



**SDG&E's Comments on the
Renewable Energy Transmission Initiative's (RETI's)
June, 2009 draft Phase 2A Report**

Section 1.2.5 "Proposed Mojave Desert National Monument"

The report indicates that several of the CREZs could be impacted by the proposed Mojave Desert National Monument that is being supported by senator Feinstein. According to the draft Phase 2A report, California could lose 11,700 MW of potential solar and wind generation.

SDG&E suggests including a map that overlays the affected CREZ boundaries with the preliminary boundaries for the proposed Mojave Desert National Monument.

Section 1.3 "Conceptual Transmission Plan"

There are some inaccurate statements in this section in regards to RETI's processes. Change the third, fourth, fifth and last sentences of the first paragraph to read:

"RETI *has not evaluated* the extent to which the existing grid can accommodate new sources of renewable generation. However, given the amount of renewable energy required to meet state goals in 2020, *a number of* these lines are likely to be required. Importantly, *some* are also likely to be needed to meet growing energy demands....Identifying this set of upgrades *was* a major *goal* of RETI Phase 2 work."

Change the first sentence of the last paragraph to read:

"This *plan uses* a transparent and objective methodology for evaluating *the study priority of* conceptual transmission connections that combines...."

Section 1.3.1 "Purpose and Limitations of Conceptual Transmission Planning"

Add a reference to RETI's identification of existing substations for which upgrades are planned and to new substations in the second paragraph:

"...potential network connections between substations. *The RETI conceptual transmission plan also contemplates the construction of a number of new substations as well as upgrades of some existing substations.*"

Footnote 5 attempts to distinguish "network connections" from trunk-lines by indicating that power flows in "both directions" on network connections. This is not accurate because given the electrical location of resources and major load centers, anticipated powerflows on many network connections will almost always be in only one direction. Footnote 5 should be rewritten as follows:

"Network connections are lines in which *the amount of power flow depends on the physical characteristics of the remainder of the interconnected grid. In contrast trunk lines and gen-ties are radial lines in which the amount of power flow depends only on the quantity of generation connected to the line.*"

Section 1.3.1.1 “An Objective Approach to Conceptual Planning”

The description of how “conceptual planning” is done is not complete. Change the first, third and fourth paragraphs as follows:

“...These experts use their judgment, *supported by technical powerflow work and economic simulations*, to identify potential upgrades or new facilities for detailed study. Because it relies on expert knowledge and is judgment-based, this process *may not be* transparent. Historically, *the inclusion of stakeholder perspectives at the conceptual planning stage in ways that build broad support for transmission expansion has been lacking.*”

“To this end, RETI has developed a new, objective methodology for assessing the *comparative* usefulness of potential transmission facilities...”

“...The RETI renewable transmission *prioritization* methodology offers a model for other transmission planning efforts getting underway throughout the US.”

Section 1.3.2.1 “Conceptual Transmission Planning Work Group”

Add clarifying detail to footnote 6:

“On-going work indicates that less than 40% of the output if each CREZ may be required to meet *160%* of the state’s 33% RPS goal...”

Section 1.3.2.2 “Plan Development and Assessment”

Add a reference to RETI’s identification of existing substations for which upgrades are planned and to new substations in the second paragraph:

“...to all LSEs adequate to meet their policy goals. *The CPWG also identified existing and new substations that are practical points at which energy from the CREZ will be injected into the network. The conceptual connections between substations....*”

Section 1.3.3 “Initial Conceptual Transmission Plan”

Correct typo in “**Renewable Foundation**” section:

“...is likely to be essential to be able *to* deliver renewable energy from...”

Section 1.3.3.1 “Least-Regrets Upgrades”

The “no-regrets” and “least regrets” terminology has always been vague and without any objective defining characteristics. The CPWG has never reached consensus on which facilities should be characterized as “least regrets” and which should not. It is misleading to single out only the “Tehachapi Group” as “least regrets.”

Change the title of this section to “**Heavily Used Facilities**”. Delete the sentence reading “These are referred to as ‘no-regrets’ or least regrets facilities.” Delete the sentence that reads “Some Renewable Collector lines, such as those in the Tehachapi Group, have also been identified as least-regrets facilities.”

