Company: San Diego Gas & Electric Company (U 902 M)
Proceeding: 2019 General Rate Case
Application: A.17-10-007
Exhibit: SDG&E-50

SDG&E

SUPPLEMENTAL DIRECT TESTIMONY OF DAVID L. GEIER

(Supplemental Year-Round Wildfire Risk Mitigation)

May 7, 2018

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

TABLE OF CONTENTS

LIST OF APPENDICES

SUMMARY

- San Diego Gas & Electric Company (SDG&E) is committed to mitigating the ongoing, year-round threat of wildfire risk in San Diego's service territory through its comprehensive fire risk mitigation program.
- SDG&E's comprehensive wildfire mitigation program, including fire suppression and recovery, has included leasing a helitanker certain months of the year, during what has been considered the highest risk portion of the Southern California fire season.
- California's recent experience with catastrophic wildfires in fall 2017 (since the time SDG&E's test year (TY) 2019 general rate case (GRC) application was filed), and SDG&E's understanding that year-round fire season is the "new normal," due to the effects of climate change, supports SDG&E's supplemental request to extend its contracted helitanker availability to address the threat of year-round wildfire risk.
- The helitanker can be airborne within 15 minutes and holds a maximum of 2,650 gallons of water or fire suppressant – the equivalent of five fire engines – and takes only 45 seconds to refill its tank. Over the last eight-plus years it has made more than 470 water drops, or over half a million gallons of water dropped to protect homes, businesses and communities in the SDG&E service territory.
- Costs to support this supplemental request are shown in SDG&E's TY 2019 electric distribution operations and maintenance (O&M) testimony, the second revised direct testimony of William Speer (Exhibit SDG&E-15-2R) and supplemental workpaper (SDG&E-15-WP-S).

SDG&E DIRECT TESTIMONY OF DAVID L. GEIER

(Supplemental Year-Round Wildfire Risk Mitigation)

I. INTRODUCTION

A. Summary of Supplemental Proposal

Consistent with SDG&E's commitment to prioritizing electric operations risk management, specifically the commitment to mitigating the ongoing, year-round threat of wildfire risk in San Diego's service territory, my supplemental testimony discusses California's recent experience with catastrophic wildfires in fall 2017, and supports SDG&E's supplemental request to extend the availability of the helitanker to address the threat of year-round wildfire risk. SDG&E is committed to doing its part by preparing for and minimizing the risk of wildfire through its company-wide focus, collaborative efforts, and drive for continuous improvement.

SDG&E's regional firefighting asset, the helitanker, has been an important component of SDG&E's fire risk mitigation program for eight years. It can and has proven to help quickly suppress and contain fires when they occur, to reduce the potential of catastrophic damage. The helitanker, along with other SDG&E developed fire-related analytics, are tools that can benefit the public and fire agencies. My testimony describes SDG&E's successful fire risk mitigation program, in which the helitanker plays an important role, as well as the conditions, circumstances and recent experience creating the need for its extended availability.

The revised direct testimony of William Speer, supporting SDG&E's TY 2019 electric distribution O&M request, previously included an incremental increase to the extension of a lease for a helitanker (from three months to five months), due to ongoing conditions and an expanded fire season:

> SDG&E currently leases a large, Type 1 helitanker (aircrane) to provide firefighting support for our service territory. Armed with a 2,650-gallon (10,031-liter) water tank, the aircrane combines the capacity of a fixed-wing tanker with the accuracy and refill speed of a helicopter, as it is capable of dropping more than 25,000 gallons (~95,000 liters) every hour. Currently, we provide this service during the middle of the fire season for a three-month period. SDG&E proposes funding for an additional two months, in order to provide additional support for what has become an expanded fire season.[1]

[1] Ex. SDG&E-15-R (Speer) at WHS-45-46; *see also* Ex. SDG&E-15-WP (Speer) at WHS-96, WHS-99, WHS-101 and WHS-145.

SDG&E's need to use the helitanker into December 2017 demonstrates that fire season has expanded beyond even what SDG&E had planned in its initial request. My testimony supports extending the helitanker lease year-round, so that it can be quickly deployed whenever it is needed. The additional availability of this firefighting asset will aid in providing increased public safety to the communities SDG&E serves.

