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**2011 Integrated Energy Policy Report
(IEPR)**

Transmission-Related Data Response

Docket No. 11-IEP-1E

March 18th, 2011

INTRODUCTION

As part of the 2011 Integrated Energy Policy Report (“IEPR”) proceeding’s data collection process the California Energy Commission (“Energy Commission”) issued “Forms And Instructions For Electric Transmission-Related Data,” requesting that all utility owners of bulk electric transmission system facilities (“transmission owners”) file specific data on their bulk transmission network and on specific projects identified in their transmission expansion plans, as well as data on anticipated transmission corridor needs. Accordingly, Southern California Edison (“SCE”) submits its responses to the Energy Commission’s questions pertaining to the following topics in this report:

A. SCE Responses to Bulk Electric Description and Needs:

- 1) Transmission Owners Expansion Plan:
 - a. Meet applicable reliability and planning standards
 - b. Reduce congestion
 - c. Interconnect new generation
 - d. Meet state policy goals such as the Renewables Portfolio Standard or once-through cooling policies:
- 2) Existing Facilities:
 - a. Transfer capabilities into the transmission owner’s grid
 - b. Transfer capabilities within the transmission owner’s grid
- 3) Planned Transmission Upgrades:
 - Tehachapi Renewable Transmission Project Segments 1-3
 - Tehachapi Renewable Transmission Project Segments 4-11
 - Devers-Mirage
 - Devers-Palo Verde No. 2
 - Red Bluff Substation Project
 - Eldorado-Ivanpah Transmission Project
 - Lugo-Pisgah Renewable Transmission Corridor Project
 - South of Kramer Project
 - San Joaquin Cross-Valley Loop Transmission Project
- 4) Maintenance or Construction that could Impact Transfer Capabilities
- 5) Transmission Upgrades beyond December 2020

B. SCE Responses to Transmission Corridor Needs:

- 1) Corridor Needs for Identified Electric Transfer Needs
 - a. Existing Corridors
 - b. Proposed Transmission Corridor Needs
 - c. Potential Environmental Impacts

A. General Instructions

The transmission filing requirements have been divided into two general categories (bulk electrical system description and needs, and transmission corridor needs), and each transmission owner (or its agent) is required to address each category. Since the majority of this information will be narrative text, transmission owners are asked to submit this information in Word or Adobe PDF electronic format.

*All transmission owners are required to file specific data on their bulk transmission network and on specific projects identified in their transmission plans. These data include descriptions of the transmission facilities or paths limiting power imports **into** their bulk transmission network, descriptions of the transmission facilities or paths limiting the transfer of power **within** their bulk transmission network, transmission limits that constrain the transmission owners' ability to meet legislated renewable resource procurement requirements, and anticipated corridor needs for bulk transmission facilities that are 200 kilovolt (kV) or above in capacity or are under the control of the California ISO.*

Where the information is available through another forum, transmission owners are asked to identify a contact person (name, phone number, and e-mail address) and a Web link, where appropriate.

Each transmission owner shall submit its most recent transmission expansion plan for its bulk electric transmission system, as well as a description of its existing transmission facilities and updated information on planned facilities not reflected in the most recent transmission expansion plan. The information filed shall include the following four items:

1. *The transmission owner's most recent transmission expansion plan. This plan should describe in detail all of the transmission facilities over 100 kV that the transmission owner needs to:*
 - a. *Meet applicable reliability and planning standards.*
 - b. *Reduce congestion.*
 - c. *Interconnect new generation.*

- d. *Meet state policy goals such as the Renewables Portfolio Standard or once-through cooling policies.*

SCE RESPONSE:

Note: Some links provided may be secured but are available to qualified users for valid purposes. For access to secured links, contact the specific organization directly. If you have any trouble clicking on the link, please copy and paste the entire link into your browser's address bar and press enter.

1a. Meet applicable reliability and planning standards:

SCE's latest published transmission expansion plan information is included in the 2010 California Independent System Operator ("CAISO") Transmission Plan, which can be found at the following link:

<http://www.caiso.com/2771/2771e57239960.pdf>

SCE's 2011 transmission plan will be included in the 2011 CAISO Transmission Plan, which is scheduled to be published by May 2011 and should be available on CAISO's website at:

<http://www.caiso.com/2734/2734e3d964ec0.html>

1b. Reduce congestion:

CAISO routinely performs a number of technical studies to meet its planning responsibilities and objectives, which includes CAISO's Congestion Study ("Congestion Study"). The Congestion Study is discussed in Section 1.3.7 "Congestion Study" of the 2010 CAISO Transmission Plan at the following link:

<http://www.caiso.com/2771/2771e57239960.pdf>

1c. Interconnect new generation:

CAISO's Generation Interconnection Cluster Reports list transmission upgrades required to interconnect new generation to SCE's CAISO controlled grid. The Generation Interconnection Cluster Reports can be found at the following link:

<https://portal.caiso.com/tp/Pages/default.aspx>

This is a secured link to the CAISO website. For access to the secured link, please contact CAISO directly.

1d. Meet State policy goals such as the Renewables Portfolio Standard or Once-Through Cooling policies.

SCE discusses integration of renewable generation into its network in CAISO's Generation Interconnection Cluster studies. CAISO uses the Generation Interconnection Cluster

studies to develop a statewide plan for SCE, San Diego Gas & Electric Company (“SDG&E”) and Pacific Gas & Electric Company (“PG&E”) to meet the 33% Renewable Portfolio Standard (“RPS”) (which may be codified through legislation CAISO’s Conceptual State Wide Plan can be found at the following link:

<http://www.caiso.com/2b0a/2b0aec5d58d70.pdf>

Further, the California Transmission Planning Group (“CTPG”) is a forum for conducting joint transmission planning studies consistent with Federal Energy Regulatory Commission (“FERC”) Order 890 principles, and for coordinating CTPG members’ transmission planning activities. The CTPG members include both transmission owners and transmission operators and are subject to North American Electric Reliability Corporation and Western Electricity Coordinating Council (“WECC”) transmission planning standards. CTPG is committed to developing a California statewide transmission plan to meet the State's 33% by 2020 RPS goal. More information on CTPG can be found at <http://www.ctpg.us/public/index.php>.