Section 1.3.3.2 “Transmission Cost”

Modify the second and third sentences of the second paragraph to read:

“Because the segments in this group provide major system benefits and are likely to be needed to meet load growth regardless of generation source, it is not appropriate to attribute *all of* their cost to the cost of

meeting renewable energy or climate change goals. For the same reason, the aggregate cost of the ___ Delivery lines, \$___ billion, should not be attributed *solely* to renewable energy development.”

As transmission sponsors, the Investor Owned Utilities (IOUs) will perform studies to determine which lines are needed to meet the 33% renewable energy goal. Accordingly, change the second sentence of the third paragraph as follows:

“...Power flow and economic grid simulation studies to be performed by the CAISO, IOUs and POU will determine which lines are needed...”

Regarding the transmission lines in the RETI conceptual transmission plan, the statement that “permitting authorities” are in the best position to evaluate “other benefits to consumers” [in addition to “delivery renewable generation to the grid”] is unsupported and, in any event, outside the scope of RETI.

Accordingly, revise the last sentence to read as follows:

“This report does not attempt to calculate these benefits.”

Section 1.3.3.4 Results and Recommendations

Recommendation 3 -- SDG&E recommends that RETI not opine on ratemaking matters. Accordingly, SDG&E requests that RETI SSC recommendation number 3 be removed. This recommendation was never really vetted through RETI and it seems out of place to include it as a formal RETI recommendation.

Nevertheless, if it is decided that RETI SSC recommendation number 3 will be retained, then Recommendation 3 should be modified to clarify the distinction between the recovery of utilities’ fixed (sunk) transmission costs (where there should be only one charge for the use of multiple utilities’ facilities) and the recovery of variable transmission costs (losses and congestion-related costs which vary with grid use). Recommendation 3 should be modified to read:

“Multiple transmission charges *for the recovery of utilities’ fixed transmission costs* be eliminated for purposes of all transmission line segments built primarily to access and deliver renewable energy in California, so that all transmission customers buying renewable energy sourced from California CREZ pay only one transmission charge *for the recovery of fixed transmission costs*. On joint IOU-POU transmission lines, for example, IOU customers would pay only the CAISO Transmission Access Charge (TAC) *(which recovers the IOUs’ fixed investments in the transmission grid)*, and POU customers would pay only a POU *fixed* transmission charge; in neither case would a customer pay both CAISO and POU *fixed* transmission charges.¹”

Recommendation 4 – Add a statement emphasizing the need for the CEC to formally “designate” certain existing transmission rights-of-way as “corridors” that are necessary to “reserve and protect transmission access to areas where renewable energy development is likely to occur.” Such a designation could be important in order to implement portions of the RETI conceptual transmission plan. For example, by designating the existing MWD transmission right-of-way between Iron Mountain and Camino substations as necessary to “reserve and protect transmission access” to the Iron Mountain and Needles CREZ, the CEC can facilitate the proposed 230 kV tear-down and 500 kV rebuild of MWD’s transmission system between Iron Mountain and Camino substations. Recommendation 4 should be modified as follows:

¹ *Certain POU’s have turned over their transmission assets to CAISO operational control and obtain fixed cost recovery through the CAISO TAC. These POU’s customers are therefore situated similar to IOU customers. Accordingly, this recommendation applies to those POU’s who have not turned over their transmission assets to CAISO operational control.*

"The California Energy Commission should begin immediately, per Public Resources Code section 25331, to designate (a) additional appropriate corridors, beyond those already established by federal agencies, and (b) *existing rights-of-way (including potential expansion of existing rights-of-way)*, to reserve and protect transmission access to areas where renewable energy development is likely to occur, including likely routes for Renewable Foundation lines and Renewable Delivery lines. Corridor designation must be coordinated among state and federal agencies and support access to, for example, BLM Solar Energy Zones, and Desert Renewable Energy Conservation Plan (DRECP) generation development areas, as well as to the most likely CREZ."

Section 1.4.3 "Next RETI Activities"

Revise the last sentence of the first paragraph as follows:

"They may include transformer upgrades in certain locations, *loop-in of existing transmission lines*, Remedial Action Schemes, in conjunction with generation curtailment agreements, and other such measures."

