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5.0 DETAILED DISCUSSION OF SIGNIFICANT IMPACTS

In accordance with the PEA Checklist issued by the CPUC on October 7, 2008, this section:

- Identifies the potentially significant impacts that would result from the construction, operation, or maintenance of the Proposed Project;
- Discusses the alternatives that were evaluated in determining the Proposed Project and the justification for the selection of the preferred alternative; and
- Discusses the Proposed Project's potential to induce growth in the area.

5.1 APPLICANT PROPOSED MEASURES TO MINIMIZE SIGNIFICANT EFFECTS

Based on the findings in Section 4.0, Environmental Impact Assessment, the Proposed Project would result in the following short-term significant, unavoidable impacts during construction:

1. Emissions of Criteria Pollutants in excess of SCAQMD CEQA Significance Thresholds (refer to Section 4.3, Air Quality and Greenhouse Gases). This adverse effect could also contribute to cumulatively considerable significant effects where construction of the Proposed Project would occur simultaneously with other projects in the immediate vicinity (refer to Section 4.16, Cumulative Impacts). These significant effects would be minimized to the extent feasible through adherence to SCAQMD Rule 403 and construction emission BMPs.
2. Traffic Congestion and deterioration of LOS during construction of Segment 2 of the proposed Transmission Line portion of the Proposed Project (refer to Section 4.14, Transportation and Traffic). This significant effect could also contribute to cumulatively considerable significant effects where construction of the Proposed Project would occur simultaneously with other projects (refer to Section 4.16, Cumulative Impacts). APMs are proposed that would minimize these impacts to the extent feasible.

Other potential significant impacts were identified that could be reduced to a level less than significant with the incorporation of APMs for the following resource areas:

- Aesthetics,
- Air Quality,
- Cultural Resources,
- Geology, Soils and Mineral Resources,
- Hazards and Hazardous Materials,
- Noise,

- Public Services, and
- Transportation and Traffic.

SDG&E has identified 22 APMs that it plans to implement during construction and/or operation of the Proposed Project to reduce or avoid impacts. Section 3.0, Proposed Project Description, provides a list of all of the APMs that have been proposed as part of the Proposed Project, as well as the justification for each (refer to Tables 3-17 and 3-18). Additionally, all of the proposed APMs are detailed within Section 4, Environmental Impact Assessment.

5.2 DESCRIPTION OF PROJECT ALTERNATIVES TO MINIMIZE SIGNIFICANT EFFECTS

5.2.1 Introduction

The CPUC PEA Checklist directs public utilities to provide a summary of alternatives that would meet most of the objectives of the Proposed Project and an explanation as to why they were not chosen as the Proposed Project. The CPUC PEA Checklist further requires that the discussion of alternatives include alternatives capable of substantially reducing or eliminating any significant environmental effects, even if the alternative(s) substantially impede the attainment of the project objectives, and are more costly.

5.2.2 Methodology

In accordance with the CPUC PEA Checklist, this section considers the following potential alternatives:

- No Project Alternative
- System or Facility Alternatives
    - Energy Conservation
    - Transmission System Load Management
    - Rebuild the 230/138kV Talega Substation
    - Rebuild 138/12kV Capistrano Substation
    - Rebuild Capistrano Substation to 230/138/12kV Air Insulated Substation
    - Rebuild the SDG&E Northern 138kV System
- Alternative Locations and Routes
    - Alternative Sites within the Transmission Load Center
    - 230/138kV Air Insulated Substation Located at Prima Deshecha Landfill
    - Eastern Talega to San Juan Capistrano 230kV Transmission Line Route
    - 230kV Connection with SCE at 230/138kV Substation Located at Prima Deshecha Landfill
    - 230kV Connection with SCE at 230/138kV Capistrano Substation

- Partial Underground within La Pata Road and San Juan Creek Road
- Proposed Project with 230kV Connection to Escondido Substation

The Proposed Project involves the replacement, modernization, and upgrade of electric facilities within an existing electric transmission corridor and substation sites. The Proposed Project has been designed to avoid and minimize potential environmental impacts, and the PEA confirms that there are no long-term significant unmitigated impacts associated with the Proposed Project. With regards to potentially significant short-term, construction-related environmental effects, the PEA has concluded that short-term air quality impacts and short-term traffic impacts during construction of Segment 2 of the Proposed Project would be significant and unavoidable.

This section of the PEA considers whether any of the potential impacts of the Proposed Project could be avoided or substantially reduced by each particular alternative. As discussed below, a range of project alternatives that could achieve at least some of the project objectives was considered, but there is no feasible, environmentally superior alternative to the Proposed Project.

5.2.3 Proposed Project Objectives

As outlined in Section 2.0, Proposed Project Purpose and Need, the fundamental objectives for the Proposed Project are:

1. Provide transmission system reliability:
    a. Reduce the risk of an uncontrolled outage of all South Orange County load.
    b. Reduce the risk of a controlled interruption of a portion of South Orange County load.
    c. Comply with mandatory NERC, WECC, and CAISO Transmission Planning Standards.
2. Rebuild Capistrano Substation to replace aging equipment and increase capacity.
3. Improve transmission and distribution operating flexibility.
4. Accommodate customer load growth in the South Orange County area.
5. Locate proposed facilities within existing transmission corridors, SDG&E ROW and utility owned property.

5.2.4 Alternatives Considered but Rejected

SDG&E evaluated several alternatives based upon feasibility and ability to fulfill project objectives. Feasible alternatives that met the fundamental project objectives were not found. Each alternative that was considered but rejected is discussed in detail in the following subsections.

5.2.4.1 <u>No Project Alternative</u>

CEQA requires consideration of a "No Project Alternative." The purpose of the No Project Alternative is to enable decision-makers to compare the impacts of approving the Proposed Project against the impacts of not approving the Proposed Project.

The No Project Alternative assumes that the Capistrano and Talega Substations would remain in their current configuration with the installed equipment remaining in service and that the transmission facilities within the existing transmission corridor would remain in their current configuration.

For the reasons discussed in Section 2.0, Proposed Project Purpose and Need, SDG&E cannot meet expected load or assure service reliability to South Orange County without replacement and upgrade of the existing transmission network. Thus, the No Project Alternative would compromise service for nearly 130,000 customers and is not feasible.

In the absence of the Proposed Project, SDG&E would be required to construct replacements and improvements to its system in order to continue providing service. A likely "No Project" scenario would be the "Rebuild South Orange County 138kV System Alternative," which is described and assessed later on in this section. At this time, the full range of potential environmental consequences associated with the No Project Alternative without other replacements and improvements to its system is broad and speculative.

The Capistrano Substation is approaching 60 years old and was not constructed to meet today's customer load growth or today's engineering standards. The substation's aging equipment and infrastructure need to be upgraded and rebuilt.

The Talega Substation in its current configuration represents older standards in design, reliability, and operating. The existing construction of four bulk power 230/138kV transformers sharing common positions on the 230kV and 138kV busses results in system vulnerabilities during normal operation and routine maintenance. In the event of any loss to the 230kV and/or 138kV busses, the South Orange County would lose its entire power source, resulting in a complete load loss of the area.

There are 18 different outage scenarios which could cause loss of load in the South Orange County area due to the existing configuration at Talega Substation. Among the 18 outages, half of them could drop the entire electric load in South Orange County. This risk would continue under the No Project alternative.

Attainment of Project Objectives by the No Project Alternative

Objective 1: Provide Transmission System Reliability

Objective 1a: Reduce the Risk of an Uncontrolled Outage of all South Orange County Load

The No Project Alternative would leave South Orange County vulnerable to power system failures which may lead to the interruption of power to customers and does not meet Objective 1a. The Talega Substation is the only power source available to feed the seven distribution substations in South Orange County. Power from the 230kV network enters South Orange County at the Talega Substation 230kV bus and flows through the substation's four 230/138kV transformers to the substation's 138kV bus. The Talega Substation 138kV bus supplies power to the 138kV transmission network which supplies the distribution substations. If a failure occurs, which requires the Talega Substation 230kV or 138kV bus to be removed from service, power flow to South Orange County would be interrupted. Also, the existing Talega Substation configuration restricts the conditions under which maintenance can be done and creates 18

different outage scenarios which could cause the interruption of customer load in South Orange County. As mentioned above, the No Project Alternative does not meet Objective 1a.

Objective 1b: Reduce the Risk of a Controlled Interruption of a Portion of South Orange County Load

Customer load growth in South Orange County has increased the amount of power flowing on the 138kV transmission system to the point that transmission lines are near their maximum capacity and the No Project Alternative does nothing to increase their capacity. Without transmission improvements, transmission operators may be forced to disconnect customer load to keep power flow on the transmission lines below maximum ratings. Therefore, the No Project Alternative would do nothing to meet Objective 1b.

Objective 1c: Comply with mandatory NERC, WECC, and CAISO Transmission Planning Standards

Customer load growth in South Orange County has increased the amount of power flowing on the 138kV transmission system to the point that transmission lines are near their maximum capacity and the No Project Alternative does nothing to increase their capacity. Without transmission improvements, transmission operators may be forced to disconnect customer load to keep power flow on the transmission lines below maximum ratings and in some cases this may be a violation of Transmission Planning Standards. The NERC Standard TPL-002-0 does not allow interruption of customer load to be used to remove overloads caused by the loss of a single transmission line or transformer. Therefore, the No Project Alternative does not meet Objective 1c.

Objective 2: Rebuild Capistrano Substation to Replace Aging Equipment and Increase Capacity

As noted above, the Capistrano Substation was built almost 60 years ago and was not constructed to meet today's customer load growth or today's reliability standards. The substation's aging equipment and infrastructure needs to be upgraded and rebuilt.

Unlike the Proposed Project, the No Project Alternative does not:

- Modernize substation infrastructure to meet current standards.
- Improve reliability by adding new 12kV bus ties.
- Increase ultimate 12kV (distribution) capacity.
- Improve operating flexibility.
- Increase available 12kV tie capacity.
- Rebuild equipment to new seismic standards.
- Improve security.
- Reduce maintenance requirements.
- Utilize new substation standards in electrical and structural design.

Under the No Project Alternative, Capistrano Substation would not be rebuilt and therefore would not meet Objective 2; replace aging equipment and the supporting infrastructure to allow expansion of the 138kV and 12kV busses.

Objective 3: Improve Transmission and Distribution Operating Flexibility

Under the No Project Alternative scenario, existing maintenance and outage issues would continue because South Orange County would still rely solely on the decades-old construction at Talega Substation without having a second 230kV source for reliability or a rebuilt 138kV bus at Capistrano Substation for operational flexibility. Moreover, SDG&E would continue to have limited ability to schedule maintenance outages at Talega Substation. Also, the distribution portion of the Capistrano Substation would be at high loading in 2015. This high load limits the available tie capacity between neighboring Laguna Niguel and Trabuco Substations. Under this scenario, outage and reliability issues would continue to increase to residences and businesses served by the distribution system in South Orange County. Therefore, the No Project Alternative does not meet Objective 3.

Objective 4: Accommodate Customer Load Growth in the South Orange County Area

South Orange County customer load, which is expected to grow 10 percent over the next ten years (refer to Figure 2-2), would not be met with the No Project Alternative. The existing 138kV transmission network in South Orange County is near its capacity limit and without additional capacity, transmission operators may be forced to disconnect customer load to keep power flows below maximum transmission line ratings. Also, the No Project Alternative does not allow for expansion of the distribution portion of the Capistrano Substation which is needed to meet future customer load growth. Therefore, the No Project Alternative does not meet Objective 4.

Objective 5: Locate Proposed Facilities within Existing Transmission Corridors, SDG&E Rights of Way and Utility Owned Property

The No Project Alternative assumes that the proposed facilities would not be constructed. However, to continue providing electric service some new construction would be required. Such construction may not be accommodated within the existing SDG&E ROW or other easements. Therefore, the No Project Alternative would not meet Objective 5. For a more specific delineation of the potential issues associated with what would actually occur under the No Project Alternative, see the Rebuild South Orange County 138kV System Alternative.

Avoidance or Reduction of Potentially Significant Impacts

Under the No Project Alternative, all of the existing transmission facilities (both the Talega and Capistrano Substations, as well as the existing 138kV transmission lines) would remain in place within the existing transmission corridor or substation site. These existing substations and transmission line facilities would not be replaced or upgraded.

The potentially significant short-term environmental impacts identified for the Proposed Project would be avoided in the short-term under this alternative, including air quality and traffic impacts during construction. However, SDG&E would be required to undertake other construction activities in order to continue providing electric service within South Orange

County. These construction activities would likely result in their own significant short-term environmental impacts similar to the Proposed Project and could also result in potential long-term impacts not attributable to the Proposed Project due to requirements for additional easements and ROW. For additional description of theses potential effects, see the Rebuild South Orange County 138kV System Alternative.