The latest CTPG report (Phase 4) 2010 California Transmission Planning Group Statewide Transmission Plan (FINAL) was published on February 9, 2011 and can be found at the following link:

http://ctpg.us/public/images/stories/downloads/2011-02-09_final_statewide_transmission_plan.pdf

Lastly, SCE participated in CAISO studies focused on once-through-cooling (“OTC”) which can be found at the following link:

<http://www.caiso.com/1c58/1c58e7a3257a0.html>

2. *Existing Facilities:*

- a. *A description of the transfer capabilities for transmission lines or transmission paths delivering electric power into the transmission owner’s grid.*
 - *The description shall include the size (for example, megavolt ampere [MVA] or megawatt [MW]) and length of the lines or lines included in the path and the substations to which the line connects.*
- b. *A description of the transfer capabilities for the bulk transmission lines or bulk transmission paths limiting the delivery of electric power within the transmission owner’s grid.*

- *The description shall include the size (MVA, MW) and length of the line or lines included in the path and the substations to which the line connects.*

SCE RESPONSE:

2a. Transfer capabilities into the transmission owner's grid

The SCE transmission system consists primarily of 500 kV and 230 kV facilities. These transmission facilities are used to deliver power from generating plants to wholesale and large retail customers, to transfer power to other utilities, and to supply power to SCE's subtransmission system for ultimate distribution to SCE's retail customers.¹ The SCE transmission system includes approximately 600 miles of 1,000 kV DC transmission (SCE's ownership share is 50% of the line capacity) and approximately 1280 miles of 500 kV AC transmission lines that are interconnected with utilities in Northern California, the Pacific Northwest, and the Desert Southwest.

The SCE transmission system provides for area load to be served mostly by local generation, which includes nuclear, renewable and fossil-fuel resources. Remaining power needs are met by imports delivered to Southern California via high-voltage AC and DC lines from Northern California, the Pacific Northwest and the Desert Southwest. The SCE transmission system has interconnections with neighboring utilities through the tie lines listed in Table 1.1.

Detailed information on all transmission paths in the WECC can be found in the following report:

<http://www.wecc.biz/library/Pages/Path%20Rating%20Catalog.aspx>

Note – Non-members are required to sign a confidentiality agreement to purchase the report.

SCE's transmission import capability is limited by CAISO's Southern California Import Transmission ("SCIT") operating nomogram, which determines the maximum power transfers over five major paths into Southern California. The SCIT import nomogram is periodically reviewed by CAISO. More information about the SCIT nomogram can be found at the following link:

<http://www.caiso.com/209e/209e897644cb0.pdf>

¹ - The bulk of SCE's load, along with most of SCE's former oil/gas burning generating facilities, are within the Los Angeles Basin.

Table 1.1: SCE Transmission System Tie Lines with Neighboring Utilities

Los Angeles Department of Water and Power (LADWP)	Inyo 230 kV tie
	Lugo-Victorville 500 kV
	Transmission Line (T/L)
	Eldorado-McCullough 500 kV T/L
	Sylmar 230/220 kV Station
	El Casco-Laguna Bell 230 kV tie (Normally Open)
	Control-Haiwee 115/230 kV tie (Normally Open)
San Diego Gas & Electric (SDG&E)	San Onofre 230 kV bus
Imperial Irrigation District (IID)	Devers-Coachella 230 kV T/L
	Mirage-Ramon 230 kV T/L
	Concho– IID 92 kV (Normally Open)
Arizona Public Service (APS)	Eldorado-Moenkopi 500 kV T/L
Nevada Power Company (NPC)	Eldorado-Merchant 230 kV line
	Mohave 500/69 kV Substation
City of Pasadena	Goodrich 230 kV substation
City of Anaheim	Lewis 230 kV substation
Sierra Pacific Power (SPP)	Control-Silver Peak 55 kV 1&2 T/Ls
Pacific Gas & Electric (PG&E)	Midway-Vincent 500 kV Nos.1-3 T/Ls
Western Area Power Administration (WAPA)	Eldorado-Mead 230 kV 1&2 T/Ls
	Blythe 161 kV bus tie
California Department of Water Resources (DWR)	Pardee-Pastoria-Warner 230 kV line
Metropolitan Water District (MWD)	Mirage-Julian Hinds 230 kV T/L
	Eagle Mountain 230 kV substation
	Iron Mountain 230 kV Substation

2b. Transfer capabilities within the transmission owner’s grid

SCE’s 500 kV transmission system lines are approximately 1,280 miles in length and serve seven major bulk power transmission substations where voltages are stepped down to 230 kV, the most prevalent voltage for SCE’s Los Angeles Basin Area transmission system.

The SCE transmission system includes approximately 3,300 miles of 230 kV transmission lines which form a network, or grid, providing for the transmission of power from generating stations and 500/230 kV substations throughout SCE’s service territory. This network supplies power to approximately 50 substations. These SCE “A” substations, where 230 kV voltages are typically stepped down to 115 kV or 66 kV via A-bank transformers, are source stations for SCE’s 115 kV and 66 kV subtransmission systems. The subtransmission system delivers power to approximately 7,000 miles of subtransmission lines (including the 33 kV) to large retail customers and provides interconnection to various generators delivering power at subtransmission voltages.