As transmission sponsors, the Investor Owned Utilities (IOUs) will perform studies to determine which lines are needed to meet the 33% renewable energy goal. Accordingly, change the first and last sentences of the second paragraph as follows:

"RETI will support detailed electrical planning of the first projects recommended for study. *These studies will be conducted by the IOUs, the CAISO and the Publicly Owned Utilities....Stakeholder support for development of the Tehachapi Renewable Transmission Project plan of service, for example, assisted the CAISO in preparing that project for approval by the CAISO board in 2007 and assisted SCE in preparing its application for a Certificate of Public Convenience and Necessity (CPCN) at the CPUC.*"

Section 2.3 "Revised CREZ Ranking"

In the Phase 1B report the CREZ were listed throughout the report. In the June, 2009 Phase 2A draft report the revised CREZ are not identified. SDG&E recommends that tables be prepared that compare the Phase 1B and Phase 2A results; in particular, a comparison of renewable development potential within each CREZ (MW and gWh), a comparison of economic CREZ scores and a comparison of the environmental scores for each CREZ.

The following statements appear in the June, 2009 Phase 2A draft report: "In Phase 1, such costs were estimated from computer models. For this revision, the RETI Conceptual Planning Work Group has instead directly analyzed the cost of individual transmission facilities needed to provide access to each CREZ." The reference to "computer models" is ambiguous. Presumably the reference should have been to generic per-unit transmission costs. However, the Phase 2A transmission costs were also developed from per-unit transmission costs. These statements need to be clarified since, as written, the point they are attempting to make is unclear.

Section 2.4 "Out of State Resources"

The phrase "Southern Nevada" in the second paragraph should be "*Central Nevada*."

Section 2.6 "Environmental Issues Matrix"

Footnote 13 should be expanded to read: "Renewable energy facilities, particularly wind *turbines*, *solar thermal mirrors and receiving towers*, and *above-ground* transmission, have the potential to negatively impact military activities..."

Section 3.1 “Conceptual Transmission Planning”

The geographic locations of the line segments in the RETI conceptual transmission plan that involve construction within or adjacent to, existing rights-of-way area are known with a high level of certainty. Accordingly, SDG&E suggests modifying the fifth sentence of the first paragraph as follows:

“Because it focuses on electrical flows, conceptual planning generally does not identify exact geographic routes.”

As transmission sponsors, the Investor Owned Utilities (IOUs) will perform studies to determine which lines are needed to meet the 33% renewable energy goal. Accordingly, change the second sentence of the third paragraph as follows:

“Transmission owners, most of whom are also Load-Serving Entities responsible for delivering power to customers, then propose specific transmission projects for detailed study by the CAISO, *by IOU planners* or by POU planners.”

“Power” has a value to “generators” and a cost to “customers. Modify the fourth sentence of the fourth paragraph as follows:

“Planners also employ production cost models to evaluate how the proposed facilities affect the *value* of power to generators and *the cost* to consumers across the entire grid...”

Section 3.3.1 “Transmission Components in the Conceptual Plan”

To reflect RETI’s consideration of trunk lines, modify the second paragraph as follows:

“...All of the components of the preliminary statewide conceptual plan are ‘network’ connections in which, *depending on system conditions*, power could theoretically flow in both directions. *Radial* ‘trunklines’ and ‘gen-ties,’ in which power flows *almost exclusively* in one direction, from a CREZ to the network, will be considered in future work, *although several potential trunklines have already been identified in the Phase 2A process*. These include (a) two 500 kV lines between (i) a proposed Ravendale substation in the Lassen North CREZ, and (ii) the proposed ZETA1 substation in northern California, and—assuming the Green Energy Express (GEE) project will not be allowed to interconnect to MWD’s existing Eagle Mountain substation—(b) a double-circuit 500 kV line between (i) the Eagle Mountain area of the Riverside East CREZ, and (ii) Devers substation.”

Modify the fourth paragraph to remove the mischaracterization of what RETI’s capabilities are:

“Upgrades to Foundation lines, which enable energy to move throughout the state, may be needed to the extent that the existing system has insufficient capacity to do so. RETI *has not assessed such need.*²”

² *At the beginning of the Phase 2A process, LADWP, IID and SDG&E initially proposed, and began implementation of, an incremental generation methodology that provided an indication of the extent to which the existing system has capacity to accommodate increased renewable energy development within each of the identified CREZ. This methodology systematically increased generation within each CREZ to determine the point at which grid contingencies would result in maximum permissible power flows (i.e., when a line’s thermal rating was reached) or minimum acceptable voltage levels. This level of CREZ generation is a measure of the capacity of the existing grid to accommodate increased renewable energy development. Transmission upgrades would then be identified to comport with reliability criteria. The amount of generation within each CREZ would then be further increased and the process repeated. A majority of the Conceptual Planning Work Group participants did not support this approach and a judgment-based conceptual planning approach was used instead to identify many of the RETI upgrades.*