B. Organization of Testimony

My testimony describes SDG&E's need for year-round helitanker availability, organized as follows:

- A description of SDG&E's proven success in mitigating wildfire threat and overview of current wildfire threat mitigation programs, as described in SDG&E's TY 2019 GRC testimony, Fire Prevention Plan and RAMP Report;
- A summary of California's recent 2017 wildfire experience, and ongoing climate change impacts, which support SDG&E's need to expand its contracted helitanker availability, by extending its lease to support a year-round, 365-day program.

C. Support To/From Other Witnesses

While I provide the policy justification for extending the lease of the helicopter for additional time, the updated costs are reflected in the second revised testimony of Electric Distribution – O&M witness William Speer (Ex. SDG&E-15-2R), served concurrently with this exhibit.

II. SDG&E'S NEED FOR YEAR-ROUND HELITANKER AVAILABILITY

The 2017 California wildfire season was the deadliest, most destructive in California history. The extreme fire conditions plaguing California in late 2017 were rare from a historical perspective, but resulted from climate trends that are expected to continue, as a combination of factors leads to increases in both fire season duration and severity. As the Commission observed in recently opening a climate change rulemaking, "California utilities are already experiencing impacts from climate change such as increased temperatures, an increased number of wildfires, sea level rise, and severe drought."[2] SDG&E is concerned about the impacts of climate change

[2] R.18-04-019, Order Instituting Rulemaking to Consider Strategies and Guidance for Climate Change Adaptation (referred to hereafter as the "Climate Change OIR") (issued April 26, 2018) at 11 (internal footnote omitted).

and, thus, has the risk of Climate Change Adaptation on its Enterprise Risk Register. Further, SDG&E considers the Climate Change Adaptation risk to be a key safety risk and included it and a mitigation plan its RAMP report.[3]

SDG&E is committed to adapting to the impacts of the changing climate and maintaining its readiness to mitigate wildfire threat in San Diego. As discussed below, SDG&E's supplemental request for year-round helitanker coverage supports its commitment to efficient and effective coordination with state and local fire authorities, to help mitigate the risk of catastrophic fire threat.

A. Extreme Climate Events in 2017 Led SDG&E to Supplemental Request to Increase Helitanker Availability

On December 7, 2017, Governor Edmund G. Brown Jr. issued an emergency proclamation for San Diego County due to the effects of the Lilac Fire, after declaring San Diego's Lilac Fire "threatened thousands of structures" and critical infrastructure, forced the closure of roadways, and "caused the evacuation of hundreds of residents." Governor Brown stated that the circumstances of the fire, "by reason of its magnitude, is or is likely to be beyond the control of the services, personnel, equipment, and facilities of any single local government and require[s] the combined forces of a mutual aid region or regions to combat," and found that "conditions of extreme peril to the safety of persons and property exist in San Diego County due to the Lilac Fire…[such that] strict compliance with the various statutes and regulations specified in this order would prevent, hinder, or delay the mitigation of the effects of the Lilac Fire."[4]

Governor Brown had previously declared a state of emergency for Los Angeles and Ventura counties due to the effects of multiple fires earlier in the week. These Southern California wildfires occurred soon after the October 2017 Northern California wildfires, which ultimately burned more than 245,000 acres, forced 100,000 evacuations, destroyed 8,900 structures, and took 43 lives.[5] Fall 2017 would become known as one of the deadliest and most destructive fire seasons in California history. In response to the extreme burning conditions and

[3] I.16-10-015/-016. Risk Assessment Mitigation Phase (RAMP) Report of Southern California Gas Company and SDG&E. Chapter SDG&E-14 (Climate Change), November 30, 2016.

[4] December 7, 2017, Proclamation of a State of Emergency in San Diego County due to Lilac Fire, Office of Governor Edmund G. Brown Jr., *available at* https://www.gov.ca.gov/2017/12/07/news20089/.

[5] http://calfire.ca.gov/communications/communications_StatewideFireSummary.

the significant commitment of firefighting aircraft elsewhere,[6] SDG&E brought the helitanker into San Diego County beginning December 6, 2017. It flew 4.2 hours and dropped 30,200 gallons of water in support of the Lilac Fire. It cannot be known how many lives were saved and how much damage was prevented in San Diego due to the helitanker's deployment.

