

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

Application of San Diego Gas & Electric  
Company (U902E) for Authority to Partially  
Fill the Local Capacity Requirement Need  
Identified in D.14-03-004 and Enter into a  
Purchase Power Tolling Agreement with  
Carlsbad Energy Center, LLC.

Application 14-07-009  
(Filed July 21, 2014)

**OPENING BRIEF OF THE  
CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION**

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**I. Introduction**

In the September 12, 2013 Assigned Commissioner’s Scoping Memo and Ruling (ACR), the Commissioner established the relevant issues and procedural schedule for San Diego Gas & Electric Company’s (SDGE’s) application to enter into a Power Purchase Tolling Agreement (PPTA) with the Carlsbad Energy Center, LLC (Carlsbad Energy Center). According to the schedule set forth in the ACR, the California Independent System Operator (CAISO) filed testimony on October 15, 2014 and October 29, 2014 addressing (1) whether the Commission should adjust the local capacity requirement (LCR) identified in D.14-03-004<sup>1</sup> to account for transmission projects identified in the CAISO’s 2013-2014 Transmission Planning Process (TPP) and (2) whether the Carlsbad Energy Center Power Purchase Tolling Agreement is a reasonable means to meet the 600 megawatt (MW) of identified LCR that D.14-03-004 determined should be met by conventional resources.<sup>2</sup> The ACR also established December 10, 2014 as the due

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<sup>1</sup> D.14-03-004 is the Commission’s Track 4 decision in the 2012 long-term procurement plan (LTPP) proceeding.

<sup>2</sup> See ACR, p. 2; Exhibit 4, p. 2.

date for opening briefs. Consistent with this schedule, the CAISO hereby submits its opening brief.

**II. The Proposed Carlsbad Energy Center PPTA Is an Electrically Effective Means to Partially Meet Local Capacity Requirements in the San Diego and LA Basin Area.**

**A. D.14-03-004 Established a Comprehensive Framework for Ensuring Long-Term Reliability of San Diego and Los Angeles Basin local capacity areas.**

In D.14-03-004 the Commission established a framework for ensuring the long-term reliability of the San Diego and Los Angeles (LA) Basin local capacity areas in the wake of the retirement of the San Onofre Nuclear Generating Station (SONGS) and the planned compliance with the State Water Resource Control Board's (SWRCB's) once-through-cooling (OTC) regulations. Prior to completion of the CAISO's 2013-2014 transmission planning process, the CAISO provided LCR study results as testimony in D.14-03-004. Based in part on the CAISO's LCR study results, the Commission's Track 4 decision authorized procurement of 500-700 MW of capacity for Southern California Edison (SCE) and 500-800 MW of capacity for SDG&E.<sup>3</sup> The Commission assumed that a suite of other resources, including preferred resources and CAISO-approved transmission solutions, would be used to meet the remaining LCR not met by new conventional resources.<sup>4</sup> The Commission utilized the LCR need information provided in the CAISO testimony as the starting point for determining procurement needs in the San Diego and LA Basin study area.<sup>5</sup> The Commission specifically noted that procurement authorized by D.14-03-004 should begin as soon as possible and that "procurement needs may become critical as early as 2018, and certainly by 2020."<sup>6</sup> The Commission noted a particular need for SCE and

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<sup>3</sup> D.14-03-004, pp. 142-144.

<sup>4</sup> *Id.* at p. 138, Conclusions of Law 27-32.

<sup>5</sup> *Id.* at p. 135, Conclusion of Law 4. For the purposes of Track 4, the preexisting San Diego and LA Basin local capacity areas were combined and referred to as the "Songs Study Area." Because SONGS no longer exists, this combined study area is referred to as the San Diego and LA Basin study area.

<sup>6</sup> *Id.* at p. 113.

SDG&E to expeditiously procure gas-fired generation expected to take several years to develop.”<sup>7</sup> The Carlsbad Energy Center PPTA is a critical piece of the framework the Commission established and the overall solution the Commission approved to meet the need identified in D.14-03-004.