Add an explanation in the last paragraph of why RETI decided to build a conceptual transmission plan capable of meeting “160%” of California’s projected net short quantity:

“RETI’s mandate is to identify, from a statewide perspective, additional transmission capacity sufficient to provide access and delivery of renewable energy *equal to the net short* in 2020. *To account for the uncertainty in the pattern and timing of renewable resource development, the RETI Stakeholder Steering Committee directed that the RETI conceptual transmission plan be developed sufficient to provide access to 160% of the RETI net short in year 2020.* As discussed above, the conceptual plan components needed for this purpose by 2020 will be determined by further study and future developments.”

Section 3.3.2 “Minimizing New Rights of Way”

Correct the introductory phrase to the third sentence of the first paragraph (“To this end”) by changing it to read:

“*While RETI did not determine the extent to which the existing grid can accommodate new renewable generation, the upgrades included in the conceptual transmission plan utilize existing transmission corridors and existing Rights of Way (ROW) to the greatest extent possible.*”

Section 3.3.3 “Plan Assessment Methodology”

Modify the characterization provided in the last sentence of the third to last paragraph by restating the sentence as follows:

“*For example, the existing transmission system may be adequate to transmit a significant portion of this energy from CREZ to loads, but the shift factor analysis used in the Phase 2A process sheds little light on this possibility.*”

For clarity, modify the first sentence of the last paragraph as follows:

“Despite its limitations, shift factor analysis is a useful *comparative* assessment tool in transmission planning.”

Section 3.3.3.1 “Conceptual Plan Renewable Net Short”

In the third paragraph change the last sentence to read:

“However, *because the assessment is based on small increments (not aggregate quantities) of power, the results would not be different if the net short positions of LSEs had been uniformly scaled downward to reflect assumed uniform penetration of local PV generation.*”

It is unclear what the numbers in the column on Table 3-1 with the heading “RPS Retail Sales” are meant to convey. Also, it is unclear on Table 3-1 how “Total Retail Sales,” “RPS Retail Sales,” and “Net Short 2020” numbers relate to one another. An explanation and/or additional numerical detail on the table are needed.

Section 3.3.3.2 “Shift Factors”

The first sentence of the fourth paragraph should be clarified by expanding the sentence as follows:

“...and computes the percentage of this additional power that flows in every line segment throughout the Western Interconnection *to the identified proxy locations for load.*”

Clarify the last sentence of the fifth paragraph and the first and second sentence of the sixth paragraph as follows:

“Row 5 of the table shows that ___% of the energy from the *Round Mountain-A CREZ* flows from *Kramer* substation to *Inyokern* substation. *The implication of the off-setting signs is that the flow from the Round Mountain-A CREZ to Inyokern substation would cancel out some of the flow from the Owens Valley CREZ.*

However, since flows from different CREZ may occur at different times of day or year opposing flows cannot be counted on to cancel each other out. Therefore, the absolute values of all shift factors are used in the plan assessment, providing a measure of each line segment’s energy access to all CREZ.”

Section 3.4 “Limitations of the RETI Rating Methodology”

Correct the first sentence of the first paragraph as follows:

“In order to *establish priorities for future detailed study of upgrades in RETI’s conceptual transmission plan*, RETI estimated the usefulness of *identified line segments* to access and transmit renewable energy.”

The last sentence of the first bullet should be shown as a footnote under the first bullet:

“...They cannot substitute for full power flow studies of potential transmission system additions.³”

The second sentence of the second bullet needs to be corrected with the following language:

“Shift factors have been calculated based on LSE projected net short. *Lines that carry CREZ energy to LSE service areas with relatively smaller proportions of the state-wide net short will necessarily have smaller shift factors.*”

Insert a new bullet that describes another important limitation of shift factors:

“ . *Shift factor magnitudes are highly sensitive to the assumed grid configurations that connect CREZ to the network. For example, an assumption that a CREZ will only be connected to a new line, and not to an adjacent existing line where the cost of looping-in the existing line may be relatively small, will result in shift factors for the new line that may be twice as high than would be the case if the CREZ were assumed to be connected to both the new line and the adjacent existing line.*”

Expand the third bullet as follows:

