SAN DIEGO GAS & ELECTRIC COMPANY

FIRE PREVENTION PLAN

OCTOBER 31, 2017

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I. Executive Summary

San Diego Gas & Electric Company ("SDG&E") provides this Fire Prevention Plan in compliance with Ordering Paragraphs 2, 4 and 5 of Commission Decision 12-01-032 (the "*Fire Safety Order*"), and Standard 1.E of General Order (GO)166.

In addition, Standard 1.E was added to GO 166 in January 2012 and was modified by Decision 14-05-020 (May 15, 2014). Standard 1.E requires SDG&E to prepare and submit plans to minimize the risk of catastrophic wildfire posed by overhead electric lines and equipment during extreme fire-weather events. As ordered by D.12-01-032, SDG&E submitted its first Fire Prevention Plan (FPP) by Advice Letter 2429-E on 12/31/2012. Resolution E-4576 (issued May 23, 2013) required SDG&E to make minor modifications to its FPP; these modifications were incorporated by SDG&E's supplemental Advice Letter filing 2429-E-A. The supplemental AL 2429-E-A was approved by a disposition letter from the Director of the CPUC's Energy Division on June 18, 2013, with an effective date of May 23, 2013. Consistent with General Order 166, D.12-01-032, and D.14-05-020, SDG&E's updated 2017 FPP is attached to this report as Appendix 1.

The SDG&E Fire Prevention Plan provides a comprehensive overview of the organizational and operational activities SDG&E undertakes in order to address the risk of fire in the SDG&E service territory. The catastrophic wildfires which devastated San Diego County in 2007, unprecedented in their sheer magnitude, resulted in an enduring culture change reflected throughout SDG&E's' utility operations, system and facilities, organization, and corporate goals and objectives. As evidenced in this Fire Prevention Plan, SDG&E has a company-wide, single-minded focus on addressing and minimizing wildfire-related risks to public health, safety and welfare. SDG&E's commitment to fire safety, prevention, mitigation, control, and recovery is a central tenet of our corporate culture. SDG&E takes a leadership role in addressing fire threats in the communities we serve and shares our personnel, resources, information, communications facilities, and/or fire-defense assets so as to enhance the capabilities of our local communities to defend against any repeats of catastrophic wildfire events experienced in southern California.

The SDG&E Fire Prevention Plan reflects a broad range of activities performed throughout the SDG&E organization. The Fire Prevention Plan is subject to the direct supervision of senior management, and its effectiveness is a performance measure for many SDG&E employees, some of whom are directly or indirectly responsible for contributing to and/or performing the activities described in the Fire Prevention Plan. The SDG&E Fire Prevention Plan begins with system design,

construction, operation, maintenance, inspection, and repair activities aimed at significantly reducing the potential for SDG&E facilities to become the source of ignition for a fire. Nevertheless, the ubiquity of our facilities and the range of climate and fuels (vegetation) conditions faced in the SDG&E service territory present some risk that our facilities, no matter how diligent or conservative our practices, might become the original or contributing source of ignition for a fire. To address this risk, SDG&E has implemented extensive operational programs designed to monitor the system closely whenever and wherever the threat of fire is elevated so that, in the event of an ignition, the threats to public safety from fire are quickly abated or mitigated as fully and quickly as possible. These programs include gathering and analyzing the data from SDG&E's extensive weather network. This network is one of the largest and densest networks of weather stations in the country and is used to determine where and when the threat of a wildland fire will present itself, which in turn facilitates the immediate organization and implementation of the SDG&E response appropriate to the threat.

SDG&E monitors all fires in its service territory and pays particular attention to wildland fires. These are fires that burn vegetation and are capable of propagation and may also threaten SDG&E facilities or may involve an SDG&E asset.

SDG&E's Fire Prevention Plan also includes firefighting and fire recovery activities. In the event fire conditions threaten public safety or SDG&E facilities or may involve an SDG&E asset, SDG&E will mobilize an appropriate 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.

Finally, the SDG&E Fire Prevention Plan is a "living document". In coordination with our many stakeholders, community leaders and the public, SDG&E shares and reviews the Fire Prevention Plan so as to assure its continuous improvement and maximum effectiveness. Community outreach and communications are also important aspects of the fire prevention, mitigation and recovery activities included in the Fire Prevention Plan. As SDG&E has shared and reviewed the Fire Prevention Plan with stakeholders and the public, the process has created a natural audience for disseminating information before, during and after conditions related to fires and the threat of fire. This audience is an important part of the communications chain used to broadcast threat and event information.