**B. The LCR Identified in D.14-03-004 Should Not Be Reduced Based on the CAISO’s 2013-2014 TPP Results.**

The results of the CAISO’s 2013-2014 transmission planning process support the Commission’s decision in D.14-03-004. The results of the CAISO’s modeling have consistently indicated reliability issues in the San Diego and LA Basin local capacity areas absent new generation at (or near) Carlsbad. Even after modeling additional gas-fired generation resources at the Carlsbad Energy Center site, several reliability issues persisted.<sup>8</sup> Based on these findings and consistent with the comprehensive framework established in D.14-03-004, the CAISO staff recommended four transmission projects in its 2013-2014 Transmission Plan to *partially* mitigate the remaining identified reliability problems in the San Diego and LA Basin areas not resolved by the addition of new generation at Carlsbad.<sup>9</sup> The CAISO Board of Governors approved these projects. The CAISO estimated that the transmission projects would reduce total

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<sup>7</sup> *Id.*

<sup>8</sup> Exhibit 32, pp. 95-96. The CAISO’s 2013-2014 transmission plan identified the following four specific reliability issues in the San Diego and LA Basin after modeling a 558 MW combined cycle plant at the Carlsbad site:

- Post-transient voltage instability that affects the San Diego and LA Basin area under the overlapping outage of the ECO – Miguel 500kV line, system readjusted, followed by the next contingency of Ocotillo – Suncrest 500kV line (i.e., Category C.3, or N-1-1) under post-transient conditions.
- Overloading on the Otay Mesa – Tijuana 230kV line under an N-1 contingency of the ECO – Miguel 500kV line;
- Low voltage at Miguel 500kV bus under normal conditions for 2018 and 2023 summer peak loads (0.998 per unit, or 499kV, and 0.974 per unit, or 487kV, respectively).
- Potential overloading concerns on the Ellis – Johanna and Ellis – Santiago 230kV lines under an overlapping outage (N-1-1) of the Imperial Valley – North Gila 500kV line, followed by either the Ellis – Santiago or Ellis – Johanna 230kV line. This overloading concern was identified for summer 2018 peak load conditions under the scenario in which the Encina power plant is retired due to compliance with the State Water Resources Control Board’s Policy on once-through-cooling plants and SDG&E does not receive authorization from the Commission for its requested LCR to be in operation prior to summer 2018.

<sup>9</sup> *Id.* at p. 108.

LCR by 800 MW to 1,680 MW.<sup>10</sup> The combination of CAISO approved transmission solutions and the generation capacity additions approved in Track 1 and Track 4 still resulted in a residual need of up to 900 MW.<sup>11</sup> Based on these results, it is clear that the transmission upgrades are needed in addition to, not in place of, the generation procurement the Commission authorized in Track 1 and Track 4. Indeed, the CAISO's studies show that this additional approved transmission and generation capacity still is not sufficient to meet the identified reliability need. In order to underscore this need, the following sections address the assumptions and results of the CAISO's modeling in Track 4, 2013-2014 TPP and the Commission's actual authorizations in D.14-03-004.

### ***1. CAISO Track 4 Modeling***

The CAISO used consistent modeling assumptions to assess the LCR in the San Diego and LA Basin local capacity areas in its Track 4 testimony and the 2013-2014 transmission planning process. The CAISO updated certain assumptions in the 2013-2014 transmission planning process based on the timing of the modeling, but the assumptions and results are fundamentally consistent. Table 1 provides a high-level overview of the CAISO's modeling assumptions and needs assessment as presented in the Track 4 Direct Testimony of Robert Sparks.<sup>12</sup> The Track 4 testimony identified incremental resource needs in addition to resources authorized in Track 1. The Track 4 testimony assumed that SCE and San Diego would procure the maximum Track 1 resources (2,108 MW), and incremental energy efficiency (983 MW), demand response (198 MW) and distributed generation (457) would effectively reduce LCR. After subtracting Track 1 resources, incremental energy efficiency, demand response and distributed generation from the total identified need, the CAISO found a residual need of up to

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<sup>10</sup> *Id.*

<sup>11</sup> *Id.*

<sup>12</sup> Exhibit 31.

