

Application No.: 13-10-020

Exhibit No.: _____

Witness: Neil Millar

In the Matter of the Application of SOUTHERN CALIFORNIA EDISON COMPANY (U338E) for a Certificate of Public Convenience and Necessity for the West of Devers Upgrade Project and for an Interim Decision Approving the Proposed Transaction between Southern California Edison and Morongo Transmission LLC.

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ON BEHALF OF THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR
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APPENDIX A i

1 **BEFORE THE PUBLIC UTILITIES COMMISSION OF THE**
2 **STATE OF CALIFORNIA**

In the Matter of the Application of SOUTHERN CALIFORNIA EDISON COMPANY (U338E) for a Certificate of Public Convenience and Necessity for the West of Devers Upgrade Project and for an Interim Decision Approving the Proposed Transaction between Southern California Edison and Morongo Transmission LLC.

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6 **ON BEHALF OF THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR**
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8

9 **Q. What is your name and by whom are you employed?**

10 **A.** My name is Neil Millar. I am employed by the California Independent System Operator
11 Corporation (CAISO), 250 Outcropping Way, Folsom, California as the Executive
12 Director, Infrastructure Development.
13

14 **Q. Please describe your educational and professional background.**

15 **A.** I received a Bachelor of Science in Electrical Engineering degree at the University of
16 Saskatchewan, Canada, and am a registered professional engineer in the province of
17 Alberta.
18

19 I have been employed for over 30 years in the electricity industry, primarily with a major
20 Canadian investor-owned utility, TransAlta Utilities, and with the Alberta Electric
21 System Operator and its predecessor organizations. Within those organizations, I have
22 held management and executive roles responsible for preparing, overseeing, and
23 providing testimony for numerous transmission planning and regulatory tariff
24 applications. I have appeared before the Alberta Energy and Utilities Board, the Alberta
25 Utilities Commission, and the British Columbia Utilities Commission. Since November,
26 2010, I have been employed at the CAISO, leading the Transmission Planning and Grid
27 Asset departments.

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1 **Q. What is the purpose of your testimony?**

2 **A.** The purpose of my testimony is to provide an overview of the CAISO's transmission
3 planning processes that led to the identification of the need for reinforcement of the West
4 of Devers transmission system. I address the factors the CAISO took into account in
5 making this determination and selecting the West of Devers Upgrade Project (Proposed
6 Project) to address that need.

7
8 **Q. What are your recommendations in this proceeding?**

9 **A.** I recommend that the California Public Utilities Commission (Commission) approve the
10 Application filed by Southern California Edison (SCE) for a certificate of public
11 convenience and necessity for the Proposed Project. As explained in my testimony and
12 the supporting technical testimony of Dr. Songzhe Zhu, the Proposed Project is necessary
13 to reliably provide the requested level of service to generators seeking transmission
14 service under the CAISO's Federal Energy Regulatory Commission (FERC) approved
15 tariff, meet policy requirements of the State of California, and adhere to the reliability
16 standards specified by the North American Electric Reliability Corporation (NERC) and
17 the CAISO Planning Standards.

18

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1 **I. THE PROPOSED PROJECT**

2

3 **Q. Please describe the Proposed Project.**

4 **A.** The Proposed Project consists of the following specific transmission system
5 improvements:

- 6
- 7 • Upgrades to substation equipment within SCE's existing Devers, El Casco,
8 Etiwanda, San Bernardino, and Vista substations in order to accommodate
9 increased power transfer on the upgraded West of Devers 220 kilovolt (kV)
10 transmission lines. Upgrade SCE's existing Timoteo and Tennessee 66/12 kV
11 substations to accommodate 66 kV subtransmission line relocations.
 - 12 • Removal and upgrade of the following existing 220 kV transmission lines and
13 structures with new transmission lines and structures utilizing double-bundled
14 1590 kcmil Aluminum Conductor Steel-Reinforced (2B-1590 ACSR) conductor:
 - 15 ○ Devers – El Casco (approximately 30 miles);
 - 16 ○ El Casco – San Bernardino (approximately 14 miles);
 - 17 ○ Devers – San Bernardino (approximately 43 miles);
 - 18 ○ Devers – Vista No. 1 and No. 2 (approximately 45 miles each);
 - 19 ○ Etiwanda – San Bernardino (approximately 3.5 miles); and
 - 20 ○ San Bernardino – Vista (approximately 3.5 miles).
 - 21 • Removal and relocation of approximately two miles of two existing 66 kV
22 subtransmission lines.
 - 23 • Removal and relocation of approximately four miles of existing 12 kV
24 distribution lines.
 - 25 • Installation of telecommunication lines and equipment for the protection,
26 monitoring, and control of transmission lines and substation equipment.