Conclusion

The No Project Alternative would not meet any of the project objectives and would not avoid any significant short-term impacts and could result in long-term impacts that do not occur with the Proposed Project. The Proposed Project would replace existing substation and transmission facilities within an existing transmission corridor or substation sites. This already-developed environmental setting would remain unchanged. Instead of the specific rebuilds and upgrades identified as part of the Proposed Project, the No Project Alternative would require the incremental construction of system replacements and improvements on a piecemeal basis, and could require new construction outside of the existing substation locations and transmission corridor. For these reasons, SDG&E rejects the No Project Alternative.

5.2.4.2 System or Facility Alternatives

As part of this analysis, SDG&E explored potential system and facility alternatives. SDG&E identified no system or facility alternatives that could fulfill project objectives or substantially reduce or avoid environmental impacts. The system and facility alternatives considered are detailed within the following subsections.

Energy Conservation Alternative

Under the direction of the CPUC, SDG&E offers a number of energy conservation programs for customers, including financial incentives for installing specific energy-efficient appliances or taking other measures to conserve energy. SDG&E also provides existing programs, such as online energy profiling and in-home energy audits, to make customers more aware of their energy usage and of ways to conserve, as well as a variety of free brochures on improving energy efficiency. These programs play an important role in energy savings and have successfully reduced energy use in the service territory. These energy conservation goals are already included in SDG&E's demand forecast. This alternative implements these existing energy conservation programs in the place of the improvements proposed under the Proposed Project. As this alternative implements existing programs, it is similar to the No Project Alternative previously discussed.

Attainment of Project Objectives by the Energy Conservation Alternative

Objective 1: Provide Transmission System Reliability

Objective 1a: Reduce the Risk of an Uncontrolled Outage of all South Orange County Load

The Energy Conservation Alternative would leave South Orange County vulnerable to power system failures which may lead to the interruption of power to customers. The Talega Substation is the only power source available to feed the seven distribution substations in South Orange County. Power from the 230kV network enters South Orange County at the Talega Substation

230kV bus and flows through the substation's four 230/138kV transformers to the substation's 138kV bus. The Talega Substation 138kV bus supplies power to 138kV transmission lines which supply the distribution substations. If a failure occurs, which requires the Talega Substation 230kV or 138kV bus to be removed from service, power flow to South Orange County would be interrupted. This problem is made worse by the existing Talega Substation configuration. The configuration creates 18 different outage scenarios, any one of which could cause the interruption of customer load in South Orange County and restricts the periods when maintenance can be done. Therefore, as stated above, the Energy Conservation Alternative does not meet Objective 1a.

Objective 1b: Reduce the Risk of a Controlled Interruption of a Portion of South Orange County Load

Customer load growth in South Orange County has increased the amount of power flowing on the 138kV transmission network to the point that transmission lines are near their maximum capacity. The Energy Conservation Alternative does nothing to increase transmission line capacity and without transmission improvements, transmission operators may be forced to disconnect customer load to keep power flow on the transmission lines below maximum ratings. Therefore, the Energy Conservation Alternative does not meet Objective 1b.

Objective 1c: Comply with Mandatory NERC, WECC, and CAISO Transmission Planning Standards

Customer load growth in South Orange County has increased the amount of power flowing on the 138kV transmission system to the point that transmission lines are near their maximum capacity. The Energy Conservation Alternative does nothing to increase transmission line capacity and without transmission improvements, transmission operators may be forced to disconnect customer load to keep power flow on the transmission lines below maximum ratings. In some cases this may be a violation of Transmission Planning Standards. Therefore, the Energy Conservation Alternative does not meet Objective 1c.

<u>Objective 2: Rebuild Capistrano Substation to Replace Aging Equipment and Increase Capacity</u>

The Capistrano Substation was built almost 60 years ago and was not constructed to meet today's customer load growth or today's reliability standards. The substation's aging equipment and infrastructure needs to be upgraded and rebuilt.

Unlike the Proposed Project, the Energy Conservation Alternative does not:

- Modernize substation infrastructure to meet current standards.
- Improve reliability by adding new 12kV bus ties.
- Increase ultimate 12kV (distribution) capacity.
- Improve operating flexibility.
- Increase available 12kV tie capacity.
- Rebuild equipment to new seismic standards.

- Improve security.
- Reduce maintenance requirements.
- Utilize new substation standards in electrical and structural design.

Under the Energy Conservation Alternative, Capistrano Substation would not be rebuilt and therefore would not meet Objective 2; replace aging equipment and its supporting infrastructure to allow expansion of the 138kV and 12kV busses.

Objective 3: Improve Transmission and Distribution Operating Flexibility

Under the Energy Conservation Alternative scenario, existing maintenance and outage challenges would continue because South Orange County would still rely solely on the decades-old construction at Talega Substation without having a second 230kV source for reliability or a rebuilt 138kV bus at Capistrano Substation for operational flexibility, and despite conserving energy, South Orange County would still continue to need reliable energy. Also, the distribution portion of the Capistrano Substation would be at high loading in 2015. This high load limits the available tie capacity between neighboring substations Laguna Niguel and Trabuco. Under this scenario, outages and reliability risks would continue to increase to residences and businesses served by the distribution system in South Orange County. Therefore, the Energy Conservation Alternative does not meet Objective 3.

Objective 4: Accommodate Customer Load Growth in the South Orange County Area

The Energy Conservation Alternative does not provide any additional capability to meet expected customer load needs in South Orange County, which is expected to grow 10 percent over the next ten years. The existing 138kV transmission network in South Orange County is near its capacity limit and without additional capacity, transmission operators may be forced to disconnect customer load to keep power flows below maximum transmission line ratings. Also, the Energy Conservation Alternative does not allow for expansion of the distribution portion of the Capistrano Substation which is needed to meet future customer load growth. Therefore, the Energy Conservation Alternative does not meet Objective 4.

Objective 5: Locate Proposed Facilities within Existing Transmission Corridors, SDG&E Rights of Way and Utility Owned Property

The Energy Conservation Alternative assumes that the proposed facilities would not be constructed, but energy conservation alone cannot reliably reduce the risk of an uncontrolled outage because simply conserving energy does not provide any redundancy to the existing system and, as discussed above, cannot fully meet the reasonably expected energy needs of South Orange County. Thus, to continue providing reliable and sufficient electric service to South Orange County some new construction is required. Such construction may not be accommodated within the existing SDG&E ROW or other easements. Therefore, the Energy Conservation Alternative would not meet Objective 5. For a more specific delineation of the potential issues associated with what would actually occur under the No Project alternative, see the Rebuild South Orange County 138kV System Alternative.

Avoidance or Reduction of Potentially Significant Impacts

Under the Energy Conservation Alternative, all of the existing transmission facilities (both the Talega and Capistrano Substations, as well as the existing 138kV transmission lines) would remain in place within the existing transmission corridor or substation site. These existing substations and transmission line facilities would not be replaced or upgraded.

No potential long-term environmental impacts have been identified for the Proposed Project. The potentially significant short-term environmental impacts identified for the Proposed Project would be avoided in the short-term under this alternative, including air quality and traffic construction impacts. The Energy Conservation Alternative does nothing to increase transmission line capacity and without transmission improvements, transmission operators may be forced to disconnect customer load to keep power flow on the transmission lines below maximum ratings. Therefore, SDG&E would be required to undertake other construction activities in order to continue providing electric service within South Orange County. These construction activities would likely result in their own significant short-term environmental impacts similar to the Proposed Project and could also result in potential long-term impacts not attributable to the Proposed Project due to requirements for additional easements and ROW. For additional description of these potential effects, see the Rebuild South Orange County 138kV System Alternative.

Conclusion

The Energy Conservation Alternative would not meet any of the project objectives and likely would not avoid any significant long- or short-term impacts, since construction still ultimately would be required. The Proposed Project would replace existing substation and transmission facilities within an existing transmission corridor or substation sites. This already-developed environmental setting would remain unchanged. Instead of the specific rebuilds and upgrades identified as part of the Proposed Project, the Energy Conservation Alternative would require the incremental construction of system replacements and improvements on a piecemeal basis, and could require new construction outside of the existing substation locations and transmission corridor. For these reasons, SDG&E rejects the Energy Conservation Alternative.

Transmission System Load Management Alternative

Load management programs reduce peak electric demand or have the primary effect of shifting electric demand from peak to non-peak time periods. SDG&E has already incorporated demand response programs as a result of its most recent generation procurement.

An example of these efforts is contained in the CPUC's March 27, 2001 Decision on the implementation of Public Utilities Code Section 399.15(b), Paragraphs 4-7; Load Control and Distributed Generation Initiatives.[1] In this Decision, the CPUC authorized SDG&E to administer a pilot program designed to test the viability of a new approach to residential load control and demand-responsiveness through the use of Internet technology and thermostats that affect central air conditioning use. More recently, the CPUC approved dynamic pricing options for large commercial/industrial customers. These rate options offer customers a commodity

[1] CPUC, Rulemaking 98-07-037, Decision 01-03-073, March 27, 2001.

discount in exchange for reducing load during critical periods. SDG&E's air-conditioning (A/C) load cycling program has produced good results, but it is not expected to deliver much more than the 25 MW it currently delivers. Dynamic pricing programs show promise, but have only been rolled out to SDG&E's largest customers. The full impact of these rate options have yet to be evaluated to determine actual results.

At this time, for the purposes of transmission system planning, actual load reduction from load management programs is difficult to quantify. With the voluntary nature of these programs, and their dependencies on uncontrollable factors, like weather, SDG&E cannot rely on such load curtailment mechanisms as a project alternative. Therefore, this alternative was eliminated from consideration.

Attainment of Project Objectives by the Transmission System Load Management Alternative

Objective 1: Provide Transmission System Reliability

Objective 1a: Reduce the risk of an uncontrolled outage of all South Orange County load

The Transmission System Load Management Alternative would leave South Orange County vulnerable to power system failures which may lead to the interruption of power to customers and does not meet Objective 1a. The Talega Substation is the only power source available to feed the seven distribution substations in South Orange County. Power from the 230kV network enters South Orange County at the Talega Substation 230kV bus and flows through the substation's four 230/138kV transformers to the substation's 138kV bus. The Talega Substation 138kV bus supplies power to 138kV transmission lines which supply the distribution substations. If a failure occurs, which requires the Talega Substation 230kV or 138kV bus to be removed from service, power flow to South Orange County would be interrupted. This problem is made worse by the existing Talega Substation configuration. The configuration creates 18 different outage scenarios which could cause the interruption of customer load in South Orange County and restricts the periods when maintenance can be done. Therefore, as stated above, the Transmission System Load Management Alternative does not meet Objective 1a

Objective 1b: Reduce the Risk of a Controlled Interruption of a Portion of South Orange County Load

Customer load growth in South Orange County has increased the amount of power flowing on the 138kV transmission system to the point that transmission lines are near their maximum capacity and the Transmission System Load Management Alternative does nothing to increase transmission line capacity. Without transmission improvements, transmission operators may be forced to disconnect customer load to keep power flow on the transmission lines below maximum ratings. Therefore, the Transmission System Load Management Alternative does not meet Objective 1b.

Objective 1c: Comply with mandatory NERC, WECC, and CAISO Transmission Planning Standards

Customer load growth in South Orange County has increased the amount of power flowing on the 138kV transmission system to the point that transmission lines are near their maximum capacity. The Transmission System Load Management Alternative does nothing to increase

transmission line capacity and without transmission improvements, transmission operators may be forced to disconnect customer load to keep power flow on the transmission lines below maximum ratings. In some cases this may be a violation of Transmission Planning Standards. Therefore, the Transmission System Load Management Alternative does not meet Objective 1c.

Objective 2: Rebuild Capistrano Substation to Replace Aging Equipment and Increase Capacity

The Capistrano Substation was built almost 60 years ago and was not constructed to meet today's customer load growth or today's reliability standards. The substation's aging equipment and infrastructure needs to be upgraded and rebuilt.

Unlike the Proposed Project, the Transmission System Load Management Alternative does not:

- Modernize substation infrastructure to meet current standards.
- Improve reliability by adding new 12kV bus ties.
- Increase ultimate 12kV (distribution) capacity.
- Improve operating flexibility.
- Increase available 12kV tie capacity.
- Rebuild equipment to new seismic standards.
- Improve security.
- Reduce maintenance requirements.
- Utilize new substation standards in electrical and structural design.

Under the Transmission System Load Management Alternative, Capistrano Substation would not be rebuilt and therefore would not meet Objective 2; replace aging equipment and its supporting infrastructure to allow expansion of the 138kV and 12kV busses.

