

Application No.: 11-05-023

Exhibit No.:

Witness: Jan Strack

Application of San Diego Gas & Electric Company
(U 902 E) for Authority to Enter into Purchase Power Tolling
Agreements with Escondido Energy Center, Pio Pico Energy
Center and Quail Brush Power.

A.11-05-023
(Filed May 19, 2011)

PREPARED SUPPLEMENTAL TESTIMONY OF

JAN STRACK

ON BEHALF OF

SAN DIEGO GAS & ELECTRIC COMPANY

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

April 27, 2012

1 there are relatively minor transmission upgrades that will eliminate the Encina LCR sub-area,
2 thereby removing any requirement for generation in the Encina area and allowing dependable
3 capacity added anywhere within the San Diego area to satisfy San Diego area LCRs.
4

5 **Q3: For purposes of determining the need for dependable generating capacity in the San**
6 **Diego area, what projections of Local Capacity Requirements (LCRs) should be used?**

7 **A3:** Mr. Anderson's testimony sets forth the LCR estimates that should be used to determine
8 the amount of dependable generating capacity that will need to be available in the San Diego
9 LCR area.
10

11 **Q4: Why are there two different LCR areas?**

12 **A4:** The CAISO defines an LCR area in terms of the minimum amount of dependable
13 generation that must be available within the area to serve all load within the area without
14 uncontrolled interruption in the event of (i) a one-year-in-ten weather condition, and (ii) critical
15 contingencies as set forth in the last column of Table 1 in the CAISO's January 30, 2012 "*2016*
16 *Local Capacity Technical Analysis, Report and Study Results.*" Many of the contingencies
17 described on Table 1 are not critical in the sense that the minimum amount of dependable
18 generation that must be available within the area to serve all load within the area would already
19 be provided by a more limiting contingency event.

20 CAISO witness Mr. Sparks' April 6, 2012 supplemental testimony indicates that the most
21 limiting contingency event for the San Diego area in year 2021 will be the outage of the 500 kV
22 Imperial Valley-Suncrest line followed by the outage of the 500 kV ECO-Miguel line (an N-1-1
23 contingency event). Witness Sparks' March 9, 2012 testimony indicates that the most limiting

1 contingency event for the Greater Imperial Valley-San Diego area in year 2021 will be the loss
2 of the 500 kV North Gila-Imperial Valley line with the Otay Mesa combined cycle plant out of
3 service (G-1/N-1). As long as there is enough dependable capacity within the LCR areas
4 established by these two contingency events, there will—according to Mr. Sparks’ testimony—
5 be enough dependable generation to serve all loads for any other contingency event covered by
6 Table 1 in the CAISO’s January 30, 2012 report.

7
8 **Q5: What LCR area is established by the outage of the 500 kV Imperial Valley-Suncrest**
9 **line followed by the outage of the 500 kV ECO-Miguel segment of the Southwest**
10 **Powerlink?**

11 **A5:** The outage of the 500 kV Imperial Valley-Suncrest line followed by the outage of the
12 500 kV ECO-Miguel line establishes the San Diego LCR area. The San Diego LCR area is
13 comprised of the load and generation located inside the electrical area whose boundary is the 230
14 kV Tijuana-Otay Mesa line and the five South of SONGS lines (Path 44).

15
16 **Q6: What LCR area is established by the outage of the 500 kV North Gila-Imperial**
17 **Valley segment of the Southwest Powerlink?**

18 **A6:** The outage of the 500 kV North Gila-Imperial Valley segment of the Southwest
19 Powerlink establishes the Greater Imperial Valley-San Diego LCR area. The Greater Imperial
20 Valley-San Diego LCR area is comprised of the load and generation inside the electrical area
21 whose boundary is the 230 kV El Centro-Imperial Valley line, the 230 kV Dixieland-Imperial
22 Valley line, the 230 kV La Rosita-Imperial Valley line, the 230 kV Tijuana-Otay Mesa line, and
23 the five South of SONGS lines (Path 44). Note that immediately following the outage the 500

