

Application No.: 11-05-023

Exhibit No.: _____

Witness: Robert Anderson

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

ROBERT ANDERSON

ON BEHALF OF

SAN DIEGO GAS & ELECTRIC COMPANY

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

April 27, 2012

1 **Q2: Does SDG&E still believe there is a need for new, additional generation capacity to**
2 **meet local capacity requirements in its service area?**

3 **A2:** Yes. As is shown in my testimony below, and further explained in the testimony of
4 SDG&E Witness Strack, SDG&E has found a need for a substantial amount of new generation, a
5 portion of which can be provided via these PPTAs.

6
7 **Q3: Does SDG&E agree with the CAISO’s recent testimony in this proceeding regarding**
8 **SDG&E’s need for additional, local resources?**

9 **A3:** Yes, in general. The CAISO’s main conclusion on “need” is that the San Diego area
10 needs a significant amount of new, flexible-ramping generation. The generation from the PPTAs
11 proposed in SDG&E’s Application will meet at least a large portion of this need by helping to
12 achieve the important objectives of serving the local reliability needs in the San Diego area,
13 providing the flexibility that the CAISO needs to integrate renewable power. SDG&E and the
14 CAISO share in these important goals.

15
16 **Q4: SDG&E requested a need authorization of 415 MW of capacity in R.10-05-006 and**
17 **450 MW of local, gas-fired capacity through three PPTAs in A.11-05-023. Please explain**
18 **the difference between these two numbers.**

19 **A4:** The three PPTAs that are the subject of this Application have a total capacity of 450
20 MW.¹ This total is made up of the 305 MW Pio Pico Energy Center, the 100 MW Quail Brush
21 Generation Projects, and the 45 MW Wellhead Escondido Energy Center. The Wellhead
22 Escondido contract will facilitate the repowering of an existing 35 MW plant and thus result in

¹ The capacity values shown here are the nominal plant sizes. The final “net qualifying capacity “(NQC) that the units will provide will be determined by testing at completion of the plants and could vary slightly from these values. For this filing, we are assuming the total NQC of all three will be 450 MW.

1 only 10 MW of incremental local capacity. So, in total, these PPTAs will add 415 MW of
2 incremental capacity to serve the San Diego Local Capacity area.² In this proceeding, we are
3 showing the retirement of the existing Wellhead Escondido capacity as part of the need
4 determination to eliminate any confusion that having two separate numbers could cause.

5
6 **Q5: Has SDG&E done a recent analysis to verify its previously stated need for the**
7 **proposed PPTAs?**

8 **A5:** Yes. Due to the passage of time, and because the Joint Assigned Commissioners' Ruling
9 moved the need determination to this proceeding,³ SDG&E has updated its need showing for
10 these units in this testimony. As indicated below, the major update involves the inclusion of the
11 latest California Energy Commission (CEC) load forecast. Also, this testimony identifies the
12 components of the "need" determination and fully explains the data sources used to calculate the
13 need for local resources.

14
15 **Q6: Please explain the results of the updated analysis.**

16 **A6:** The current need for additional local capacity in the SDG&E area is demonstrated in
17 Table 1 below. The San Diego-area need calculation determines how much additional
18 generation capacity must be obtained to meet grid planning criteria under N-1/G-1 conditions.
19 This criterion is explained in the testimony of SDG&E Witness Strack.

² In R.10-05-006, the retirement of the existing 35 MW plant was not included in the need calculation. In this Application, the retirement is being shown to calculate the need so the total capacity can be directly compared to the need.

³In addition, the Assigned Commissioner's Amended Scoping Memo and Ruled, dated March 12, 2012, indicated that the planning horizon for this proceeding covers the years from 2011 to 2020 and is to consider the CAISO's 2011-12 transmission plan. My testimony addresses the need for the 2011 to 2021 planning horizon; SDG&E Witness Strack's testimony addresses aspects of the CAISO's 2011-12 transmission plan that are pertinent to this proceeding. SDG&E included 2021 data since the CAISO's testimony presented a need in 2021.

1 As shown in Table 1, below, there will be a need for 1050 MW of new resources in
2 SDG&E's service area by 2020. The first year of need, depicted in Table 1, is 2017. SDG&E's
3 assumptions show that 403 MW of the 2020 need might be met by uncommitted energy
4 efficiency, demand response programs, and new renewable or combined heat and power
5 resources. After considering these resources, there is still a remaining need of 647 MW for
6 2020.

7 When factoring in uncommitted energy efficiency, demand response programs, and new
8 renewable heat and power resources, it may be possible – although it is presently far from certain
9 – that these types of resources could push the need for new generation out one year to 2018.
10 However, in that case, to be fully available to serve load in 2018, the generating units would
11 need to be online no later than 2017.