Most of the 500 kV lines, 230 kV lines and 500/230 kV transformers that are part of the SCE transmission grid are under CAISO operational control, and are subject to FERC jurisdiction². With few exceptions, all of SCE’s 230/66 kV and 230/115 kV transformers, subtransmission system facilities and distribution system facilities are collectively referred to as the non-CAISO distribution system and are under California Public Utilities Commission (“CPUC”) jurisdiction³. The non-CAISO distribution system includes poles, wires, transformers, circuit breakers, switches, insulators and various other pieces of equipment used to deliver power from the CAISO transmission grid to SCE’s customers.

Additionally, the following municipal utilities located within SCE’s service territory have interconnections with SCE’s electric system at different voltage levels: Vernon, Banning, Colton, Azusa, Riverside, Anza, Southern California Water Company, and the California Department of Water Resources (Edmonston pumping plant, Mojave Siphon, Pear Blossom pumping plant, and Devil Canyon).

SCE has four major corridors that deliver power within the SCE transmission grid to the LA Basin:

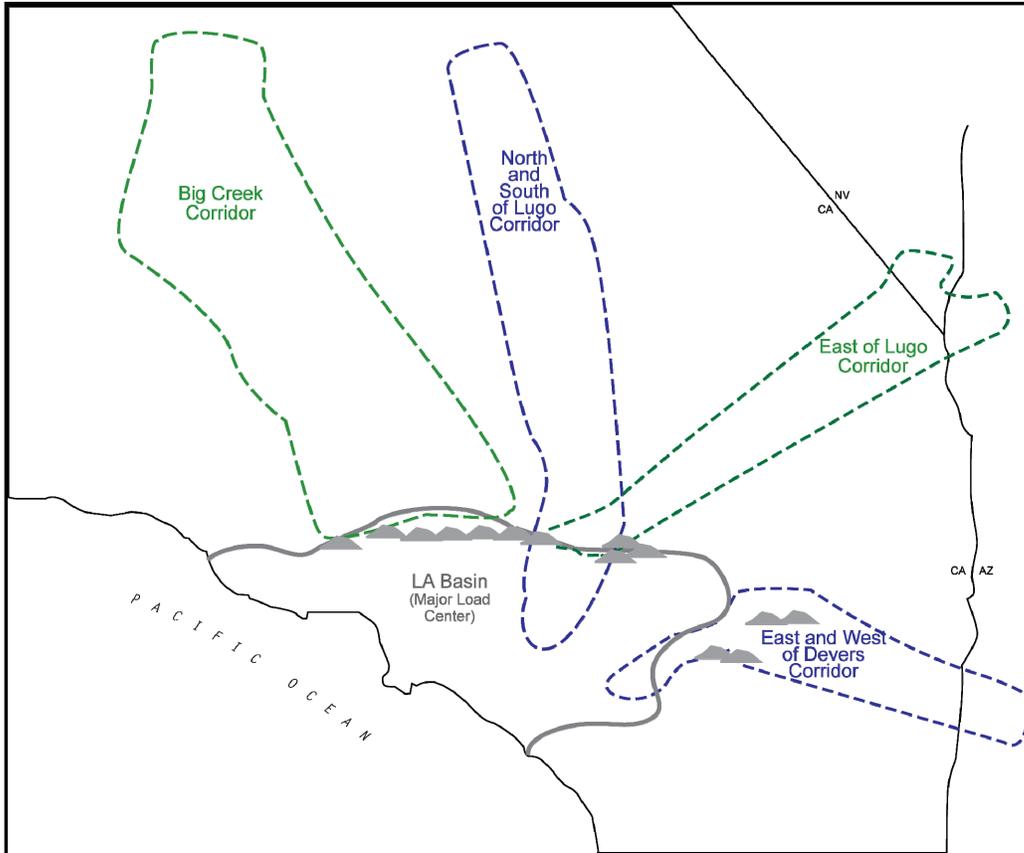
- East and West of Devers Corridor
- North and South of Lugo Corridor

² - Exceptions include the Coolwater–Kramer 230 kV, Mandalay–Santa Clara 230 kV, Ormond Beach–Moorpark 230 kV, and Huntington Beach–Ellis 230 kV transmission lines subject to radial generator tie line agreements.

³ - Exceptions include those portions of the Antelope/Bailey 66 kV system, Devers/Mirage 115 kV system and Victor/Kramer 115 kV subtransmission system, which all operate in parallel with the 230 kV transmission systems and are considered part of the CAISO-controlled transmission grid. Exceptions also include the 115 kV lines North of Kramer to Inyokern and Control, the Inyo 115 kV phase shifter, the 55 kV Silver Peak line connecting to Sierra Pacific and the Eldorado-Baker-Coolwater–Dunn Siding–Mountain Pass 115 kV line.

- East of Lugo Corridor
- Big Creek/Magunden Corridor

SCE's Major Corridors



The majority of SCE's internal transmission lines, except three 500 kV lines south of Lugo, are typically limited by either the thermal capability of the transmission line or by the substation terminal equipment. A detailed description of these lines, including length, conductor type, rating, and substations to which the line connects can be found on the following web link:

<http://www.caiso.com/docs/2005/09/28/200509281729045775.html>

Note – this is a limited access link.