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1 **Q. Please describe the process by which the CAISO identified the Proposed Project as a**
2 **necessary upgrade.**

3 **A.** The CAISO initially identified the Proposed Project as necessary to connect certain
4 renewable generation projects to the CAISO grid as a part of its generator interconnection
5 process. Subsequently, the CAISO confirmed the need for the Proposed Project in its
6 transmission planning process. The CAISO’s public policy driven studies identify
7 transmission necessary to interconnect expected future renewable generation projects to
8 meet State of California clean energy goals based on Commission-developed renewable
9 energy portfolios. In this testimony, I discuss both the generator interconnection process
10 and the annual transmission planning process.

11

12 **II. GENERATION INTERCONNECTION PROCESS**

13

14 **Q. Please describe the generator interconnection process generally.**

15 **A.** The CAISO offers two forms of generator interconnection service: energy only and Full
16 Capacity Deliverability Status.¹ Full Capacity Deliverability Status is provided to
17 generation that complies with the CAISO’s deliverability analysis, enabling that
18 generation to be counted upon by load serving entities inside California as part of their
19 obligation to maintain sufficient resource adequacy capacity to comply with state
20 requirements. The Commission requires load serving entities to demonstrate the
21 deliverability of the resources procured in both their annual resource plans and their long-
22 term resource plans. An effective deliverability assessment is essential in short-term
23 resource plans to enable load serving entities to “count” selected resources toward
24 meeting the Commission’s resource adequacy requirements. For long-term procurement
25 planning, the deliverability assessment ensures that load serving entities identify capacity

¹ “Full Capacity Deliverability Status” is defined in Appendix A to the CAISO tariff as “Full Capacity Deliverability Status entitles a Generating Facility to a Net Qualifying Capacity amount that could be as large as its Qualifying Capacity and may be less pursuant to the assessment of its Net Qualifying Capacity by the CAISO.”

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1 needs that require forward commitment to implement the desired solution, thereby
2 allowing for effective coordination of resource planning and transmission planning.

3
4 The CAISO developed a deliverability assessment as part its proposal to comply with the
5 FERC Order No. 2003 regarding the interconnection of new generating facilities. The
6 deliverability assessment verifies a generating facility's ability to deliver its energy to
7 load on the CAISO Controlled Grid² under peak load conditions and identifies the
8 required network upgrades to enable delivery. In the deliverability assessment, the
9 CAISO studies a generating facility's interconnection with the CAISO Controlled Grid at
10 peak load and under a variety of severely stressed conditions to determine whether, with
11 the generating facility at full output, the aggregate of generation in the local area can be
12 delivered to the aggregate of load on the CAISO Controlled Grid, consistent with the
13 CAISO's reliability criteria and procedures. The CAISO methodology ensures that the
14 deliverability of a new resource is assessed on the same basis as all other existing
15 resources interconnected to the CAISO Controlled Grid.

16
17 Because the deliverability assessment focuses on the deliverability of generation capacity
18 when the need for capacity is the greatest (*i.e.* peak load conditions), it does not ensure
19 that a particular generation facility will not experience congestion during other operating
20 periods. Furthermore, the deliverability test does not ensure that there will not be
21 congestion during certain low probability, high generation dispatch conditions during the
22 summer peak load period.

23
24 **Q. Please describe the CAISO's generator interconnection process studies that led to**
25 **the identification of need for the Proposed Project.**

26 **A.** In 2010, the CAISO performed a deliverability assessment analyzing all generation
27 interconnection requests seeking Full Capacity Deliverability Status in the eastern bulk

² "CAISO Controlled Grid" is defined in Appendix A to the CAISO tariff as "The system of transmission lines and associated facilities of the Participating TOs that have been placed under the CAISO's Operational Control."

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1 transmission area of SCE. The assessment modeled generation projects both in the Serial
2 Group (*i.e.*, those projects that requested deliverability prior to CAISO's institution of a
3 cluster study process) and those projects in the 2010 Transition Cluster. The Serial
4 Group and the Transition Cluster generator interconnection requests are detailed in Dr.
5 Zhu's testimony.

6
7 The assessment concluded that there was insufficient transmission capacity to support the
8 requested Full Capacity Deliverability Status for these projects due to potential overloads
9 on four West of Devers 220kV lines.³ Reconductoring the West of Devers 220kV lines
10 (*i.e.* the Proposed Project) was required for the Transition Cluster projects to obtain Full
11 Capacity Deliverability Status.