Objective 3: Improve Transmission and Distribution Operating Flexibility

Under the Transmission System Load Management Alternative scenario, existing maintenance and outage issues would continue because South Orange County would still rely solely on the decades-old construction at Talega Substation without having a second 230kV source for reliability or a rebuilt 138kV bus at Capistrano Substation for operational flexibility. Also, the distribution portion of the Capistrano Substation would be at high loading in 2015. This high load limits the available tie capacity between neighboring substations Laguna Niguel and Trabuco. Under this scenario, outage and reliability issues would continue to increase to residences and businesses served by the distribution system in South Orange County.

Objective 4: Accommodate Customer Load Growth in the South Orange County Area

South Orange County customer load is expected to grow 10 percent over the next ten years and the Transmission System Load Management Alternative does not provide a long range plan to meet expected customer load needs. The existing 138kV transmission network in South Orange County is near its capacity limit and without additional capacity, transmission operators may be

forced to disconnect customer load to keep power flows below maximum transmission line ratings. Also, the Transmission System Load Management Alternative does not allow for expansion of the distribution portion of the Capistrano Substation which is needed to meet future customer load growth. Therefore, the Transmission System Load Management Alternative does not meet Objective 4.

Objective 5: Locate Proposed Facilities within Existing Transmission Corridors, SDG&E Rights of Way and Utility Owned Property

The Transmission System Load Management Alternative assumes that the proposed facilities would not be constructed. However, to continue providing electric service some new construction would be required. Such construction may or may not occur within the existing transmission corridor, SDG&E ROW. Therefore, the Transmission System Load Management Alternative does not meet Objective 5.

Avoidance or Reduction of Potentially Significant Impacts

Under the Transmission System Load Management Alternative, all of the existing transmission facilities (both the Talega and Capistrano Substations, as well as the existing 138kV transmission lines) would remain in place within the existing transmission corridor or substation site. These existing substations and transmission line facilities would not be replaced or upgraded.

The Transmission System Load Management Alternative would not avoid any significant long-term environmental impacts, as none have been identified for the Proposed Project. The potentially significant short-term environmental impacts identified for the Proposed Project would be avoided in the short-term under this alternative, including construction impacts at Rancho San Juan, Capistrano Substation, Junipero Serra Park and the ROW/private recreation facilities west of the Capistrano Substation. However, SDG&E would be required to undertake other unidentified construction activities in order to continue providing electric service within South Orange County. These construction activities would likely result in significant short- and long-term environmental impacts.

Conclusion

The Transmission System Load Management Alternative would not meet any of the project objectives and would not avoid any significant long- or short-term impacts. The Proposed Project would replace existing substation and transmission facilities within an existing transmission corridor or substation sites. This already-developed environmental setting would remain unchanged. Instead of the specific rebuilds and upgrades identified as part of the Proposed Project, the Transmission System Load Management Alternative would require the incremental construction of unidentified system replacements and improvements on a piecemeal basis, and could require new construction outside of the existing substation locations and transmission corridor. For these reasons, SDG&E rejects the Transmission System Load Management Alternative.

Rebuild 230/138kV Talega Substation Alternative

The Rebuild 230/138kV Talega Substation Alternative was eliminated because it did not meet the project objectives of increasing bulk power transmission system reliability, development of a

long range transmission plan, nor address the aging infrastructure at Capistrano Substation. Rebuilding Talega Substation would install 138kV and 230kV bus ties and relocate transmission lines and banks to reduce the effects of a bus outage. This requires moving existing equipment outside the substation to an adjacent approximately two-acre piece of property that must be obtained. This would require a new 230kV Gas Insulated Substation to be installed where the relocated equipment exists now. All the existing 138kV elements would be rearranged. This project would create additional reliability risks to South Orange County due to the multiple outages needed for construction. This alternative would cost more than the Proposed Project and does not fully meet all of the objectives of the Proposed Project.

Attainment of Project Objectives by the Rebuild 230/138kV Talega Substation Alternative

Objective 1: Provide Transmission System Reliability

Objective 1a: Reduce the Risk of an Uncontrolled Outage of all South Orange County Load

The Rebuild 230/138kV Talega Substation Alternative would reduce the risk of an uncontrolled outage of all South Orange County load and partially meets Objective 1a, but it may not be feasible. In order to meet Objective 1a, the transmission lines and transformers at Talega Substation would need to be connected to the substation in a different configuration than the configuration which exists today. Since the existing Talega Substation supplies all South Orange County load, it cannot be de-energized and rebuilt at the current location. The only way to rebuild Talega Substation would be to build a new substation next to the existing substation, which would result in greater impacts than the Proposed Project, at least in the area surrounding Talega.

Furthermore, the Rebuild 230/138kV Talega Substation Alternative does not supply an independent 230kV transmission source to South Orange County and therefore does not achieve the desired reliability. For the reasons stated above, the Rebuild 230/138 Talega Substation Alternative does not fully meet Objective 1a.

Objective 1b: Reduce the Risk of a Controlled Interruption of a Portion of South Orange County Load

While the Rebuild 230/138kV Talega Substation Alternative improves the reliability of the Talega Substation, it does nothing to improve the 138kV transmission system in South Orange County. Customer load growth in South Orange County has increased the amount of power flowing on the 138kV transmission system to the point that South Orange County transmission lines are near their maximum capacity. Because the Rebuild 230/138kV Talega Substation Alternative makes no transmission line improvements, the transmission system capacity stays the same and does not increase. Without increases in transmission capacity, transmission operators may be forced to disconnect customer load to keep power flow on the transmission lines below their maximum ratings. Therefore, the Rebuild 230/138kV Talega Substation Alternative would not meet Objective 1b.

Objective 1c: Comply with Mandatory NERC, WECC, and CAISO Transmission Planning Standards

The Rebuild 230/138kV Talega Substation Alternative improves the reliability of the Talega Substation, but it does nothing to upgrade the 138kV transmission system in South Orange County. Customer load growth in South Orange County has increased the amount of power flowing on the 138kV transmission system to the point that transmission lines are near their maximum capacity. Because the Rebuild 230/138kV Talega Substation Alternative makes no transmission improvements, transmission system capacity stays the same and does not increase. Without transmission improvements, transmission operators may be forced to disconnect customer load to keep power flow on the transmission lines below maximum ratings. In some cases, this would be a violation of mandatory NERC transmission criteria. Therefore, the Rebuild 230/138kV Talega Substation Alternative would not meet Objective 1c.

Objective 2: Rebuild Capistrano Substation to Replace Aging Equipment and Increase Capacity

The Capistrano Substation was built almost 60 years ago and was not constructed to meet today's customer load growth or today's reliability standards. The substation's aging equipment and infrastructure needs to be upgraded and rebuilt.

Unlike the Proposed Project, the Rebuild 230/138kV Talega Substation Alternative does not :

- Modernize substation infrastructure to meet current standards.
- Improve reliability by adding new 12kV bus ties.
- Increase ultimate 12kV (distribution) capacity.
- Improve operating flexibility.
- Increase available 12kV tie capacity.
- Rebuild equipment to new seismic standards.
- Improve security.
- Reduce maintenance requirements.
- Utilize new substation standards in electrical and structural design.

Under the Rebuild 230/138kV Talega Substation Alternative, Capistrano Substation would not be rebuilt and therefore would not meet Objective 2.

Objective 3: Improve Transmission and Distribution Operating Flexibility

The Rebuild 230/138kV Talega Substation Alternative would improve transmission operating flexibility for Talega Substation only. The Capistrano Substation distribution and transmission would continue to have operational problems because without the new 230kV source into South Orange County area, the ability of Grid Operations to schedule outages at Talega Substation for maintenance and construction is still constrained. In addition, without the rebuilt and modernized San Juan Capistrano Substation the operational flexibility of the 138kV and 12kV

systems would not be improved. Therefore, the Rebuild 230/138kV Talega Substation Alternative does not meet Objective 3.

Objective 4: Accommodate Customer Load Growth in the South Orange County Area

South Orange County customer load is expected to grow 10 percent over the next ten years and the Rebuild 230/138kV Talega Substation Alternative only provides part of a long-range plan to meet expected customer load needs. The existing 138kV transmission network in South Orange County is near its capacity limit and without additional capacity, transmission operators may be forced to disconnect customer load to keep power flows below maximum transmission line ratings. Also, the Rebuild 230/138kV Talega Substation Alternative does nothing for expansion needs of the distribution portion of the Capistrano Substation. Therefore, the Rebuild 230/138kV Talega Substation Alternative does not meet Objective 4.

Objective 5: Locate Proposed Facilities within Existing Transmission Corridors, SDG&E Rights of Way and Utility Owned Property

Existing SDG&E transmission ROW would continue in their current configuration. The Rebuild 230/138kV Talega Substation Alternative would also require SDG&E to obtain additional land from Camp Pendleton for expansion of Talega Substation, which is not consistent with the objective of using utility owned property. Therefore, this alternative does not meet Objective 5.

Avoidance or Reduction of Potentially Significant Impacts

Some potentially significant short-term environmental impacts would be avoided under this Rebuild 230/138kV Talega Substation Alternative. This includes construction impacts at Rancho San Juan, Capistrano Substation, Junipero Serra Park and the ROW/private recreation facilities west of the Capistrano Substation. Short- and long-term impacts would increase at Talega Substation due to the required expansion of the substation into undisturbed land which has several environmental constraints. These long-term impacts include sensitive and/or occupied habitat for arroyo toad and California gnatcatcher, recent land slide area which would require significant remedial grading requiring a large impact footprint and 25 percent or greater slopes which would be subject to erosion during construction.

Conclusion

This Rebuild 230/138kV Talega Substation Alternative fails to fully meet all of the fundamental project objectives and would likely result in increased potential short and long term impacts. Construction impacts at Talega Substation would be greater than the Proposed Project and several facilities would have to be upgraded over time rather than all at once in a defined existing ROW area in a comprehensive manner as would occur under the Proposed Project. All of these incremental and piecemeal system improvements would also cost more than the Proposed Project without fully attaining all of the project objectives. Since the existing Talega Substation supplies all South Orange County load, it cannot be de-energized and rebuilt at the current location. Therefore, a new substation site next to the existing substation would have to be acquired. This would require new and/or modified easements from Camp Pendleton which may or may not be granted depending on the effects of the expansion on base operations, environmental considerations and other Camp Pendleton goals. Therefore, the 230/138kV Talega Substation

Alternative is not considered to be feasible. Due to the above considerations, SDG&E rejects this alternative.

Rebuild 138/12kV Capistrano Substation Alternative

The Rebuild 138/12kV Capistrano Substation Alternative consists of rebuilding the 138kV at Capistrano Substation as a Gas Insulated Substation to accommodate eight 138kV transmission lines, two 138kV capacitors, and four 138/12kV transformers. This rebuild would include the undergrounding of 138kV transmission lines located west of Capistrano Substation in the existing ROW/private recreational area.

While the Rebuild 138/12kV Capistrano Substation Alternative improves the reliability of the Capistrano Substation, it does nothing to improve the 138kV transmission system in South Orange County and does not add a second source to the area. Customer load growth in South Orange County has increased the amount of power flowing on the 138kV transmission network to the point that transmission lines are near their maximum capacity. Modernizing the San Juan Capistrano Substation without making improvements to the 138kV transmission system may require transmission operators to disconnect customer load to keep power flow on the transmission lines below their maximum ratings. In some cases, this would be a violation of mandatory NERC transmission criteria. The above 138kV transmission system improvements are described under the Rebuild South Orange County 138kV System Alternative.

Attainment of Project Objectives by the Rebuild 138/12kV Capistrano Substation Alternative

Objective 1: Provide Transmission System Reliability

Objective 1a: Reduce the Risk of an Uncontrolled Outage of all South Orange County Load

Although the Rebuild 138/12kV Capistrano Substation Alternative does improve the reliability of the 138kV bus at Capistrano Substation, it does not supply an independent 230kV transmission source to South Orange County or remove the problems associated with the Talega Substation configuration. Therefore, the Rebuild 138/12kV Capistrano Substation Alternative does not meet Objective 1a.

Objective 1b: Reduce the Risk of a Controlled Interruption of a Portion of South Orange County Load

Although the Rebuild 138/12kV Capistrano Substation Alternative does improve the reliability of the 138kV bus at Capistrano Substation, it does not substantially reduce the risk of a controlled interruption of a portion of South Orange County customer load and therefore does not meet Objective 1b.

Objective 1c: Comply with mandatory NERC, WECC, and CAISO Transmission Planning Standards

The Rebuild 138/12kV Capistrano Substation Alternative improves the reliability of the Capistrano Substation, but it does nothing to upgrade the 138kV transmission system in South Orange County. Customer load growth in South Orange County has increased the amount of power flowing on the 138kV transmission system to the point that transmission lines are near

their maximum capacity. Because the Rebuild 138/12kV Capistrano Substation Alternative makes no transmission improvements, transmission system capacity stays the same and does not increase. Without transmission improvements, transmission operators may be forced to disconnect customer load to keep power flow on the transmission lines below maximum ratings. In some cases, this would be a violation of mandatory Transmission Planning Standards. Therefore, the Rebuild 138/12kV Capistrano Substation Alternative does not meet Objective 1c.

