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December 10, 2015

Reg.12-10/A.14-04-011
SDG&E Sycamore-Penasquitos
230kV Transmission Line CPCN

Sent Via Electronic Mail Only

Billie Blanchard
Project Manager
Energy Division, CEQA Unit
505 Van Ness Avenue
San Francisco, CA 94102-3298

Re: SXPQ ED18-SDGE Response: Questions 1-11.

Dear Ms. Blanchard:

Attached is SDG&E's Response to ED's Data Request 18 issued on November 25, 2015 Questions 1-11. This completes the utilities' response to this data request.

Please note that Attachments ED18 – Q7(a) and Q7(b) to the Response to Q7 contain information considered confidential pursuant to PUC Section 583 and G.O. 66-C and other applicable Federal and State Laws and Regulations and Non-Disclosure Agreements.

If you have any questions or require additional information, please feel free to contact me by phone: (858) 636-6876 or e-mail: *RGiles@semprautilities.com.*

Sincerely,

Signed

Rebecca Giles
Regulatory Case Manager

Enclosures

cc:

Allen Trial – SDG&E	Jeff Thomas – Panorama Environmental Consulting
Elizabeth Cason - SDG&E	Susanne Heim – Panorama Environmental Consulting
Bradley Carter – SDG&E	Mary Jo Borak – CPUC Infrastructure Permitting and CEQA
Central Files – SDG&E	Molly Sterkel - CPUC Infrastructure Planning and Permitting
Richard Raushenbush – SDG&E	Darryl Gruen - ORA Christopher Myers - ORA

Table 1: Application No. 14-04-011 Data Needs #18			
#	**Reference Source, Page #**	**Data Need**	**SDG&E Response**
1	Attachment A, Comments 30 and 33, pg. 12 and 13	**Provide results of protocol level surveys conducted for Coastal California gnatcatcher and Least Bell's vireo.** SDG&E identified in their comments that protocol level surveys were performed for Coastal California gnatcatcher (comment 33) and Least Bell's vireo (comment 30); however, these survey reports were not provided to the CPUC. The CPUC requests copies of the surveys to review survey results and incorporate results into the Final EIR.	See Attachments ED18 – Q1(a) – Q1(d) for the requested Coastal California gnatcatcher and Least bell's Vireo survey reports. Note that survey reports for the California gnatcatcher (attachments Q1[c] and Q1[d]) were previously submitted in May, 2015. These reports are included with this response for ease of reference. In addition to the requested survey reports, SDG&E has also attached survey reports for the following: Proposed Project Main Alignment: • Burrowing Owl (Attachment Q1[e]) • Southwestern Willow Flycatcher (Attachment Q1[f]) • California Orcutt Grass (Attachment Q1[g]) • Thread-leaved Brodeaea (Attachment Q1[h]) Encina Hub: • Southwestern Willow Flycatcher (Attachment Q1[i]) • Burrowing Owl (Attachment Q1[j]) • Light-footed Ridgeway's rail (Attachment Q1[k]) DEIR Alternative 4 (69kV Underground Alignment): • Least bell's Vireo (Attachment Q1[l]) • Coastal California gnatcatcher (Attachment Q1[m]) DEIR Alternative 2a and 2b (underground alignment): • Rare Plants (Attachment Q1[n])
2	Attachment A, Comment 11	**Identify the upgrades that would occur as part of the No Project Alternative.** As defined in the Draft EIR, the No Project Alternative includes upgrades that are likely to occur if the Proposed Project or an Alternative is not approved. Comment 11 states that the upgrades specified in the Draft EIR "are not correct." If the upgrades in the Draft EIR are incorrect, CPUC requests that SDG&E define	The Draft EIR at page 3-37 identifies the following three upgrades as part of the No Project Alternative: • Mission—Peñasquitos 230-kV Transmission Line • Second Poway—Pomerado 69-kV Power Line • Series Reactor at Sycamore Canyon Substation As SDG&E pointed out in comments on the Draft EIR (see Comment #11), the Mission-Penasquitos 230 kV line (MS-PQ) and the second Poway-Pomerado 69 kV line have