1 kV North Gila-Imperial Valley line, any change in flows on the 230 kV Tijuana-Otay Mesa line
2 would, except possibly for incremental losses, be offset by a change in flows in the reverse
3 direction on the 230 kV La Rosita-Imperial Valley line.
4

5 **Q7: Can dependable generation within the San Diego LCR area be counted towards the**
6 **LCRs for both the San Diego LCR area and the Greater Imperial Valley-San Diego LCR**
7 **area?**

8 **A7:** Yes. Since the Greater Imperial Valley-San Diego LCR area subsumes all of the San
9 Diego LCR area, dependable generation within the San Diego LCR area counts towards the
10 LCRs for both the San Diego LCR area and the Greater Imperial Valley-San Diego LCR area.
11 However, the reverse is not true: Dependable generation that is within the Greater Imperial
12 Valley-San Diego LCR area but not within the San Diego LCR area (such as generation directly
13 connected to Imperial Valley substation), does not count towards the LCRs for the San Diego
14 LCR area.

15 Since SDG&E's Product 2 resources are within the San Diego LCR area, they also count
16 towards the Greater Imperial Valley-San Diego area LCRs.
17

18 **Q8: Do you agree with the testimony of CAISO witness Sparks as it pertains to the level**
19 **of local capacity requirements (LCR) in the Greater Imperial Valley-San Diego area?**

20 **A8:** Yes. Mr. Sparks' March 9, 2012 testimony indicates that depending on the renewable
21 resource portfolio evaluated, LCRs for the Greater Imperial Valley-San Diego area in year 2021
22 will range between 2968 MW and 3291 MW. If Encina units 1 through 5 are shut down prior to
23 December 31, 2017 – the date set by the State Water Resources Control Board (SWRCB) for

1 complying with its rules for generators using Once-Through-Cooling (OTC) technology – this
2 will reduce the Net Qualifying Capacity (NQC) available to meet LCR in the San Diego area by
3 approximately 950 MW. SDG&E’s Product 2 generating resources provide 450 MW of NQC
4 that will count toward these LCRs.

5
6 **Q9: Mr. Sparks’ April 6, 2012 testimony includes a table for year 2021 which lists an**
7 **“8000 Amp limit on P44,” a “7800 Amp limit on P44 (2.5% margin),” and “Voltage**
8 **Collapse (accounting for 2.5% margin)” as “Limiting Constraint[s].” What are the**
9 **relevant distinctions between these three “Limiting Constraint[s]?”**

10 **A9:** The “8000 Amp limit on P44” is the aggregate level of current flow on the five South of
11 SONGS lines (Path 44) at which the South of SONGS Separation Scheme operates. The South
12 of SONGS Separation Scheme was in place prior to the formation of the CAISO and was
13 intended to protect Southern California Edison (SCE)’s control area from adverse events in
14 SDG&E’s control area. When the aggregate current flow reaches 8000 Amps the five South of
15 SONGS lines are disconnected. Based on the CAISO’s analysis, aggregate current flow on the
16 five South of SONGS lines will be less than 8000 Amps for the loss of the 500 kV Imperial
17 Valley-Suncrest line followed by the loss of the 500 kV ECO-Miguel line (the N-1-1
18 contingency event), provided there is between 2,625 MW and 2,680 MW (depending on the
19 assumed renewable resource portfolio) of NQC producing power within the San Diego area. The
20 CAISO’s analysis assumed there would be no controlled load drop for the N-1-1 contingency
21 event.

22 The “7800 Amp limit on P44 (2.5% margin)” is simply the “8000 Amp limit on P44” less
23 2.5% (200 Amps) to provide a margin of reliability. This lower limit requires a higher level of

1 NQC in order that contingency-based current flows on the five South of SONGS lines do not
2 exceed 7800 Amps. The CAISO's analysis indicates between 2,691 MW and 2,735 MW of
3 NQC would need to be producing power within the San Diego area to ensure contingency-based
4 current flows on the five South of SONGS lines do not exceed 7800 Amps. As noted above, the
5 CAISO's analysis assumed there would be no controlled load drop for the N-1-1 contingency
6 event.

