

Application No.: 21-06-xxx

Exhibit No.: _____

Witness: Carl S. LaPeter

PREPARED DIRECT TESTIMONY OF

CARL S. LAPETER

ON BEHALF OF

SAN DIEGO GAS & ELECTRIC COMPANY

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



JUNE 1, 2021

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1 **A. Palomar Energy Center (“PEC”)**

2 The Palomar Energy Center is a 565 MW⁴ gas-fired combined-cycle plant with 2 GE 7FA
3 combustion turbines and a GE steam turbine. The plant is equipped with inlet-air chillers and a
4 thermal energy storage tank that allows the plant to produce energy at its capacity during the
5 summer months. Recycled water is used for cooling of the plant equipment.

6 **B. Desert Star Energy Center (“DSEC”)**

7 The Desert Star Energy Center, located in Boulder City, Nevada, is a 480 MW gas-fired
8 combined-cycle plant with 2 Siemens 501-FC+ combustion turbines and a Westinghouse steam
9 turbine. This plant was acquired by SDG&E in October 2011 pursuant to D.07-11-046. This
10 Decision permitted SDG&E to exercise an option to purchase the facility from El Dorado Energy,
11 LLC, a subsidiary of Sempra Energy.

12 **C. Miramar Energy Facility (“MEF”)**

13 The Miramar Energy Facility is a peaking plant with two GE LM6000 turbines that together
14 produce 92 MW (MEF-1 and MEF-2). This site also provides black start services used for
15 restoration of the electric grid. Operations and maintenance personnel based out of the Palomar
16 Energy Center provide all plant services to this facility.

17 **D. Cuyamaca Peak Energy Plant (“CPEP”)**

18 The Cuyamaca Peak Energy Plant is a peaking plant with a Pratt & Whitney FT8 turbine
19 generator set that produces 45 MW. Operations and maintenance personnel based out of the
20 Palomar Energy Center provide all plant services to this facility.

⁴ As of December 31, 2020 (the end of the 2020 Record Year), PEC had a rating of 565 MW. SDG&E notes that it expects the rating of PEC to increase to an estimated 585 MW in Quarter 2 2021 due to turbine hardware upgrades.

1 **E. Escondido Battery Energy Storage System (“Escondido BESS”)**

2 The Escondido BESS is a 120 MWh energy storage system with a maximum output of 30
3 MW for up to 4 hours. The energy storage system uses lithium-ion batteries. The project
4 construction began Q4/2016 and began to operate commercially Q1/2017. Pursuant to CPUC
5 Resolution E-4791 on May 26, 2016, SDG&E developed expedited energy storage projects to
6 alleviate reliability issues associated with Aliso Canyon. CPUC approval was requested via Tier 3
7 Advice Letter 2924-E. The Advice Letter was approved in its entirety in CPUC Resolution E-4798
8 on August 18, 2016. Operations and maintenance personnel based out of the Palomar Energy
9 Center provide all plant services to this facility. O&M costs for Escondido BESS are included in
10 PEC O&M costs. Such costs are included as part of SDG&E’s General Rate Case (“GRC”).

11 **F. El Cajon Battery Energy Storage System (“El Cajon BESS”)**

12 The El Cajon BESS was developed and constructed under the same authorization as the
13 Escondido battery project and also uses lithium-ion technology. This energy storage system is rated
14 at 30 MWh with a maximum output of 7.5 MW for up to 4 hours. Operations and maintenance
15 personnel based out of the Palomar Energy Center provide all plant services to this facility. O&M
16 costs for El Cajon BESS are included in PEC O&M costs. Such costs are included as part of
17 SDG&E’s GRC.

18 **G. Ramona Solar Energy Project (“RSEP”)**

19 The Ramona Solar Energy Project, located in Ramona, CA, was developed and constructed
20 pursuant to D.10-09-016 and SDG&E’s Advice Letter 2374E-A. The project is built with fixed
21 photovoltaic panels and can produce up to 4.32 MW. Operations and maintenance personnel based
22 out of the Palomar Energy Center provide all plant services to this facility. O&M costs for RSEP
23 are included in PEC O&M costs. Such costs are included as part of SDG&E’s GRC.

