseeable future need. As such, SCE has not evaluated any concepts for placing additional transmission lines, regardless of voltage, through Segment 2. Currently, the existing rights-of-way through Segment 2 are not wide enough to place multiple lines adjacent to each other for the full length of this Segment. Any future project that would need to traverse through Segment 2, regardless of voltage level, would likely require the acquisition of new rights. When, or if, that time comes, that future project design team may come to a conclusion that relocation of one or more of the existing transmission lines in that segment may best facilitate the overall process, but that evaluation has not been considered at this time. Additionally, a 500 kV transmission line to Vista Substation would require Vista Substation be converted to contain a 500 kV switchyard. SCE does not have any current expectation that Vista Substation would ever be converted to contain a 500 kV switchyard.

As explained in SCE's response to Question No. ALT-20a, without further detail regarding the scope for this 500 kV alternative, SCE does not believe the use of 500 kV structures to be a practical modification because it could be infeasible, may never be allowed to operate at 500 kV and would limit SCE's ability to site and build additional transmission lines, should a future need arise, to voltages that could best serve that future need.

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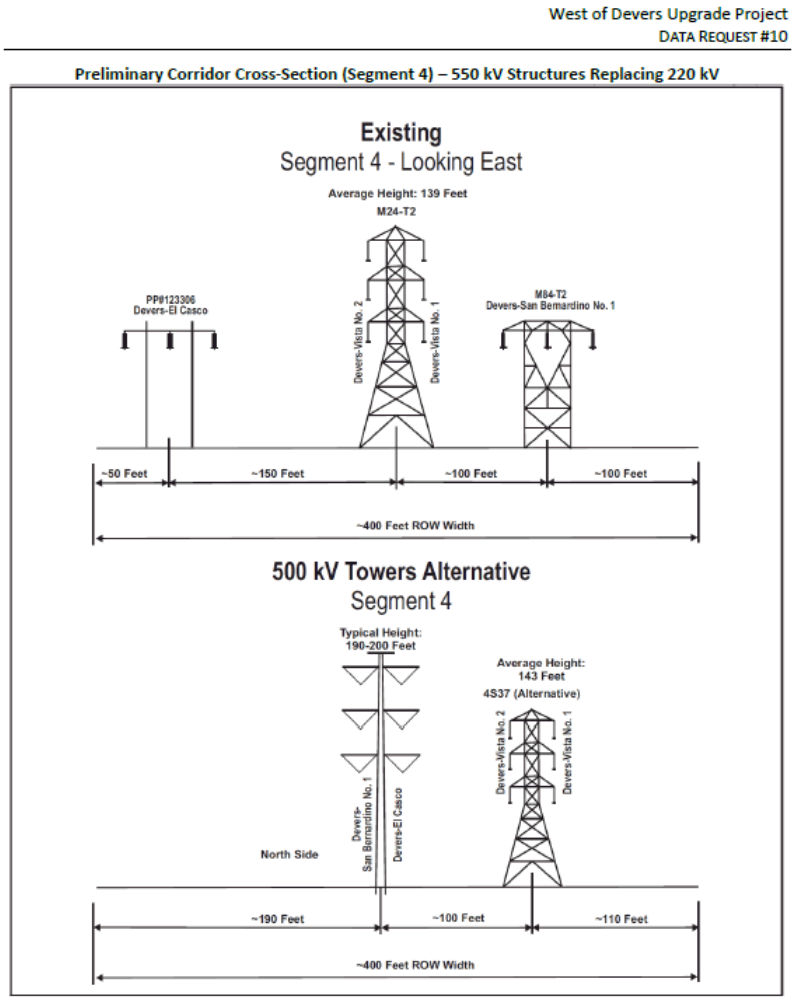
Question ALT-20e:

Given the general description of the configuration of 220 kV and 500 kV structures shown in the figure on the following page, please answer the following questions:

(E) Please describe any other specific feasibility concerns about this design.



Response to Question ALT-20e:

As described in SCE's response to Question No. ALT-20a, without further detail regarding the scope for this 500 kV alternative, SCE is not able to describe all the potential impacts, concerns and potential feasibility issues of such assumptions and ultimate design. The most availing concerns regarding what is known about this 500 kV alternative is that this alternative may not be feasible, SCE may never be able to operate these structures at 500 kV, and should the need arise for additional capacity in the WOD corridor beyond the Proposed Project, this alternative may limit SCE's ability to site and build additional transmission lines to voltages that could best serve that future need.