3. *Planned transmission upgrades (including both upgrades to existing facilities as well as new facilities) that that are expected to be operational between January 2011 and December 2020, including those affecting both imports **into** a transmission owner's grid and those affecting the transmission owner's ability to move energy **within** its transmission network:*

- a. *Descriptions of the upgrades including costs, maps, and the MW impact of the upgrades on transfer capabilities.*
- b. *A detailed description of the upgrade's benefits including:*
 - i. *The effect of the transmission facilities on the transmission owner's ability to comply with state mandated electric policy goals such as renewable energy requirements, complying with State Water Resources Control Board policies for phasing out power plants that use once-through cooling,⁹ or eliminating or reducing local capacity requirements.*
 - ii. *Any increase in access to renewable energy. Where possible, list the location (region, competitive renewable energy zone) from which the energy can be imported.*
 - iii. *Any increase in the ability to import energy into transmission-constrained areas. Where possible, describe the area (local capacity area, sub-area) and potential reductions in local capacity requirements and the need to commit such capacity.*
 - iv. *Please indicate if the upgrade reduces or may reduce the need for existing capacity at specific locations within transmission-constrained areas or affect the commitment of specific resources in these areas.*
 - v. *Where specific project benefits are anticipated but not yet defined, describe the information and/or studies that would be required to specifically define the benefits.*
- c. *Descriptions of the alternatives considered in developing the upgrades, including non-wires alternatives such as generation and demand-side management.*

SCE RESPONSE:

SCE's planned transmission upgrades that are expected to be operational between January 2011 and December 2020 are listed below. Detailed project description and benefits are provided for each project. Response to question 3a, 3b, & 3c are provided in the links when applicable.

Transmission Projects:

Multi-County Projects

- **Tehachapi Renewable Transmission Project Segments 1-3**

The Tehachapi Renewable Transmission Project ("TRTP") Segments 1 to 3 is a series of new and updated transmission lines and substations that will deliver electricity from new wind farms in the Tehachapi area to SCE customers and the California transmission grid. TRTP is a

vital part of meeting California's renewable energy goals. The CPUC approved project Segments 1 to 3 in March 2007 and construction is now underway.

California has one of the most aggressive renewable energy programs in the country. California is the first state in the nation to set a goal that renewable energy must account for 20 percent of customers' energy needs by 2010. Today, the potential exists to tap thousands of megawatts of energy from renewable sources including wind, solar and geothermal. SCE is dedicated to utilizing these renewable energy sources to provide sustainable power to our customers.

<http://www.sce.com/PowerandEnvironment/Transmission/ProjectsByCounty/Multi-CountyProjects/TRTP1-3/default.htm>

- **Tehachapi Renewable Transmission Project Segments 4-11**

TRTP Segments 4-11 is a continuation of segments 1-3 providing further access to renewable resources. TRTP segments 4 to 11 would include new and upgraded transmission lines and substations between eastern Kern County and San Bernardino County.

<http://www.sce.com/PowerandEnvironment/Transmission/ProjectsByCounty/Multi-CountyProjects/TRTP4-11/tehachapi-4-11.htm>

Riverside County

- **Devers-Mirage**

The cities of Palm Springs, Rancho Mirage, Cathedral City, Palm Desert, and Indian Wells as well as unincorporated areas of Riverside County are currently served by an electrical system of interconnected substations and 115 kV subtransmission lines called the "Devers 115 kV Subtransmission System." This system is being loaded beyond its ability to carry enough electricity to meet SCE's customer requirements, especially during peak electrical demand periods. The proposed project would relieve overload conditions on existing 115 kV lines and reconfigure the existing Devers 115 kV Subtransmission System into two separate subtransmission systems (Devers 115 kV Subtransmission System and the Mirage 115 kV Subtransmission System). Splitting this system into two separate systems would enable SCE to continue to provide safe and reliable service to SCE's customers.

<http://www.sce.com/PowerandEnvironment/Transmission/ProjectsByCounty/RiversideCounty/DeversMirage/default.htm>

- **Devers-Palo Verde No. 2**

The Devers-Palo Verde No. 2 (“DPV2”) transmission project will primarily consist of the construction of new high-voltage transmission lines in an existing transmission corridor. DPV2 will help bring vast renewable and conventional generation from the solar energy rich areas of eastern Riverside County to the power grid.

As originally proposed, DPV2 would have extended into Arizona with a transmission line to the Palo Verde area west of Phoenix. The Arizona portion required regulatory approval from the Arizona Corporation Commission (“ACC”). Since the ACC did not approve the Arizona portion, SCE is proceeding with construction of the California portion at this time.

<http://www.sce.com/PowerandEnvironment/Transmission/ProjectsByCounty/RiversideCounty/DPV/default.htm>

- **Red Bluff Substation Project**

SCE is proposing to build the Red Bluff Substation Project near Desert Center in eastern Riverside County. The area has been identified by state and federal agencies to be rich in solar energy resources, and several renewable generation projects are currently in development in the area. The Red Bluff Substation Project will provide the electric infrastructure needed to interconnect any future renewable generation projects in the area to the transmission grid.

<http://www.sce.com/PowerandEnvironment/Transmission/ProjectsByCounty/RiversideCounty/redbluff/default.htm>

San Bernardino County

- **Eldorado-Ivanpah Transmission Project**

Officials with the United States Bureau of Land Management in California and Nevada, and solar energy developers have identified several solar rich resource areas near the southern California-Nevada border around Primm, Nevada. SCE’s existing transmission facilities in the area will not be able to provide the transmission capacity needed for the area’s projected solar generation development. The Eldorado-Ivanpah Transmission Project will provide the electrical facilities and capacity necessary to access and deliver power from renewable resources, making the power grid greener for both California and Nevada.

<http://www.sce.com/PowerandEnvironment/Transmission/ProjectsByCounty/SanBernardinoCounty/EITP/default.htm>

- **Lugo-Pisgah Renewable Transmission Corridor Project**

SCE is proposing to build the Lugo-Pisgah Renewable Transmission Corridor Project in San Bernardino County. The project is needed to connect future solar renewable generation projects in the Mojave Desert area to the SCE transmission system. The project will create a key transmission corridor and will provide the capacity needed to allow new solar generation to connect to the power grid.