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		the reasonably foreseeable and/or predictable actions that would occur in lieu of the Proposed Project or an Alternative.	been approved by the CAISO as independent projects necessary for system reliability, incremental to, and not a substitute for, the Proposed Project. With respect to a Series Reactor at Sycamore Canyon Substation, SDG&E's position is that this is not an appropriate long-term mitigation for NERC reliability criteria violations. Adding additional impedance to the network in the form of a series reactor does not increase the current-carrying capability of the line, it simply shunts the flow elsewhere on the network. As SDG&E has stated repeatedly, and as the CPUC recognizes in Objective #2 for the Proposed Project[1], the transmission network in the Sycamore Canyon area is already heavily loaded and additional 230 kV outlet capability at Sycamore Canyon is required in order to mitigate loading on the sub-transmission system. For this reason, adding a series reactor is counterproductive with regards to the CPUC objectives for the Proposed Project as outlined in the Draft EIR. SDG&E has not identified a No Project alternative that would meet all applicable NERC reliability criteria and meet all of the objectives of the Proposed Project, as described in the Draft EIR. However, SDG&E identified numerous additional mitigations that would likely be required in a No Project scenario based upon a powerflow analysis prepared as part of SDG&E's Rebuttal Testimony. Please refer to SDG&E Rebuttal Testimony, dated January 30, 2015, pg. 32, Table 6, for additional information concerning these upgrades.[2] The upgrades include: • Add 2nd Miguel-Bay Boulevard 230 kV line • Upgrade Miguel-Mission 230kV lines 1 & 2 • Upgrade Artesian-Bernardo 69 kV lines 1 & 2 • Add 2nd Sycamore Canyon-Scripps 69 kV line

[1] "Electricity is currently delivered into Sycamore Canyon Substation from the Suncrest 500/230-kV substation and energy is delivered out of Sycamore Canyon Substation by lower capacity 138-kV and 69-kV power lines. The lower capacity 138-kV and 69-kV power lines out of Sycamore Canyon Substation become congested under normal operating conditions" – DEIR at p.1-5

[2] SDG&E's Rebuttal Testimony was responding to an ORA proposal that included a "Miramar Reconfiguration." As explained in SDG&E's Rebuttal Testimony at 21-26, the "Miramar Reconfiguration" causes NERC violations and reliability concerns. To remedy those concerns if the ORA proposal was adopted, SDG&E identified a need to "Upgrade Miramar GT-Fenton Tap-Miramar 69 kV line" in SDG&E's Rebuttal Testimony at 32, Table 6. SDG&E does not include either the "Miramar Reconfiguration" or "Upgrade Miramar GT-Fenton Tap-Miramar 69 kV line" among the reasonably expected actions that would result from Commission selection of the No Project Alternative.

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			• Upgrade Bernardo-Felicita Tap-Felicita 69 kV line This represents one possible No Project scenario. Even with these additional upgrades, the No Project alternative might still not meet all of the project objectives or all applicable NERC reliability criteria. Finally, note that an exhaustive powerflow analysis needs to be performed on any proposed No Project alternative to verify that it will mitigate all identified NERC reliability violations and meet all of the objectives of the Proposed Project. In addition, any projects required by the No Project plan of service not already approved by the CAISO would be subject to the CAISO's 2016/2017 Transmission Planning Process (TPP). The earliest possible date for approval of these additional projects would be 1st or 2nd quarter of 2017, and there is no guarantee any such projects would receive CAISO approval.
3	Attachment A, Comment 10, pg. 5, paragraph 3, and Data Request #14, Response #1	**Clarify the planning status of the MS-PQ project and the connection between the MS-PQ and SX-PQ projects.** SDG&E's response to Item #1 of Data Request #14 states that "SDG&E is currently developing a proposed plan of service for the PQ-MS project and has not determined the final route, system configuration, etc. A significant amount of load-flow study, engineering, and route development remain to be completed, and there is a possibility that the final plan of service will look significantly different than was initially proposed by the CAISO." SDG&E's comments on the Draft EIR, particularly comment 10, now seem to indicate that SDG&E has a different position on the MS-PQ routing than previously described. Specifically, SDG&E states in comment 10: "…for the final build out of both projects (SX-PQ and MS-PQ) the combination of Alternatives 3 and 4 would result in full utilization of the 230 kV towers in Segment D (i.e., two 230 kV lines on the same tower structures), and would likely be the most feasible, cost-effective, and have the least overall environmental impact in this area of any of the alternatives." This comment raise questions about the planning	1) SDG&E has not changed its position; however, the alternatives described in the DEIR could potentially impact the final design and routing of the MS-PQ line. Note that while SX-PQ and MS-PQ are independent projects, and both have been identified and approved by the CAISO as necessary to meet NERC reliability criteria, the alternative selected for the Proposed Project could potentially impact the design and routing of the MS-PQ line. SDG&E does not necessarily intend to utilize the route for MS-PQ as contemplated by the CAISO when this project was approved. If Alternative 5 is selected for the Proposed Project, potential efficiencies between MS-PQ and the Proposed Project may not be able to be fully realized. 2) See the answer for part 1 above. As stated previously, these two projects are independent from each other, are required to mitigate different NERC reliability criteria violations, and have different required in-service dates. SDG&E is not proposing to combine these two projects in any way, but will attempt to minimize costs and environmental impacts associated with both projects regardless of which alternative is ultimately selected. 3) At this time, SDG&E does not have any updated design or routing information for the MS-PQ Project. SDG&E continues to develop the Plan of Service; however this cannot be refined beyond what is currently known until the final scope of the Proposed Project approved. However, SDG&E would not propose to install MS-PQ on a new tower line as shown in the DEIR (pgs. 5-16, 5-22, and 5-23). SDG&E would likely propose to utilize the existing 230kV towers to install the MS-PQ line. If new structures are required (which assumes no