1 **III. COMMISSION STANDARDS RELATED TO SDG&E-OWNED GENERATION**

2 During the record period, SDG&E operated and maintained its UOG resources (Palomar,
3 Desert Star, Miramar, and Cuyamaca; collectively, SDG&E’s “UOG units”) in a reasonable and
4 prudent manner, consistent with “Good Utility Practice” and the reasonable manager standard.⁵

5 The Commission defined “Good Utility Practice” in D.02-12-069:⁶

6 [A]ny of the practices, methods and acts engaged in or approved by a
7 significant portion of the electric utility industry during the relevant time
8 period, or any of the practices, methods and acts which, in the exercise of
9 reasonable judgment in light of the facts known at the time the decision was
10 made, could have been expected to accomplish the desired result at a
11 reasonable cost consistent with good business practices, reliability, safety and
12 expedition. Good Utility Practice does not require the optimum practice,
13 method, or act to the exclusion of all others, but rather is intended to include
14 acceptable practices, methods, or acts generally accepted in the Western
15 Electric Coordinating Council region.

16 Consistent with “Good Utility Practice,” during 2020, SDG&E followed an established
17 maintenance program to maximize the availability of the units as a primary “desired result.”
18 Specifically, this maintenance program factors in a number of considerations, including
19 manufacturer guidelines, appropriate power industry practices, safety considerations, and good
20 engineering and technical judgment to allocate resources most effectively to maximize availability
21 of its UOG resources. Additionally, the SDG&E maintenance program incorporates practices that
22 are generally accepted within the electric power generation industry and the Western Electricity

⁵ The Commission has explained the “reasonable manager” standard in 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 2018 record period. The Appendices to this testimony further provide SDG&E’s primary showing with respect to both standards. In addition, the Commission recently has confirmed that the compliance review to which various SDG&E accounts are subject in ERRA compliance proceedings are not “reasonableness reviews.” D.17-03-016 at 3 and Finding of Fact 2.

⁶ See D.02-12-069, Attachment A-3 at 5.

1 Coordinating Council (“WECC”) and the North American Electric Reliability Corporation
2 (“NERC”).

3 Additionally, SDG&E is required to comply with the Commission’s General Order (“GO”)
4 167 - Enforcement of Maintenance and Operation Standards for Electric Generating Facilities.⁷
5 Sections 10.0 and 11.0 of GO 167 specifically outline each generator owner’s obligation to provide
6 information and cooperate with Commission audits, investigations and inspections. In addition,
7 each outage may warrant the creation of internal documentation, including but not limited to,
8 equipment affected, parts replaced, work required to accomplish outage-related tasks, costs of
9 repairs, other recommended actions that may be taken to mitigate a repeat of the failure, change to
10 operating procedures required to address component or plant issues, changes to maintenance
11 practices to improve reliability, communications with an original equipment manufacturer, and
12 implementation of upgrades to improve reliability. Evidence of the above may be found in parts of
13 the Computerized Maintenance Management System (“CMMS”) ordering documents, as well as
14 work orders, vendor invoices, investigation reports, management of change documents, and
15 communications with vendors.

16 GO 167 also requires SDG&E to meet specific maintenance and operations standards, which
17 also suggest guidance detailed for maintenance and operations programs. These standards and
18 guidance are based on accepted power industry good practices. SDG&E is required to document
19 and certify to these standards every two years and submit the documentation to the Commission
20 Electric Safety and Reliability Branch (“ESRB”). The certification documentation includes a
21 summary list of maintenance, operations and safety procedures that describe the programs and
22 processes used in generation.

⁷ Public Utilities Commission of the State of California, General Order No. 167 Enforcement of Maintenance and Operation Standards for Electric Generating Facilities (Effective September 02, 2005). Available at http://docs.cpuc.ca.gov/PUBLISHED/GENERAL_ORDER/108114.htm.

1 **IV. ADDITIONAL REVIEW OF UOG OPERATIONS**

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

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

13 SDG&E is also required to meet certain electric reliability standards from the NERC and
14 WECC. NERC and WECC perform periodic audits of SDG&E to ensure compliance with the
15 reliability standards.