The activities described in SDG&E's Fire Prevention Plan have earned SDG&E various accolades for planning and performance. Beginning in 2005, SDG&E has been ranked "Best in the West" in reliability by PA Consulting Group, earning their

regional ReliabilityOne award for eleven consecutive years. SDG&E also received PA Consulting Group's National Award for Outstanding Reliability Performance in 2010 and 2014.[1] In 2008, SDG&E received PA Consulting Group's award for Outstanding Response to a Major Outage Event for our response to the 2007 wildfires. SDG&E has also been designated as a Tree Line USA utility by the National Arbor Day Foundation in recognition of our "best practices in utility arboriculture".[2] Through the SAFE San Diego Giving Initiative, SDG&E supports local Fire Safe Council and Community Emergency Response Teams programs. Since 2011, SDG&E has contributed nearly $1,000,000 ($925,500) to support grassroots programs, projects and events that focus on emergency preparedness and safety. In 2017, SDG&E was awarded the Agency Partner Award by the Fire Safe Council of San Diego for our commitment to keeping San Diego fire safe. Additionally, SDG&E was recognized in 2017, by the County of San Diego Board of Supervisors, Councilmembers Cate, Bry and Ward, of the City of San Diego, U.S. Congress members Susan Davis and Juan Vargas, California State Senators Joel Anderson, Toni Atkins and Patricia Bates, California Assembly members Lorena Gonzalez Fletcher, Brian Mainschein and Melissa Melendez, for outstanding leadership and exceptional service, educating communities about the threat of wildfires and community safety.[3] These awards validate our efforts to assure our Fire Prevention Plan is best in class and grounded in the purposes we share with the communities we serve.

Although SDG&E measures and records data such as the "three second gusts" this specific information is not used as the single data point upon which to develop and put in place the many programs that SDG&E employs in the overall prevention of fire within its service territory as described in this plan.

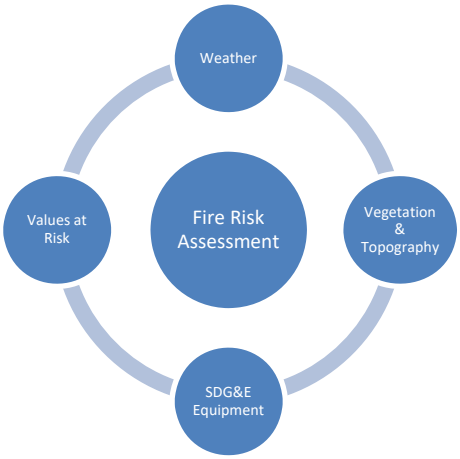
The goals and activities included in the SDG&E Fire Prevention Plan focus on a comprehensive and integrated assessment of the risks of fire posed by SDG&E's electric system. This involves an assessment of SDG&E's equipment and facilities, weather conditions, the density and condition of potential fuels such as vegetation,

[1] Information regarding PA Consulting Group's international consulting practice and best practices awards program for the electric utility industry can be found at the firm's public website and the following address: http://www.paconsulting.com/industries/energy/merchant-utility/improving-performance-of-utility-through-benchmarking/polaris/r1-and-s1-awards/.

[2] Information regarding the National Arbor Day Foundation and The Tree Line USA program, operated in conjunction with the National Association of State Foresters, can be found at the Foundation's public website and the following address: http://www.arborday.org/programs/treelineusa/summary.cfm.

[3] Information regarding the Fire Safe Council (California Chapter), its extensive membership and Partner of the Year Award can be found at the Council's public website and the following address: http://www.firesafecouncil.org/about/index.cfm.

and the potential threat to public safety, health and welfare using value at-risk measures, all as depicted in the graphic below.



SDG&E's commitment to fire safety, prevention, mitigation, response, and recovery is a central tenet of our corporate culture. With this overarching view of fire risk assessment in mind, SDG&E presents the activities comprising its Fire Prevention Plan.

II. Minimizing Sources of Ignition

The SDG&E Fire Prevention Plan is founded upon the goal of minimizing the probability that the various components of its sixty-nine-kilovolt transmission and twelve kilovolt distribution system might become the original or contributing source of ignition for a fire. SDG&E evaluated the prudent, cost-effective changes and improvements to its physical assets that could and should be made in order to meet this objective and implemented preventative operations, construction and maintenance plan consistent with these evaluations.

A. Mapping the High-Risk Fire Areas in the SDG&E Service Territory

SDG&E has performed and completed extensive mapping of its service territory to identify those areas at greatest risk to the occurrence of uncontrolled fires. Through these efforts, SDG&E identified two sets of geographic areas based on the potential risk of fire in the area and the threat to the public safety posed by fire. These two areas are known as the "Fire Threat Zone" (FTZ) and the "Highest Risk Fire Area" (HRFA). Generally, the FTZ includes the geographic areas most prone to wildfire due to local environmental conditions and features, and the HRFA includes areas within the FTZ where the risk of fire is the greatest.