7 "Voltage Collapse (accounting for 2.5% margin)" reflects a condition where the
8 combined real and reactive power needs of the system cannot be met. These combined needs are
9 greatest under contingency conditions which impede the ability to efficiently transmit real and
10 reactive power from available sources to locations where real and reactive power are needed.

11 The North American Electric Reliability Corporation (NERC) and Western Electricity
12 Coordinating Council (WECC) reliability criteria require that the system be designed such that
13 for an N-1-1 contingency event there is a 2.5% margin of reliability before voltage collapse
14 occurs. Based on the CAISO's analysis, voltage collapse can be avoided with a 2.5% margin of
15 reliability for the loss of the 500 kV Imperial Valley-Suncrest line followed by the loss of the
16 500 kV ECO-Miguel line (the N-1-1 contingency event), provided there is between 2,524 MW
17 and 2,663 MW (depending on the assumed renewable resource portfolio) of NQC producing
18 power within the San Diego area. As noted above, the CAISO's analysis assumed there would
19 be no controlled load drop for the N-1-1 contingency event.

20 //

1 **Q10: Which of the three “Limiting Constraint[s]” should be used to establish Local**
2 **Capacity Requirements for the San Diego area?**

3 **A10:** I believe it is likely that the existing South of SONGS Separation Scheme will be
4 modified or eliminated such that it will not be the limiting constraint which sets LCRs for the
5 San Diego area. Discussions between SDG&E, the CAISO, and SCE are already taking place
6 with the objective of ensuring the SCE’s transmission system is adequately protected while
7 removing the South of SONGS Separation Scheme as a limiting constraint for purposes of
8 establishing LCRs in the San Diego area. Assuming these discussions are successful, the
9 “Limiting Constraint,” according to Mr. Sparks’ testimony, would be “Voltage Collapse
10 (accounting for 2.5% margin).”

11 However, it is still necessary to determine whether a G-1/N-1 contingency condition
12 would impose a higher LCR than the N-1-1 contingency event. Mr. Anderson’s testimony
13 indicates that the G-1/N-1 contingency condition does result in a higher LCR than Mr. Sparks’
14 testimony shows.

15
16 **Q11: What is the LCR for the San Diego area in year 2021?**

17 **A11:** Mr. Anderson’s testimony indicates that 3,026 MW of NQC will be needed in the San
18 Diego area. If Encina units 1 through 5 are shutdown prior to December 31, 2017 – the date set
19 by the SWRCB for complying with its rules for generators using OTC technology – this will
20 reduce the NQC available to meet LCR in the San Diego area by approximately 950 MW.

21 SDG&E’s Product 2 generating resources provide 450 MW of NQC that will count toward these
22 LCRs.

23 //

1 **Q12: Why does the G-1/N-1 contingency condition reflected in Mr. Anderson's testimony**
2 **result in a higher LCR than shown in Mr. Sparks' testimony?**

3 **A12:** There are two reasons. First, Mr. Anderson uses a higher forecast of load than Mr.
4 Sparks. Second, the G-1/N-1 reliability criteria requires acceptable system performance
5 assuming an outage of the largest generator within the LCR area. This means that there must be
6 enough dependable generation within the LCR area to survive the loss of the largest generator
7 (the Otay Mesa combined cycle plant) and not result in any violations of reliability criteria or
8 path ratings for the subsequent loss of the most critical transmission element (the 500 kV ECO-
9 Miguel line). In contrast, for the N-1-1 contingency event, it is only necessary to have enough
10 dependable generation within the LCR area to mitigate voltage collapse.

11 Studies conducted by SDG&E in connection with the Sunrise Powerlink proceeding
12 indicate that aggregate imports into the San Diego area with the Otay Mesa combined cycle plant
13 out of service can be at least 3,500 MW and it would still be possible to readjust the system and
14 survive the subsequent outage of the 500 kV Imperial Valley-Miguel line. (A 3,500 MW
15 simultaneous import level represents a 1000 MW increase above the 2,500 MW limit that exists
16 prior to the energization of the Sunrise Powerlink.) Mr. Anderson's testimony indicates that this
17 level of imports translates into a San Diego area LCR of 3,026 MW.