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

21 SDG&E’s Generation personnel have communicated with the following agencies in 2020:

- 22 • California Energy Commission (“CEC”)
- 23 • California Public Utilities Commission (“CPUC”)
- 24 • California Air Resource Board (“CARB”)
- 25 • U.S. Energy Information Administration (“US EIA”)

- 1 • Environmental Protection Agency (“EPA”) Region 9
- 2 • Clark County Department of Air Quality (“DAQ”)
- 3 • Nevada Division of Environmental Protection (“NDEP”)
- 4 • San Diego Air Pollution Control District (“APCD”)
- 5 • Regional Water Quality Control Board (“RWQCB”)
- 6 • CA-EPA State Water Board
- 7 • City of Escondido
- 8 • Western Electricity Coordinating Council (“WECC”)
- 9 • North American Electric Reliability Corporation (“NERC”)
- 10 • Certified Unified Program Agencies (“CUPA”)

11 **V. OUTAGES - UTILITY OWNED GENERATION**

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

14 Appendix A, below, provides narratives for forced outages 24 hours or longer for all
15 facilities 25 MW or larger. Appendix B, below, provides narratives for planned outages that are 24
16 hours or longer for all facilities 25 MW or larger, where the outage was extended by two weeks or
17 fifty percent longer, whichever is greater, from its planned schedule. The narratives address, as
18 applicable, the following points:

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

1 **VI. CONCLUSION**

2 My testimony describes SDG&E's UOG resources located in San Diego County and
3 Nevada. SDG&E consistently followed the Commission's guidance and "Good Utility Practice"
4 and met the "reasonable manager" standard during the 2020 record period.

5 This concludes my prepared direct testimony.

1 **VII. QUALIFICATIONS**

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

6 I began employment at SDG&E in 2005 as Plant Engineer, and then Maintenance
7 Manager, for Palomar Energy Center and Miramar Energy. My experience prior to employment
8 at SDG&E (approximately 28 years) includes various positions in the US Nuclear Navy, at Palo
9 Verde Nuclear Generating Station and Gila River Power Station.

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

12 I have previously testified before the Commission.

APPENDIX A

**SDG&E'S 2020 UOG FORCED OUTAGES GREATER THAN 24 HOURS
FOR FACILITIES 25 MW OR LARGER**

APPENDIX A

SDG&E's 2020 UOG Forced Outages Greater Than 24 Hours For Facilities 25 MW or Larger

1. Dessert Star Energy Center (“DSEC”) Unit 2 Heat Recovery Steam Generator (“HRSG”) blowdown tank pipe leak: Combustion Turbine 2 (“CT2”) forced outage – March 5, 2020 through March 7, 2020 – 2.00 days

On March 5, 2020 during CT2 start up, the drain line from the #2 intermittent pressure drum separated from the blowdown tank, causing a steam leak. On March 5, 2020 at 13:50 CT2 startup was stopped, and a forced outage was taken to replace the failed drain line. On March 7, 2020 at 13:53 repairs were completed, and the forced outage was ended.

2. Palomar Energy Center (“PEC”) Preheater Leak on Heat Recovery Steam Generator 1 (“HRSG 1”) – April 16, 2020 through April 17, 2020 – 1.4 Days

On April 16, 2020 operations noted indications of a water leak below the HRSG1 Low Pressure (“LP”) Preheater section. Combustion Turbine Generator 1 (“CTG1”) was placed in a forced outage to allow technicians to enter HRSG1 and investigate the source of the leak and perform repairs. The source of the leak was identified on a LP Preheater vent line. Repairs were made and the unit was released for service on April 17, 2020.

3. Palomar Energy Center (“PEC”) Combustion Turbine Generator 2 (“CTG2”) Exhaust Leak – September 16, 2020 through September 18, 2020 – 1.4 Days

On September 16, 2020 during plant power operation, CTG2 tripped with an indication that it was from the turbine controls safety shutdown circuit. Upon investigation, technicians found a junction box that houses turbine vibration monitoring equipment to be excessively hot due to a turbine exhaust leak near the box. The hot junction box contains some wiring and instruments that are part of the safety turbine controls safety shutdown circuit; the overheating of the box caused the shutdown.