12 //

1

Table 1

	Year								
Peak Load Calculations (MW):	2013	2014	2015	2016	2017	2018	2019	2020	2021
Forecast Peak-Hour 1-in-2	4682	4752	4839	4934	5038	5135	5231	5323	5413
Forecast Peak-Hour 1-in-10	5112	5199	5294	5398	5511	5617	5723	5824	5922
Transmission Capability	3500	3500	3500	3500	3500	3500	3500	3500	3500
Generation Contingency	604	604	604	604	604	604	604	604	604
Losses (+)	0	0	0	0	0	0	0	0	0
Local Resource Need	2216	2303	2398	2502	2615	2721	2827	2928	3026
Existing Local Supply Resources	1894	1894	1894	1894	1894	1894	1894	1894	1894
Existing OTC	960	960	960	960	960	960	960	960	960
Small Hydro	4	4	4	4	4	4	4	4	4
Pumped Hydro	40	40	40	40	40	40	40	40	40
Existing CHP	137	137	137	137	137	137	137	137	137
Local Renewable Energy	26	26	26	26	26	26	26	26	26
Total: Existing Capacity	3061	3061	3061	3061	3061	3061	3061	3061	3061
OTC Retirement	0	320	320	320	320	960	960	960	960
Other Retirements	35	223	223	223	223	223	223	223	223
Net Local Capacity	3026	2518	2518	2518	2518	1878	1878	1878	1878
Capacity (Need) or Surplus	810	215	120	16	(97)	(843)	(949)	(1050)	(1148)
Proposed Resources									
RPS in service area	0	16	16	16	16	16	16	16	16
Additional Demand Side CHP	2	3	5	7	12	14	16	17	17
Uncommitted EE	17	34	52	71	90	111	131	151	175
Demand Response	196	205	208	210	212	214	217	219	219
Total Assumed Additions	215	258	281	304	330	355	380	403	427
Capacity (Need) or Surplus	1025	473	401	320	233	(488)	(569)	(647)	(721)

2

3 **Q7: Please explain the sources used to develop Table 1.**

4 **A7:** SDG&E used the following sources of data to develop its “need” analysis. For each line
5 in the table, the source of the data is described below. For those data that have been updated
6 from prior testimony, they are pointed out.

7 The first group of data is used to calculate the San Diego local area need.

- 1 • **Forecast Peak Hour 1 in 2:** The Forecasted Peak Hour 1 in 2 load forecast was obtained
2 from the “mid energy demand scenario” appearing in the CEC Staff’s Revised California
3 Energy Demand Forecast 2012-2022, released by the CEC in February, 2012.⁴ This
4 forecast was developed as part of the CEC’s 2011 Integrated Energy Policy Report
5 (IEPR) process and is being finalized as part of the CEC’s 2012 IEPR process. This
6 forecast updates data previously used by SDG&E. Although this forecast has not been
7 formally adopted by the CEC at this time, SDG&E recommends that the Commission
8 make use of this forecast since the Commission has historically relied on the CEC for the
9 load forecasting used in resource planning. The final forecast is expected to be adopted
10 by the CEC at its June 2012 meeting, at which time the record to this proceeding will still
11 be open. Although the final forecast may vary slightly from this, SDG&E does not
12 expect it to change significantly. The new CEC load forecast is now showing an
13 expected 1 in 2 peak load before uncommitted energy efficiency of 5,323 MW in 2020.
14 Previously, SDG&E used a 1 in 2 forecast of 5099 MW.
- 15 • **Forecast Peak Hour 1 in 10:** This line is from the same CEC forecast as mentioned
16 above and is being updated from our previous showing. The 1 in 10 load forecast is the
17 one used by the CAISO to determine local capacity requirements. The new 1 in 10 load
18 forecast is 5824 MW in 2020 as compared to SDG&E’s previous forecast of 5609 MW.
- 19 • **Transmission Capability:** This value is the amount of power that can be imported into
20 SDG&E’s system after the loss of the single largest transmission line, as explained in the
21 testimony of SDG&E Witness Strack. This value is unchanged from SDG&E’s previous
22 need analysis.

⁴ This forecast can be found at http://www.energy.ca.gov/2012_energypolicy/documents/index.html

- 1 • **Generation Contingency:** This line represents the capacity lost from the single largest
2 generator outage in SDG&E’s system. This value is the generation outage for the N-1/G-
3 1 criteria explained by SDG&E Witness Strack, and it is unchanged from our previous
4 need analysis.
- 5 • **Losses:** The amount of losses will vary with each possible generation dispatch scenario
6 and should only be added to the extent they are not already captured in the load forecasts
7 used above. However, since the peak load forecast does include losses, SDG&E has not
8 included any additional losses in this table. This value has been updated from our
9 previous analysis in which a small amount of incremental losses were added.
- 10 • **Local Resource Need:** This is calculated using the 1 in 10 peak hour load minus the
11 transmission capability plus the generation contingency plus losses. This value has been
12 updated since loads and losses were updated.