12
13 In subsequent cluster interconnection studies, the capacity made available by the
14 Proposed Project was relied upon by the CAISO to enable later queued generation
15 projects to obtain Full Capacity Deliverability Status. Among the five Transition Cluster
16 projects that initially triggered the Proposed Project, only one has withdrawn from the
17 interconnection queue (a 150 megawatt (MW) project), and one project has downsized
18 from 1000 MW to 485 MW. However, 4554.9 MW of generation projects in the study
19 area beyond the initial Transition Cluster have requested Full Capacity Deliverability
20 Status since the initial generator interconnection studies. Adding this amount to the
21 remaining Transition Cluster projects means that 6089.4 MW of generation capacity in
22 the area is currently requesting Full Capacity Deliverability Status. Of those projects, 250
23 MW of generation is already operational and 735 MW is expected to be operational by
24 the end of November 2016. Five projects totaling 1859 MW have executed
25 interconnection agreements.
26

³ Specifically, the following lines: Devers–San Bernardino No. 1, Devers–El Casco, Devers–Vista No. 1 and Devers–Vista No. 2.

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1 In addition to the aforementioned generation seeking to connect to the CAISO Controlled
2 Grid, an additional generation projects totaling 67.64 MW are seeking Full Capacity
3 Deliverability Status dependent on the Proposed Project through interconnection to
4 SCE's distribution system. In addition, renewable generation connecting to the Imperial
5 Irrigation District and seeking access to the CAISO Controlled Grid is also dependent on
6 the Proposed Project.

7
8 **III. TRANSMISSION PLANNING PROCESS**

9
10 **Q. What role did the CAISO's transmission planning process play in determining the**
11 **need for the Proposed Project?**

12 **A.** The CAISO's annual transmission planning process confirmed the need for the Proposed
13 Project to meet renewable generation goals through the planning cycles that took place
14 since the Proposed Project was first identified through the generator interconnection
15 process.

16
17 **Q. Please provide an overview of the CAISO's transmission planning process.**

18 **A.** The CAISO conducts an annual transmission planning process to identify and plan the
19 development of solutions to meet the future needs of the CAISO Controlled Grid. This
20 annual process culminates in the CAISO Board of Governors approving a comprehensive
21 transmission plan. The plan identifies needed transmission solutions and authorizes their
22 cost recovery through CAISO transmission rates, subject to regulatory approval. The plan
23 also identifies non-transmission solutions that will be pursued in other venues as
24 alternatives to building additional transmission facilities. The CAISO develops the plan
25 in the larger context of supporting important energy and environmental policies and
26 facilitating the transition to a cleaner, lower emission future, while maintaining reliability
27 through a resilient electric system.

28

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1 The annual planning process is structured in three consecutive phases with each planning
2 cycle identified by a beginning year and a concluding year. Each annual cycle begins in
3 January and extends into the subsequent year.

4
5 In Phase 1 of the annual planning process, the CAISO establishes the assumptions and
6 models to be used in the planning studies, develops and finalizes a study plan, and
7 specifies the public policy mandates that planners will adopt as objectives in the current
8 cycle. During Phase 1, the CAISO first posts a draft study plan for stakeholder review
9 and then conducts a public stakeholder session. At the stakeholder session, the CAISO
10 answers questions regarding the draft study plan and requests additional written
11 comments from stakeholders. The CAISO then considers stakeholder comments in
12 completing its final study plan.

13
14 In Phase 2, the CAISO performs studies to identify transmission needs and the necessary
15 solutions, culminating in the annual comprehensive transmission plan. Phase 2 takes
16 approximately 12 months and involves three additional public stakeholder sessions at
17 which the CAISO presents preliminary and draft results for vetting with stakeholders.
18 After each stakeholder session, the CAISO requests and considers stakeholder comments
19 on its planning analyses. Identifying non-transmission alternatives that the CAISO can
20 rely upon in lieu of transmission solutions also occurs during Phase 2. After this process
21 concludes, the draft transmission plan is presented to the CAISO's Board of Governors
22 for final review and approval. Phases 1 and 2 take a total of 15 months to complete.

23
24 During Phase 3, the CAISO solicits competitive bids for the construction and ownership
25 of new transmission facilities identified in the approved transmission plan that are
26 eligible for competition. In any given planning cycle, Phase 3 may or may not occur
27 depending on whether the final plan includes transmission facilities that are open to
28 competitive solicitation in accordance with criteria specified in the CAISO tariff.