2,534 MW. The sum of residual need and incremental resources was 6,280 MW, this number is significant because it represents the sum total of resources necessary to meet needs in the San Diego and LA Basin capacity areas.

**Table 1**  
**CAISO Track 4 Testimony SONGS Study Area LCR Results and Assumptions for Year 2022 (MW)<sup>13</sup>**

Procurement Assumptions	
SCE Track 1 Procurement	1800
SCE Track 4 Procurement	N/A
SDG&E Track 1 Procurement	308
SDG&E Track 4 Procurement	N/A
Transmission Solutions	N/A
Demand Response	198
Incremental EE	983
Distributed Generation	457 <sup>14</sup>
<b>Total Incremental Resources</b>	
	<b>3746</b>
<b>Residual Need</b>	
	<b>2534</b>
<b>Total Incremental Resources and Residual Need</b>	
	<b>6280</b>

## 2. CAISO 2013-2014 TPP Modeling

While the Commission was considering the Track 4 decision in D.14-03-004, the CAISO was concurrently conducting its 2013-2014 transmission planning process. As outlined in Table 2, the CAISO assumed 1058 MW of Track 4 generation resources in the San Diego and LA Basin local capacity areas in the 2013-2014 transmission planning process based on SCE and SDG&E’s procurement requests in Track 4. The CAISO also identified transmission solutions that were estimated to reduce LCR by 800 MW to 1,680 MW. Based on a conservative estimate of overall effectiveness of the transmission solutions, the CAISO found a residual need of up to

<sup>13</sup> Exhibit 31, p. 26. Information derived from the 80%/20% (LA/SD) Total Resource Development Scenario.

<sup>14</sup> Net Qualifying Capacity (NQC) value, installed capacity is 1,016 MW.

900 MW.<sup>15</sup> The CAISO used the same assumptions regarding the effectiveness of incremental energy efficiency, demand response and distributed generation in the 2013-2014 transmission planning process that the CAISO used in its Track 4 testimony. Table 2 shows that the sum of total incremental resources and residual need (6,504 MW) for year 2023 were similar to those identified in the Track 4 testimony (6,280 MW) for year 2022.

**Table 2**  
**CAISO 2013-2014 TPP San Diego and LA Basin Area LCR Results and Assumptions for Year 2023 (MW)**

Procurement Assumptions	
SCE Track 1 Procurement	1800
SCE Track 4 Procurement	500
SDG&E Track 1 Procurement	308
SDG&E Track 4 Procurement	558
Transmission Solutions	800 <sup>16</sup>
Incremental EE (AAEE)	983
Demand Response	198
Distributed Generation	457 <sup>17</sup>
<b>Total Incremental Resources</b>	<b>5604</b>
<b>Residual Need</b>	<b>900</b>
<b>Total Incremental Resources and Residual Need</b>	<b>6504</b>

<sup>15</sup> Exhibit 31, p. 108.

<sup>16</sup> Based on conservative estimates for overall effectiveness of transmission solutions, as indicated in the 2013-2014 TPP. Exhibit 31, p. 108.

<sup>17</sup> NQC value.

**3. D.14-03-004 Track 4 Authorizations**

Based in part on the CAISO’s Track 4 testimony, the Commission authorized 1,000-1,500 MW of resource procurement in D.14-03-004. The Commission’s decision expressly stated that the authorized Track 4 procurement would *not* meet the full LCR in the SONGS study area.<sup>18</sup> Rather, the Commission noted that the potential transmission solutions under consideration at that time would “provide more confidence that it is not necessary at this time to authorize the utilities to procure all of the resources indicated to be necessary in the [CAISO’s] study.”<sup>19</sup> A review of the actual approved Track 1 and Track 4 procurement authorizations and the transmission solutions identified in the 2013-2014 transmission planning process justifies this approach. As shown in Table 3, the high- and low-range procurement authorizations will significantly reduce the LCR need identified by the CAISO in the Track 4 Testimony and the 2013-2014 TPP.