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		status of the MS-PQ project and the connection between the MS-PQ project and SX-PQ project that need to be reconciled. 1. Have relevant circumstances changed since SDG&E responded to Question #1 of Data Request #14? Please clarify if the CAISO-approved route that we've described in the Draft EIR as part of the cumulative project scenario is now the route SDG&E intends to utilize. 2. Having reviewed the Draft EIR, is SDG&E aware of efficiencies that may now exist to building these two projects together? Is SDG&E now proposing that these projects be combined in some way? 3. Provide any updated information regarding the anticipated routing and design of the MS-PQ project for inclusion and consideration in the EIR's cumulative analysis.	existing overhead lines are removed or moved to underground position), SDG&E would propose that the lower voltage lines be shifted to the new structures (in the southern portion of the ROW) and not the new 230kV MS-PQ line. SDG&E anticipates that constructing new structures at a lower voltage would reduce costs, lower impact acreages, and reduce visual change when compared to installing new 230kV structures.
4		**Provide GIS of mapped hybrid Nuttall's scrub oak.** The California Native Plant Society (CNPS) commented that the DEIR incorrectly identified some Nuttall's scrub oak individuals as hybrids. Busby Biological Services, Inc. did not include these hybrid species in the mapped data presented in the report (dated June 27, 2015) for the focused special-status plant surveys in September/October 2013, April 2014, and May 2014. CNPS commented that the plants identified as hybrid species by Busby are in fact Nuttall's scrub oak. Please provide the GIS locations of the plant species identified as hybrids of Nuttall's scrub oak.	To determine whether the oak trees were Nuttall's scrub oaks or hybrid species, SDG&E's contracted botanists collected samples of the scrub oaks and provided them to Jon Rebman, Curator of Plants at the San Diego Natural History Museum, for identification. Jon analyzed the samples and provided guidance to the botanists on what should be considered Nuttall's and what should be considered a hybrid. The botanists applied these classification techniques in the field, and the following write up was included in the Special Status Plant Survey Summary Report, June 27th 2014 (Appendix G of the DEIR): *Nuttall's scrub oak routinely hybridizes with other Quercus such as Q. engelmannii and Q. berberidifolia in San Diego County. The hybrid species Torrey's scrub oak (Q. X acutidens) is common in San Diego County (J. Rebman 2014) and was frequently observed within the BSA. Hybridization with other Quercus species represents a natural threat to the Nuttall's scrub oak (CNPS 2014). A number of morphological characters were used to differentiate individual oaks as either Torrey's scrub oak (i.e. a hybrid oak) or Nuttall's scrub oak in the field. The first morphological character examined was growth habit and height. Nuttall's scrub oak consists of individuals with a mounded,*