18
19 **Q13: Are there any substantive differences between the way SDG&E calculates LCRs for**
20 **the San Diego area and the way the CAISO calculates LCRs for the San Diego area?**

21 **A13:** Other than the fact that Mr. Anderson's testimony uses a G-1/N-1 contingency condition
22 to estimate LCRs for the San Diego area, and Mr. Sparks' testimony uses an N-1-1 contingency
23 condition, there are no substantive differences in the calculation of the LCRs. The CAISO runs a

1 series of power flow cases, using forecast one-year-in-ten peak load, culminating in a case in
2 which the combined post-contingency output of all generation within the San Diego LCR area is
3 sufficient to eliminate all reliability criteria violations associated with the most limiting
4 contingency condition (the N-1-1 contingency condition). This quantity of generation sets the
5 San Diego area LCR; i.e., the minimum amount of NQC that must be available within the San
6 Diego LCR area.

7 Mr. Anderson's testimony includes a table which calculates San Diego area LCRs by
8 subtracting post-contingency imports into the San Diego area (imports immediately following
9 the most limiting N-1 contingency) from forecast one-year-in-ten peak loads and then adding the
10 NQC of the largest generator within the area (the G-1 generating capacity). Mr. Anderson used
11 the post-contingency import into the San Diego area that was determined for the Sunrise
12 Powerlink Certificate of Public Convenience and Necessity (CPCN) proceeding at the California
13 Public Utilities Commission (CPUC). This post-contingency import was determined by SDG&E
14 from a series of power flow cases using forecast one-year-in-ten peak load and assuming the
15 Otay Mesa combined cycle plant was off-line, culminating in a case which eliminated all
16 reliability criteria violations associated with the most limiting contingency (the N-1 contingency
17 condition).

18 Note that the difference between (i) load in the San Diego LCR area, and (ii) imports into
19 the San Diego LCR area, is, by definition, exactly equal to the combined output of all generation
20 within the San Diego LCR area. So, whether LCRs are calculated by summing the post-
21 contingency output of all San Diego area generators in the power flow case as the CAISO did, or
22 by subtracting the post-contingency imports into the San Diego area in the power flow case from
23 forecast peak load as SDG&E did, the calculation of LCRs is effectively the same. Both

1 calculation approaches rely on power flow analysis to arrive at a case that eliminates all
2 contingency-based reliability criteria violations.

3
4 **Q14: Mr. Sparks' March 9, 2012 testimony asserts that the CAISO's 2016 LCR study**
5 **identifies a 150 MW LCR for the Encina sub-area. Do you agree with this finding?**

6 **A14:** I agree that, absent mitigation, there can be a reliability standard violation for the outage
7 of the Encina 230/138 kV transformer followed by the loss of the 138 kV Sycamore Canyon-
8 Santee line. This violation is a thermal overload of the 138 kV Sycamore Canyon-Santee line.
9 According to Mr. Sparks, 150 MW of generation in the Encina area would mitigate this overload
10 in year 2016 because injecting power in the Encina area reduces flows on the 138 kV Sycamore
11 Canyon-Santee line. For the condition where Encina units 1-5 are shut down, SDG&E's studies
12 also identify this thermal overload and I agree that generation in the Encina area would mitigate
13 the overload. However, as Mr. Sparks' testimony acknowledges at page 5, SDG&E has already
14 proposed a reconductor project that would mitigate the overload and eliminate the Encina sub-
15 area altogether. SDG&E anticipates that this reconductoring work will be completed in the
16 2014-2015 time-frame.

17
18 **Q15: In SDG&E's comments on the CAISO's draft 2011-2012 transmission plan, SDG&E**
19 **indicated that the reconductor project would increase the thermal rating of the existing line**
20 **by 70 MW. How does this 70 MW increase in thermal line rating eliminate the Encina sub-**
21 **area considering that the CAISO's studies indicate that it would take 150 MW of**
22 **generation at or near Encina to satisfy the Encina sub-area LCR?**