“The RETI evaluation methodology is based on current estimates of CREZ energy potential *within the designated RETI footprint. The RETI footprint is currently limited to British Columbia, Canada; Washington; Oregon; California; Nevada; Arizona and*

³ A full explanation of the shift factor analysis and its technical limitations is included in Appendix J.

northern Baja California, Mexico. The estimates within the RETI footprint are certain to change in the future. In addition, consideration of renewable energy development potential outside the RETI footprint may significantly change the amount of renewable resources that need to be developed within California in order to meet California's renewable goals. Inclusion of larger amounts of low cost out-of-state resources, for example, could make import lines included in the RETI conceptual transmission plan more cost-effective than they appear in shift factor-based ratings today, require further increases in inter-state transfer capability, and/or reduce the need for other in-state transmission upgrades."

Section 3.5 "Line Segment Groups"

Change the last sentence of the first paragraph as follows:

"Network connections are ones in which power *may* flow in both directions on the line."

Modify the second paragraph to indicate that the RETI upgrades should collectively improve the overall functioning of the grid:

"Individual transmission line segments function together with other network elements to collect energy and allow it to move *efficiently* throughout the system."

Modify the "**Renewable Foundation Group**" description to make it clear that RETI has not performed any analysis that indicates the Renewable Foundation Group is essential "to be able" to move renewable energy:

"This capacity is likely to be essential to *facilitate delivery of* renewable energy from any CREZ to consumers in all major load centers."

Generalize the purpose of the "**LEAPS Group**" and correct the reason that RETI characterizes the LEAPS Group as a "Renewable Collector line:"

"RETI has not yet compared the relative merit of the LEAPS Group to other options for providing access to *renewable* resources. *Lacking a consensus on how to categorize the* LEAPS line segments, they are shown on the map in Figure 3-2 as Renewable Collector lines."

Modify the "**Imperial Group**" description to remove the incorrect statement that "Southern California Edison "proposed" a "major line" included in the Imperial Group. In fact the "major" 500 kV line included in this group was identified in the early iterative powerflow work performed for RETI by SDG&E. Also, as agreed by the CPWG, RETI is not associating specific elements of the RETI conceptual transmission plan with specific entities, except where such entities may already have public expansion plans in place. The modifications are as follows:

"The Imperial Group...provide access to renewable energy resources in Imperial County *and northern Baja* and deliver this energy to....The Imperial Group as presently configured also includes a major 500 kV line *between Imperial Valley substation and Devers substation and two new 500/230 kV transformers at Imperial Valley substation. Whether the IID system upgrades, the new 500 kV line, the two 500/230 kV transformers at Imperial Valley substation, or some subset of these projects, would adequately facilitate access to renewable energy sources depends* on the amount of renewable generation coming into service in Imperial County, southeast San Diego County and Baja California. RETI has not yet completed its analysis of the relative merits of the *individual* segments of the Imperial Group. The inclusion of both *the 500 kV line and the IID system*

upgrades in RETI Phase 2 analysis drives up both the environmental score and the investment cost of the Imperial Group.”

The “**Barren Ridge Group**” does not connect to the Fairmont CREZ. The reference to “Fairmont” should be removed.

The “**Inyo Group**” connects to the Owens Valley CREZ. There is no “Lone Pine” CREZ. Change “Lone Pine” to “Owens Valley.”

The “**MtPass Group**” contains no line segments connecting to any RETI-identified renewable resource area in Nevada (RETI has found that only renewable resources in Central and Northern Nevada are economic and these resources are injected at Dixie Valley and Zeta1, not to the MtPass Group) or to the Victorville CREZ. Delete “Nevada” and “Victorville” from the description.

Modify the “**IronMt Group**” description as follows:

“The Iron Mountain Group provides access to the Iron Mountain and Needles CREZ, connecting to the new Pisgah substation as well as to MWD’s Iron Mountain and Camino substations. The pace and extent of potential renewable development in these areas is uncertain, as resource development there may be substantially affected by the contemplated Mohave Desert National Monument. Given the uncertainty, RETI Phase 2 resource estimates for the Iron Mountain and Pisgah [Needles?] CREZ have not been changed from Phase 1 levels. In addition, potential conflicts with Metropolitan Water District (MWD) facilities may complicate access to the Iron Mountain and Needles CREZ. If such conflicts prohibit RETI’s planned 500 kV rebuild of MWD’s existing 230 kV line between Iron Mountain and Camino substations and RETI’s planned 500 kV interconnections at Iron Mountain and Camino substations, then the Iron Mountain Group would become a long “trunkline” rather than a network connection. This would likely increase the amount of new right-of-way required to construct the 500 kV facilities. It would also raise the cost of transmission access for generators seeking to connect in those areas since, unlike network upgrades, interconnecting generators have full cost responsibility for their pro rata share of trunkline costs.”⁴

Modify the “**Pisgah Group**” description to reflect that renewable energy from the Twentynine Palms CREZ is assumed to be injected at the new Lucerne Valley substation via a trunkline.

