Application No.: 14-05-______
Exhibit No.: ______________
Witness: Carl S. LaPeter
Date: May 30, 2014

SAN DIEGO GAS & ELECTRIC COMPANY

PREPARED DIRECT TESTIMONY OF

CARL S. LAPETER

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

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Carl S. LaPeter

ON BEHALF OF SDG&E

I. INTRODUCTION

This testimony presents San Diego Gas & Electric Company's ("SDG&E") compliance with the Commission's Good Utility Practice, as discussed below, and reasonable manager standards as defined in Decision ("D.") 02-12-069,[1] with respect to Utility Owned Generation ("UOG") resources planned and unplanned outages during the period of January 1, 2013 through December 31, 2013.

II. COMMISSION STANDARDS RELATED TO SDG&E-OWNED GENERATION

During the record period, SDG&E operated and maintained its UOG resources (Palomar, Desert Star, Miramar, and Cuyamaca, collectively SDG&E's "UOG units") in a reasonable and prudent manner, consistent with Good Utility Practice and the reasonable manager standard.[2] The Commission defined "Good Utility Practice" in D.02-12-069:[3]

> [A]ny of the practices, methods and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice does not require the optimum

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[1] *See* D.02-12-069, Attachment A-3 at 5.

[2] The Commission has explained the "reasonable manager" standard in certain ERRA compliance cases, as follows: Under the "reasonable manager standard, utilities are held to a standard of reasonableness based on the facts that are known or should have been known at the time. The act of the utility should comport with what a reasonable manager of sufficient education, training, experience, and skills using the tools and knowledge at his or her disposal would do when faced with a need to make a decision and act." D.14-05-023 at 15. By meeting the "Good Utility Practice" standard and other Commission requirements stated herein, SDG&E maintains that likewise has met the "reasonable manager" standard during the 2013 record year. The Appendices to this testimony further provide SDG&E's primary showing with respect to both standards.

[3] *See* D.02-12-069, Attachment A-3 at 5.

> practice, method, or act to the exclusion of all others, but rather is intended to include acceptable practices, methods, or acts generally accepted in the Western Electric Coordinating Council region.

Consistent with Good Utility Practice, during 2013, SDG&E established and followed a maintenance program to maximize the availability of the units as a primary "desired result." Specifically, this maintenance program factors in a number of considerations, including manufacturer guidelines, appropriate power industry practices, safety considerations, and good engineering and technical judgment to allocate resources most effectively to maximize availability of its UOG resources. Additionally, the SDG&E maintenance program incorporates practices that are generally accepted within the electric power generation industry and the Western Electric Coordinating Council.

Additionally, SDG&E is required to comply with the Commission's General Order ("GO") 167 - Enforcement of Maintenance and Operation Standards for Electric Generating Facilities. Sections 10 and 11 of GO 167 specifically outlines each generator owner's obligation to provide information and cooperate with Commission audits, investigations and inspections. Generally, this process may include the following steps:

- In accordance with General Order 167 Section 10.1.f, a forced/unplanned outage is reported to the Commission representative assigned to the plant, and the Electric Safety and Reliability Branch ("ESRB"), via daily status report email for those days in which the plant is experiencing a forced/unplanned outage. If an outage is reported on the daily status report, a basic description of the outage is also included.
- Once the ESRB receives the email, a site visit may be scheduled and a data request letter may be sent to SDG&E management.

- During the site visit, the ESRB typically makes inquires as to the cause of the outage, outage duration, details of repairs required and extent of work to be performed, equipment affected, and evidence of repairs pertaining to the restoration of the unit.
- The ESRB may issue a data request concerning the outage. The data request typically requires SDG&E to provide control room operator logs, generation curve in megawatts ("MW"), and if available, a root cause investigation or summary of the corrective actions and general photographs that illustrate the outage details.
- After reviewing the response to the data request, the ESRB may issue additional data requests to obtain more information for review.
- The requests for data continue until the ESRB closes the inquiry.

In addition to the preceding steps, each outage may warrant the creation of internal documentation, including but not limited to, equipment affected, parts replaced, work required to accomplish outage-related tasks, costs of repairs, other recommended actions that may be taken to mitigate a repeat of the failure, change to operating procedures required to address component or plant issues, changes to maintenance practices to improve reliability, communications with an original equipment manufacturer, and implementation of upgrades to improve reliability. Evidence of the above may be found in parts Computerized Management System ("CMS") ordering documents, work orders, vendor invoices, investigation reports, management of change documents, and communications with vendors.