Objective 2: Rebuild Capistrano Substation to Replace Aging Equipment and Increase Capacity

Objective 2 would be met by the Rebuild 138/12kV Capistrano Substation Alternative

Objective 3: Improve Transmission and Distribution Operating Flexibility

The Rebuild 138/12kV Capistrano Substation Alternative would improve distribution and transmission operating flexibility for Capistrano Substation only. The Talega Substation transmission would continue to have operational problems because without the new 230kV source into South Orange County area, the ability of Grid Operations to schedule outages at Talega Substation for maintenance and construction is still constrained. Therefore, the Rebuild 138/12kV Capistrano Substation Alternative does not meet Objective 3.

Objective 4: Accommodate Customer Load Growth in the South Orange County Area

The South Orange County customer load is expected to grow 10 percent over the next ten years and the Rebuild 138/12kV Capistrano Substation Alternative only provides part of a long range plan to meet expected customer load needs. The existing 138kV transmission network in South Orange County is near its capacity limit and without additional capacity, transmission operators may be forced to disconnect customer load to keep power flows below maximum transmission line ratings. Although the Rebuild 138/12kV Capistrano Substation Alternative meets the distribution expansion needs of the Capistrano Substation, it does not meet Objective 4.

Objective 5: Locate Proposed Facilities within Existing Transmission Corridors, SDG&E Rights of Way and Utility Owned Property

The Rebuild 138/12kV Capistrano Substation Alternative would be within SDG&E's utility owned property. However, to continue providing electric service reliably and accommodate planned load growth additional transmission construction would be required. Such construction may not occur within the existing SDG&E ROW and easements. The above 138kV transmission system improvements are described under the Rebuild South Orange County 138kV System Alternative. Therefore, the Rebuild 138/12kV Capistrano Substation would not meet Objective 5 when taking into account the associated transmission line work that would need to occur to meet reliability and accommodate planned growth.

Avoidance or Reduction of Potentially Significant Impacts

Under the Rebuild 138/12kV Capistrano Substation Alternative, all of the existing transmission facilities (both the Talega and Capistrano Substations, as well as the existing 138kV transmission lines) would remain in place within the existing transmission corridor or substation site. Only the 138/12kV Capistrano Substation would be replaced or upgraded with the Rebuild 138/12kV Capistrano Substation Alternative.

The Rebuild 138/12kV Capistrano Substation Alternative would not avoid any significant long-term environmental impacts, as none have been identified for the Proposed Project. With exception of the Capistrano Substation, all of the potentially significant short-term environmental impacts identified for the Proposed Project would be avoided in the short-term under this alternative, including construction impacts at Rancho San Juan, Junipero Serra Park and the ROW/private recreation facilities west of the Capistrano Substation. However, SDG&E would be required to undertake construction activities in order to continue providing electric service within South Orange County. These construction activities would likely result in their own significant short- environmental impacts similar to the Proposed Project and could also result in potential long-term impacts not attributable to the Proposed Project due to requirements for additional easements and ROW. For additional description of theses potential effects, see the Rebuild South Orange County 138kV System Alternative.

Conclusion

This Rebuild 138/12kV Capistrano Substation Alternative fails to meet fundamental project objectives and would likely result in increased potential short- and long-term impacts. The Proposed Project would replace existing substation and transmission facilities within an existing transmission corridor or substation sites. This already-developed environmental setting would remain unchanged. Instead of the specific rebuilds and upgrades identified as part of the Proposed Project, the Rebuild 138/12kV Capistrano Substation Alternative would require the incremental construction of system replacements and improvements on a piecemeal basis, and require new construction outside of the existing substation locations and transmission corridor. For these reasons, SDG&E rejects the Rebuild 138/12kV Capistrano Substation Alternative.

Rebuild Capistrano to 230/138/12kV Air Insulated Substation

The Rebuild Capistrano to 230/138/12kV Air Insulated Substation Alternative consists of rebuilding Capistrano to a 230/138/12kV air insulated substation. An air insulated substation configuration requires approximately 10 acres, larger than the proposed gas insulated substation design, which requires approximately six acres. The additional area is needed to provide cooling of equipment by air, rather than using gas insulation to cool equipment inside an enclosed building. The upgrade of the 138kV line from Talega to Capistrano to 230kV would also be implemented under this alternative similar to the Proposed Project.

Attainment of Project Objectives by the Rebuild Capistrano 230/138/12kV Air Insulated Substation Alternative

<u>Objective 1: Provide Transmission System Reliability</u>

Since the Rebuild Capistrano to 230/138/12kV Air Insulated Substation Alternative is the same as the Proposed Project, but uses different technology, the alternative would meet transmission reliability Objectives 1a, 1b and 1c.

<u>Objective 2: Rebuild Capistrano Substation to Replace Aging Equipment and Increase Capacity</u>

This alternative would meet this objective since from a system capacity and arrangement perspective it is the same as the Proposed Project.

Objective 3: Improve Transmission and Distribution Operating Flexibility

This alternative would meet this objective since from a system capacity and arrangement perspective it is the same as the Proposed Project.

Objective 4: Accommodate Customer Load Growth in the South Orange County Area

This alternative would meet this objective since from a system capacity and arrangement perspective it is the same as the Proposed Project.

Objective 5: Locate Proposed Facilities within Existing Transmission Corridors, SDG&E Rights of Way and Utility Owned Property

This objective would not be met since constructing a new air insulated 230/138kV substation requires approximately 10 acres, and the existing site is only 6.5 acres. Thus, the required size of a 230/138/12kV air insulated substation design would not fit in the footprint of SDG&E owned property at the existing Capistrano Substation site and would require obtaining adjoining properties to the north and east. This includes approximately 45 single family homes total, with an estimated nine residential properties immediately north of the substation and 36 properties to the northeast, east and southeast. A portion of Junipero Serra Park may also be affected.

Avoidance or Reduction of Potentially Significant Impacts

Potentially significant short-term environmental impacts increase under the Rebuild Capistrano to 230/138/12kV Air Insulated Substation Alternative. The construction impacts at Rancho San Juan, Junipero Serra Park and the ROW/private recreation facilities west of the Capistrano Substation would be the same as the Proposed Project. Short-term construction impacts would increase at Capistrano Substation due to the required acquisition of new property for the substation rebuild. Acquiring property, including a portion of the existing park to the east, would result in the displacement of homes and recreational area. The displacement of homes and recreational area is unnecessary and avoidable with implementation of the Proposed Project.

Conclusion

The Rebuild Capistrano to 230/138/12kV Air Insulated Substation Alternative meets all but one project objective and increases short-term impacts at Capistrano Substation, where short-term noise and air quality impacts would occur with increased severity and duration due to the increased grading required for an air insulated substation and demolition of homes. Long-term impacts would occur due to the required property acquisitions and displacement of housing and park land. Due to the above considerations, SDG&E rejects this alternative because it requires unnecessary additional property acquisition and the taking of approximately 45 homes on the north and east side of the existing substation property. Due to the above considerations, SDG&E rejects the Rebuild Capistrano to 230/138/12kV Air Insulated Substation Alternative.

Rebuild the SDG&E Northern 138kV System Alternative

The Rebuild the SDG&E Northern 138kV System Alternative consists of adding a dynamic voltage control device and replacing two 230/138kV transformers at the Talega Substation, rebuilding the existing Capistrano Substation, upgrading several 138kV transmission lines,

modifying three 230kV transmission lines and adding a new 138kV transmission line from San Luis Rey Substation to San Mateo Substation. This additional 138kV transmission line at San Luis Rey Substation, located in the city of Oceanside, County of San Diego would also require the addition of two new 230/138kV transformers. The addition of new transformers would require an expansion of the existing San Luis Rey Substation. The addition of the dynamic voltage control device at Talega Substation would require an expansion of the existing facility. The CAISO, when presented with this project, rejected the Rebuild the SDG&E Northern 138kV System Alternative due to the costs, which are significantly greater than the Proposed Project. In addition, due to the technical challenges associated with designing and building this alternative, this alternative cannot be implemented in a timely manner. Therefore, the Rebuild the SDG&E Northern 138kV System Alternative is not feasible for economic reasons and because it cannot be accomplished within a reasonable period of time. Nonetheless, this alternative is discussed below for purposes of providing a complete analysis of alternatives that were considered.

Attainment of Project Objectives by the Rebuild the SDG&E Northern 138kV System Alternative

Objective 1: Provide Transmission System Reliability

Objective 1a: Reduce the Risk of an Uncontrolled Outage of all South Orange County Load

The Rebuild the SDG&E Northern 138kV System Alternative would connect South Orange County to a second source and would meet Objective 1a.

Objective 1b: Reduce the Risk of a Controlled Interruption of a Portion of South Orange County Load

The Rebuild the SDG&E Northern 138kV System Alternative would improve reliability by upgrading the existing 138kV transmission and providing a second source to South Orange County, but it would not eliminate the need to interrupt customer load. San Mateo Substation is approximately 18 miles from San Luis Rey Substation. Due to the distance, the new 138kV transmission line would provide a weak connection between South Orange County and the 230kV network at San Luis Rey Substation. Under certain system conditions, South Orange County load may have to be disconnected to keep flows on the new transmission line at acceptable levels. Although the risk would be reduced and Objective 1b would be at least partially met, the gains would be short term. As load grows, the new transmission line would not be able to supply power to South Orange County and the risk to customer load would return.

Objective 1c: Comply with Mandatory NERC, WECC, and CAISO Transmission Planning Standards

The Rebuild the SDG&E Northern 138kV System Alternative would meet Objective 1c by upgrading the 138kV transmission system in South Orange County.

Objective 2: Rebuild Capistrano Substation to Replace Aging Equipment and Increase Capacity

The Rebuild the SDG&E Northern 138kV System Alternative would partially meet this objective since at Capistrano Substation the 138kV transmission and distribution capacity and arrangement is the same as the Proposed Project, but the rebuilt Capistrano Substation would not have the

230kV voltage level that provides the required additional capacity as would occur under the Proposed Project.

Objective 3: Improve Transmission and Distribution Operating Flexibility

Although the Rebuild the SDG&E Northern 138kV System Alternative would improve transmission and distribution operating flexibility, a 138kV network upgrade would not be as robust as providing an additional 230kV transmission source and would not offer flexibility in the future. Therefore, the Rebuild the SDG&E Northern 138kV System Alternative would not meet Objective 3.

Objective 4: Accommodate Customer Load Growth in the South Orange County Area

A 138kV network upgrade would not be as robust as additional 230kV transmission source and would not offer customer load growth capacity in the future. Therefore, the Rebuild the SDG&E Northern 138kV System Alternative would not meet Objective 4.

Objective 5: Locate Proposed Facilities within Existing Transmission Corridors, SDG&E Rights of Way and Utility Owned Property

The construction of the 138kV transmission line from San Luis Rey Substation to San Mateo Substation in SDG&E's existing 230kV transmission ROW would meet Objective 5. However, any future 230kV transmission line in this corridor would require the acquisition of new transmission ROW because it was utilized for a 138kV transmission line for this alternative. Also, the required expansion of Talega Substation would extend out of existing utility-owned property and require leasing additional land from Camp Pendleton. Therefore, the Rebuild the SDG&E Northern 138kV System Alternative would not meet Objective 5.

Avoidance or Reduction of Potentially Significant Impacts

In the event the Proposed Project is denied, SDG&E would need to undertake one or more projects to continue to provide service to South Orange County. A likely scenario would be the Rebuild the SDG&E Northern 138kV System Alternative. Thus, as noted above, the Rebuild the SDG&E Northern 138kV System Alternative is a possible "No Project" Alternative. The new 138kV transmission line network proposed under this alternative would be upgraded over a broader area as compared to the Proposed Project. This alternative includes the construction of system replacements and improvements over a longer period of time. Because of the longer duration and broader area of construction, short-term impacts would be greater than they would be with the Proposed Project. Localized short-term air and traffic construction impacts would still occur at similar or possibly greater levels as compared to the Proposed Project.

Long-term impacts would occur under this alternative which would not occur under the Proposed Project because of the expansion of the Talega Substation outside of the existing substation site. The rebuilding of a 138kV transmission line to a double circuit transmission line would require a similar level of work as compared to the Proposed Project at Rancho San Juan, Junipero Serra Park and the ROW/private recreation facilities west of the Capistrano Substation similar to the Proposed Project, since the structures to accommodate two 138kV circuits to existing SDG&E standards would be approximately the same height and configuration as the Proposed Project transmission line(s) at 230kV.