Modify the “**Riverside Group**” description to make it clear that the potential redundancy between (a) the proposed Green Energy Express (GEE) project, and (b) the Desert Center-Devers portion of SCE’s planned California-only portion of the Palo Verde-Devers #2 project, only exists to the extent both projects would provide access to new renewable generation built in the Eagle Mountain area of the Riverside East CREZ. Also, the GEE project would only be a “merchant” transmission project if the project sponsors did not seek cost recovery through the CAISO’s Transmission Access Charge (TAC) mechanism. The modified description would be as follows:

“The Riverside Group now contains only SCE’s planned California-only portion of the Palo Verde-Devers #2 project. The proposed Green Energy Express (GEE) project was eliminated from the Phase 2A analysis because the implication of MWD’s opposition to new connections at MWD’s Eagle Mountain substation is that the GEE project would

⁴ As noted elsewhere, the RETI Stakeholder Steering Committee has decided to evaluate “trunklines” later in the RETI process.

have to be reconfigured as a trunkline connecting to Devers substation and the RETI Stakeholder Steering Committee has decided to defer consideration of trunklines to later phases of the RETI process.

The California-only portion of the Palo Verde-Devers #2 project has an eastern terminus at the planned Midpoint substation near Blythe and connects to a new Desert Center substation south of Eagle Mountain and to Devers substation near Palm Springs. The Riverside Group facilitates delivery of renewable energy from new resources in the Blythe area of the Riverside East CREZ via injection at the planned Midpoint substation. RETI's Conceptual Planning Work Group decided to assume that all new renewable generation in the Eagle Mountain area of the Riverside East CREZ would be delivered, via trunkline, to the new Desert Center substation. This decision assumes-away the possibility of redundancy between (a) the proposed Green Energy Express (GEE) project, and (b) the Desert Center-Devers portion of SCE's planned California-only portion of the Palo Verde-Devers #2 project."

Modify the "**Northeast Group**" description as follows:

"...In its present configuration, however, the connection between Round Mountain and Ravendale is a "trunkline" in which power flows predominately in one direction, from the CREZ to the grid, rather than a network connection in which power *may—depending on system conditions—*flow in both directions on the line...."

Table 3-5

The "Pisgah" Line Segment Group no longer exists and should be deleted.

None of the segments in the "Tehachapi" Line Segment Group connect to the Fairmont CREZ. "Fairmont" should be deleted.

None of the segments in the "BarrenRidge" Line Segment Group connect with the Inyokern or Fairmont CREZ. "Inyokern" and "Fairmont" should be deleted.

None of the segments in the "MtPass" Line Segment Group connect with the Victorville CREZ. Also, there is no "S. Nevada" CREZ in the RETI analysis to date. "S. Nevada" and "Victorville" should be deleted.

The Twentynine Palms CREZ is assumed to be connected via trunkline to the new Lucerne Valley substation. Accordingly, "29 Palms" should not be listed as a CREZ for which the "Riverside" Line Segment Group provides access.

The "Inyo" Line Segment Group connects to the Owens Valley CREZ. "Owens Valley" should be added.

The "North" Line Segment Group does not contemplate a connection to Zeta1 substation so it is not clear that either of the two "Round Mtn" CREZ should be listed.

The "Northeast" and "LEAPS" Line Segment Group should be added to the table.

Table 3-6

The "Baja – Catarina" CREZ is a Phase 2A addition and should be added to the table. (The "Baja – La Rumberosa" CREZ is from Phase 1B.)

The “Tehachapi” Line Segment Group contains no segments that access the “Fairmont” CREZ. The “Tehachapi” Line Segment Group should be deleted.

The “Barren Ridge” Line Segment Group contains no segments that access the “Inyokern” CREZ. The “Barren Ridge” Line Segment Group should be deleted.