13 The next group of data is used to calculate the existing resources that are expected to be
14 available to meet the need and a calculation to determine if a surplus or deficit of generating
15 capacity, i.e., a “need” for additional generating capacity, exists.

- 16 • **Existing Local Supply:** This is the existing local capacity not specifically shown in the
17 lines below. The value is based on the NQC rating of the units used in the 2010 Long
18 Term Procurement Planning (LTPP) Process.⁵ This value is unchanged from our
19 previous analysis.

⁵ The NQC’s can change from year to year, mainly for renewable and Qualified Facilities (CHP). However, for most plants they remain the same. The 2010 LTPP NQC’s do not match all the current rating but SDG&E continued to use the 2010 LTPP values for consistency.

- 1 • **Existing OTC:** This is NQC capacity for the Encina Power Plant, the only remaining
2 plant in SDG&E’s service area that uses OTC technology. The value used is the same as
3 was provided in the 2010 LTPP Process. This value is unchanged from our previous
4 analysis.
- 5 • **Small Hydro:** This is the NQC for several small pipeline hydro projects located in
6 SDG&E’s service area. The value used is the same as was provided in the 2010 LTPP
7 Process. This is unchanged from our previous analysis.
- 8 • **Pumped Hydro:** This is the NQC from a pumped hydro plant located in SDG&E’s
9 service area. The value used is the same as was provided in the 2010 LTPP Process. The
10 LTPP process called this a “Known High Probability” addition. This is unchanged from
11 our previous analysis.
- 12 • **Existing CHP:** This is NQC capacity associated with existing CHP facilities in
13 SDG&E’s service area. This line assumes that about 90 MW of the existing CHP
14 capacity will continue to operate after the end of their current contracts in 2019, even
15 though there is no agreement to do so. The value used is 1 MW greater than what was
16 included in the 2010 LTPP assumptions. This is unchanged from our previous analysis.
- 17 • **Local Renewable Capacity:** This is the capacity from existing local renewable projects.
18 Even though SDG&E does not have contracts for all this capacity for the entire time
19 period shown, this table assumes the facilities will continue to operate over the entire
20 planning period. The NQC is 5 MW higher than the values in the 2010 LTPP
21 assumptions. This is unchanged from our previous analysis.
- 22 • **Total Existing Capacity:** This is a summary of the current local resources listed above.
23 This value is unchanged from our previous analysis.

- 1 • **OTC Retirements:** This is capacity that is subject to the State Water Resources Control
2 Board (SWRCB) policy on the use of OTC, and thus is at risk of retirement by the
3 compliance date of December 31, 2017. The total is the NQC capacity for the Encina
4 Power Plant, the only remaining plant in SDG&E's service area that uses OTC
5 technology. SDG&E has shown a gradual shutdown in this table, however, the full
6 capacity may be available till the compliance date. This is unchanged from our previous
7 analysis.
- 8 • **Other Retirements:** This line includes the retirement of the existing 35 MW unit at the
9 Wellhead Escondido site in 2012 and the retirement of 188 MW of existing peakers at the
10 end of 2013 when their land leases end. The 188 MW are older combustion turbines that
11 were built in the early 1970's. They have heat rates of approximately 16,000 BTU/kwhr
12 and limited operating hours. This is unchanged from our previous analysis.
- 13 • **Net Local Capacity:** This value is calculated using the Total Existing Capacity minus
14 retirements. This value is unchanged from our previous analysis.
- 15 • **Capacity Need or Surplus:** This is the difference between the Local Resource Need and
16 Net Local Capacity. This value has been updated since the need changed.

17 The following are the sources that have a high probability of being available to meet the
18 identified need.

- 19 • **Additional Demand Side CHP:** This includes additional demand side resources that
20 may be added in the San Diego area. There remains substantial uncertainty as to how
21 much new behind-the-meter CHP may develop in SDG&E's service area between now
22 and 2020. Based on a review of past CEC studies, SDG&E developed an estimate and
23 used historical data from existing customer-side generation applications to develop a

1 forecast of the capacity expected at the time of the peak, which resulted in a 17 MW
2 reduction in peak demand in 2020. This value is unchanged from our previous analysis.

3 • **Additional Local Renewable Capacity:** This value is for a new solar renewable project
4 that SDG&E believes has a high probability of coming on line will be fully deliverable
5 during the N-1/G-1 conditions and thus meet local resource needs. This project has an
6 approved PPA and should begin construction shortly. This has been updated from our
7 previous analysis.