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			impenetrable growth habit, 3-9 ft in height, whereas hybrids are usually more robust or tree like in growth form (Tucker 2013). Lateral terminal branches of Nuttall's scrub oak appear to be at perpendicular angles, whereas hybrids have an acute branching pattern. Nuttall's scrub oak, though generally evergreen, is not as densely leafy overall and on each branch as other sympatric oaks (Tucker 2013). Most importantly, individuals with softly spreading stellate hairs on the abaxial surface, not strongly appressed stellate hairs, were deemed Nuttall's scrub oaks (Munz 1974, Tucker 2013, J. Rebman 2014). In the absence of other field characteristics hairs were used as the definitive identification feature for Nuttall's scrub oaks (J. Rebman 2014). SDG&E acknowledges that there are frequent disagreements between experts on how to classify these emerging hybrids. However, based on the guidance provided by the local expert, SDG&E is confident in the determination of the Nuttall's scrub oaks that were mapped and identification for the Proposed Project and can provide the GPS coordinates of the Nuttall's oak trees, if requested. Furthermore, the majority of the Nuttall's and hybrids were identified within the scrub oak chaparral. This habitat is very dense, and impacts would likely be avoided due to the steep slopes and density of the vegetation where these oak species are located. Monitors would be present to document potential impacts to sensitive plant species. In areas where there are potential impacts, the Nuttall's scrub oaks would be mitigated through mitigation for the scrub oak chaparral habitat.
5	Attachment A, Comment 13	**Provide a summary of the structural analysis results for the existing double-circuit structures in "Segment C" of Alternative 5. The structural analysis should assume the structures are loaded with the following:** • **One circuit utilizing bundled 1033.5 KCMIL ACSR "Ortolan" conductor (existing)** • **One circuit using bundled 900 KCMIL ACSS (proposed)** • **One optical ground wire (proposed OPGW)** SDG&E's comment states that "these structures were designed to carry an overhead shield wire much	DEIR Alternative 5, Segment C Structures (E39 – E48) were initially evaluated for the load of the new 230kV conductor, which is proposed to be 900 kcmil ACSS (Canary). The existing structures were designed for, and currently support, 1033.5 kcmil ACSR (Ortolan). These two conductors are very similar in weight and diameter. Because the two conductor types are very similar with respect to structural loading properties, and because the 1033.5 has slightly higher values for diameter and weight, the existing structures will be adequate for support of the proposed SX-PQ 900 kcmil ACSS conductor. DEIR Alternative 5, Segment C Poles were also initially evaluated for the load increase due to the proposed substitution of the existing shield wire with new OPGW wire, which would double as shield wire and communication cable. A number of the existing poles exhibited a load increase of over 5 percent, which is the material increase limit established by CPUC General Order (GO) 95, Rule 44.2. Consequently, the subject poles have been evaluated for the load increase due to addition of the ADSS cable located below the lowest cross arm in an underbuild