San Diego's December 2017 experience is consistent with what SDG&E has been seeing (and responding to) as an increase in duration and frequency of fire-weather and burning conditions.[7] Statewide, eight of the twenty most destructive fires in California history have occurred since 2015. In San Diego, the duration and amount of fire weather related activations increased significantly from 2016 to 2017. SDG&E activated its EOC seven times in late 2017 (contrasted with four activations in late 2016) in association with the threat of wildfires. Record rainfall during the preceding winter spurred abundant vegetation growth across the state, which quickly dried out during the hottest summer in 122 years of state history. San Diego's Gate Fire began on May 20, 2017, burned 2,056 acres and was fully contained three days later. Heading into the fall, a lack of early season rain followed by several episodes of severe winds and extreme fire danger set the stage for a catastrophic wildfire season. The Lilac Fire was first reported on December 7, 2017, burned 4,100 acres, and destroyed 157 structures,[8] before it was fully contained on December 16, 2017. The last Red Flag Warning of the season was issued January 28 and 29, 2018, followed by wetting rains and a marked drop off in fire activity.

While the extreme fire conditions plaguing California at the end of 2017 have been explained as the result of a "perfect storm" of factors, the future threat of wildfires is not expected to diminish. In fact, SDG&E's meteorology experts expect extreme climate-change-related trends to continue, as a combination of factors leads to increases in both fire season duration and severity through the end of the century, as well as projected warming across the region. 2018 is on track to be one of the driest seasons in San Diego history. Santa Ana winds, which are historically linked to large fires in the San Diego region, are likely to bring higher

[6] During Santa Ana wind conditions, fires typically start in the north, and mutual aid firefighting resources in California can only come to San Diego from the north. Thus, when San Diego is in need of firefighting resources, those resources may already be deployed elsewhere.

[7] Fire season during the 2017-2018 period began in San Diego County with Red Flag Warnings in January 2017, and ended in January 2018, when the winter rains finally arrived. Nine Red Flag Warnings were issued in 2017, seven of which occurred in the late fall and winter months.

[8] http://cdfdata.fire.ca.gov/incidents/incidents_details_info?incident_id=1928.

temperatures and lower humidity that will increase the fire potential with each event. Because Santa Ana wind events typically deliver the warmest conditions to the coastal communities, increases in fire potential may also extend to the coastal canyons and wildland areas that historically have not been as high of a wildfire concern. For example, a series of significant fires occurred in May 2014, when strong and widespread wind gusts hit San Diego County from the coasts to the mountains. The predominance of the May 2014 fires occurred near the coast, in the western half of the county. The warmer temperatures are also expected to enhance evaporation and transpiration even outside of Santa Ana events, which will deplete fuel moistures at faster rates. When coupled with longer dry periods, increases in tree mortality due to drought, and increased warmth, it is expected that this will result in longer fire seasons across the Southwest.

B. SDG&E's Proven Success in Mitigating Wildfire Threat, with a Comprehensive Fire Mitigation Program

Despite the extraordinary fire weather conditions that have impacted the state of California, including the San Diego region, SDG&E has not been associated with the ignition of any wildfires since 2007. SDG&E maintains, arguably, the most robust Fire Risk Mitigation program in the electric utility industry, which includes the helitanker, and is well-positioned to safely and reliably operate through periods of elevated fire danger. Fire safety, prevention, mitigation, control, and recovery remain central tenets of our corporate culture. SDG&E's RAMP report explains, "SDG&E has taken a leadership role in proactively addressing fire threats in the communities it serves and shares its personnel, resources, information, communications facilities, and fire-defense assets to help enhance the capabilities of the local communities to defend against any recurrences of catastrophic wildfire events in Southern California."[9] The programs, initiatives, and plans noted below highlight many of the efforts SDG&E has made, and will continue to make, to ensure wildfire risk is mitigated to the maximum extent possible.

SDG&E's safety philosophy and practices include a continued operational commitment to wildfire risk mitigation through targeted programs and initiatives for more than a decade, as I testified in SDG&E's last GRC proceeding.[10] The extreme Santa Ana wind conditions

[9] I.16-10-015/-016. Risk Assessment Mitigation Phase (RAMP) Report of Southern California Gas Company and SDG&E. Chapter 1 (Wildfires), at SDGE-1-4. November 30, 2016.