Conclusion

As noted above, the CAISO previously rejected the Rebuild the SDG&E Northern 138kV System Alternative. Therefore, this alternative is not feasible. In addition, the Rebuild the SDG&E Northern 138kV System Alternative fully meets only two project objectives and would result in additional potential short-term construction impacts as compared to the Proposed Project. Furthermore, the Rebuild the SDG&E Northern 138kV System Alternative would be substantially more costly than the Proposed Project due to additional work at Talega Substation and the need to add a new 138kV transmission line from a source outside of South Orange County. Long-term impacts would potentially occur with the expansion of the 138kV source (San Luis Rey) substation and additional ROW. Construction would also occur over a longer time frame over a broader area (since additional lines and facilities would have to be upgraded to attain some of the load and reliability benefits of the Proposed Project) rather than all at once in a defined existing ROW area as would occur under the Proposed Project. Due to the above considerations, SDG&E rejected this alternative since not all project objectives are fully met; short-term construction impacts cannot be demonstrably minimized or avoided and would instead be greater overall than the Proposed Project. Long-term impacts associated with acquiring additional ROW and new construction would also occur which do not occur with the Proposed Project and costs would likely be greater than the Proposed Project.

5.2.4.2 Alternative Locations and Routes

Alternative Sites within the Transmission Load Center

Potential sites for the relocation of the San Juan Capistrano Substation located within the south Orange County transmission load center were reviewed. The Capistrano Substation load center is a zone within approximately a one mile radius around the existing transmission load center as defined in Section 2.0, Proposed Project Purpose and Need (see Figure 2-2, South Orange County 138kV Substation Load Center Diagram [Confidential] and Figure 5.1, Development Constraints within the South Orange County Transmission Load Center). Ideally, the 230/138kV substation in the Proposed Project should be placed as close as possible to the load center. To construct a new 230/138kV substation, approximately 10 acres is required for a new substation site and corresponding easements for extending transmission and distribution facilities to the new site.

The existing 138/12kV Capistrano Substation would also have to be rebuilt on the existing property or moved to a new 230/138kV substation site. If a distribution substation is relocated to the new 230/138kV substation site, approximately one acre of additional property would need to be acquired. Additional acreage would be required for new transmission and distribution ROWs and ingress and egress to the new site.

Within one mile of the existing Capistrano Substation load center, there is currently extensive development; including established residential, cultural, commercial, educational, undeveloped areas and recreational communities and facilities. SDG&E prefers not to unnecessarily displace any existing uses within this community. Existing recreational facilities include the Marbella Country Club, equestrian facilities, and parks such as the Junipero Serra Park.

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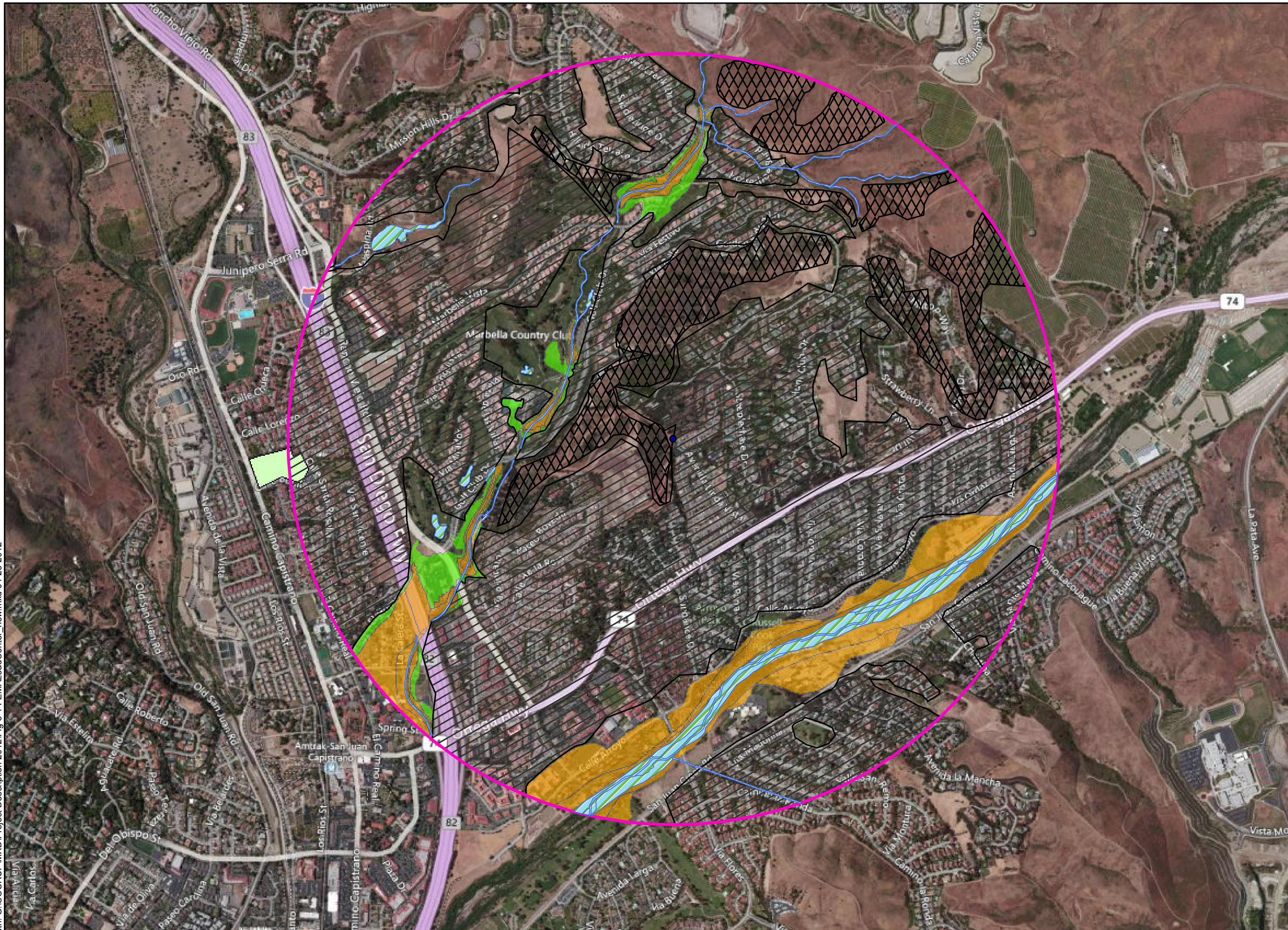

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Legend

- Capistrano Substation
- Approximate Load Center (1 mile radius)
- Developed Areas
- Steep Slopes 1,2
- Wetlands
- Open Water

High Risk Flood Areas

- AE: The base floodplain where base flood elevations are provided.
- 0.2% annual chance of flood hazard.

Notes:

1 - Steep slopes are derived from USGS topographic maps

2 - Steep slopes are only shown on areas that are not otherwise developed.

Source: FEMA 2011, NWI Wetlands 2011, Bing Maps aerial imagery

Created For: Mary Turley

Created By: TRC

Date: 4/25/2012

SDG&E is providing this map with the understanding that the map is not survey grade.

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0 750 1,500 3,000 Feet

South Orange County Reliability Enhancement Project

Development Constraints within the South Orange County Transmission Load Center

Figure 5-1

SOUTH ORANGE COUNTY RELIABILITY ENHANCEMENT

SDGE A Sempra Energy utility

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BACK OF FIGURE 5-1

The only undeveloped areas in the transmission load center radius area are steep slope areas (25% or greater), designated open space, Rancho Mission Viejo and its dedicated open space, drainage course and floodplains. The potential constraints encountered when siting a new substation in these areas include the following:

Topography: A large portion of the open space to the north of the load center radius area is located on hillsides. Hillsides, and the associated potential for landslides in this area, are not ideal for the construction of a substation, and sites are typically not chosen when the existing slope is greater than 25 percent.

Hydrology: Another pertinent feature within the existing open space south and northwest of the load center radius area is existing hydrology, including San Juan Creek. San Juan Creek runs east-west and drains into Arroyo Creek and is south of the load center. Another significant drainage course (Horno Creek) runs adjacent to the Marbella Country Club in a northwest to north east and continues to Rancho Mission Viejo. San Juan Creek and Horno Creek both include important limiting factors for development including wetlands mapped by the USFWS's NWI and high risk flood hazards zones designated by the Federal Emergency Management Agency. Wetlands are considered an environmentally sensitive habitat type and flood hazard zones are not ideally suitable for the construction of substations.

Site Access: Finding a suitable site for the new San Juan Capistrano Substation would entail more than the approximately 10 acres needed for the new substation. A new site selected at a location other than the Proposed Project would require significant new transmission and distribution ROW for egress and ingress of electric facilities needed to feed the substation. Existing substation sites are always the first choice for the siting of new or upgraded substations due to the fact that the use of existing sites minimizes the amount of new transmission and distribution line rerouting work that is otherwise required. This additional transmission and distribution ROW would cause additional environmental impacts greater than would occur with the Proposed Project. Using the Capistrano Substation as an example, all of the affected existing transmission and distribution lines already terminate at, or pass immediately by, the existing substation site by way of existing transmission and distribution ROW. The further the new substation is moved from the existing substation site, the more transmission and distribution line work that would be required in order to connect the new substation to the existing transmission and distribution networks. Constructing the new San Juan Capistrano Substation on a new site within the load center would also likely require the construction of new access roads and driveways that would connect the substation site to the existing transmission infrastructure.

The relocation of existing transmission and distribution lines would result in increased physical and environmental effects on the existing landscape, including installation of new transmission structures and underground trench packages where none were previously located. The required relocation of transmission and distribution lines would be heavily constrained by existing infrastructure located in roadways and lack of availability of land for new overhead ROW.

For the reasons cited above, no additional sites were found that could be considered for the relocation of the Proposed Project in its load center other than the existing site. Therefore, the Alternative Sites within the Transmission Load Center Alternative was rejected by SDG&E and not further analyzed.

230/138kV Air Insulated Substation located at Prima Deshecha Landfill Alternative

The 230/138kV Air Insulated Substation located at Prima Deshecha Landfill Alternative would consist of building a new 230/138kV substation on a portion of County of Orange property in the Prima Deshecha area (see Figure 5-2, Alternative 230/138kV Air Insulated Substation Site Location at the Prima Deshecha Landfill). A general site area was identified within the county property where a minimum of eight level acres of land would need to be acquired for the substation location. This partially disturbed but undeveloped land is in need of substantial site development work to compensate for the known landslides in the area. In general, the disturbance area for the substation at this site would cover approximately 12 acres.

This 230/138kV Air Insulated Substation Located at Prima Deshecha Landfill Alternative would also include modernizing the existing Capistrano 138/12kV Substation to an expanded 138/12kV gas insulated substation and the 138kV undergrounding would also be completed west of Capistrano Substation. A new 138kV transmission line and a rebuild of an existing 138kV transmission line from the new substation to the existing Capistrano Substation would also be required. This alternative would also require four 138kV transmission lines and two 230kV transmission lines extended from SDG&E's existing ROW to the substation site on new ROW that would need to be acquired.

Attainment of Project Objectives by the 230/138kV Substation Located at Prima Deshecha Landfill Alternative

Objective 1: Provide Transmission System Reliability

Objective 1a: Reduce the Risk of an Uncontrolled Outage of all South Orange County Load

Moving South Orange County's second 230kV source from Capistrano Substation to a new substation located near the Prima Deshecha Landfill would reduce the risk of an uncontrolled outage of all South Orange County load and would meet Objective 1a.

Objective 1b: Reduce the Risk of a Controlled Interruption of a Portion of South Orange County Load

Building a new 230/138kV substation at the Prima Deshecha Landfill instead of adding a new 230kV substation at Capistrano Substation would increase the number of controlled interruptions needed to keep power flows on the 138kV transmission network below maximum ratings. This is because the Prima Deshecha site is not located at the load center as is Capistrano Substation, and is not as effective at relieving the loading on the 138kV network. Therefore, the 230/138kV Air Insulated Substation Located at Prima Deshecha Landfill Alternative does not meet Objective 1b.

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Created For: Mary Turley

Created By: TRC

Date: 4/25/2012

SDG&E is providing this map with the understanding that the map is not survey grade.

Legend

Potential Substation Location

Source: Bing Maps Imagery

South Orange County Reliability Enhancement Project

Alternative 230/138kV Air Insulated Substation Site Location at the Prima Deshecha Landfill

Figure 5-2

SOUTH ORANGE COUNTY RELIABILITY ENHANCEMENT

SDGE A Sempra Energy utility

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BACK OF FIGURE 5-2

Objective 1c: Comply with Mandatory NERC, WECC, and CAISO Transmission Planning Standards

Building a new 230/138kV substation at the Prima Deshecha Landfill instead of adding a new 230kV substation at Capistrano Substation would require an existing transmission line to be rebuilt and a new 138kV transmission line at similar size specifications as the Proposed Project. Therefore, the 230/138kV Air Insulated Substation Located at Prima Deshecha Landfill Alternative does not meet Objective 1c.