The Renewable Foundation Group contains line segments accessing the Iron Mountain, Palm Springs, Pisgah, San Bernardino-Lucerne and Twentynine Palms CREZ. “Foundation” should be added to each of these CREZ.

The “Barren Ridge” Line Segment Group provides access to the Kramer CREZ and this should be reflected on the table.

The “Nevada C” renewable resource area is assumed to inject power at Dixie Valley. Accordingly, the “Northeast” Line Segment Group should be removed.

There is no line segment in the “Barren Ridge” Line Segment Group that connects to the “Owens Valley” CREZ. The “Barren Ridge” Line Segment Group should be deleted.

The “Pisgah” Line Segment Group no longer exists. It should be deleted.

It is not apparent that the “North” Line Segment Group provides access to either of the two Round Mountain CREZ. The “North” Line Segment Group should be deleted.

The shift factor analysis indicates that the “LEAPS” Line Segment Group provides a relatively high level of access to the San Diego North Central CREZ. The “LEAPS” Line Segment Group should be added.

The Twentynine Palms CREZ is not connected to any segment of the “Riverside” Line Segment Group. The “Riverside” Line Segment Group should be deleted.

The Victorville CREZ is connected to “existing transmission,” not to any segment of the “Mountain Pass” Line Segment Group. These changes need to be reflected on the table.

Section 3.6 “Line Segment Investment Costs”

Change the second sentence of the second paragraph as follows:

“In addition, *specific* routes of many potential line segments have not been determined.”

Section 3.7 “Evaluation of Line Segment Environmental Concerns”

Correct a typo in the first sentence of the third paragraph:

“Many essential environmental concerns which may make it difficult or impossible to permit a line cannot, however, *be captured* in a quantitative formula.”

Criterion D –Environmental Concern

SDG&E believes RETI’s treatment of “**Criterion D –Environmental Concern,**” fails to adequately consider the environmental concerns associated with constructing new facilities in a “designated corridor.” The environmental analysis prepared by RETI provides that “a segment that would require a new ROW in a designated corridor would was given score of 3.” The analysis also provides that “a segment that would require a new ROW not in a designated corridor but could be co-located with another line was given a score of 6.”

The effect of RETI’s treatment is to treat the environmental concerns associated with building entirely new transmission in “designated corridors” that cross pristine areas (i.e., where there are no existing lines) as somehow *significantly less* objectionable than building the same facilities on land that is outside of a

“designated corridor” but immediately adjacent to existing lines (i.e, where the environment has already been disturbed).

SDG&E believes the environmental consequences of building new facilities across pristine areas will, all things being equal, be significantly greater than building the same facilities adjacent to existing facilities. If this environmental scoring principle were applied to all of the RETI line segments, SDG&E believes there would be a significant, and much more sensible, ordering of the relative environmental rankings for the various line segments and project groupings.

Section 3.8 “Group Assessment Results”

Remove speculative nature of the statement concerning segment energy scores in the first paragraph:

“...Simple summation of segment energy scores is a significant weakness of the conceptual plan assessment, and, the CPWG is investigating a more complex methodology for combining segment energy scores into group scores.”

Figure 3-8 “Transmission Group Cost, Environmental Scores and Group Combined Energy, Bubble Chart”

In the notes section below Figure 3-8 make the following change:

“Some transmission groupings may contain duplicative line segments which artificially increase environmental scores and costs. Identification of duplicative line segments requires more detailed analysis which is beyond the scope of Phase 2A.”

Section 3.10 “Policy Recommendations”

Recommendation 3 -- SDG&E recommends that RETI not opine on ratemaking matters. Accordingly, SDG&E requests that RETI SSC recommendation number 3 be removed. This recommendation was never really vetted through RETI and it seems out of place to include it as a formal RETI recommendation.