**Table 3  
D.14-03-004 Actual San Diego and LA Basin Area LCR Authorizations (MW)**

Procurement Assumptions	High-Range	Low-Range
SCE Track 1 Procurement	1800	1400
SCE Track 4 Procurement	700	500
SDG&E Track 1 Procurement	308	308
SDG&E Track 4 Procurement	800	500
Transmission Solutions	1680	800
Incremental EE (AAEE)	NA <sup>20</sup>	
Demand Response		
Distributed Generation		
<b>Total Incremental Resources</b>	<b>5288</b>	<b>3508</b>

<sup>18</sup> D.14-03-004 p.132, Finding of Fact 76.

<sup>19</sup> D.14-03-004 p. 137, Conclusion of Law 17.

<sup>20</sup> To the CAISO’s knowledge, these resources have not been procured or authorized.

The CAISO cautions that determination of LCR in the San Diego and LA Basin area is not conducive to a linear calculation of resources, but the information above is illustrative for comparison purposes. Residual need in the San Diego and LA Basin areas is dependent on the results of actual procurement by SDG&E and SCE, the effectiveness and timing of the transmission solutions identified in the CAISO's 2013-2014 TPP and the implementation and effectiveness of incremental energy efficiency, demand response and distributed generation. Further, the effectiveness of the transmission solutions rely on the realization of the generation assumed in the CAISO's studies.<sup>21</sup> In other words, the transmission solutions approved by the CAISO may not be effective if there is no generation in the Carlsbad area.

**C. The Timing, Location and Operational Characteristics of the Carlsbad Energy Center Fit the Need Identified in D.14-03-004**

The Carlsbad Energy Center PPTA will meet a portion of the identified need at a critical time. The Commission's decision in D.14-03-004 emphasized the need to begin procurement of natural gas resources in an expeditious manner.<sup>22</sup> Consistent with the CAISO's Track 4 testimony and the 2013-2014 transmission planning process, the Commission recognized that procurement needs may become critical as soon as 2018.<sup>23</sup> One of the primary drivers for the need is the scheduled retirement of the Encina Power Station (Encina) consistent with the SWRCB's OTC regulations.<sup>24</sup> Encina will be retired and removed from service on December 31, 2017 in compliance with the OTC regulations.<sup>25</sup> The Carlsbad Energy Center is expected to

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<sup>21</sup> Tr. 357:8-19.

<sup>22</sup> D.14-03-004, p. 113.

<sup>23</sup> *Id.*

<sup>24</sup> Tr. 302:21-27.

<sup>25</sup> Exhibit 2, p. 2.

be operational in November 2017, in time to replace the Encina generation and prior to the 2018 summer peak period in which the CAISO identified system reliability issues.<sup>26</sup>

The Carlsbad Energy Center's location is well-suited to address the need identified in D.14-03-004. The location is electrically equivalent to the Encina generation and electrically very close to the location of the recently retired SONGS units.<sup>27</sup> Therefore, it is ideally located to complement the transmission system in the area that was designed to have generation in these locations.<sup>28</sup>

Moreover, the CAISO has prepared studies and testimony showing the benefits of replacing OTC generation with flexible generation with the following characteristics: (1) quick response to changes in load and renewable resource intermittency, (2) the ability to provide ancillary services, (3) inertia or governor control to respond to changes in frequency and provide system stability and (4) faster starting to respond to changes more quickly, rather than having to be online prior to the change in condition.<sup>29</sup> The Carlsbad Energy Center combustion turbine units will provide necessary flexible generation in place of the Encina OTC generation.

**D. Approval of the Carlsbad Energy Center PPTA Will Support the Efficient Implementation of the State's Once-Through-Cooling Policies.**

**1. *The Once-Through-Cooling Regulations Require Encina to Comply by December 31, 2017.***

The Encina OTC must comply with the SWRCB's OTC regulations by December 31, 2017.<sup>30</sup> As stated by NRG, the Encina plant is scheduled to retire on that date in order to comply with the OTC regulations.<sup>31</sup> The Encina retirement is reflected in the CAISO's power flow

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<sup>26</sup> Exhibit 4, p. 7.

<sup>27</sup> Exhibit 4, p. 7.

<sup>28</sup> *Id.*

<sup>29</sup> Exhibit 4, p. 7.