<http://www.sce.com/PowerandEnvironment/Transmission/ProjectsByCounty/SanBernardinoCounty/LugoPisgah/lugopisgah.htm>

- **South of Kramer Project**

SCE has identified a need to expand the high voltage transmission system south of Kramer substation in San Bernardino County. This project will consist of a combination of upgrades to existing high-voltage transmission lines and the construction of new facilities traversing both new and existing transmission right-of-way from the Coolwater Generating Station to Lugo Substation. The South of Kramer project is being driven by the need to incorporate the large number of renewable generation projects requesting interconnection to SCE's transmission system. This expansion will provide the necessary infrastructure to connect these renewable generation projects in San Bernardino County to California's power grid, and assist the state in meeting its RPS goal of 33% by 2020.

Tulare County

- **San Joaquin Cross-Valley Loop Transmission Project**

Tulare County is one of the fastest growing regions in California. This increased growth has resulted in an increased demand for electricity. SCE has determined that the existing transmission lines, which deliver electricity to Rector Substation located southeast of Visalia, are operating at or near their limits and will be unable to deliver sufficient electricity to safely and reliably serve this increased demand. In response, SCE will build the San Joaquin Cross Valley Loop project to meet increased demand for electricity in the cities of Tulare, Visalia, Hanford, Exeter, Farmersville, Woodlake, and the surrounding areas of Tulare and Kings Counties. The project will enable SCE to continue to provide safe and reliable electricity to meet customers' needs during periods of high electricity usage, when the area's existing electric infrastructure is near or at its maximum capacity.

<http://www.sce.com/PowerandEnvironment/Transmission/ProjectsByCounty/TulareCounty/san-joaquin/default.htm>

4. *Any maintenance or construction that could impact transfer capabilities or the ability to move power over a path between January 2011 and December 2013.*

The following projects may impact transfer capabilities within or into SCE's service territory, as construction would occur during January 2011 and December 2013.

- Tehachapi Renewable Transmission Project Segments 4-11 – WECC Path 26
- Devers-Mirage – WECC Path 42
- Devers-Palo Verde No. 2 – West of Devers Corridor/ WECC Path 46 and 49
- Red Bluff Substation Project – West of Devers Corridor/ WECC Path 46 and 49
- Eldorado-Ivanpah Transmission Project – East of Lugo Corridor
- Lugo-Pisgah Renewable Transmission Corridor Project – East of Lugo Corridor
- San Joaquin Cross-Valley Loop Transmission Project – Big Creek/Magunden Corridor

5. *A general description of any transmission upgrades that are expected to begin operating after December 2020.*

SCE currently does not have any transmission upgrades planned with operating dates beyond December 2020.

B. Transmission Corridor Needs:

Each transmission owner shall evaluate its needs for transmission corridors on non-federal lands by addressing the following three items:

1. *For those point-to-point electrical transfer needs identified in the section above entitled "Bulk Electrical System Description and Needs," please discuss potential corridor needs in relation to the following:*
 - a. *Opportunities to link with existing federally-designated corridors or potential federal corridors identified under Section 368 of the Energy Policy Act of 2005.*
 - b. *Opportunities to provide transmission capacity to develop the renewable generation resources needed to meet the state's Renewables Portfolio Standard (RPS) goals.*
 - c. *Opportunities to import additional economical electricity from out of state.*
 - d. *Opportunities to improve the reliability or reduce the congestion of the state's electricity system.*
 - e. *Opportunities to upgrade existing transmission lines.*
 - f. *Opportunities to meet future growth in load.*

- g. *The potential to impact sensitive lands that may not be appropriate locations for energy corridors – including, but not limited to, state and national parks, state and national designated wilderness and wilderness study areas, state and national wildlife refuges and areas, critical inventoried roadless areas in national forests, habitat conservation plan areas, and special habitat mitigation areas.*
 - h. *Consideration of the Garamendi Principles (See Appendix B) as identified in Senate Bill (SB) 2431 (Garamendi, Chapter 1457, Statutes of 1988) and as noted in SB 1059, Section 1 (Escutia and Morrow, Chapter 638, Statutes of 2006), in the case of existing corridors.*
 - i. *Any work previously done with local agencies and any geographical areas of sensitivity that may have been identified.*
 - j. *Any other known major issues that have the potential to impact a future corridor designation.*
 - k. *Executive Order S-14-08, which established California's renewable energy goal of 33 percent from renewable resources by 2020, improved licensing processes for renewable projects, and ordered the development of the Desert Renewable Energy Conservation Plan (DRECP) for the Mojave and Colorado deserts.*
2. *If you have no plans for proposing a transmission corridor, please identify the circumstances or planning timeframes where you would opt to obtain a transmission corridor designation from the Energy Commission before applying for approval to build (or participate in) a transmission line project.*
 3. *If you would not consider applying to the Energy Commission for a transmission corridor designation, please explain why not.*

SCE Response:

The Energy Commission has been very active in Section 368 of the Energy Policy Act of 2005 process, and SCE appreciates the Energy Commission’s efforts thus far. SCE believes that the greatest opportunity for the Energy Commission to impact current transmission corridor needs is for the Energy Commission to resolve the issue of seamless, geographical extension of federally-designated corridors on federal lands to non-federal lands in California. By extending the lengths of these corridors through non-federal lands, the siting of transmission facilities by public utilities should become more streamlined and less time consuming because the designated corridor exemption would constitute a contiguous and usable corridor. For example, a corridor that spans 10 miles on federally-owned land should connect to a state utility corridor to provide value to both the state and federal planning processes. State designated corridors that do not line

up with federal land corridors would provide little value to utilities that must cross both federal and nonfederal lands with a single transmission line.

Further, many of the potential corridors designated under Section 368 will be approximately 3,500 feet wide. SCE recommends that all state-designated corridors be at least 3,500 feet wide at the interface with a federal corridor in order to provide sufficient room for any “turning” needed for changing direction when connecting to a narrower state corridor. The transition of 3,500 feet to a smaller width should be done in no shorter distance than 3,000 feet. Corridors may be narrowed once the specific project route is identified. In addition, designating a wider corridor early in the process may facilitate the study and consideration of alternative project routes by the CPUC.