29

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1 In addition, the CAISO may conduct specific studies during the planning process to
2 support other state or industry informational requirements to efficiently provide study
3 results that are consistent with the comprehensive transmission planning process.
4

5 The transmission plan primarily identifies needed transmission facilities based upon three
6 main categories of transmission solutions: reliability; public policy; and economic needs.
7

8 Public policy-driven transmission solutions are those needed to enable the grid
9 infrastructure to support state and federal policy directives. The CAISO added public
10 policy requirements and directives as a category of transmission need in 2010. Planning
11 transmission to meet public policy directives is now a national requirement under FERC
12 Order No. 1000. The state directive in SBX1-2 has been the primary driver of policy
13 driven analysis in the transmission plans over the last five years. The law, also known as
14 the Renewables Portfolio Standard, requires 33 percent of electricity sold annually in the
15 state to be supplied from qualified renewable resources by the year 2020. Achieving this
16 policy has required developing substantial amounts of renewable generating resources,
17 along with building new infrastructure to deliver the power produced by these facilities to
18 consumers.
19

20 **Q. How does the CAISO forecast the volume and location of future renewable
21 generation for transmission planning purposes?**

22 **A.** Since the 2011-2012 planning cycle, the CAISO has relied upon forecasts developed by
23 the Commission for information regarding the location and volume of future renewable
24 energy development. The Commission provides this information to the CAISO in the
25 form of renewable generation portfolios for use in the transmission planning process.
26

27 As stated most recently in the CAISO's 2014-2015 transmission plan:

28 "The [Commission] plays a primary role formulating the resource portfolios as
29 the agency that oversees the supply procurement activities of the investor-owned

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1 utilities and retail direct access providers, which collectively account for 95
2 percent of the energy consumed annually within the [CAISO] area. The proposed
3 portfolios are reviewed with stakeholders to seek their comments, which are then
4 considered for incorporation into the final portfolios.

5
6 The resource portfolios have played a crucial role in identifying public policy-
7 driven transmission elements. Meeting the RPS has entailed developing
8 substantial amounts of new renewable generating capacity, which will in turn
9 required new transmission for delivery. The uncertainty as to where the
10 generation capacity will locate has been managed recognizing this uncertainty and
11 balancing the requirement to have needed transmission completed and in service
12 in time to support the RPS against the risk of building transmission in areas that
13 do not realize enough new generation to justify the cost of such infrastructure.
14 This entailed applying a “least regrets” principle, which first formulates several
15 alternative resource development portfolios or scenarios, then identifies the
16 needed transmission to support each portfolio followed by selecting for approval
17 those transmission elements that have a high likelihood of being needed and well-
18 utilized under multiple scenarios.”⁴

19
20 The Commission and the CAISO have acknowledged the importance of agency
21 coordination in developing and studying the renewable energy portfolios to identify
22 policy driven transmission projects. This was most recently reiterated in the March 11,
23 2015 letter from Commission President Picker and California Energy Commission
24 Chairman Weisenmiller (CEC) to CAISO President and Chief Executive Officer Steve
25 Berberich regarding the Base Case Renewable Resource Portfolio and an Alternative
26 Renewable Resource Portfolio for the CAISO 2015-2016 Transmission Planning

⁴ CAISO 2014-2015 Board of Governor Approved Transmission Plan, March 27, 2015, pp. 20-21.

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1 Process.⁵ In this letter, the Commission and CEC recommended specific renewable
2 energy portfolios for the CAISO to study in its 2015-2016 transmission plan. This letter
3 also refers to the May 2010 Memorandum of Understanding (MOU) between the CAISO
4 and the Commission which called for increased transmission planning coordination,
5 especially with regard to policy driven projects. Specifically, the MOU notes that CAISO
6 will present “a formal assessment of the transmission planning needs within the [CAISO]
7 balancing authority area for the [Commission]-provided renewable resource scenarios.”⁶
8 This reinforces that the Commission-developed renewable energy portfolios drive the
9 need for policy projects.

10
11 Although the CAISO understands that the Commission-developed portfolios are not the
12 only information relevant to achieving renewable energy goals, any additional
13 information should complement and support the development of plans capable of meeting
14 the portfolios. In the present case, reviewing the interconnection queue information may
15 be helpful as a directional indicator; however, that narrowly focused review should not
16 form the basis for an analysis of whether the proposed alternatives meet the State’s
17 renewable energy goals. The Commission has separately identified the targeted
18 renewable portfolios designed to achieve the state’s energy goals.