[10] A.14-11-003/-004 (cons.) Hearing Ex. 21 (Geier/Schneider SDG&E-03).

throughout SDG&E's service territory cause wildfire risk to be extremely high during wind events, and the consequences of a fire can be catastrophic. To address this ongoing threat, SDG&E has implemented fire risk mitigation measures that are unprecedented (in both California and the electric industry) to minimize both the likelihood of fire and any damage caused by fire should an incident occur.

1. SDG&E's Comprehensive Fire Mitigation Plan

SDG&E's last GRC presentation described how severe drought conditions in California and the increasing number of year-round wind events in SDG&E's service territory increased the need for fire risk mitigation efforts to adapt to changing field conditions, how day-to-day operations and fire risk mitigation efforts are now often inextricably linked, and how numerous planned capital projects were designed to minimize fire risk.[11] As shown in SDG&E's Fire Prevention Plan[12] and RAMP Report,[13] those projects and programs are now an integral part of SDG&E's business, and SDG&E's TY 2019 GRC testimony requests costs that will maintain and improve upon currently established fire mitigation program.[14] The categories of SDG&E's comprehensive fire risk mitigation activities, as described in the Fire Prevention Plan, are briefly summarized below:

Minimizing Sources of Ignition – SDG&E conducts activities to minimize ignition sources, including SDG&E's wood-to-steel fire hardening program, Cleveland National Forest (CNF) projects, and Fire Risk Mitigation (FiRM) program. For example, SDG&E has converted more than 13,000 wood poles to fire-resistant steel poles in fire-prone areas. SDG&E's Reliability Improvements for Rural Areas Team (RIRAT) program, which conducted a systematic risk-based analysis targeted at minimizing impacts of fire risks in rural areas and high

[11] *Id.* at DLG-4 (citing Woldemariam and Jenkins).

[12] SDG&E's most recent Fire Prevention Plan (FPP) (October 31, 2017) is *available at* http://webarchive.sdge.com/sites/default/files/documents/2021898396/SDGE_Fire_Prevention_Plan_for_2017.pdf, and incorporated here by reference.

[13] I.16-10-015, Risk Assessment and Mitigation Phase Report of San Diego Gas & Electric Company and Southern California Gas Company, *available at* https://www.sdge.com/regulatory-filing/20016/risk-assessment-and-mitigation-phase-report-sdge-socalgas. The RAMP Report explains both the wildfire risk mitigation programs in place during the TY 2016 GRC cycle (at the time the RAMP Report was filed), as well as programs being planned for inclusion as part of SDG&E's TY 2019 GRC application.

[14] Costs for these activities are largely supported by the direct testimony of Alan Colton (Ex. SDG&E-14-R, Electric Distribution Capital) and William Speer (Ex. SDG&E-15-2R, Electric Distribution O&M).

fire threat zones, has been incorporated into a more comprehensive FiRM program, which addressed electric system hardening and pole loading issues in fire prone areas, replacing aged conductors, equipment and/or line elements known to have a heightened probability of failure. Several projects are also underway in Cleveland National Forest, to increase safety and reliability by replacing existing electric infrastructure that currently serves the USFS, emergency service facilities (fire, communication and other), campgrounds, homes, businesses, and other customers within the CNF and surrounding areas.[15]

Operational Practices for Reducing the Risk of Ignition – SDG&E also has successful processes in place to reduce vegetation-related outages and fire risk, particularly during widespread drought conditions, including increased targeted vegetation management efforts to monitor tree mortality, assess additional concerns beyond what is planned, and respond as necessary. SDG&E uses advanced recloser technology that turns off power in the event that vegetation or debris touches a power line, and disables the function that allows the recloser to turn itself back on during threatening weather conditions, to reduce the risk of ignition and promote public safety. SDG&E is also developing technology to implement a falling conductor protection system, that will turn off a broken power line before it touches the ground.[16]

Mitigating the Threat of Fire: Awareness and Readiness – including SDG&E's meteorology staff, fire protection index (FPI), and Emergency Operations Center (EOC). SDG&E's fire-prevention and risk-mitigation activities begin with intensive data gathering and data analysis so that, if and when these abnormal and dangerous conditions are anticipated or occur, SDG&E is prepared to mobilize personnel and resources to abate, mitigate and respond to these conditions and any potential fire threats.[17]

---

[15] *See discussion at* FPP at 5-14; *see also* a discussion of these programs in Ex. SDG&E-14-R (Colton) and Ex. SDG&E-15-2R (Speer).