One item that could have an adverse effect on the corridor planning process in California is the recent U.S. 9th Circuit Court of Appeals ruling in *California Wilderness Coalition v. U.S. Department of Energy*⁴, issued on February 1, 2011. This ruling rejected the U.S. Department of Energy’s (“DOE”) attempt to establish national interest corridors for new high-voltage electric transmission lines covering 100 million acres in 10 states, including state and national parks in the Mojave Desert. The case also stated that the DOE failed to consult the affected states or conduct federally mandated environmental reviews on the land it had identified as suitable for fast-track treatment of applications to construct transmission facilities supplying areas with inadequate capacity.⁵ It is unclear what effects, if any, this case will have on the set of transmission corridors previously designated by the U.S. Bureau of Land Management (“BLM”). Since several of SCE’s existing and proposed transmission corridors interconnect with BLM designated transmission corridors, an adverse impact to the BLM’s designated transmission corridors will likely adversely impact nearly all of SCE’s existing and proposed corridors in a significant way.

Below is a list of SCE’s existing and proposed transmission corridors, which for the most part all interconnect with BLM designated transmission corridors. SCE is hopeful that these existing and proposed corridors can be carried over into the Energy Commission’s corridor designation efforts under Senate Bill 1059.

⁴ *California Wilderness Coalition v. U.S. Department of Energy*, 631 F.3d 1072 (9th Cir. 2011).

⁵ *Id.* at 1085-1095.

Existing Corridors:

- i. Big Creek T/L System: Sierra National Forest, Los Padres National Forest and Angeles National Forest;
- ii. Midway-Vincent T/L: Angeles National Forest, Los Padres National Forest and BLM;
- iii. Vincent-Rio Hondo T/L: Angeles National Forest and Corps of Engineers;
- iv. Serrano-Valley T/L: Cleveland National Forest;
- v. Lugo-Eldorado T/L: BLM and National Park Service;
- vi. Mohave-Lugo T/L: BLM and National Park Service;
- vii. Lugo-Mira Loma T/L: San Bernardino National Forest;
- viii. Lugo-Serrano T/L: San Bernardino National Forest;
- ix. Devers-Valley T/L: BLM and San Bernardino National Forest;
- x. Devers-Palo Verde T/L: BLM and U.S. Fish and Wildlife (KOFA Wildlife Reserve Arizona); and
- xi. Antelope – Vincent T/L: BLM Corridor

Proposed Transmission Corridor Needs:

The proposed corridors identified below are considered critical in meeting future increased demand, accessing new diversified generating resources, and moderating potential congestion due to significant load growth in Southern California, which is mostly surrounded by federally-owned lands. This list was developed from a long-term transmission planning perspective looking at the transmission development needs in 2020 and beyond. It also takes into consideration Southern California's energy needs and the continued effects that state energy policies, such as OTC, the 33% RPS goal, and any other future policies, will have on the transmission system.

When reviewing the potential paths where the proposed transmission corridors could be placed, SCE made sure that the Garamendi Principles were taken into consideration. This is evident as SCE generally has proposed to expand existing rights-of-way.

1. Central Orange County

Identify a new transmission corridor which would cross Orange County from Santiago Substation to Viejo Substation. Having a corridor in this area would help assure the build out of future transmission facilities in Central Orange County which in-turn would: (1) strengthen the transmission system; (2) facilitate

meeting future energy needs; and (3) alleviate future congestion in the area. A Central Orange County corridor would help assure future reliable electric service in an area anticipated to experience significant load growth, and currently has a lack of local generation.

2. Owens River Valley

Designate and preserve a new corridor, traversing from north to south in the Owens River Valley, to attach the two separate pieces which comprises BLM Corridor Nos. 18-23. This corridor would allow for the upgrade of existing transmission facilities in the Owens Valley which in-turn would: (1) alleviate congestion delivery with respect to renewable energy from the Owens Valley and renewable geothermal energy from northern and central Nevada; (2) provide a potential route for a strengthened intertie link from NV Energy into the Los Angeles Basin; and (3) provide Southern California with access to potential future sources of economical electricity from out-of-state.

3. Mojave Desert

Develop a new corridor on a northeast to southwest trajectory from Kramer Junction to Llano to connect two existing BLM corridors and reserve a path for future transmission facilities. Facilities constructed in this proposed corridor will: (1) service an area projected for future load growth; (2) alleviate congestion, (3) strengthen the transmission system in Southern California; and (4) provide a much needed alternate path for delivering renewable energy along with economical electricity from out-of-state into the major load centers in the Los Angeles Basin.

4. East of 10, 15, and 60 Freeways to Devers

New corridors should be designated and preserved to accommodate future transmission facilities going west from SCE's Devers Substation, located near Palm Springs, splitting into two sections ending at SCE's Mira Loma and Rancho Vista Substations. This corridor would widen the existing SCE transmission right-of-way to accommodate future transmission lines running from Devers Substation and crossing through the cities of Banning and Riverside. After Riverside, the corridor would need to split, one going northwest to Rancho Vista

Substation and the other going southwest to Mira Loma Substation. This is the logical continuation of BLM Corridor Nos. 30-52, which ends just west of Devers. The additional transmission facilities situated in these proposed corridors would: (1) bring both renewable and economical electricity from out-of-state originating east of the Coachella Valley and the desert southwest into Southern California; (2) allow for the build out of transmission facilities in Riverside and San Bernardino Counties to meet future load growth needs; and (3) alleviate congestion in those areas. Use of this corridor may prove necessary as renewables become a large part of California's generation portfolio and how renewables will interact with future grid development.