19
20 The CAISO recognizes that time has passed since SCE submitted the initial application
21 for the Proposed Project and, as a result, this testimony and the CAISO’s accompanying
22 testimony of Dr. Zhu rely on the most up-to-date renewable portfolio information
23 available. The updated information is based on the Commission-developed renewable
24 portfolios provided to the CAISO for use in the 2015-2016 transmission planning cycle.⁷
25

⁵ http://www.cpuc.ca.gov/NR/rdonlyres/C8D2FA01-E466-45C1-984B-663C7B827182/0/2015_16TPP_Portfoliotransmittal_ltr.pdf.

⁶ Attachment A, Memorandum of Understanding between the CPUC and CAISO Regarding the Revised CAISO Transmission Planning Process, p. 2.

⁷ http://www.cpuc.ca.gov/NR/rdonlyres/C8D2FA01-E466-45C1-984B-663C7B827182/0/2015_16TPP_Portfoliotransmittal_ltr.pdf.

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1 **Q. Does the CAISO’s annual transmission planning process assume that all**
2 **transmission identified in executed Generator Interconnection Agreements (GIA)**
3 **will proceed?**

4 **A.** No. Transmission identified in the generator interconnection process, such as the
5 Proposed Project, is generally only modeled if the upgrades or the generation
6 necessitating those upgrades are already under construction or are necessary to support
7 the generation forecast in the Commission-provided renewable generation portfolios.

8
9 In the Commission’s development of the renewable generation portfolios, the Proposed
10 Project was treated as an option to provide access to renewable generation and was
11 ultimately selected in each year’s portfolio development process since the current
12 processes were implemented. Based on this result, the CAISO would have selected the
13 Proposed Project for approval through the CAISO’s annual transmission planning process
14 if it had not previously been identified in the executed GIAs. The bottom line is that the
15 Proposed Project is being relied upon to achieve state renewable policy objectives.

16
17 **Q. Does the CAISO’s annual transmission planning process assume that all**
18 **transmission solutions approved in previous transmission plans will proceed?**

19 **A.** Generally, yes. Each annual study plan assumes that all transmission previously
20 approved through earlier transmission planning processes is developed as approved.
21 Projects may be reviewed on a case by case basis if material changes in circumstance are
22 identified by the CAISO or other stakeholders. However, these circumstances do not
23 apply in the case of the Proposed Project; the need for the Proposed Project was first
24 established in the Generator Interconnection Process and was then verified in the
25 transmission planning process. No material changes in circumstance have been identified
26 by the CAISO or other stakeholders that would render the Proposed Project unnecessary.

27

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1 **Q. Why must the CAISO provide Full Capacity Deliverability Status to the generators**
2 **in the renewable generation portfolios?**

3 **A.** Full Capacity Deliverability Status is a necessary and reasonable requirement for the
4 renewable generation portfolios provided to achieve the 33 percent renewable portfolio
5 standard. Energy-only service is not sufficient for these resources, as explained in more
6 detail below.

7
8 The CAISO's policy driven transmission analysis and the Commission-developed
9 renewable portfolios for achieving the 33 percent renewable portfolio standard were
10 designed on the basis that renewable generation projects would be able to achieve Full
11 Capacity Deliverability Status. Power purchase agreements approved by the Commission
12 for purposes of meeting RPS goals overwhelmingly require renewable generators to
13 provide resource adequacy capacity, which, in turn, requires Full Capacity Deliverability
14 Status as a prerequisite. As a result, renewable generators have correspondingly
15 requested Full Capacity Deliverability status in the CAISO generation interconnection
16 process. Because virtually all renewable generation procured to meet the 33 percent goal
17 are specified as deliverable and the portfolios have been developed with that expectation,
18 the CAISO policy driven transmission analysis ensures that the generation in the
19 Commission-developed renewable portfolios will be deliverable.

20
21 **IV. CAISO OBJECTIVES FOR THE PROPOSED PROJECT**

22
23 **Q. What is the primary driver for the Proposed Project?**

24 **A.** The primary purpose of the Proposed Project is to (1) provide transmission access to new
25 generation projects east of Devers that have requested interconnection service, (2) to
26 provide the necessary transmission system capabilities enabling achievement of state
27 policy objectives, in particular, the state's 33 percent renewable portfolio standard, and
28 (3) to optimize the system upgrades and provide sufficient flexibility for future needs,
29 while balancing cost considerations and minimizing environmental impacts.