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		smaller than the proposed optical ground wire required for communication between the substations". The comment does not state whether or not structural analysis was ever performed to evaluate the feasibility of adding the Proposed Project lines.	position. In such case, the load increases were found to be below the 5 percent threshold. Therefore, per GO95 Rule 44.2, the proposed addition of ADSS wire to the existing structures on DEIR Alternative 5, Segment C would not materially increase the structural loads. The existing poles are acceptable from a structural loading perspective in their current condition. The Alternative 5, Segment C ADSS underbuild option was then analyzed in terms of ground clearance requirements, as further discussed in Response Q6 below.
6	Attachment A, Comment 13	**Provide the results of a ground clearance check, for the existing spans in "Segment C" of Alternative 5, for the existing bundled 1033.5 KCMIL ACSR "Ortolan" and the proposed bundled 900 KCMIL ACSS. In addition, provide the results of a clearance check between the proposed OPGW and both the 1033.5 KCMIL ACSR and the 900 kCMIL ACSS. If the results of the structural analysis in response to Question 5 above indicate that the structures cannot support the optical ground wire, provide the results of a ground clearance assessment for an ADSS underbuild.**	SDG&E has modeled the DEIR Alternative 5, Segment C structures and spans for compliance with GO95 clearance standards. Based on the most recent topographical data that SDG&E has, all of the conductor and ADSS clearances will meet the GO95 standards (wire-to-wire and wire-to-ground), as further shown in Attachment ED18 – Q6_Clearance Check Output Table. It is important to note that SDG&E is utilizing LiDAR data that is over 3 years old, and that portions of the Alternative 5, Segment C alignment have recently undergone, and continue to undergo, topographical changes associated with road and freeway infrastructure upgrades being completed by the California Department of Transportation (Caltrans). SDG&E will need to reevaluate the conductor and ADSS clearances once updated LiDAR data is obtained and once the ongoing Caltrans work is completed.
7	Attachment A, Comment 13	**In the event that the analysis in response to data request Items 5 and 6 above identify that the structures in "Segment C" of Alternative 5 do not provide adequate strength or ground clearance to make use of the existing towers feasible, identify the locations of all structure modification and/or replacements that would be necessary to construct Alternative 5 in Segment C. Identify the construction and disturbance areas associated with the structure modifications or replacements.** The CPUC needs to assess the impacts from construction and operation of Alternative 5. SDG&E's comments indicate that there could be a need for greater construction in Segment C, which could result in greater impacts than analyzed in the Draft EIR. This additional engineering analysis is required to verify whether Alternative 5 can be constructed as proposed	As outlined in Responses 5 and 6 above, SDG&E believes that the existing structures within Segment C of Alternative 5 can support the new 230kV conductor as well as a new communication cable (ADSS) installed in an underbuild position. Therefore, no structure replacements or modifications are anticipated to be required at this time. As stated above in Response 6, additional clearance review is required once updated topographical information is available. If further engineering and design review identified a clearance violation with the installation of the communication as ADSS underbuild, SDG&E would mitigate any clearance violations with the installation of interset communication-only, direct-bury, single-pole wood structures. However, during SDG&E's review of the Segment C corridor of Alternative 5, SDG&E identified some existing underground metallic pipelines within and adjacent to the existing 230kV structure line which were not identified within the DEIR (Table 4.17-15). As part of Data Response 10, SDG&E provided data for SDG&E-owned metallic pipelines for this area. However, SDG&E has identified some additional non-SDG&E utilities in this area. Please see attachments ED18 – Q7(a)_Segment C Metallic Pipeline Map (CONFIDENTIAL), and Attachment ED18 – Q7(b)_GIS Data (CONFIDENTIAL) for information on the additional underground metallic pipelines identified by SDG&E.

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		in the Draft EIR or whether additional construction could be required in Segment C.	SDG&E notes that the DEIR did disclose and analyze the potential for impacts associated within existing buried metallic pipelines along this segment of Alternative 5 (refer to Impacts Hazards-1, Hazards-11, and Utilities-8). The DEIR also included sufficient mitigation for such impacts, which are applicable to Alternative 5, Segment C. Specifically, the DEIR included mitigation measures Hazards-4 [Uncover Existing Utility Pipelines], Hazards-7 (Induced Current Touch Study), Utilities-3 (Notify Utility Companies and Adjust Underground Work Locations) and Utilities-4 (Cathodic Protection).
8	Comment letter p. 7	**Provide a description and figures showing how SDG&E would configure the 230-kV transmission line within the existing bridge over I-15.** In SDG&E's Attachment B – Minor Design Refinements, SDG&E identifies undergrounding the 230-kV transmission line within the existing Pomerado Road bridge as the preferred option for the Alternative 5 crossing of Interstate 15. SDG&E also states in its Draft EIR comment letter that, "it may be feasible to construct the crossing underground through vacant cells in the Pomerado/Miramar Bridge that spans over I-15". Additional details are required to verify the feasibility of this approach and to determine the construction impacts of this option.	The new 230kV underground system would cross through the Pomerado Bridge I-15 overcrossing using a design similar the Carmel Valley Road Bridge design included as part of the Proposed Project, Segment B (refer to DEIR Section 2.3.6.3, page 2-50). The duct system would utilize two empty bridge cells measuring approximately 5.4 feet high by 7.25 feet wide (see Attachment ED18 – Q8_Pomerado Bridge Crossing). One of the two cells would require approximately 28-inch diameter bores at each end of the bridge to penetrate the abutment diaphragms and additional bores through the bent caps. The second cell being utilized has existing 26-inch by 26-inch utility openings which were provided for "future utility" and would not require boring. Two 24-inch steel casings would be inserted at both ends and grouted per Caltrans requirements. To provide working access to the cells, six total 28-inch by 28-inch openings would be cut in the bridge deck. Duct spacers and supports would be secured at 6-foot intervals along the length inside of the cell to support the ducts and maintain spacing. Construction of each conduit bank assembly through the two cells would be completed separately to minimize the traffic impact. Each assembly would require traffic control, K-rails, and the closing of one westbound lane. For the north assembly, one turn lane would be closed. For the south assembly one through lane would be closed. Working hours and restrictions would be dictated by the governing agencies. Once the duct package is installed through the bridge and tied into the duct system at both ends outside the bridge, all deck openings would be closed. Cable pulling would be conducted outside the Caltrans ROW.
9	Data Request #10, Response #1	**Provide EMF modeling for the Proposed Project and alternatives using the same load case.** There is a difference noted between the original FMP and in the magnetic field calculations report submitted in response to DR #10. The EMF information in the original FMP was based on current flows for a 2017 Heavy Summer Load Case. The later report provided by SDG&E for DR#10 is based on current flows for a	**Item 9a – Load Case Year.** The load case values used for the calculations provided in response to DR #10 are the same as those used for the original FMP. These values are for the 2017 Heavy Summer Load Case and are shown in Table 1 below. SDG&E inadvertently identified the year as 2018 in the response to Data Request #10.