In summary, the 230/138kV Air Insulated Substation located at Prima Deshecha Landfill Alternative does not meet Objective 1.

Objective 2: Rebuild Capistrano Substation to Replace Aging Equipment and Increase Capacity

The 230/138kV Air Insulated Substation located at Prima Deshecha Landfill Alternative would meet this objective since the rebuilding of the Capistrano 138/12kV Substation is included in this alternative.

Objective 3: Improve Transmission and Distribution Operating Flexibility

At Capistrano Substation, under the 230/138kV Air Insulated Substation located at Prima Deshecha Landfill Alternative there would be no second 230kV source for reliability within the load center but the modernized Capistrano Substation would improve operational flexibility for the 138kV transmission network and distribution system. Therefore, this 230/138kV Air Insulated Substation located at Prima Deshecha Landfill Alternative does meet this objective.

Objective 4: Accommodate Customer Load Growth in the South Orange County Area

The 230/138kV Air Insulated Substation located at Prima Deshecha Landfill Alternative does not provide for customer load growth beyond the immediate future. This site is not located within the transmission load center. For this alternative to meet this objective, future 138kV transmission line rebuilds and additional 138kV transmission lines would be required. Therefore, this 230/138kV Air Insulated Substation located at Prima Deshecha Landfill Alternative does not meet this objective.

Objective 5: Locate Proposed Facilities within Existing Transmission Corridors, SDG&E Rights of Way and Utility Owned Property

Objective 5 would not be met since this substation would require approximately 12 acres of land to be acquired and developed by SDG&E. This also would require that an estimated four 138kV transmission lines and two 230kV transmission lines be extended from SDG&E's existing ROW to the substation site on ROW that would need to be acquired. Therefore, the 230/138kV Air Insulated Substation located at Prima Deshecha Landfill Alternative does not meet Objective 5.

Avoidance or Reduction of Potentially Significant Impacts

Potentially significant short-term environmental impacts would only be somewhat reduced under this alternative at Capistrano Substation since the modernization of the Capistrano Substation would still be completed. Short-term and long-term construction impacts would increase at the

Prima Deshecha Substation site since as mentioned previously, it is a disturbed but undeveloped area and would require significant site preparation and grading. Short-term impacts would not be reduced at Junipero Serra Park since the reconductor of an existing 138kV transmission line and the new 138kV transmission line would consist of the same construction impacts as the proposed 230kV transmission lines. Impacts at the ROW/private recreation facilities west of the Capistrano Substation would be approximately the same as the Proposed Project since all of the 138kV improvements would still occur. Therefore, the 230/138kV Air Insulated Substation located at Prima Deshecha Landfill Alternative would not avoid or reduce potentially short-term impacts and would increase long-term impacts.

Conclusion

The 230/138kV Air Insulated Substation located at Prima Deshecha Landfill Alternative would not meet most of the project objectives and would result in a substantial increase of both short-term and long-term impacts. Not only would the Prima Deshecha Landfill substation location be subjected to the site grading and construction impacts needed to construct a 230/138kV substation, but it would also be subjected to the construction of new 230kV and 138kV transmission lines to and from the new substation. Grading and construction for the 138/12kV rebuild at Capistrano Substation would also need to occur. This represents a more than 50 percent increase in the overall amount of grading activity to be done as compared to the Proposed Project (more than one half of the Capistrano Substation property for the rebuilt 138kV substation plus 12 acres for the Prima Deshecha substation site). Essentially, this alternative would result in the construction of one replacement substation and one new substation at two different locations. This expands the impact area and would require the extension of transmission lines on new ROW to connect the Prima Deshecha Landfill substation to the network as previously described. The Proposed Project would not require these additional extensions and provides the same facilities in one consolidated area. Project objectives would not be met, construction impacts would be greater and costs would be greater; therefore, SDG&E rejects the 230/138kV Air Insulated Substation located at Prima Deshecha Landfill Alternative.

Eastern Talega to San Juan Capistrano 230kV Transmission Line Route Alternative

The Eastern Talega to Capistrano 230kV Route Alternative would construct approximately 13 miles of new 230kV double circuit steel structures from Talega to Capistrano Substations on a northern route following an existing SDG&E transmission ROW. The following sections describe the transmission scope of work in detail.

The existing 100 foot ROW extending north from Talega Substation would need to be expanded to a total width of 120 feet by the acquisition of an additional 20 feet of ROW width. The existing 138kV single pole transmission line would be removed and approximately 7.5 miles of new 230kV double circuit steel structures would be installed in its place. Conductors installed on the western side of the towers would be energized as the new 230kV circuit and the conductors on the eastern side of the towers would be tied back into the existing 138kV line to Margarita Substation. This would allow the 138kV transmission line to be reestablished in its original Talega to Margarita 138kV configuration.

From a structure located outside of the Margarita Substation, which would be replaced by a 230kV cable pole, the route would run approximately 4.5 miles of 230kV double circuit

underground (due to space constraints at the existing ROW) in newly acquired easement along SR-74 until crossing I-5 to the Trabuco Substation. The existing TL13830 transmission line is currently underground in two sections between SDG&E's existing Margarita and Trabuco Substations. SDG&E would need to build the new 230kV underground section in a separate trench with two cables per phase (approximately three feet width of trench). The separation would be a minimum of ten feet center to center from the existing underground trench/conduit package. The existing easement width for transmission line TL13830 is 20 feet and the transmission line is located in the center of the easement. Therefore, SDG&E would need to acquire a new easement for a new 230kV transmission line.

At the Trabuco Substation, the line would turn south to Capistrano Substation and would require the acquisition or expansion of existing ROW to accommodate the approximately four miles of 230kV transmission line. This segment may also require a combination of undergrounding and overhead construction due to the adjacent railroad tracks and freeway crossings.

Attainment of Project Objectives by the Eastern Talega to San Juan Capistrano 230kV Route Alternative

Objective 1: Provide Transmission System Reliability

The Eastern Talega to San Juan Capistrano 230kV Route Alternative would meet Objective 1 since from a system capacity and arrangement perspective it is the same as the Proposed Project.

Objective 2: Rebuild Capistrano Substation to Replace Aging Equipment and Increase Capacity

The Eastern Talega to San Juan Capistrano 230kV Route Alternative would meet Objective 2 since from a system capacity and arrangement perspective it is the same as the Proposed Project.

Objective 3: Improve Transmission and Distribution Operating Flexibility

The Eastern Talega to San Juan Capistrano 230kV Route Alternative would meet Objective 3 since from a system capacity and arrangement perspective it is the same as the Proposed Project.

Objective 4: Accommodate Customer Load Growth in the South Orange County Area

The Eastern Talega to San Juan Capistrano 230kV Route Alternative would meet Objective 4 since from a system capacity and arrangement perspective it is the same as the Proposed Project.

Objective 5: Locate Proposed Facilities within Existing Transmission Corridors, SDG&E Rights of Way and Utility Owned Property

The Eastern Talega to San Juan Capistrano 230kV Route Alternative would not meet Objective 5 because new land rights may be needed throughout the entire route. As stated previously, the existing 100 foot ROW extending north from Talega Substation approximately nine miles to Margarita Substation would need to be expanded to a total width of 120 feet by the acquisition of an additional 20 feet of ROW width to accommodate the 230kV poles which are replacing the 138kV poles due to the increase in structure width. Also, at Trabuco Substation the line would turn south to Capistrano Substation and would require the acquisition or expansion of existing ROW to accommodate the approximately four miles of 230kV transmission line. This would

total approximately 13 miles of expanded and/or new ROW which is a significant increase as compared to the Proposed Project.

Avoidance or Reduction of Potentially Significant Impacts

Potentially significant short-term environmental impacts would only be avoided under this alternative at Rancho San Juan and Junipero Serra Park. Short-term construction impacts would be the same at Capistrano Substation and the ROW/private recreation facilities west of the Capistrano Substation as in the Proposed Project. Substantial increases in short- and long-term impacts would occur along approximately 13 miles for this alternative route due to the need for new and/or expanded ROW. The significant increase in length of expanded and/or new transmission line ROW would result in increased traffic impacts, air quality and noise impacts and other construction related issues.

Conclusion

The Eastern Talega to San Juan Capistrano 230kV Route Alternative meets all of the project objectives except for Objective 5. Nonetheless, the eastern route is approximately twice the length of the proposed route and consequently would result in substantially greater environmental impacts and costs than the Proposed Project. Because of the additional construction impacts and higher costs, SDG&E rejects this alternative.

230kV Connection with SCE at 230/138kV Substation located at Prima Deshecha Landfill Alternative

The 230kV Connection with SCE at 230/138kV Substation located at Prima Deshecha Landfill Alternative would consist of building a new 230/138kV substation in the Prima Deshecha area of South Orange County, modernizing the 138/12kV Capistrano Substation and undergrounding the 138kV transmission lines west of Capistrano Substation, adding a new 138kV transmission line from the new substation to Capistrano Substation and reconductoring an existing 138kV transmission line. This substation would be fed by extending a new 230kV transmission line approximately ten miles from the SONGS 230kV SCE bus to the new substation. A minimum of 12 acres of land would need to be acquired for the substation location, possibly the same location as the 230/138kV Air Insulated Substation located at Prima Deshecha Landfill Alternative. It is anticipated that this would be undeveloped land and in need of substantial site development work to compensate for the known landslides in the area. Because SDG&E has not secured permission from SCE or the CAISO to connect to the SCE 230kV transmission network, this Alternative may not be feasible. This Alternative could require unknown additional work to tie SCE to SDG&E at the new location.

Attainment of Project Objectives by the 230kV Connection with Southern California Edison (SCE) at 230/138kV Substation Located at Prima Deshecha Landfill Alternative

<u>Objective 1: Provide Transmission System Reliability</u>

Currently, SDG&E is connected to SCE at the San Onofre 230kV bus. Connecting SDG&E to SCE in South Orange County would add to the complexity of grid operations and may require Special Protection Systems to manage parallel flows through South Orange County. This alternative would subject the 138kV network in South Orange County to Southern California

network loop flows for which it was not designed. Additionally, this alternative would modify SCE's Path 43 (north of SONGS) and may trigger a WECC path rating study. For this reason, the 230kV Connection with SCE at 230/138kV Air Insulated Substation located at Prima Deshecha Landfill Alternative does not meet Objective 1 and may not be feasible.

Objective 1a: Reduce the Risk of an Uncontrolled Outage of all South Orange County Load

The 230kV Connection with SCE at 230/138kV Substation Located at Prima Deshecha Alternative is similar to connecting the Prima Deshecha 230kV bus to SDG&E, but may require protection system additions and 138kV transmission network upgrades. Connecting with SCE at the Prima Deshecha 230kV Substation would partially meet Objective 1a.

Objective 1b: Reduce the Risk of a Controlled Interruption of a Portion of South Orange County Load

The 230kV Connection with SCE at 230/138kV Substation located at Prima Deshecha Landfill Alternative may require protection system additions and would require 138kV transmission network upgrades to meet Objective 1b.

Objective 1c: Comply with Mandatory NERC, WECC, and CAISO Transmission Planning Standards

The 230kV Connection with SCE at 230/138kV Substation Located at Prima Deshecha Landfill Alternative requires building a new 230/138kV substation at the Prima Deshecha property instead of adding a new 230kV substation at Capistrano Substation and would require an existing transmission line to be rebuilt as well as a new 138kV transmission line at similar size specifications as the proposed project. To meet Objective 1c, this alternative may require protection system additions and several additional transmission lines would need to be reconductored/rebuilt. Therefore, the 230kV Connection with SCE at 230/138kV Substation located at Prima Deshecha Landfill Alternative does not meet Objective 1c.

In summary, the 230kV Connection with SCE at 230/138kV Substation located at Prima Deshecha Landfill Alternative does not meet Objective 1.

Objective 2: Rebuild Capistrano Substation to Replace Aging Equipment and Increase Capacity

The 230kV Connection with SCE at 230/138kV Substation Located at Prima Deshecha Landfill Alternative and rebuilding the Capistrano Substation to 138/12kV would meet Objective 2.