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1

2 **Q. Based on the CAISO’s most recent analysis, is the Proposed Project still necessary?**

3 **A.** Yes. As noted in Dr. Zhu’s testimony, Six executed or pending GIAs totaling 1908.5 MW
4 rely on the Proposed Project to achieve Full Capacity Deliverability Status. 4180.9 MW
5 of additional generation interconnection requests are presently in the CAISO
6 interconnection queue and seeking Full Capacity Deliverability Status to achieve the
7 renewable generation portfolio goals. The Proposed Project is needed to achieve the
8 renewable energy goals and the requirements of the renewable generation portfolios most
9 recently provided by the Commission for transmission planning purposes.

10

11 The Proposed Project provides the necessary capacity while making the best use of
12 existing rights of way and respecting the Garamendi Principles.⁸ In light of the recent
13 passage of Senate Bill 350 which adopts a 50 percent renewable energy goal by 2030, it
14 is even more important for the Commission to move decisively on developing necessary
15 capacity and avoid creating unnecessary limitations on future renewable growth.

16

17 **V. CAISO CONCERNS WITH DRAFT ENVIRONMENTAL IMPACT REPORT
18 AND THE PHASED BUILD ALTERNATIVE**

19

20 **Q. Please summarize the concerns identified by the CAISO regarding the Draft
21 Environmental Impact Report (DEIR) prepared for the Proposed Project and the
22 Phased Build Alternative identified in the DEIR.**

⁸ In 1988, California enacted Senate Bill 2431, which detailed the State’s priorities for transmission planning known as the Garamendi Principles which encourage the following considerations with transmission planning: “1) encourage the use of existing rights-of-way by upgrading existing transmission facilities where technically and economically justifiable; 2) when construction of new transmission lines is required, encourage expansion of existing right-of-way, when technically and economically feasible; 3) provide for the creation of new rights-of-way when justified by environmental, technical, or economic reasons as determined by the appropriate licensing agency; and 4) where there is a need to construct additional transmission capacity, seek agreement among all interested utilities on the efficient use of that capacity.” 1988 Cal. Legis. Serv. 1457 (West). *See also* Commission Decision (D.) 09-12-044, Finding of Fact No. 14, at 93 (“The Garamendi Principles are statewide transmission siting policies that encourage the use of existing ROW by upgrading existing transmission facilities where technically feasible and economically justifiable.”).

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1 A. The CAISO submitted comments regarding the DEIR and the Phased Build Alternative
2 on September 22, 2015. The CAISO expressed concerns that the DEIR Phased Build
3 Alternative has not been adequately tested, may not meet the identified, immediate need
4 for the Proposed Project, and will inappropriately restrict future development of
5 renewable generation necessary to effectively and efficiently meet California's clean
6 energy goals.

7
8 The CAISO also raised a number of concerns regarding the methodology employed to
9 assess the adequacy of the Phased Build Alternative, specifically the fact that the DEIR
10 does not use the renewable portfolios developed by the Commission and used in the
11 CAISO's transmission planning process to analyze need for the project. Further, the
12 DEIR does not adequately explore issues associated with future expansion of the Phased
13 Build Alternative, including potentially adverse environmental impacts.

14
15 **Q. Please describe the actions taken since the CAISO submitted those comments and**
16 **your current view of the DEIR and the Phased Build Alternative.**

17
18 The CAISO has conducted additional technical analysis regarding the feasibility of the
19 Phased Build Alternative since submitting comments regarding the DEIR. This
20 additional technical analysis focused on the ability of the Phased Build Alternative to
21 provide deliverability for the Commission-developed renewable portfolios. The
22 CAISO's updated analysis using the correct assumptions and methodologies presented in
23 Dr. Zhu's testimony suggests that the Phased Build Alternative marginally provides
24 sufficient capacity to meet the immediate needs. However, the Phased Build Alternative
25 provides significantly reduced capacity compared to the Proposed Project for additional
26 renewable generation development—and any incremental capacity beyond the 33 percent
27 renewable generation portfolio is provided by reliance on Special Protection Systems.
28 This significantly increases the risk of needing to develop further transmission in the

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1 future, thereby resulting in an overall more expensive outcome with increased impacts,
2 including potential environmental impacts.