8 • **Uncommitted Energy Efficiency:** The CEC's Revised California Energy Demand
9 Forecast 2012-2022, released by the CEC in February, 2012 did not include a forecast of
10 potential uncommitted energy efficiency (EE). The report noted that the CEC staff will
11 work on this in 2012. Thus, SDG&E worked from the Uncommitted EE included in the
12 CEC Preliminary Energy Demand Forecast 2012-2022, DRAFT Staff Report, August
13 2011, CEC-200-2001-011-SD.⁶ SDG&E used the CEC's forecast for uncommitted EE in
14 the low savings scenario. SDG&E used the low saving scenario case since for grid
15 planning SDG&E believes only high probability additions should be assumed. However,
16 SDG&E cannot confirm that the assumed capacity would meet the requirements of Public
17 Utilities Code § 454.5 which makes clear that the IOUs' procurement plans should
18 include only those energy efficiency resources “. . . that are ***cost effective, reliable and***
19 ***feasible.***⁷

20 • **Demand Response:** This forecast is consistent with the forecast filed in SDG&E's
21 Application for Approval for Demand Response (DR) Programs and Budgets for the
22 Years 2012-2014 filed on March 1, 2011, amended May 27, 2011 (A.11-03-002). The

⁶ The report can be found at <http://www.energy.ca.gov/2011publications/CEC-200-2011-011/CEC-200-2011-011-SD.pdf>

⁷ Pub. Util. Code § 454.5(b)(9)(C) (emphasis added).

1 DR amounts were increased for avoided losses. The Commission approved SDG&E's
2 programs in this application in D.12-04-045 on April 19, 2012. This is unchanged from
3 our previous analysis.

- 4 • **Total Assumed Additions:** This figure represents the sum of the four additions
5 described above.
- 6 • **Remaining Capacity (Need) or Surplus:** This is the remaining need after subtracting
7 the Total Assumed Additions from the Capacity Need or surplus calculated above.

8
9 **Q8: Given that Table 1 shows a need for additional resources beginning in 2018, and**
10 **with proposed Commercial Operating Dates in 2014 for the proposed projects, what is the**
11 **reason for moving forward on the application at this time?**

12 **A8:** As was stated in the testimony attached to our original Application, the Commission has
13 directed SDG&E not to engage in "just in time" procurement in meeting its local resource needs.
14 Also, the Commission specifically ordered SDG&E to make sure that we have adequate
15 procedures in place so that we do not find ourselves in a reliability crisis and cannot follow the
16 preferred procurement protocols. Plus, SDG&E's recent experience has been that new
17 generation tends to come on line at least a year later than what was forecast when those
18 purchase power agreements were signed. Given the criticality of ensuring resource adequacy,
19 SDG&E found it necessary to move ahead at this time. Finally, as discussed below, the timing
20 of the retirement of the Encina OTC units could significantly impact the timing of needed
21 capacity additions. All of these reasons, including the planning uncertainties noted in my prior
22 testimony in this proceeding, are evidence in favor of moving forward now – without delay --
23 with the approval for these resources as requested in SDG&E's Application.

1 **Q9: Does SDG&E have further views about the Once-Through-Cooling (“OTC”) issues**
2 **and their connection to this proceeding?**

3 **A9:** The 960 MW Encina Power Plant, the last remaining OTC plant in SDG&E’s local area,
4 has been slated by the State Water Resources Control Board (SWRCB) to comply with its
5 mandates by December 31, 2017. Its ability to do so is uncertain at this time. However, if this
6 aging plant is unable to comply, then it will not retire by that date unless more new, locally
7 sourced generation is approved, built, and online. Without the addition of new local capacity,
8 the State will have no choice but to continue to rely on Encina to meet local needs regardless of
9 its ability to comply with the SWRCB policy. The three subject PPTAs would enable those
10 aging plants to retire and, at the same time, provide the San Diego service area with adequate
11 generation resources. If the plant, or a portion of the plant, remains in service, it would be able to
12 compete for contracts to meet uncontracted San Diego LCR needs, Greater Imperial Valley –
13 San Diego LCR needs or system resource adequacy needs.

14
15 **Q10: Does this conclude your testimony?**

16 **A10:** Yes.
17

1 **QUALIFICATIONS**

2 My name is Robert B. Anderson. My business address is 8330 Century Park Court, San
3 Diego, California, 92123.

4 I am employed by San Diego Gas & Electric Company as Director - Resource Planning.
5 My responsibilities mainly include electric resource planning. I have been employed by SDG&E
6 since 1980, and have held a variety of positions in resource planning, corporate planning, power
7 plant management, and gas planning and operations.

8 I have a BS in Mechanical Engineering and a MBA - Finance. I am a registered
9 professional engineer in Mechanical Engineering in California.

10 I have previously testified before this Commission.