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		2018 Heavy Summer Load Case. The resulting EMF values are not consistent (e.g., for example Segment C is now shown as West 121.9, East 92.6 versus originally West 122.3 and East 91.0).	**Table 1. 2017 Heavy Summer Load Case** Tieline / Direction (substation to substation) / Current Amounts Used / Phasing 6906 / Peñasquitos to Miramar / 228 / ABC (t-b) 675 / Peñasquitos to Mesa Rim / 503 / ABC (t-b) 13804 / Peñasquitos to Batiquitos Tap / 356 / ABC (E-W) Proposed 230 kV / Sycamore to Peñasquitos / 2,159 / ABC (t-b) "t-b" = top-to-bottom **Item 9b – Inconsistent Values.** In the course of preparing an FMP, several calculation models may be run, and resultant values may differ slightly based on minor adjustments to input conditions. The engineer who prepared the original calculation models retired in late 2014. The data output file that he prepared yielding the full range of values across the right-of-way, including the West/East values 122.3/91.0, could not be located at the time that SDG&E prepared its response to DR #10 in April 2015. The West/East values 121.9/ 92.6 and the full range of values across the right-of-way were obtained from an alternate data output file prepared by the same engineer, and differ by less than 2% from the values stated in the original FMP. Notably, the field values for the initial phase arrangement for the response to DR #10 also differ from those presented in the original FMP. These, too, were obtained from the alternate data output file. The Commission acknowledged in Decision 06-01-042 that "modeling methodology provided in the utility design guidelines indicates that it accomplishes its purpose, which is to measure the relative differences between alternative mitigation measures." The figures in Table 2 below show that the calculations adhere to the purpose of the modeling methodology by demonstrating relative differences in magnetic field

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<tr><th>#</th><th>Reference Source, Page #</th><th>Data Need</th><th>SDG&E Response</th></tr>
<tr><td></td><td></td><td></td><td>reduction, regardless of slight differences in the exact figures. SDG&E will prepare and submit a new FMP based on the final route and conditions determined by the Commission.

Table 2. Magnetic Field Values Provided in the Original FMP and in Response to SR #10
<table><tr><td rowspan="3">Values Provided in the Original FMP</td><td colspan="2">Initial Phase A-B-C_C-B-A</td><td colspan="2">Reverse Phase TL23004 A-B-C_A-B-C</td><td colspan="2">Reduction</td></tr><tr><td>West</td><td>East</td><td>West</td><td>East</td><td>West</td><td>East</td></tr><tr><td>140.9</td><td>142.4</td><td>122.3</td><td>91.0</td><td>13%</td><td>36%</td></tr><tr><td rowspan="3">Values Provided in Response to SR #10</td><td colspan="2">Initial Phase A-B-C_C-B-A</td><td colspan="2">Reverse Phase TL23004 A-B-C_A-B-C</td><td colspan="2">Reduction</td></tr><tr><td>West</td><td>East</td><td>West</td><td>East</td><td>West</td><td>East</td></tr><tr><td>140.6</td><td>143.5</td><td>121.9</td><td>92.6</td><td>13%</td><td>35%</td></tr></table></td></tr>
<tr><td>10</td><td>Data Request #10, Response #1</td><td>The discrepancy between Proposed Project values in Tables 3 and 5 of the magnetic field calculations report provided by SDG&E in response to DR#10 requires explanation or correction.