GO167 also requires SDG&E to meet specific maintenance and operations standards. The standards also suggest guidance detailed for maintenance and operations programs. These standards and guidance are based on accepted power industry good practices. SDG&E is required to document and certify to these standards, every two years, and submit the documentation to the Commission ESRB. The certification documentation includes a summary list of maintenance, operations and safety procedures that describe the programs and processes used in generation.

III. ADDITIONAL REVIEW OF UOG OPERATIONS

Additional review of SDG&E's UOG operations is provided through Sempra Energy's Internal Audit Department's audits of SDG&E's generating facilities. Consistent with auditing standards, the frequency and nature of such audits is determined based on the Department's annual risk assessment, which determines the areas of the company, including utility operations, to be audited. This risk-based analysis may change from year to year.

Further, SDG&E's Insurance Risk Consultants conduct site inspections to review and evaluate the plant's physical condition, maintenance, and operations processes. These inspections are performed from a risk perspective and cover maintenance practices, operations practices, material condition, and fire protection. The report may offer recommendations for improvement to systems, facilities, and processes.

Also, SDG&E is required to meet certain electric reliability standards from the North American Electric Reliability Corporation ("NERC") and the Western Electricity Coordinating Council ("WECC"). NERC/WECC performs periodic audits of SDG&E to ensure compliance with the reliability standards.

Furthermore, SDG&E generation plants are subject to site visits from various regulators concerning implementation of permits. There are periodic onsite inspections and data requests for; air permits, water permits, and water discharge permits. SDG&E's Palomar Energy Center is also required to meet permit conditions detailed in the California Energy Commission ("CEC") Operating Permit.

IV. OUTAGES - UTILITY OWNED GENERATION

Many of these preventive and corrective maintenance work activities require planned outages, whereas unplanned corrective maintenance is performed under short-notice or forced outages.

Appendix 1 and 2 provide narratives for forced outages 24 hours or longer and planned outages that are 24 hours or longer where the outage was extended by two weeks or fifty percent longer, whichever is greater, from its planned schedule. The narratives address, as applicable, the following points:

1. The nature of the outage.
2. The cause(s) of the outage, if known.
3. Possible steps to prevent similar occurrences.
4. Whether the outage may have prevented (or minimized the duration of) a future outage.

V. CONCLUSION

My testimony describes SDG&E's UOG resources located in San Diego County and Nevada. SDG&E consistently followed the Commission's guidance and Good Utility Practice and met the "reasonable manager" standard during the 2013 record year.

This concludes my prepared direct testimony.

VI. QUALIFICATIONS OF CARL S. LAPETER

My name is Carl S. LaPeter. My business address is 2300 Harveson Place, Escondido, CA 92029. I am currently employed by SDG&E as a Plant Manager for Palomar Energy Center, Miramar Energy Facility and Cuyamaca Peak Energy Plant. My responsibilities include overseeing a staff that operates and maintains these power plants.

I began employment at SDG&E in 2005 as Plant Engineer, and then Maintenance Manager, for Palomar Energy Center and Miramar Energy. My experience prior to employment at SDG&E (about 26 years) includes various positions in the US Nuclear Navy, at Palo Verde Nuclear Generating Station and Gila River Power Station.

I hold a Bachelor's of Science degree in Nuclear Engineering Technology from Excelsior College in New York State.

I have not previously testified before the Commission.

APPENDIX A

SDG&E's 2013 UOG Forced Outages Greater Than 24 Hours

1. Miramar Energy Center Unit 1 ("MEF1") Forced Outage – June 27, 2013 through July 1, 2013 - 3.92 Days

On June 27, 2013, the MEF1 Sprint Pump failed, preventing the unit from making dispatch-rated power. This pump sprays water to the turbine compressor to boost the power output. Without the pump the unit's output is approximately 10MW to 15MW lower, depending on the outside temperature. The unit was shut down to repair the pump.

SDG&E's analysis indicated that the pump had a failed bushing causing unrepairable damage. A replacement pump was located and expedited to the site. The pump was replaced and verified to operate correctly.

Unpredictable failures may occur on occasion. This outage was due to an unpredictable failure that caused the turbine to be removed from service.

2. MEF1 Forced Outage – July 20, 2013 through July 21, 2013 – 1.06 Days

On July 20, 2013, the MEF1 fuel gas metering valve electronic control system indicated a fault on the turbine computer system. This valve controls fuel gas to the turbine, and so the turbine generator cannot operate without it. The turbine was shut down. A technician inspected the system and performed an off-line simulation, which operated the valve through the turbine computer system. The simulation did not indicate any problems. SDG&E operations and maintenance personnel decided to request a test start to verify the system operation. The unit was successfully started and brought to base load, while the technician monitored the critical parameter to ensure that the gas fuel metering valve performed properly. The technician and the operator could find no cause for the problem, nor reproduce the fault indication, so the unit was returned to service. Should a similar problem occur and reveal a failure of one of these components, the parts are available to replace and to restore the unit to service, minimizing outage time.