Thermal insulation was installed between the junction box and the exhaust leak to protect the junction box from the heat, until the exhaust leak could be repaired. The unit was then released for operation. Later that night, the CTG2 tripped again with the same indications. The unit was placed in a forced outage and cooled down to allow repairs. Entry was made into the exhaust area and repairs made to stop the leak. After repairs were completed, the unit was released and returned to service on September 18, 2020.

4. Miramar Energy Facility unit 2 (“MEF2”) repair following a borescope inspection – October 8, 2020 through October 23, 2020 – 15.8 Days

During a planned outage on October 7, 2020, a scheduled borescope inspection of the gas turbine was conducted. The result of the borescope inspection indicated that the High-Pressure Turbine 2nd Stage Nozzle should be replaced. Following the completion of the planned outage the plant was placed in a forced outage, on October 8, 2020, to perform the required work, because additional time was needed for the repair. The engine was removed and repair work was completed on site. After the repairs the engine was installed and returned to service on October 23, 2020.

5. Palomar Energy Center (“PEC”) Combustion Turbine Generator 1 (“CTG1”) High Exhaust Temperature Spread – October 15, 2020 through October 16, 2020 – 1.5 Days

On October 15, 2020 CTG1 tripped on High Exhaust Temperature Spread. The unit was placed in a forced outage while the plant collected data to troubleshoot the incident. This forced outage continued until October 16, 2020 when a previously scheduled planned outage was to begin. During the planned outage a borescope was performed on CT1 and indicated no hardware issues that caused the trip.

Further investigation revealed the turbine tuning signal processing box as the potential source of the problem. The signal processing box was removed, repaired and reinstalled. When

the outage was complete, CTG1 was returned to service and the exhaust temperature and combustion parameters were closely monitored by operators for indications of anomalous performance. No issues were identified and CTG1 performed normally.

6. Miramar Energy Facility unit 1 (“MEF1”) repair following a borescope inspection – November 13, 2020 through December 9, 2020 – 25.9 Days

During a planned outage, beginning November 9, 2020, to perform a control system upgrade a scheduled borescope inspection of the gas turbine was conducted. The result of the borescope inspection indicated that the High-Pressure Turbine 2nd Stage and 1st Stage Nozzles should be replaced. Following the completion of the planned outage the plant was placed in a forced outage, on November 13, 2020, to perform the required work, because additional time was needed for the repair. The engine was removed, and repair work was completed on site. After the repairs, the engine was installed and returned to service on December 9, 2020.

APPENDIX B

Planned Outages During 2020 That Were 24 Hours or Longer for All Facilities 25 MW or Larger
That Were Extended by Two Weeks or Fifty Percent Longer,
Whichever is Greater, From its Planned Schedule

There were no Appendix B outages in this reporting period.

ACRONYM GLOSSARY

| | |
|-----------------|---|
| APCD | San Diego Air Pollution Control District |
| BESS | Battery Energy Storage System |
| CARB | California Air Resource Board |
| CEC | California Energy Commission |
| CMMS | Computerized Maintenance Management System |
| CPEP | Cuyamaca Peak Energy Plant |
| CPUC | California Public Utilities Commission |
| CT | Combustion Turbine |
| CTG | Combustion Turbine Generator |
| CUPA | Certified Unified Program Agencies |
| GE | General Electric |
| D | Decision |
| DAQ | Clark County Department of Air Quality |
| DSEC | Desert Star Energy Center |
| ERRA | Energy Resource Recovery Account |
| ESRB | Electric Safety and Reliability Branch |
| GO | General Order |
| HRSG | Heat Recovery Steam Generator |
| LP | Low Pressure |
| MEF | Miramar Energy Center |
| MW | Megawatt |
| MWh | Megawatt hour |
| NDEP | Nevada Division of Environmental Protection |
| NERC | North American Electric Reliability Corporation |
| NO _x | Nitrous Oxides |
| OEM | Original Equipment Manufacturer |
| ORA | Office of Ratepayer Advocates |
| PEC | Palomar Energy Center |
| RSEP | Ramona Solar Energy Plant |
| RWQCB | Regional Water Quality Control Board |
| SCR | Selective Catalytic Reduction |
| SDG&E | San Diego Gas & Electric |
| STG | Steam Turbine Generator |
| UOG | Utility Owned Generation |
| US EIA | U.S. Energy Information Administration |
| WECC | Western Electricity Coordinating Council |