For Segment D the information from SDG&E does not appear to match previously provided information (reference the table below). It is unclear what SDG&E means by the heading "ALT 5 with 69 kV." If this is the existing configuration, columns 1 and 3 below should be the same as SDG&E indicated that the current flow modeled for the existing fields is the same as for the FMP for the proposed project. If this is the proposed project configuration, columns 2 and 3 should be the same?

Segment D EMF Info –
<table><tr><td>ED03-11 Existing Fields</td><td>Orig. FMP Proposed Project (Dbl 69 kV)</td><td>DR#10 – FMP Alt 5 with 69 kV</td></tr></table></td><td>The questions posed in DR #18, Item 10 have to do with understanding Table 5: Alternative 5, Westerly Overhead with and without 69 kV in SDG&E's 9/22/15 response to CPUC Data Request #10.

Item 10a – "Alt 5 with 69 kV." SDG&E stated on page 6 of the 9/22/15 response that Alternative 5 is equivalent to the original proposed Project, except that the two existing overhead 69 kV power lines in original Segment D would depart the easement near location P48 and transition to underground to continue west via access roads and surface streets to Peñasquitos Substation. Therefore, Segment D was considered to have two components:

(1) Alt 5 with 69 kV in which the two 69 kV power lines (TL675 and TL 6906) remain in an overhead position in the right-of-way from Peñasquitos Junction to a point near Location P48, where they depart via an underground route;

(2) Alt 5 without 69 kV from a point near Location P48 to Peñasquitos Substation, in which the two 69 kV power lines (TL675 and TL 6906) have departed the overhead right-of-way.

Item 10b – Should Columns 1 and 3 in the table in DR #18, Item 10 be the same? Columns 1 and 3 in the table should not be the same. The values in Column 1 were derived from a model of existing power line conditions (no proposed 230 kV line) and present-day amperages. The values in Column 3 were derived from a model of component 1 of Alternative 5 using the amperages listed in Table 1. 2017 Heavy</td></tr>
</table>

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North 21.2 mG	North 9.5 mG	North 71.8 mG
South 2.6 Mg	South 135.9 mG	South 1.8 mG

Summer Load Case above.

Item 10c – Should Columns 2 and 3 in the table in DR #18, Item 10 be the same?
The magnetic field model for the original FMP was created in the RESICALC program, maintained by the Electric Power Research Institute (EPRI). The RESICALC model was then imported into the EMF Workstation program, a newer modeling software also maintained by EPRI.

The values in Column 3 in the table in DR #18 resulted from a new model of Segment D prepared in response to DR #10, using a model created in RESICALC imported into EMF Workstation. SDG&E has determined that during the import process, the power flow directions of the source model are re-set to be all in one direction. SDG&E has confirmed this with the software developer.

By project design, the power flow direction for the proposed 230 kV line would be **into** Peñasquitos Substation with power on the single 138 kV and two 69 kV lines flowing **out of** Peñasquitos Substation (see Table 3 below). When the Segment D model for the original FMP was imported into EMF Workstation, all circuit power flow directions were re-set to flow **out of** Peñasquitos Substation (see Table 4 below). This re-set was not adjusted manually after import. Since the phase arrangement for the 138 kV line and the proposed 230 kV line was identical from top to bottom in the model, the re-set of power flow direction effectively eliminated cancellation of magnetic fields between the two circuits, resulting in an inadvertent overstatement of the Segment D values in *Table 5: Segment "D" – Overhead TL 230XX west from Peñasquitos Junction to Peñasquitos Substation* of the original FMP. These values are the same as in Table 5 below.

The values in Column 3 of the Table included in Question 10 represent the correct power flow directions for Segment D after manual adjustment to the new model, subsequent to import into EMF Workstation.

Also note that during the import process for Segment D of the original FMP, the North and South edges of right-of-way were reversed. SDG&E has confirmed this with the software developer.

The reversal of right-of-way resulted in inadvertent mislabeling of the headings in *Table 5: Segment "D" – Overhead TL 230XX west from Peñasquitos Junction to Peñasquitos Substation* of the original FMP. See Tables 5 and 6 below for original and amended headings.