3. Cuyamaca Peak Energy Plant ("CPEP") Forced Outage – September 15, 2013 through 17, 2013 – 1.9 Days

On September 15, 2013, the CPEP generator circuit breaker position feedback linkage failed, causing the generator circuit breaker to trip open. The maintenance department investigated and determined that a failed feedback linkage caused an improper circuit breaker position signal to the generator protection system, which then opened the circuit breaker. The maintenance department found that a link pin was broken, preventing the linkage from indicating the proper circuit breaker position. Over many years of operation the link pin had worn causing the failure. A repair was made to the link pin that enabled the linkage to operate correctly.

APPENDIX B

Planned Outages extended by two weeks or fifty percent longer, whichever is greater, from its planned schedule

1. Desert Star Energy Center ("DSEC") Planned Outage - March 26, 2013 through April 9, 2013, extended to May 31, 2013 (original scheduled outage – 15 Days, 49 Day Extension)

On March 26, 2013 DSEC was shut down for a planned maintenance outage. During this outage, one of the Generator Step-up Transformer for ("MPT1 GSU") was scheduled to be drained of oil and inspected for any unusual internal conditions. The inspection was performed and did not reveal any unusual conditions. The transformer was filled and made ready for service.

On April 11, 2013, the MPT1 GSU transformer was placed back in service and experienced a protection system trip, causing the transformer to be de-energized. The protection system function was initiated by a 'Sudden Pressure Relay' indicating an unusual pressure condition inside the transformer. An electrical diagnostic test was performed, but it revealed no unusual electrical characteristics. Plant management consulted with SDG&E's Transformer Maintenance and Engineering Department. After discussion, the decision was made to replace the transformer. The faulty transformer was replaced with a spare that was available on site. The replacement of the transformer extended the outage by 49 days.

To prevent or mitigate future unplanned outage extensions due to transformer failures, a continuous on-line transformer oil monitoring system was installed during the extended outage. In addition, periodic transformer oil sampling and analysis will continue. These systems together will provide improved data trending that can be evaluated for indications of transformer degradation that may lead to a future failure.

2. MEF1 Planned Outage – December 02 through 22, 2012, extended to April 4, 2013 (original scheduled outage – 20.46 Days, Extension 103.04 Days)

In April of 2012, during a scheduled borescope inspection, small cracks were noted in the High Pressure Turbine ("HPT") section of the engine, in the stationary nozzles. Cracks are not an unusual finding in the turbine and occur more as the operating hours and starts increase. The crack indications were within limits to allow continued operation of the turbine. The manufacturer, General Electric ("GE"), recommended performing a follow-up inspection after about another thousand hours of operation. GE indicated that the additional inspection would determine if the cracks increased in length.

The follow-up borescope inspection was performed in November 2012; the inspection identified that the cracks had increased in length. GE was contracted to repair the turbine. This type of repair requires the turbine to be removed and shipped to a GE facility. An outage was scheduled to begin on December 2, 2012 with the turbine removal. GE was scheduled to have the turbine repaired, returned, installed before December 22, 2012; the schedule allowed some time for testing and tuning.

GE received the turbine at their facility. As the turbine was disassembled, GE technicians found indications of additional issues that were not identified during the borescope inspection. A borescope inspection may not reveal all issues and problems so as the turbine is disassembled, technicians are able to inspect for wear or damage not seen during a borescope inspection. Numerous issues were revealed, including:

- Cracks in the Low Pressure Turbine ("LPT") nozzles
- Additional damage to the HPT nozzles and related assemblies
- Damage to the combustor section

Some of the damaged and worn parts needed to be replaced, while other parts had to be shipped to other GE facilities for repair. The additional damage and repairs delayed the originally forecasted completion date. SDG&E's Generation staff evaluated the situation to decide whether to perform the additional repairs and delay the schedule or minimize repairs to return the turbine sooner. The staff decided in favor of the additional repairs to provide assurance of reliable operation of the turbine through the peak season.

The additional work performed on this turbine outage greatly reduced the risk of short term future failures. Finding and repairing wear and damage that is not seen on regular borescope inspections reduces the possibility for failures that may cause unplanned outages.