1 **A15:** Because there are multiple transmission lines connecting into the Encina area, generation
2 at Encina divides across these multiple lines according to the relative impedance of each line.
3 This means that for every megawatt of thermal overload on the 138 kV Sycamore Canyon-
4 Santee line, it takes more than a megawatt of generation in the Encina area to eliminate the
5 overload. In contrast, raising the thermal rating of the 138 kV Sycamore Canyon-Santee line
6 through the reconductor project removes the thermal overload on a megawatt-for-megawatt
7 basis. Thus, the 70 MW increase in thermal line rating is as effective as 150 MW of generation
8 in the Encina area in eliminating the overload of the 138 kV Sycamore Canyon-Santee line.
9

10 **Q16: What is the significance of the reconductor project to the need for SDG&E's**
11 **Product 2 resources?**

12 **A16:** If the reconductor project is implemented, San Diego area LCRs could be met by NQC
13 located anywhere within the San Diego area, including the three locations of SDG&E's Product
14 2 resources. As noted above, and as documented in reports issued by the CAISO, SDG&E's
15 Product 2 generation will be fully deliverable without any obligation to fund significant network
16 upgrades. Because these resources will be fully deliverable, they will count towards San Diego
17 area LCRs as well as towards Greater Imperial Valley-San Diego area LCRs.
18

19 **Q17: Assuming the reconductor project is implemented, are the proposed Product 2**
20 **resources "electrically equivalent" to generation situated at the location of the existing**
21 **Encina plants?**

22 **A17:** Yes. The CAISO Board-approved March 31, 2012 "*2011-2012 Transmission Plan*"
23 demonstrates that SDG&E's Product 2 resources are electrically equivalent to generation at

1 Encina for purposes of meeting local capacity requirements; i.e., Table 3.3-44 shows 100% of
2 SDG&E's Product 2 resources being counted towards LCRs in the San Diego LCR area and
3 towards LCRs in the Greater Imperial Valley-San Diego LCR area.

4 If the reconductor project were not implemented, then some of this NQC would have to
5 be located at, or electrically close to, the Encina generating station.

6
7 **Q18: How much is the reconductor project estimated to cost?**

8 **A18:** Implementation of this reconductor involves modifications to an already-approved
9 transmission expansion project. These modifications would add about \$1 million to the cost of
10 the already-approved project. The levelized annual revenue requirements associated with this
11 \$1 million would be roughly \$150,000 per year.

12
13 **Q19: How does this revenue requirement compare to costs San Diego area consumers
14 would pay were the CAISO to exercise its back-stop procurement authority to maintain
15 enough existing generation at Encina to satisfy the Encina sub-area LCR?**

16 **A19:** At \$70.88/kW-year -- the FERC-approved rate for back-stop generation capacity -- San
17 Diego area consumers would pay \$10.6 million per year to ensure 150 MW of generation
18 capacity were available at the existing Encina generating station. Note that under the CAISO
19 tariff, the CAISO has the ability to prevent generation from retiring if the CAISO finds that the
20 generation is needed to ensure grid reliability.

21 //

1 **Q20: Mr. Rothleder’s March 9, 2012 testimony in this proceeding states that**

2 **“...the Commission should authorize SDG&E...to procure sufficient**
3 **flexible resources to meet [the] local need.”**

4 **Would SDG&E’s Product 2 resources provide “flexible resources” as discussed in**
5 **Mr. Rothleder’s testimony?**

6 **A20:** Yes. According to the CAISO’s January 27, 2012 *“Flexible Capacity Procurement,*
7 *Market and Infrastructure Policy Issue Paper,”* the CAISO has proposed to define the following
8 three flexible requirement categories: “maximum ramping,” “load following,” and “regulation.”
9 SDG&E’s Product 2 generators can be started very quickly and are dispatchable at any level of
10 output between the units’ minimum output level and full capacity. They would therefore meet
11 the requirements for “maximum ramping” and “load following.” In addition the Pio Pico and
12 Quail Brush generators will be configured to respond to Automatic Generation Control (AGC)
13 signals and on that basis meet the “regulation” requirement. The Product 2 generators are ideally
14 suited for the integration of intermittent renewable resources. By way of comparison, a proposed
15 repower at the Encina Power Station would not be a far better means of supporting the
16 integration of intermittent renewable resources; in fact, in this regard, SDG&E’s Product 2
17 generators are effectively equivalent to the proposed repower at the Encina Power Station.