[16] *See discussion at* FPP at 14-20, Ex. SDG&E-15-2R (Speer); and Ex. SDG&E-14-R (Colton), in Reliability/Improvement Section J – Budget 11249 p. AFC-87 (Install SCADA on line capacitors), Budget 11253 p. AFC-88 (wireless fault indicators), Budget 11267 p. AFC-90 (SCADA Expansion-Distribution), Budget 12246 p. AFC-92 (Advanced Ground Fault Detection), and Budget 12247 p. AFC-93 (Smart Isolation and Reclosing).

[17] *See discussion at* FPP at 20-31, Ex. SDG&E-15-2R (Speer); and Ex. SDG&E-14-R (Colton), in Reliability/Improvement Section J – Budget 16244 p. AFC-100 (Meteorology – Outage Prediction Modeling), Budget 16245 p. AFC-101 (Meteorology – Fire Behavior Modeling), and Budget 17253 p. AFC-105 (Electric Distribution Grid Analytics –data gathering and analysis from weather and system performance).

Fire Suppression and Recovery (Coordinated with Community Outreach and Public Awareness[18]– including fire coordination personnel, firefighting assets and resources, and fire incident data collection plan. SDG&E is committed to fire risk preparedness and emergency response activities to mitigate the impacts of wildfires when they occur. If fire conditions threaten public safety, SDG&E mobilizes a range of resources, including trained firefighting assets, communications capabilities, data and information collection, and command facilities, to address fire threats and assure the earliest possible recovery from a fire event in the affected communities. SDG&E coordinates with state and local authorities and first responders to respond quickly, efficiently, and effectively to dangerous weather conditions. SDG&E has strategic electric operational protocol during Red Flag Warnings, Elevated Wind Conditions and Protocol and Safety Patrol Costs for Restoration of Outages in high risk fire areas, when SDG&E's EOC is activated. During these high fire risk events, SDG&E implements a crew mobilization plan to increase standby staffing in areas adjacent to identified risks within the service territory. Standby staffing includes observers, contracted fire response teams, helicopter surveillance, Electric Trouble Shooters and Electric Construction Crews, who remain on standby around the clock, as appropriate.[19]

SDG&E's electric distribution operations group, its meteorology group and its fire coordination group perform a joint risk analysis to determine the number of deployed personnel and to identify areas needing coverage. The presence of fire weather, the curing of fuels and the current system configuration are all factors that are considered in fire risk mitigation analysis and decision-making. SDG&E takes fire risk mitigation analysis seriously, and has integrated cutting-edge weather technology and fire science into SDG&E's operational decision making, while developing relationships with the community, and expanding a fire-aware culture at SDG&E. Our team of three full-time meteorologists help us make informed operational decisions. SDG&E also has cameras stationed to support visual fire awareness and risk mitigation, particularly in non-populated areas where a camera could provide the first initial identification of a fire.

[18] *See discussion at* FPP at 35-38 and Ex. SDG&E-15-2R (Speer).

[19] *See discussion at* FPP at 31-38 and Ex. SDG&E-15-2R (Speer).

2. SDG&E's Current and Planned Helitanker Program

During the last several years, SDG&E has leased a helitanker during what has been considered the fire season for certain months of the year. The helitanker can be airborne within 15 minutes and holds a maximum of 2,650 gallons of water or fire suppressant – the equivalent of five fire engines – and takes only 45 seconds to refill its tank. It has the largest water drop capability and the most effective drop pattern due to the tank design of any other firefighting helicopter currently in use in the United States, where rapid containment is the objective. Other firefighting helicopters utilized in San Diego County deliver approximately 350 gallons of water per firefighting drop. Over the last eight-plus years it has made more than 470 water drops, or over half a million gallons of water dropped to protect SDG&E's homes, businesses and communities in our service territory.