5. Los Padres to LA Basin

Designate a new corridor along existing SCE transmission right-of-way paths from Bailey Substation through the Los Padres National Forest into the northern end of the Los Angeles Basin at Pardee Substation. The corridor would then follow around the southwestern rim of the Angeles National Forest cutting southeast to the existing Mesa Substation and continuing south to Lighthipe Substation along the existing SCE transmission right-of-way paths. The end result of this proposed corridor, accommodating future transmission upgrades between Bailey and Lighthipe Substations, would be to benefit the Los Angeles Basin by: (1) increasing the reliability of the transmission system; (2) relieving congestion; (3) providing for future load growth; (4) serving as an alternate corridor south of Pardee and Vincent substations in the case of a major corridor outage south of Vincent Substation; and (5) providing a direct path to deliver renewable energy from Tehachapi and economical electricity from out-of-state into the area.

6. East Orange County to LA Basin

Designate a new corridor along existing SCE transmission rights-of-way paths starting from SCE's Serrano Substation, located close to the northwest tip of the Cleveland National Forest, going west to Barre Substation and extending northwest out to SCE's Lighthipe Substation. This proposed corridor would be situated along existing SCE's transmission rights-of-way paths to accommodate

for future transmission upgrades between SCE's Serrano and Lighthipe Substations. The proposed corridor would benefit the Greater Los Angeles Basin and Orange County by: (1) increasing the reliability of the transmission system; (2) relieving congestion; (3) providing for future load growth; and (4) providing a direct path to deliver renewable energy from Tehachapi and economical electricity from out-of-state into the area.

7. Victorville Northeast

Designate a new corridor from Pisgah Crater, situated just north of the Marine Corps Air Ground Combat Center, to Hesperia along an existing SCE transmission path, which would permit upgrades to existing facilities. Such designation would: (1) strengthen the transmission system; (2) alleviate the congestion of energy flowing into the Greater Los Angeles Basin; and (3) facilitate the delivery of renewable energy and economical electricity from out-of-state into Southern California.

8. Victorville South

Develop a new corridor from Victorville south traversing land between the eastern end of the Angeles National Forest and western portion of the San Bernardino National Forest to Mira Loma Substation. Having a corridor in this area would help assure the build out of future transmission facilities while adhering to WECC common corridor requirements. This proposed corridor would also facilitate: (1) strengthening of the major transmission system between Lugo and Mira Loma/ Rancho Vista Substations; (2) meeting future energy needs; (3) alleviating congestion in the area; and (4) delivering both renewable and economical electricity from out-of-state into the Greater Los Angeles Basin.

In addition to the proposed corridors above, SCE continues to advocate and support the creation of the following corridors which were previously submitted by SCE in the 2007 and 2009 IEPR data submittals.

9. San Bernardino National Forest

A new corridor crossing the San Bernardino National Forest, south of Interstate Highway 10 and adjacent to the San Jacinto Wilderness State Park in Riverside County, should be designated and preserved to accommodate future transmission

facilities and upgrade the existing transmission facilities. The corridor should begin in the north Palm Springs area, traverse the San Bernardino National Forest in an east-to-west direction, and end near the San Jacinto area. The transmission facilities situated in this corridor would: (1) bring needed power to the load centers in western Riverside County from the Desert Southwest; (2) improve reliability; and (3) deliver both renewable and economical electricity from out-of-state into the Greater Los Angeles Basin.

10. Cleveland National Forest

A new corridor crossing the northern end of the Cleveland National Forest should be developed to accommodate future transmission facilities and upgrade the existing transmission facilities. The corridor should begin in the northeastern foothills of the Santa Ana mountain range south of the City of Corona, Riverside County, cross the northern edge of the Cleveland National Forest south of State Highway 91, and end at the northwestern foothills of the Santa Ana mountain range in the proximity of State Highway 91 and 241 interchange in Orange County. The new transmission facilities situated on this corridor would: (1) bring renewable and economical electricity from the Desert Southwest to the load centers in Orange County; and (2) improve reliability and congestion in the area.

11. Angeles National Forest

A new corridor should be developed to accommodate future transmission facilities that would provide additional transmission capacity to bring needed power from Northern California as well as renewable resources located in the Mojave Desert to the major load centers in the Los Angeles Basin. The corridor should begin in the northern foothills of the San Gabriel mountain range near SCE's Vincent Substation in the City of Palmdale, cross over the Angeles National Forest in a north to south direction, and stop at the southern edge of the Angeles National Forest near SCE's Rio Hondo Substation in the City of Irwindale.

New corridors crossing the Angeles National Forest and potential National Conservation Area should be developed to accommodate future intra-state transmission facilities. A new corridor should start near PG&E's Midway

Substation near Buttonwillow, cross over potential National Conservation Area in a northwestern to southeastern direction, and end at the Tehachapi area north of Lancaster. A separate north to south corridor should continue from the Tehachapi area, traverse the Angeles National Forest in a north to south direction near Palmdale, and end at the southern edge of the Castaic mountain range near Santa Clarita Valley. The new transmission facilities situated on these corridors would be needed to: (1) bring economic power from the Northern California and the Pacific Northwest areas to Southern California; (2) incorporate renewable resources developed in the Mojave Desert; and (3) improve reliability and reduce congestion in the area.

12. Mojave National Preserve

A new east-to-west corridor should be designated in order to accommodate future inter-regional transmission facilities that would bring economic power to the major load centers in Southern California from Nevada/Arizona/New Mexico area. This corridor would start from the southern tip of Nevada near the Nevada/California/Arizona border, cross the Mojave National Preserve and end near Barstow. The new and upgraded transmission facilities situated on this corridor would: (1) provide additional transmission capacity to serve loads; (2) improve reliability and reduce congestion; and (3) bring renewable and economical electricity into the Greater Los Angeles Basin. Such designation is necessary to help avoid the proliferation of numerous and separate corridors through the most sensitive parts of the Mojave National Preserve.