18 Mr. Rothleder’s basic point is that where new generation capacity is added to the system
19 to satisfy LCRs, it would be desirable for such capacity to have “flexible” operating attributes in
20 order to support the integration of intermittent renewable generation. Because SDG&E’s
21 Product 2 generation will (i) count towards local capacity requirements, and (ii) respond to
22 CAISO dispatch instructions in real-time, it is exactly the type of new generating capacity that
23 Mr. Rothleder recommends the CPUC authorize SDG&E to procure.

1 **Q21: What is the purpose of the Cluster 1 and 2 generator interconnection studies**
2 **conducted by the CAISO pursuant to the Generation Interconnection Procedures (GIP)?**

3 **A21:** The Phase I and Phase II Cluster 1 and 2 generator interconnection studies conducted by
4 the CAISO are designed to identify the transmission facilities needed for generators in Cluster 1
5 and 2 to (i) reliably connect to the existing grid, and (ii) reliably deliver their full output of the
6 project during system conditions in which existing generators in the area and other
7 interconnecting generators in the area with an equal or higher interconnection queue positions
8 (i.e., the serial queue, transition cluster and Clusters 1 and 2) are assumed to be operating at high
9 output levels. New network transmission facilities that allow generators to reliably connect to
10 the existing grid are known as Reliability Network Upgrades. New network transmission
11 facilities that allow generators to reliably deliver their full output when other generators in the
12 area are also operating at high levels are known as Delivery Network Upgrades. A Delivery
13 Network Upgrade provides an interconnecting generator with “deliverability” which means the
14 capacity of the generator can be counted towards CAISO load serving entities’ system RA
15 requirements and LCRs.

16 After a generating project has gone through the interconnection study process, the results
17 of the final report are used to establish the obligations in an Interconnection Agreement to fund
18 and construct the identified transmission upgrades. The Interconnection Agreement is a three
19 party agreement between the generator, the CAISO and the transmission owner.

20 //

1 **Q22: Mr. Sparks’ March 9, 2012 testimony describes at pages 10-12 the results of a**
2 **“deliverability sensitivity assessment” conducted by the CAISO. According to Mr. Sparks**
3 **“the sensitivity study found that the addition of this generation [SDG&E’s Product 2**
4 **resources] creates N-0 and N-1 violations...” The reliability standard violations were**
5 **mitigated by:**

- 6 • **A reconfiguration project to reconfigure the 230 kV Otay Mesa-**
7 **Miguel Tap-Sycamore Canyon line and the 230 kV Otay Mesa-**
8 **Miguel line,**
- 9 • **A modification of the existing Otay Mesa Special Protection Scheme**
10 **(SPS) to include generator tripping for N-1 outages of the 230 kV**
11 **Otay Mesa-Miguel line,**
- 12 • **Stringing additional conductor on the currently empty side of the 230**
13 **kV double circuit tower line between Bay Boulevard and Miguel**
14 **substations,**
- 15 • **Reconductoring the 230 kV Old Town-Penasquitos line or**
16 **reconfiguring the 230 kV Old Town-Penasquitos line and 230 kV**
17 **Silvergate-Old Town-Mission line,**
- 18 • **Reconductoring the 138 kV Chicarita-Sycamore Canyon line,**
- 19 • **Revising the scope of the already-approved reconductor of the 69 kV**
20 **Pomerado-Poway line to increase the line’s rating from 174 MVA to**
21 **180 MVA,**
- 22 • **Mitigating overloads on the 69 kV Poway-Rancho Carmel line and**
23 **the 69 kV Bernardo-Rancho Carmel line, and**

- **Reconductoring the 230 kV Slivergate-Old Town line or installing an SPS to trip generation.**

What are the results of the Product 2 generation interconnection studies that are specifically designed to determine the transmission needed for a generation project to reliably connect to the grid and to be considered deliverable?