3
4 The CAISO has also reviewed the comments submitted by SCE regarding the feasibility
5 of the Phased Build Alternative.⁹ SCE's comments identify a number of significantly
6 higher cost and impact implications of the initial phase of the Phased Build Alternative¹⁰
7 indicating that the perceived cost, schedule, and environmental impacts attributed to the
8 Phased Build Alternative have been materially overstated. In addition to the issues
9 identified by SCE, the choice of conductor in the Phased Build Alternative results in a
10 significant increase in transmission line losses, as set out in Dr. Zhu's testimony. This
11 represents an economic cost and is inconsistent with state energy efficiency principles
12 and greenhouse gas reduction goals.

13
14 The CAISO also notes that the environmental and economic impact of later phases of the
15 Phased Build Alternative appear to have been largely discounted or ignored. This is a
16 serious concern, because there is a high risk that the Commission will be required to act
17 on those later phases in short order because of the limited capacity increase provided by
18 the first phase of the Phased Build Alternative. SCE's comments on the DEIR have
19 identified a number of the deficiencies associated with the DEIR's consideration of these
20 future impacts, including the expected requirement for significant construction outages.¹¹
21 It is difficult for the CAISO to definitely assess the impact of future construction outages
22 due to the lack of information in the DEIR about how this construction would be

⁹ See SCE's Letter to the Commission and the Bureau of Land Management dated September 22, 2015 re: Southern California Edison's Comments to the Draft Environmental Impact Report/Environmental Impact Statement for the West of Devers Upgrade Project.

¹⁰ Id. at p. 3 and p.18-21. ("This unsubstantiated conclusion in the DEIR/DEIS completely misses and understates the necessary project scope elements, design and engineering work, conductor procurement and testing efforts, and construction requirements needed to actually build the Phased Build Alternative. The DEIR/DEIS then errs by making an inapt comparison of the cost of the Phased Build Alternative to SCE's Proposed Project, as it does not consider the reduced capacity of the first phase of the Phased Build Alternative, as well as the cost of the next phase of the Phased Build Alternative.")

¹¹ Id. at pp.12-13.

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1 sequenced. However, the double-, triple- and potential quadruple-line outages that would
2 appear to be necessary to accommodate additional capacity under the Phased Build
3 Alternative would have significant effects on the ability of renewable generation projects
4 in the east of Devers area to deliver energy. This potentially could have significant
5 environmental effects, such as reduced capability for SCE to meet renewable portfolio
6 standards. Reducing energy delivery from renewable projects east of Devers would also
7 represent an economic loss that could affect generators or ratepayers depending on the
8 terms of the relevant power purchase agreements.

9
10 **VI. CONCLUSION**

11
12 **Q. Please summarize your recommendations.**

13 **A.** As explained in my testimony and the supporting technical testimony of Dr. Songzhe
14 Zhu, the Proposed Project is necessary to meet policy requirements of the State of
15 California. As a result, I recommend that the Commission approve the Application filed
16 SCE for a certificate of public convenience and necessity for the Proposed Project.

17
18 **Q. Does this conclude your testimony?**

19 **A.** Yes, it does.

APPENDIX A

*Memorandum of Understanding Between
the California Public Utilities Commission and the California Independent System Operator Corporation
Regarding the Revised Transmission Planning Process*

Memorandum of Understanding
Between
The California Public Utilities Commission (CPUC)
And
The California Independent System Operator (ISO)
Regarding
The Revised ISO Transmission Planning Process

The ISO has proposed revisions to its transmission planning process to enable the ISO to identify the transmission infrastructure needed to achieve certain state policy targets including, but not limited to, 33 percent renewable generation procurement by load serving entities by 2020.

The CPUC develops renewable generation portfolio scenarios as part of its Long Term Procurement Plan process that will assist the ISO in identifying transmission projects needed under various renewable generation location assumptions and developing a comprehensive transmission plan.

The CPUC and the ISO desire to work together to coordinate the ISO's revised transmission planning process and identification of needed transmission infrastructure with the CPUC's subsequent siting/permitting processes.

The revised ISO transmission planning process will provide opportunities for the ISO and the CPUC to coordinate the ISO's scenarios analysis and development of the ISO's comprehensive transmission plan with the CPUC's siting/permitting processes.