Objective 3: Improve Transmission and Distribution Operating Flexibility

The 230kV Connection with SCE at 230/138kV Substation Located at Prima Deshecha Landfill Alternative may increase the operating complexity which would impede this objective. Connecting SDG&E to SCE in South Orange County would add to the complexity of grid operations and could require Special Protection Systems to manage parallel flows through South Orange County. This alternative would subject the 138kV network in South Orange County to Southern California network loop flows for which it was not designed. Additionally, this alternative would modify SCE's Path 43 (north of SONGS) and would trigger a WECC path rating study. The modernized San Juan Capistrano Substation would improve Capistrano

Substation for operational flexibility for the 138kV transmission and distribution systems. Therefore, the 230kV Connection with SCE at 230/138kV Substation Located at Prima Deshecha Alternative would not meet Objective 3 and, in some respects, would impede it.

Objective 4: Accommodate Customer Load Growth in the South Orange County Area

The 230kV Connection with SCE at 230/138kV Substation at Prima Deshecha Landfill Alternative is similar to the Proposed Project and it is not known if it could meet Objective 4 without further study. The new 230kV bus at the San Juan Capistrano Substation would take power from SCE instead of SDG&E. This makes the San Juan Capistrano Substation dependent on SCE's ability to supply power to it from their 230kV transmission lines.

Adding a new load substation to an existing SCE transmission line would increase the loading on that line and could trigger new transmission upgrades. In order to avoid the upgrades, SCE could be forced to limit the amount of power that could be supplied to the new substation. This would limit the amount of customer load growth which could be served from the new substation. Therefore, it is unknown if the 230kV Connection with SCE at 230/138kV Substation at Prima Deshecha Landfill Alternative could meet Objective 4 without further study.

Objective 5: Locate Proposed Facilities within Existing Transmission Corridors, SDG&E Rights of Way and Utility Owned Property

Objective 5 would not be met since this substation would require approximately 12 acres of land to be acquired and developed by SDG&E. This also would require four 138kV transmission lines and two SCE 230kV transmission lines extended from SDG&E and SCE's ROW to the substation site on ROW that would need to be acquired. Therefore, the 230kV Connection with SCE at 230/138kV Substation Located at Prima Deshecha Landfill Alternative would not meet Objective 5.

Avoidance or Reduction of Potentially Significant Impacts

Potentially significant short-term environmental impacts would only be somewhat reduced under this alternative at Capistrano Substation since the modernization of the Capistrano Substation would still be completed. Short-term and long-term construction impacts would increase at a new Prima Deshecha Substation site while short-term impacts would be not reduced at Junipero Serra Park since the reconductor of an existing 138kV transmission line and the new 138kV transmission line would consist of the same construction impacts as the proposed 230kV transmission lines. Impacts at the ROW/private recreation facilities west of the Capistrano Substation would be approximately the same as the Proposed Project since all of the 138kV improvements would still occur. In addition, this alternative could require unknown additional work to tie SCE to SDG&E at the new location. Therefore, the 230kV Connection with SCE at 230/138kV Substation Located at Prima Deshecha Landfill Alternative would not avoid or reduce potentially short-term impacts and would increase long-term impacts.

Conclusion

The 230kV Connection with SCE at 230/138kV Substation Located at Prima Deshecha Landfill Alternative would not meet the project objectives and would result in a substantial increase in both short-term and long-term impacts. In addition to the construction impacts associated with

construction of a 230/138kV substation, additional construction impacts would result from the construction of new 230kV and 138kV transmission lines to and from the new substation. Grading and construction for the 138/12kV rebuild at Capistrano Substation would also need to occur. This represents a more than 50 percent increase in the overall amount of grading activity to be done as compared to the Proposed Project (more than one half of the Capistrano Substation property for the rebuilt 138kV substation plus 12 acres for the Prima Deshecha Substation site). Project objectives would not be fully met, impacts would be greater and costs would be greater. Connecting SDG&E to SCE in South Orange County would add to the complexity of grid operations and could require Special Protection Systems to manage parallel flows through South Orange County because this alternative would subject the 138kV network in South Orange County to Southern California network loop flows for which it was not designed. Additionally, this alternative would modify SCE's Path 43 (north of SONGS) and could trigger a WECC path rating study. Because SDG&E has not performed the detailed technical analysis or secured permission from SCE and the CAISO to connect to the SCE 230kV transmission network, SDG&E rejects the 230kV Connection with SCE at 230/138kV Substation Located at Prima Deshecha Landfill Alternative.

230kV Connection with SCE at 230/138kV Capistrano Substation Alternative

The 230kV Connection with SCE at 230/138kV Capistrano Substation Alternative would construct two 230kV transmission lines from the location where the SDG&E transmission lines leave the ROW they share with SCE transmission lines to the Capistrano Substation. The construction of the two 230kV transmission lines would be similar to the Proposed Project from this location to Capistrano Substation. This alternative would include rebuilding the Capistrano Substation to 230/138/12kV gas insulated substation and undergrounding the 138kV transmission lines west of the Capistrano Substation as with the Proposed Project. Connecting SDG&E to SCE in South Orange County would add to the complexity of grid operations and could require Special Protection Systems to manage parallel flows through South Orange County. This alternative would subject the 138kV network in South Orange County to Southern California network loop flows for which it was not designed. Additionally, this alternative would modify SCE's Path 43 (north of SONGS) and could trigger a WECC path rating study and add Special Protection Systems. This could lead to possible unknown additional work which would be necessary to tie SCE to SDG&E at the new location. Because SDG&E has not performed the detailed technical analysis or secured permission from SCE and the CAISO to connect to the SCE 230kV transmission network, the 230kV Connection with SCE at 230/138kV Capistrano Substation Alternative may not be feasible.

Attainment of Project Objectives by the 230kV Connection with SCE at 230/138kV Capistrano Substation Alternative

Objective 1: Provide Transmission System Reliability

Currently, SDG&E is connected to SCE at the San Onofre 230kV bus. Connecting SDG&E to SCE in South Orange County would add to the complexity of grid operations and could require Special Protection Systems to manage parallel flows through South Orange County. This alternative would subject the 138kV network in South Orange County to Southern California network loop flows for which it was not designed. Additionally, this alternative would modify SCE's Path 43 (north of SONGS) and could trigger a WECC path rating study. For this reason,

the 230kV Connection with SCE at 230/138kV Capistrano Substation Alternative does not meet Objective 1.

Objective 1a: Reduce the Risk of an Uncontrolled Outage of all South Orange County Load

The 230kV Connection with SCE at 230/138kV Capistrano Substation Alternative is similar to the Proposed Project, but this alternative could require protection system additions and 138kV transmission network upgrades. Connecting with SCE at the Capistrano Substation 230/138kV substation location would only partially meet Objective 1a.

Objective 1b: Reduce the Risk of a Controlled Interruption of a Portion of South Orange County Load

The 230kV Connection with SCE at 230/138kV Capistrano Substation Alternative could require protection system additions and would require 138kV transmission network upgrades to meet Objective 1b. In addition, unknown work could be required by the CAISO on SCE's network. For this reason, this alternative only partially meets Objective 1b.

Objective 1c: Comply with Mandatory NERC, WECC, and CAISO Transmission Planning Standards

To meet Objective 1c, this alternative could require protection system additions and/or other system upgrades or additions based on CAISO system studies. Therefore, SDG&E concludes that the 230kV Connection with SCE at 230/138kV Capistrano Substation Alternative does not meet Objective 1c as proposed.

In summary, the 230kV Connection with SCE at 230/138kV Capistrano Substation Alternative does not meet Objective 1.

Objective 2: Rebuild Capistrano Substation to Replace Aging Equipment and Increase Capacity

The 230kV Connection with SCE at 230/138kV Capistrano Substation Alternative would meet Objective 2 since from a system capacity and arrangement perspective it is the same as the Proposed Project.

Objective 3: Improve Transmission and Distribution Operating Flexibility

The 230kV Connection with SCE at 230/138kV Capistrano Substation Alternative may increase the operating complexity which would impede this objective. Connecting SDG&E to SCE in South Orange County would add to the complexity of grid operations and could require Special Protection Systems to manage parallel flows through South Orange County. This alternative would subject the 138kV network in South Orange County to Southern California network loop flows for which it was not designed. Additionally, this alternative would modify SCE's Path 43 (north of SONGS) and could trigger a WECC path rating study. The modernized San Juan Capistrano Substation would improve Capistrano Substation for operational flexibility for the 138kV transmission and distribution systems. Therefore, the 230kV Connection with SCE at 230/138kV Capistrano Substation Alternative would not meet Objective 3.

Objective 4: Accommodate Customer Load Growth in the South Orange County Area

It is not known if the 230kV Connection with SCE at 230/138kV Capistrano Substation Alternative could meet Objective 4 without further technical analysis. From an SDG&E system capacity and arrangement perspective, it is the same as the Proposed Project although it is dependent upon SCE having sufficient capacity on their system to compensate for the added South Orange County load to their transmission system. Therefore, it is unknown if the 230kV Connection with SCE at 230/138kV Capistrano Substation Alternative could meet Objective 4 without further study.

Objective 5: Locate Proposed Facilities within Existing Transmission Corridors, SDG&E Rights of Way and Utility Owned Property

The 230kV Connection with SCE at 230/138kV Capistrano Substation Alternative may not meet Objective 5 since the actual connection point to SCE is not known at this time and additional SCE and SDG&E ROW may need to be acquired.

Avoidance or Reduction of Potentially Significant Impacts

Potentially significant short-term environmental impacts are the same as the Proposed Project under the 230kV Connection with SCE at 230/138kV Capistrano Substation Alternative. The construction impacts at Rancho San Juan, Junipero Serra Park and the ROW/private recreation facilities west of the Capistrano Substation would be the same as the Proposed Project. Long-term impacts may increase due to the potential need to acquire additional SDG&E and SCE ROW and because of unknown modifications that may be required on SCE's system.

Conclusion

The 230kV Connection with SCE at 230/138kV Capistrano Substation Alternative would not reduce the short-term impacts associated with the Proposed Project. Connecting SDG&E to SCE in South Orange County would add to the complexity of grid operations and could require Special Protection Systems to manage parallel flows through South Orange County, because this alternative would subject the 138kV network in South Orange County to Southern California network loop flows for which it was not designed. Additionally, this alternative would modify SCE's Path 43 (north of SONGS) and could trigger a WECC path rating study. This alternative could add potentially significant system and environmental impacts because the interconnection with SCE has not been fully studied by SCE and the CAISO. Without a comprehensive technical analysis, the impacts of this interconnection remain unknown but could impede project objectives and may not be feasible. Therefore, SDG&E rejects the 230kV Connection with SCE at 230/138kV Capistrano Substation Alternative.

Partial Underground within La Pata Road and San Juan Creek Road Alternative

The Partial Underground within La Pata Road and San Juan Creek Road Alternative has all of the same elements of the Proposed Project but would minimize construction activity within Vista Montana. The existing 138kV conduit package that traverses within Vista Montana would be replaced with a 230kV conduit package similar to the Proposed Project. The second 230kV conduit package would be placed underground within La Pata Road at the cable pole just south of Vista Montana in a northerly direction. The line would deviate underground at an existing dirt

road and connect to and traverse westerly underground within San Juan Creek Road to the existing ROW. A new cable pole would be installed in the Tar Farms horse stable area where the 230kV line would proceed northwest along the current ROW consistent with the Proposed Project.

Attainment of Project Objectives by the Partial Underground within La Pata Road and San Juan Creek Road Alternative

Objective 1: Provide Transmission System Reliability

The Partial Underground within La Pata Road and San Juan Creek Road Alternative would meet Objective 1 since from a system capacity and arrangement perspective it is the same as the Proposed Project.

Objective 2: Rebuild Capistrano Substation to Replace Aging Equipment and Increase Capacity

The Partial Underground within La Pata Road and San Juan Creek Road Alternative would meet Objective 2 since from a system capacity and arrangement perspective it is the same as the Proposed Project.

Objective 3: Improve Transmission and Distribution Operating Flexibility

The Partial Underground within La Pata Road and San Juan Creek Road Alternative would meet Objective 3 since from a system capacity and arrangement perspective it is the same as the Proposed Project.

Objective 4: Accommodate Customer Load Growth in the South Orange County Area

The Partial Underground within La Pata Road and San Juan Creek Road Alternative would meet Objective 4 since from a system capacity and arrangement perspective it is the same as the Proposed Project.

Objective 5: Locate Proposed Facilities within Existing Transmission Corridors, SDG&E Rights of Way and Utility Owned Property

The Partial Underground within La Pata Road and San Juan Creek Road Alternative would not meet Objective 5 because new land rights may be needed for the connection between La Pata Road and San Juan Creek Road.

Avoidance or Reduction of Potentially Significant Impacts

Potentially significant short-term environmental impacts would be minimized under this alternative at Rancho San Juan and the San Juan Hills High School. Short-term construction impacts similar to the Proposed Project would still occur at Capistrano Substation, Junipero Serra Park and the ROW/private recreation facilities west of the Capistrano Substation.