The values in Column 3 of the Table included in Question 10 correspond to the correct

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labeling for the edges of right-of-way for Segment D after manual adjustment to the new model, subsequent to import into EMF Workstation.

For clarity, SDG&E provides Table 7 below showing the updated milligauss values from the new model of Segment D, which reflect correct (intended) power flow direction as shown in Table 3 below, and correct edges of right-of-way.

SDG&E is examining the magnetic field models for the other segments of the proposed Project to understand whether the import process affected the power flow directions or edges of right-of-way as occurred with Segment D.

As noted in the response to Item 9 above, SDG&E will prepare and submit a new FMP based on the final route and conditions determined by the Commission.

Table 3. Segment D – Intended Power flow Direction

Tieline	From substation	To substation	Current Amounts Used
TL 675	Peñasquitos	Mesa Rim	503
TL 6906	Peñasquitos	Miramar	228
TL Proposed 230 kV	**Sycamore**	**Peñasquitos**	2,159
TL 13804 Segment D	Peñasquitos	Batiquitos Tap	356

Table 4. Segment D After Import from RESICALC to Workstation Power Flow Directions Erroneously Reversed

Tieline	From substation	To substation	Current Amounts Used
TL 675	Peñasquitos	Mesa Rim	503
TL 6906	Peñasquitos	Miramar	228
TL Proposed 230 kV	**Peñasquitos**	**Sycamore**	2,159
TL 13804 Segment D	Peñasquitos	Batiquitos Tap	356

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Table 5. Segment D Labeling of Edges of Right-of-Way in Original FMP* (with Power Flows Erroneously Reversed)

Standard Height Above Ground		Initial Design Height Above Ground		Percent Reduction Standard Hgt. vs Design Hgt.	
North	**South**	**North**	**South**	**North**	**South**
9.6	135.7	9.5	135.9	1%	0%
* milligauss values have not been adjusted					

Table 6. Amended Labeling of Edges of Right-of-Way for Original FMP (with Power Flows Erroneously Reversed)**

Standard Height Above Ground		Initial Design Height Above Ground		Percent Reduction Standard Hgt. vs Design Hgt.	
South	**North**	**South**	**North**	**South**	**North**
9.6	135.7	9.5	135.9	1%	0%
** milligauss values have not been adjusted					

Table 7 Corrected Milligauss Values† for Segment D (with Power Flows Erroneously Reversed)

Line Segment	Existing (mG)	Proposed (mG)	Change (mG)
Segment D North	21.2	71.8	+ 50.6
Segment D South	2.6	1.8	- 0.8
† values based on manually adjusting the imported file to correct power flow direction and north/south edges of right-of-way			

Table 1: Application No. 14-04-011 Data Needs #18			
#	**Reference Source, Page #**	**Data Need**	**SDG&E Response**
11	Comment Letter Appendix B, Exhibit 5	**Confirm and provide explanation for height of the Alternative 1 cable pole presented in SDG&E Draft EIR comments (Appendix B, Exhibit 5).** Exhibit 5 identifies that the cable pole would need to be 210 feet tall; however, the Appendix B GIS data provided by SDG&E indicates that the cable pole would need to be 199.5 feet tall. Please confirm which value is correct. In either case, a more detailed explanation is needed for the increase in pole height over the 160-foot tall pole depicted in the Draft EIR.	As described in Q1 of Data Request #12, the Alternative 1 cable pole position proposed the construction of a 3-pole structure just south of Carmel Valley Road. However, due to the fact that the DEIR Section 3.6.1.2 revised the 3-Pole structure to a single structure cable pole, this required SDG&E to conduct a design refinement which concluded that a 210-foot tall cable pole would be required to maintain proper clearances. The change in pole configuration from a 3-pole structure to a single pole required the conductor phasing to be revised from a horizontal to a vertical configuration, naturally increasing the structure height to maintain ground clearances as specified in GO-95. In addition, grading pad refinements required for a single pole structure were also made as needed which resulted in the final height of structure to be 210 feet above ground level (AGL). The 199.5-foot height found in the GIS metadata is in reference to the structure height based on existing topography (i.e. prior to grading). The Structure height would be 210 feet after accounting for grading of the work pad, which would require an approximate 10-foot cut into the side of the existing topography. This 210-foot structure would be taller than any of the structures in SDG&E service territory and would require specialized equipment for construction and regular maintenance.