Nevertheless, if it is decided that RETI SSC recommendation number 3 will be retained, then Recommendation 3 should be modified to clarify the distinction between the recovery of utilities’ fixed (sunk) transmission costs (where there should be only one charge for the use of multiple utilities’ facilities) and the recovery of variable transmission costs (losses and congestion-related costs which vary with grid use). Recommendation 3 should be modified to read:

“Multiple transmission charges *for the recovery of utilities’ fixed transmission costs* be eliminated for purposes of all transmission line segments built primarily to access and deliver renewable energy in California, so that all transmission customers buying renewable energy sourced from California CREZ pay only one transmission charge *for the recovery of fixed transmission costs*. On joint IOU-POU transmission lines, for example, IOU customers would pay only the CAISO Transmission Access Charge (TAC) *(which recovers the IOUs’ fixed investments in the transmission grid)*, and POU customers would pay only a POU *fixed* transmission charge; in neither case would a customer pay both CAISO and POU *fixed* transmission charges.⁵”

⁵ *Certain POU’s have turned over their transmission assets to CAISO operational control and obtain fixed cost recovery through the CAISO TAC. These POU’s customers are therefore situated similar to IOU customers. Accordingly, this recommendation applies to those POU’s who have not turned over their transmission assets to CAISO operational control.*

Recommendation 4 – Add a statement emphasizing the need for the CEC to formally “designate” certain existing transmission rights-of-way as “corridors” that are necessary to “reserve and protect transmission access to areas where renewable energy development is likely to occur.” Such a designation could be important in order to implement portions of the RETI conceptual transmission plan. For example, by designating the existing MWD transmission right-of-way between Iron Mountain and Camino substations as necessary to “reserve and protect transmission access” to the Iron Mountain and Needles CREZ, the CEC can facilitate the proposed 230 kV tear-down and 500 kV rebuild of MWD’s transmission system between Iron Mountain and Camino substations. Recommendation 4 should be modified as follows:

“The California Energy Commission should begin immediately, per Public Resources Code section 25331, to designate (a) additional appropriate corridors, beyond those already established by federal agencies, and (b) *existing rights-of-way (including potential expansion of existing rights-of-way)*, to reserve and protect transmission access to areas where renewable energy development is likely to occur, including likely routes for Renewable Foundation lines and Renewable Delivery lines. Corridor designation must be coordinated among state and federal agencies and support access to, for example, BLM Solar Energy Zones, and Desert Renewable Energy Conservation Plan (DRECP) generation development areas, as well as to the most likely CREZ.”

Appendix F. “Line Segments in Each Group”

The report should provide the logic for categorizing the 230 kV “DVR2_CENT_1” line as a “Delivery” line segment while categorizing the 500 kV “DEVR_MIRA_1” and “DEVR_MIRA_2” line segments as “Foundation”. All of these line segments connect Devers/Devers II substation directly with the Los Angeles area load center so it is not clear why the categorizations are different.

Appendix G. “Description of Line Segments”

Correct the typos in the second paragraph under the “**Imperial Irrigation District Upgrades**” section:

“IID has *developed* a detailed long-term transmission plan...”

“The individual project *components* of this plan are described below.”

“Conceptual Segments in Southern California Edison Service Territory”

The title of this section needs to be changed to remove the reference to the “Southern California Edison Service Territory.” Service territories only have meaning with respect to the provision of distribution services (which are franchised), not to transmission services. For example, MWD owns transmission facilities in the Iron Mountain-Camino area and has load in these areas. LADWP and other municipal utilities own transmission facilities between Los Angeles and the Las Vegas area so it is not correct to refer to RETI transmission line segments in these areas as being “in Southern California Edison Service Territory.”

4. “MTPS ELDO”

Consistent with RETI’s principle that RETI-identified transmission upgrades will not be associated with any particular utility, the name “SCE Junction” should be changed to “Jontry Junction.”

“Pacific Gas & Electric Service Territory”

The title of this section needs to be changed to remove the reference to the “Pacific Gas & Electric Service Territory.” Service territories only have meaning with respect to the provision of distribution

services (which are franchised), not to transmission services. For example, there are numerous municipally-owned transmission facilities in central and northern California that are co-located with PG&E transmission facilities. It is not correct to refer to RETI transmission line segments in these areas as being in the “Pacific Gas & Electric Service Territory.”

Under “**South-to-North Bulk System Upgrades**” there is a statement that “The ability to transmit renewable power from southern California resources to the northern section of the state will require incremental upgrades to the WECC designated Paths 15 and 26 and connected lines.” This statement is not correct and should be removed. There is no RETI analysis or supporting data indicating that renewable power would be prevented from flowing from the southern part of the state to the northern part of the state absent “south-to-north bulk system upgrades.”

It would be accurate to state that:

“The ability to transmit renewable power from southern California resources to the northern section of the state in amounts exceeding the existing south-to-north transfer capability of the Path 26 and Path 15 ratings will require incremental upgrades to these paths.”