Accordingly, the CPUC and the ISO agree to the following:

1. The California Transmission Planning Group process, which is a major part of Phase 1 of the ISO transmission planning process, will develop an annual statewide conceptual transmission plan that will become the starting point for further review and analysis in Phase 2 of the ISO transmission planning process. The ISO and the CPUC will participate in the California Transmission Planning Group process to incorporate, to the extent practical, alternative planning scenarios that will enable that effort to identify an initial set of needed "least regrets" transmission facilities for consideration in TPP Phase 2.
2. In Phase 2 of the 2010-2011 cycle of the ISO transmission planning process, the ISO will consider and incorporate into its plan scenarios from the CPUC Long Term Procurement Plan process, to the maximum extent practical given the goal of identifying needed renewable access elements of the Phase 2 plan by December 2010. The CPUC will provide notice that Phase 2 of ISO transmission planning process will consider and incorporate these scenarios, and the subsequent CPUC siting/permitting process will then give substantial weight to project applications that are consistent with the ISO's final Phase 2 plan.
3. The CPUC and the ISO will review the results of the California Transmission Planning Group modeling phases and evaluate their implications for the transmission needs of the CPUC's Long Term Procurement Plan renewable resource scenarios. The ISO will subsequently seek, within the time and human resource constraints of Phase 2 of the

transmission planning process, to provide the CPUC and other stakeholders with a formal assessment of the transmission planning needs within the ISO balancing authority area for the Long Term Procurement Plan renewable resource scenarios.

4. CPUC and ISO will determine a process for subsequent cycles of the ISO transmission planning process, by which the ISO will formally assess scenarios provided by the CPUC. Provided the CPUC meets parameters agreed to by both parties with regards to the number, timing, and format of the scenarios, the ISO will provide CPUC and other stakeholders with a formal assessment of the transmission planning needs within the ISO balancing authority area for the CPUC-provided renewable resource scenarios.
5. For Phase 2 of the transmission planning process, the ISO will conduct a stakeholder process that complies with Order 890 of the Federal Energy Regulatory Commission (FERC) and allows meaningful public participation to ensure that appropriate study assumptions and scenarios are identified to support development of the final Phase 2 plan. Stakeholders will have opportunities to comment on published drafts of the Phase 2 plan, as well as on the final Phase 2 plan that will be submitted for approval to the ISO Board of Governors. The final Phase 2 plan for the ISO balancing authority area will reflect the ISO's consideration of all stakeholder comments and recommendations received during the planning process.
6. The final Phase 2 plan will identify specific needed transmission facilities, and will distinguish between Category 1 facilities which merit unconditional approval based on the concept of "least regrets," versus Category 2 facilities which may be needed depending on the course of future generation development.
7. The facility specifications in the final Phase 2 plan will provide sufficient detail to enable eligible parties to develop and submit, in Phase 3, proposals to build the Category 1 facilities, including construction schedules and detailed cost estimates. During the next annual cycle of the California Transmission Planning Group and ISO transmission planning processes, parties may suggest alternatives to the Category 2 facilities, and the ISO will re-evaluate these facilities and consider any submitted alternatives in developing the next annual transmission plan.
8. ISO participating transmission owners and other parties will have opportunities to build elements of the final Phase 2 plan that are not covered under transmission categories assigned to participating transmission owners to build under the ISO tariff. Parties may propose to build specific Category 1 facilities identified in the Phase 2 plan, or, for Category 2 facilities, may propose alternative elements to meet the same functional needs.
9. Proposals to build specific Category 1 transmission facilities that are identified in the final Phase 2 plan would proceed directly to the CPUC and/or other siting authorities for Certificate of Public Convenience and Necessity, California Environmental Quality Act and other siting/permitting requirements.
10. In cases where two or more proposals are submitted and found by the ISO to be technically acceptable for constructing the same Category 1 facility, the CPUC will choose, as needed, between two or more CPUC-jurisdictional proposals. In cases where two or more duplicative project proposals are all being considered by the same siting authority, the ISO will defer to the siting authority to choose between the projects. In cases where two or more duplicative project proposals are being considered by different siting authorities, the ISO will choose among the proposals based on objective criteria to be established.
11. The CPUC and ISO recognize that this Memorandum of Understanding is being

completed based on the ISO's revised transmission planning process proposal, which will be submitted to FERC in the near future, and which the subsequent FERC order could modify. If any FERC-ordered modifications substantively affect the terms of this Memorandum of Understanding, the CPUC and ISO will collaborate to develop appropriate revisions to the Memorandum of Understanding.

The CPUC and the ISO understand and agree to the terms of this Memorandum.

California Public Utilities Commission

By: Michael A. Peevey
Name: Michael Peevey
Title: Commission President

Date: 5-13-10

By: Paul Clanon
Name: Paul Clanon
Title: Executive Director

Date: 5-13-10

California Independent System Operator Corporation

By: Y. Mansour
Name: Yakout Mansour
Title: President and CEO

Date: 5-13/10