<sup>30</sup> *State Water Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling* adopted on May 4, 2010 (as amended in 2011, 2012 and 2013), p. 14.

<sup>31</sup> Exhibit 2, p. 5.

modeling for both the Track 4 testimony and the 2013-2014 LTPP.<sup>32</sup> In the past, the Commission has noted that it is reasonable to assume that OTC plants will comply with SWRCB's regulations through retirement or repowering consistent with the SWRCB schedule for the purpose of LCR forecasting.<sup>33</sup> This is a reasonable assumption for both LCR forecasting and procurement planning. Because there are no plans to repower the Encina units, the Commission should assume for planning and procurement purposes that these units will retire on December 31, 2017.

**2. *The Commission Should Not Make Long-Term Planning and Procurement Decisions Based on the Possibility of Suspending the OTC Regulations.***

The CAISO does not, as some parties suggest, have an unlimited ability to suspend compliance with the OTC regulations.<sup>34</sup> Instead, the OTC regulations provide the CAISO with a limited ability to suspend OTC compliance for 90 days “based on the need for continued operation of an existing power plant to maintain the reliability of the electric system.”<sup>35</sup> This is a short-term solution to be used only when electric system reliability is at risk. If the CAISO determines that continued operation of an existing plant subject to OTC compliance is necessary for longer than 90 days, the SWRCB must conduct a hearing to determine whether the suspension is appropriate.<sup>36</sup> At that point, the SWRCB must conduct a “full evaluation of amendments to final compliance dates contained in the policy.”<sup>37</sup> Suspension of the OTC regulations and a possible related hearing is not a practical or prudent way of meeting electric system reliability.

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<sup>32</sup> Exhibit 32, p. 132; Exhibit 31, p. 12.

<sup>33</sup> D.13-02-015, p. 120.

<sup>34</sup> Tr. at 164:10-25; Tr. at 300:14-17.

<sup>35</sup> *State Water Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling* adopted on May 4, 2010 (as amended in 2011, 2012 and 2013), Section 2(B)(2).

<sup>36</sup> *Id.* at Section 2(B)(2)(b).

<sup>37</sup> *Id.*

### **III. The Carlsbad Energy Center PPTA Provides Renewable Integration Benefits.**

In addition to providing an electrically effective means to meet LCR in the San Diego and LA Basin, the Carlsbad Energy Center PPTA will provide renewable integration benefits for resources from the Imperial Valley area. The change of flow patterns caused by the loss of SONGS adversely impacted the deliverability of new renewable resources in the Imperial zone.<sup>38</sup> Imperial zone deliverability would have been further reduced if the CAISO TPP policy studies had not assumed that a Carlsbad generation project would be in-service by 2018. The Carlsbad Energy Center will help mitigate the degradation of deliverability of renewable generation in the Imperial zone.<sup>39</sup>

### **IV. Conclusion and Recommendation**

Approval of the Carlsbad Energy Center PPTA is a critical step in ensuring the long-term reliability of electric service in San Diego and LA Basin area. The Commission has recognized that a suite of new conventional generation resources, preferred resources and transmission solutions will be necessary to meet the long-term reliability issues caused by the retirement of SONGS and the OTC units. The Commission took the first step in authorizing Track 1 and Track 4 procurement for both SDG&E and SCE. The CAISO then approved transmission solutions to further close the gap in residual need. However, as discussed above, the studies demonstrate an additional need beyond the resources authorized in Track 1 and Track 4 and the transmission projects approved in the CAISO's TPP.

It is important that the Commission continue to implement the framework put forth in D.14-03-004 to address reliability concerns in the San Diego and LA Basin area. The Carlsbad Energy Center PPTA provides electrically effective, flexible resources at a key location in the

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<sup>38</sup> Exhibit 4, p. 8.

<sup>39</sup> Exhibit 4, p. 8.

electric system. Approval of the PPTA will ensure that there is sufficient generation in place when it is necessary for reliability purposes and will advance the state's policies on once-through-cooling. Based on these goals and the evidentiary record in this proceeding, the CAISO recommends that the Carlsbad Energy PPTA be approved.

Respectfully submitted

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