13. Los Padres National Forest

A new corridor should be designated and preserved in order to accommodate future transmission facilities from Ventura to Goleta. This corridor should cross the southern portions of the Los Padres National Forest in an east to west direction. The new and upgraded existing transmission facilities situated on this corridor would: (1) provide additional transmission capacity to serve loads; (2) improve reliability and reduce congestion; and (3) meet future load growth in the Santa Barbara and Ventura areas with renewable and economical electricity from out-of-state.

14. Joshua Tree National Park

A new corridor should be designated and preserved to accommodate future interstate transmission facilities from southern Arizona near the Palo Verde area to SCE's Devers Substation near Palm Springs. This corridor should cross the southern portions of the Joshua Tree National Park in an east to west direction. The new and upgraded existing transmission facilities situated on this corridor would: (1) provide additional transmission capacity to serve loads; (2) improve reliability and reduce congestion; and (3) bring renewable and economical electricity from the Desert Southwest to the load centers in the greater Los Angeles Basin.

Potential Environmental Impacts

There may be sensitive locations where energy corridors should not be designated. However, from an environmental perspective, allowing utilities to designate and set aside corridors upfront could be a means to implement mitigation strategies and land conservation arrangements for environmental concerns. Such a process will allow utilities to set aside land for future use while preserving certain qualities associated with that land before, during, and after the construction of transmission facilities in the corridor.

Below, SCE has identified areas that could potentially be affected by the designation of any corridors. SCE believes most concerns associated with these corridors may be mitigated through appropriate measures. Particularly sensitive and the specific sensitivities associated with each area are also included. This list is based on data obtained from public literature (e.g., the California Natural Diversity Data Base) and available information identified in previous SCE environmental studies. The information was prepared by SCE biologists and archaeologists and is not comprehensive as to all sensitivities.

SAN BERNARDINO NATIONAL FOREST

- Visual resources;
- Recreation (Pacific Crest Trail);
- Federal and/or state threatened and endangered listed species (applies to San Bernardino National Forest on both sides of I-10):
 - Bald eagle, spotted owl, arroyo toad, armored 3-spined stickleback (fish), Santa Ana sucker (fish), rubber boa (snake), and peninsular bighorn sheep;

- California Department of Fish and Game (“CDFG”) listed species (numerous species);
- Palm Springs sensitivities: Oasis and canyon flora (Tahquitz Canyon);
- Significant Native American concerns;
- Historic resources: Holcomb Valley, mining and hydro facilities; and
- Archaeology (mostly on north side): Native American historical usage.

CLEVELAND NATIONAL FOREST

- Visual resources;
- Recreation;
- No federal threatened and endangered listed species;
- A number of sensitive plant species;
- State threatened or endangered listed species: Arroyo toad and red-legged frog (Temecula);
- Vernal pools (preserves);
- CDFG listed species (numerous species);
- Some Native American concerns;
- Some historic resources; and
- Some archaeological resources.

ANGELES NATIONAL FOREST

- Visual resources;
- Recreation;
- No Federal threatened and endangered listed species;
- A number of sensitive plant species;
- State threatened and endangered listed species: Arroyo toad, red-legged frog, and bighorn sheep;
- CDFG listed species (numerous species);
- Some Native American concerns;
- Some historic resources; and
- Some archaeological resources.

MOHAVE NATIONAL PRESERVE

- Visual resources;
- Recreation;
- Federal and/or state threatened and endangered listed species: Desert tortoise, Gila monster, big horn sheep, golden eagle, swains hawk, le conte thrasher (bird) and Mohave chub (fish);
- A number of sensitive plant species;
- CDFG listed species (numerous species);
- Some Native American concerns;
- Significant historic resources; and
- Significant archaeological resources.

LOS PADRES NATIONAL FOREST

- Visual resources;
- Recreation;
- Federal and/or state threatened and endangered listed species: California condor;
- A number of sensitive plant species;
- CDFG listed species (numerous species);
- Some Native American concerns;
- Some historic resources; and
- Some archaeological resources.

JOSHUA TREE NATIONAL PARK

- Significant visual resources;
- Significant recreation;
- Federal and/or state threatened and endangered listed species: Big horn sheep, and desert tortoise;
- A number of sensitive plant species;
- CDFG listed species (numerous species);
- Significant Native American concerns;
- Significant historic resources; and
- Significant archaeological resources.

WILD PLACES AT RISK

- Chuckwalla Mountains Wilderness: Desert tortoise, big horn sheep, sensitive plants and CDFG listed species;
- Little Chuckwalla Mountains Wilderness: Desert tortoise, big horn sheep, sensitive plants and CDFG listed species;
- Kelso Dunes Wilderness: Fringe-toed lizard;
- Mecca Hills wilderness: Sensitive plants;
- Newberry Mountains Wilderness: Big horn sheep and significant archaeology;
- Old Woman Mountains Wilderness: Located in Mohave Preserve;
- Rodman Mountains Wilderness: Big horn sheep, desert tortoise, Mohave ground squirrel, sensitive plants and significant archaeology;
- Rice Valley Wilderness: Desert tortoise and sensitive plants;
- Turtle Mountains Wilderness: Desert tortoise and sensitive plants;
- Cady Mountains WSA: Desert tortoise and sensitive plants; and
- Cucamonga Roadless Area: Big horn sheep;

NATIONAL PARKS

All of the national parks listed have plant and animal sensitivities as well as public concern that make them the less feasible for a transmission corridor.

STATE PARKS

All state parks have plant and animal sensitivities as well as public concern that make them the less feasible for a transmission corridor.