A22: The Cluster 1 and 2 Phase II interconnection studies determined that only the reconfiguration of the taps on the 230 kV Otay Mesa-Miguel Tap-Sycamore Canyon line and the 230 kV Otay Mesa-Miguel line are needed for the Product 2 resources to be fully deliverable, i.e., to count towards the San Diego area LCRs and the Greater Imperial Valley-San Diego area LCRs. None of the other transmission upgrades are needed.

Q23: How does the CAISO's sensitivity assessment differ from the Cluster 1 and 2 Phase II interconnection studies already performed?

A23: The sensitivity assessment conducted by the CAISO for year 2021 includes the Product 2 resources and dispatches a total of 3,200 MW of generation within the Imperial Irrigation District (IID) Balancing Authority Area. This is approximately 2,000 MW more than was dispatched within the IID Balancing Authority Area in the year 2014 Cluster 1 and 2 Phase II studies. In addition, the sensitivity assessment used a one-year-in-ten load forecast for year 2021 versus a one-year-in-five load forecast for the year 2014 Cluster 1 and 2 Phase II deliverability studies. Given the large amount of generation in the IID Balancing Authority Area and the higher level of forecast load, a significant portion of the output from generation in the IID Balancing Authority Area flows on the San Diego area transmission grid and, in combination with the output of SDG&E's Product 2 resources, results in reliability criteria violations that are

1 mitigated with the transmission upgrades identified in Mr. Sparks' March 9, 2012 testimony.
2 Because the Cluster 1 and 2 Phase II deliverability studies dispatched a much lower amount of
3 generation within the IID Balancing Authority Area and used a lower level of forecast load, the
4 reconfiguration of the taps on the 230 kV Otay Mesa-Miguel Tap-Sycamore Canyon line and the
5 230 kV Otay Mesa-Miguel line is the only transmission modification needed to mitigate
6 identified reliability criteria violations and provide for full deliverability.

7
8 **Q24: Assuming, for the sake of argument, that a restudy of generation in Cluster 1 and 2**
9 **were performed using the same assumptions as the CAISO's sensitivity assessment, would**
10 **it be appropriate to conclude that SDG&E's Product 2 resources "create[]" the reliability**
11 **criteria violations?**

12 **A24:** No. Given the assumptions of the CAISO's sensitivity assessment it is clear that the
13 dispatch of 2,000 MW of additional generation in the IID Balancing Authority Area is a major
14 cause of the identified reliability criteria violations. It is the combined impact of the Product 2
15 resources and the additional generation in the IID Balancing Authority Area that "creates" the
16 identified reliability criteria violations. It would not be appropriate to conclude that it is
17 SDG&E's Product 2 resources that "create[]" the reliability criteria violations.

18 //

1 **Q25: In summary, is there any basis in the CAISO Board-approved 2011-2012**
2 **Transmission Plan, or any other reason, that the three proposed Product 2 generators will**
3 **not contribute toward San Diego area LCRs?**

4 **A25:** No. The Product 2 resources provide dependable capacity that will count towards
5 resource adequacy and local capacity requirements, and further, will facilitate compliance with
6 the SWRCB’s requirements for generators that currently use ocean water for cooling (“Once-
7 Through-Cooling”). SDG&E’s and the CAISO’s analyses support a Commission determination
8 that SDG&E’s contracts with the Product 2 generators are needed.

9

10 **Q26: Does this conclude your testimony.**

11 **A26:** Yes.

12

1 **QUALIFICATIONS**

2 Jan Strack has worked for the San Diego Gas & Electric Company (SDG&E) since 1985
3 and is currently a manager in the Transmission Planning department. For the last two years he
4 has supported the work of the California Transmission Planning Group. Mr. Strack was
5 SDG&E's economic witness in the Sunrise Powerlink licensing proceeding before the California
6 Public Utilities Commission. He participated in the industry restructuring effort during the mid-
7 1990's and assisted in the conceptual design of the California Independent System Operator and
8 California Power Exchange organizations. Mr. Strack has also worked in the FERC Regulatory
9 Affairs, System Operations, and Generation Planning departments. Prior to joining SDG&E, he
10 worked for six years at the Southern California Edison Company in load forecasting, system
11 planning and system operations positions. Mr. Strack holds a Bachelors of Science degree in
12 electrical engineering from the University of Illinois.