Since the inception of our aviation firefighting program, SDG&E has established collaborative partnerships with San Diego Fire Rescue and CALFIRE in the safe and effective emergency dispatch and operation of the helitanker. Additionally, the helitanker's firefighting capabilities have been used in coordination with the San Diego County Fire Chiefs' Association throughout all 54 fire agencies in San Diego County. These local agencies support SDG&E's collaborative use of the helitanker in conjunction with their firefighting programs. CALFIRE Chief Tony Mecham has stated:

> The helitanker is a significant and welcomed addition to our regional fire-fighting arsenal every year. The Aircrane's quick response and decisive attack make a critical difference by stopping a wildfire before it has a chance to spread. Having the helitanker close by and available, if needed, provides an extra measure of insurance for our community.[20]

SDG&E is committed to efficient and effective coordinated use of the helitanker, collaborating with state and local fire authorities to help mitigate the risk of wildfire threat.

At the time SDG&E's GRC application was filed, SDG&E's direct testimony supported costs that would increase the length of its previous contract for use of the helitanker from three months to five.[21] However, since the time SDG&E submitted its TY 2019 GRC testimony, California experienced a devastating and historic December 2017 fire season, caused by

[20] http://sdgenews.com/safe/sdges-aircrane-returns-challenging-fire-season.

[21] Ex. SDG&E-15-R (Speer) at WHS-45-46; *see also* Ex.SDG&E-15-WP (Speer) at 96, 99, 101 and 145.

conditions made worse by the impacts of climate change (as further described in Section II.A above).[22] San Diego's 2017 experience caused SDG&E to explore the need for a year-round helitanker lease and secure a superior helitanker model for SDG&E's purposes, that maximizes performance capabilities and minimizes limiting factors.[23] Mr. Speer's Second Revised Direct Testimony requests costs that reflect SDG&E's plan to extend the length of the existing lease by nine months, or a year-round lease, as well as SDG&E's plan to lease a higher performing model to enable the quick containment of wildfire. As the helitanker is associated with mitigating the risk of wildfire, for purposes of this GRC, it is considered to be a RAMP mitigation activity. The existing helitanker program is a control or baseline activity and the expansion of the program is a RAMP incremental request. This is reflected in the Second Revised Direct Testimony and supplemental workpaper of Mr. Speer.

III. CONCLUSION

SDG&E is committed to adapting to the impacts of the changing climate and responding to extreme weather events when they occur. For all of the reasons discussed above, SDG&E requests costs to support the availability of the helitanker on a year-round basis. The additional availability of this firefighting asset will aid in providing increased public safety to the communities SDG&E serves.

This concludes my prepared direct testimony.

[22] *See, e.g.*, discussion in Climate Change OIR.

[23] The extension of the helitanker lease to a 365-day program would require additional functions and support beyond what is currently part of SDG&E's helitanker program.

IV. WITNESS QUALIFICATIONS

My name is David L. Geier. I am Senior Vice President of Electric Operations for San Diego Gas & Electric Company (SDG&E). In my present position I oversee the planning, design and engineering of SDG&E's distribution, transmission and substation facilities. I am also responsible for operating the transmission grid.

I have held several previous management positions at SDG&E, including director of electric grid and distribution services, manager of direct access implementation, and supervisor of several SDG&E operations and facilities. Before joining SDG&E in 1980, I worked for Wisconsin Electric Power Co. in Milwaukee. I hold a bachelor's degree in Electrical Engineering and Power Engineering curriculum from the University of Illinois, Urbana. I also hold a Master's Degree in Electrical Engineering and Computer Engineering curriculum from San Diego State University. I am a registered professional engineer in California.

I have previously testified before the Commission.

APPENDIX A

GLOSSARY OF ACRONYMS

Acronym	Definition
SIMP	Storage Integrity Management Program
SDG&E	San Diego Gas & Electric Company
TY	Test Year
O&M	Operations and Maintenance
GRC	General Rate Case
CNF	Cleveland National Forest
RIRAT	Reliability Improvements for Rural Areas Team
FiRM	Fire Risk Mitigation
FPI	Fire Protection Index
EOC	Emergency Operations Center