Conclusion

The Partial Underground within La Pata Road and San Juan Creek Road Alternative would meet most of the project objectives and substantially minimize construction impacts at one location

(Rancho San Juan), but not for the overall Proposed Project. Construction impacts would be minimized at Vista Montana with additional short-term impacts also occurring within La Pata Road and San Juan Creek Road affecting approximately two miles of road way as compared to the project which affects only 0.2 mile of road. If the conduit within La Pata Road could be constructed during the widening of La Pata Road which is an approved County of Orange project then that portion of potential construction impact would be avoided. At this time, SDG&E cannot know whether the timing of the Proposed Project and the La Pata Road widening can be synchronized. In any case, additional construction impacts would occur along San Juan Creek Road that would not occur under the Proposed Project. In addition, undergrounding would result in an approximate three-fold increase in cost on a per mile basis as compared to the proposed overhead design. SDG&E rejects this alternative since short-term construction impacts cannot be substantially reduced and in fact may be greater and costs would likely be greater than the Proposed Project.

Proposed Project with 230kV Connection to Escondido Substation Alternative

The Proposed Project with 230kV Connection to Escondido Substation Alternative consists of the Proposed Project with a 230kV interconnection to Escondido Substation located in the city of Escondido, County of San Diego. The new 230kV transmission line would be built on existing structures on an existing tower line from the Escondido Substation to Talega Substation. To accommodate the new transmission line at Escondido Substation a new 230kV bay position would be added within the existing substation. At Talega Substation, the new 230kV transmission line would bypass the substation and continue on to the new 230kV bus at San Juan Capistrano Substation in the existing ROW the same as the Proposed Project. The other 230kV transmission line from San Onofre Substation to San Juan Capistrano Substation would also be constructed the same as the Proposed Project. All other aspects of this alternative are the same as the Proposed Project. The CAISO, when presented with this alternative as a way to meet the Proposed Project objectives, rejected it due to the costs, which are greater than the Proposed Project.

Attainment of Project Objectives by the Proposed Project with 230kV Connection to Escondido Substation Alternative

Objective 1: Provide Transmission System Reliability

The Proposed Project with 230kV Connection to Escondido Substation Alternative is technically superior to the Proposed Project and meets Objective 1. Furthermore, it strengthens the 230kV system connection to South Orange County. This alternative would meet transmission reliability Objectives 1a, 1b and 1c.

Objective 2: Rebuild Capistrano Substation to Replace Aging Equipment and Increase Capacity

The Proposed Project with 230kV Connection to Escondido Substation Alternative would meet Objective 2 since from a system capacity and arrangement perspective it is the same as the Proposed Project.

Objective 3: Improve Transmission and Distribution Operating Flexibility

The Proposed Project with 230kV Connection to Escondido Substation Alternative would meet Objective 3 since from a system capacity and arrangement perspective it is the same as the Proposed Project. Furthermore, the Proposed Project with 230kV Connection to Escondido Substation Alternative is technically superior because it has an independent 230kV transmission connection between San Juan Capistrano and Escondido substations allowing for more flexible operating and outage coordination.

Objective 4: Accommodate Customer Load Growth in the South Orange County Area

The Proposed Project with 230kV Connection to Escondido Substation Alternative would meet Objective 4 since from a system capacity and arrangement perspective it is the same as the Proposed Project. Furthermore, the Proposed Project with 230kV Connection to Escondido Substation Alternative is technologically superior because it has an independent 230kV transmission connection between San Juan Capistrano and Escondido substations that provides more transmission capacity.

Objective 5: Locate Proposed Facilities within Existing Transmission Corridors, SDG&E Rights of Way and Utility Owned Property

The Proposed Project with 230kV Connection to Escondido Substation Alternative would largely meet Objective 5. A small additional ROW may be required in the 230kV corridor north of Highway 78. Of all the alternatives, this alternative would make maximum use of existing SDG&E ROW and facilities.

Avoidance or Reduction of Potentially Significant Impacts

Potentially significant short-term environmental impacts would slightly increase under the Proposed Project with 230kV Connection to Escondido Substation Alternative. The construction impacts at Capistrano Substation, Rancho San Juan, Junipero Serra Park and the ROW/private recreation facilities west of the Capistrano Substation would be the same as the Proposed Project. There would be additional short-term construction impacts associated with the installation of the new 230kV transmission line on the existing structures from the Escondido to Talega substations.

Conclusion

The Proposed Project with 230kV Connection to Escondido Substation Alternative is technologically the best alternative and meets or exceeds all objectives; however, the CAISO preferred the Proposed Project as a more cost-effective way to achieve the objectives of the Proposed Project and rejected the additional 230kV transmission line segment between Talega and Escondido substations. The CAISO, when presented with this project, rejected the Proposed Project with 230kV Connection to Escondido Substation Alternative due to the costs, which are greater than the Proposed Project.

5.3 GROWTH-INDUCING IMPACTS

CEQA requires a lead agency to review and discuss whether the project would foster economic or population growth, either directly or indirectly, in the surrounding environment, including projects that could remove obstacles to growth. The *CEQA Guidelines* consider a project to be growth-inducing if it fosters economic or population growth or the construction of additional housing, either directly or indirectly, in the surrounding area. New employees hired for proposed commercial and industrial development projects and population growth resulting from residential development projects represent direct forms of growth. Other examples of growth-inducing projects are the expansion of urban services into previously undeveloped areas or the removal of major obstacles to growth, such as transportation corridors and potable water supply.

Consistent with the *CEQA Guidelines*, the Proposed Project could be considered to have growth-inducing impacts if it would either directly or indirectly foster economic or population growth within the San Juan Capistrano, San Clemente, or South Orange County areas, or remove existing obstacles to growth in these areas above what would be expected without the Proposed Project. The Proposed Project could also have a growth-inducing impact if it would provide a substantial amount of new employment, create a substantial new burden on existing communities, provide access to previously inaccessible areas or extend public services to previously un-served areas, or cause new development elsewhere (outside of the South Orange County area).

As explained below, although the Proposed Project would increase electrical service reliability in the South Orange County service area, implementation of the Proposed Project would not result in any significant growth-inducing environmental effects.

5.3.1 Economic or Population Growth

5.3.1.1 Background and Anticipated Growth in the Proposed Project Area

As outlined in Section 4.11, Population and Housing, Orange County is projected to grow to a total population of 3,266,000 by the year 2020, an increase of approximately 255,768 people (or 8.5 percent) as predicted by SCAG's *2012 Proposed Final Regional Transportation Plan*. The populations within the cities of San Juan Capistrano and San Clemente are anticipated to grow to 38,100 and 68,100, respectively. These increases represent growth of approximately 10 and 7 percent, respectively, above 2010 populations.

Similarly, the South Orange County service area has been experiencing continuing load growth: over 15 percent in the last ten years and an expected 10 percent in the next ten years.

5.3.1.2 Growth and the Proposed Project

In order to keep up with increasing customer load, SDG&E has added two of the existing seven 138/12kV distribution substations located within the South Orange County service area over the last ten years. As previously discussed in Section 2.0, Proposed Project Purpose and Need, all seven distribution substations are connected to the existing 138kV transmission network which is currently supplied solely by the Talega Substation. The 138kV transmission network—which connects the distribution substations together and connects them to the power source located at the Talega Substation—has reached its maximum capacity. Thus, SDG&E has developed the

Proposed Project in order to continue to supply the South Orange County service area with reliable electric service, additional capacity, and the increased operational flexibility needed for the overall transmission network in the South Orange County service area. Without the Proposed Project, the transmission network is vulnerable to power system failures that may lead to the interruption of power to existing customers.

The Proposed Project is being implemented to increase the reliability of the existing electrical system in a developed, urban area. The Proposed Project is not being implemented in advance of growth but, rather, in response to existing demand and forecasted load growth in the South Orange County service area. SDG&E is legally required to provide services as development is approved through the local planning process (i.e. distribution network). The Proposed Project is designed to provide safe and reliable electric power to the existing cities and communities of South Orange County and remove a projected deficiency in the current transmission system. The Proposed Project would not increase housing, bring in new services, or improve the existing infrastructure system (with the exception of making the existing electric service more reliable and adding additional capacity to accommodate forecasted growth based on adopted land use plans by local and regional government entities). The Proposed Project would accommodate projected demand in the service area by providing additional electric transmission capacity to a system where, based on projected growth information, the existing transmission capacity cannot meet anticipated needs. If these improvements are not implemented, deterioration of services and an increased likelihood of system instability would result. The Proposed Project would not directly or indirectly foster substantial growth; result in a new concentration of residents, businesses, or industries; or remove obstacles to economic or population growth in the area.

5.3.2 New Employment

The Proposed Project would provide short-term construction employment, but no new permanent employment increase in employment. During peak construction times, SDG&E would employ up to approximately 60 workers per day (including construction monitors and support staff), with up to 20 people working at a substation at one time. The limited, temporary nature of this employment would not result in long-term growth within the Proposed Project area.

Furthermore, operation and maintenance activities for the Proposed Project would be performed by current SDG&E personnel, and no new jobs would be required. As a result, the Proposed Project would not induce any increase in employment.

5.3.3 Extended Access or Public Services

While there are currently undeveloped, under-serviced areas located east of the Proposed Project area, the Proposed Project would not provide access to these or other previously inaccessible areas, or extend public services to any currently un-served areas. SDG&E currently provides electric service to the Proposed Project area (South Orange County service area) and the Proposed Project does not include the expansion of the distribution system into areas that currently do not have electric service infrastructure. Therefore, the Proposed Project would not induce growth by extending access or public services (electric service infrastructure) into areas that currently un-served areas.

5.3.4 Existing Community Services

The Proposed Project would not burden existing community services. The Proposed Project would not require new or expanded services for wastewater or solid waste services, and its demand for City- and County-provided services, such as road improvements, law enforcement, and fire protection, would be negligible and short-term (for construction) and equal to or less than existing demand for operations and maintenance. The entirety of the Proposed Project constitutes a replacement or enhancement of existing facilities and, as such, SDG&E has existing operations and maintenance resources available to service the Proposed Project upon completion.

5.3.5 New Development

The Proposed Project would not promote new development, either in the South Orange County service area (including the cities of San Juan Capistrano and San Clemente) or elsewhere, because it is primarily a response to existing and planned development and a corrective action for existing and foreseeable future transmission system reliability shortfalls. The Proposed Project would satisfy SDG&E's obligation to accommodate the demand that the development market and local governments have projected or planned. Established and locally supported patterns of development and growth carry with them a corresponding electrical demand that SDG&E is obligated to anticipate and serve to avoid the consequences of electrical overload, as discussed in Section 2.0, Proposed Project Purpose and Need. The Proposed Project would not directly or indirectly cause or promote new development that would not otherwise be constructed, as approved through local land use approval processes.

Only local jurisdictional government agencies (i.e., cities and counties) can direct (plan, approve, deny) new development. All new development is subject to the appropriate land use guidance document(s) and local agency design and review processes. The local agencies, through their land use guidance documents and review processes, dictate the actual location and intensity of new development, if any. Electrical utility upgrades for new development is more often a distribution-level requirement that is addressed either during or after the plan review process.

5.3.6 Conclusion

The Proposed Project is designed to improve transmission system reliability and flexibility, and increase capacity for projected load growth in the South Orange County service area based on existing regionally and locally adopted land use plans. With the addition of a second 230kV source within the South Orange County service area, the transmission system would meet all NERC, CAISO, and WECC transmission planning standards (refer to Section 2.0, Proposed Project Purpose and Need). The Proposed Project would also replace aging equipment at the Capistrano Substation while allowing for a new substation to be constructed in place of the Capistrano Substation that would be able to support anticipated load growth as well as the upgraded transmission infrastructure (230kV transmission lines).

The Proposed Project would not create a new customer-level service or source of power (distribution lines) that would indirectly allow for an increase in population, housing, or other development because the Proposed Project would not extend electrical service infrastructure into previously un-served areas. The Proposed Project would accommodate existing and planned power demands in SDG&E's service territory through increasing the transmission system reliability and upgrading the existing Capistrano Substation to allow for future distribution

circuits. SDG&E responds to projected development and forecasts, rather than inducing growth by extending infrastructure for future unplanned development. Therefore, the Proposed Project would not induce population growth in this manner. The Proposed Project would require new employment for construction activities; however, most of the construction force is anticipated to come from the existing local workforce from a pool of existing SDG&E electrical personnel and contractors. Operation and maintenance of the Proposed Project would be similar to the existing operations and maintenance needs for the Capistrano and Talega Substations and the Talega to Capistrano transmission corridor. Therefore, the Proposed Project would have only minor and therefore less than significant impacts relating to growth inducement within the Proposed Project area.

5.4 REFERENCES

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