1. Mapping the FTZ

As part of its response to Commission Rulemaking 08-11-005, SDG&E mapped its service territory to identify those areas where, due to local environmental conditions and features, the potential for wildfire was relatively high. This FTZ would be used to identify the areas where enhancements to rules, regulations and standards could reduce the potential for electric systems and facilities to ignite fires and thereby increase public safety and system reliability.

The FTZ mapping effort followed several key objective principles. First, the FTZ was defined using parameters that would result in relatively constant boundaries not subject to continuous change and revision. This resulted in the use of criteria that tended to be conservative, *i.e*., more inclusive than exclusive, so that the FTZ would describe the complete domain where the potential for wildfire was relatively high. Additionally, the FTZ map would need to be easily understood by key personnel and users, whether utility or other public officials, who might rely upon it in performing their job responsibilities.

In performing the mapping task, SDG&E began with the vegetation data developed and maintained by the California Department of Forestry and Fire Protection ("CAL FIRE"). These data were available on the CAL FIRE Fire and Resource Assessment Program ("FRAP") website. Using this data, SDG&E mapped the FTZ

in its service territory. This zone encompasses most of the vegetated rural areas in the Counties of San Diego and Orange. Compared to the HRFA described below, the FTZ includes areas where the density of vegetation is relatively low. The FRAP maps describe the fire risks in certain areas as “little or no threat”, “moderate”, “high”, “very high”, and “extreme”. Generally, the FTZ include all of the areas described in the FRAP maps as “extreme” and “very high” risk, and some portion of the areas described as “high” risk. In shaping the FTZ, SDG&E also applied its knowledge of its service area and internally developed high-resolution weather data and histories.

Because SDG&E personnel will use the FTZ map for various purposes, it was important to make the FTZ map easy to use and understand. One particular adjustment made by SDG&E to the raw data upon which the map was based was to create a contiguous FTZ, rather than create a multitude of “pockets” of high risk. The original data created a mosaic of areas of varying degrees of risk – such a map would have been difficult to interpret and use. As an example, based purely on the raw weather and vegetation data, there would have been areas where the risk of fire would have been designated as “little or no threat”, “very high”, and “low” again along a one-mile stretch of road. Rather than include and parse anomalies, SDG&E adjusted the shape of the FTZ to normalize the design, construction, operations, maintenance, and inspection activities across larger areas. This resulted in the inclusion of some lower-risk areas in the FTZ and, in a few cases, the exclusion of some isolated higher-risk areas from the Threat Zone. The resulting color-coded FTZ map is attached to this Fire Prevention Plan as Appendix A.

The Commission has authorized SDG&E to use its FTZ map until such time as the Commission issues its final rules and regulations governing the development and maintenance of fire-threat maps as part of Phase 3 of Rulemaking 08-11-005. However, this rulemaking is now closed and the task of developing fire-threat maps and regulations for new High Fire-Threat Districts was carried over to a new rulemaking R. 15-05-006. SDG&E is actively participating in both proceedings and will update its FTZ map pursuant to the further direction of the Commission.

2. Mapping the HRFA

The HRFA represents those areas within the FTZ where local environmental conditions and features combine to create the highest risk of fire in the SDG&E service territory. SDG&E’s Fire Coordinators, a team of in-house experts trained and experienced in fire behavior, fire prevention and firefighting, drafted the initial HRFA map in 2008 and reviewed annually (see appendix for current map). Using Geographic Information System software, SDG&E’s experts identified areas where the combination of relatively dense vegetation, relatively high winds, and

development (*e.g.*, homes, hospitals, schools, and other community assets) presented the highest risks of fire, property losses and injury from fire. Thus, the HRFA map identifies the areas marked by an overlap of (1) the "highest risk vegetation", *i.e.*, where the vegetation was relatively dense and in close proximity to housing, business and/or community development,[4] and (2) locations prone to high winds.

As with the FTZ map, SDG&E utilized the FRAP data and maps available from CAL FIRE to determine the level of vegetation likely to exist in specific areas of the FTZ. Areas prone to high winds were identified using historical data from weather stations located throughout the SDG&E service territory. This included the use of data from SDG&E's private network of weather stations. The data were used to identify locations where there was a reasonable probability that wind speeds would exceed fifty miles-per-hour (50 mph) under the "Santa Ana" wind conditions usually experienced during the late summer and fall in southern California. Finally, SDG&E adjusted the HRFA map to reflect our own knowledge and information regarding conditions in our service territory.

The HRFA maps are reviewed annually and adjusted to reflect environmental conditions expected to be present during the coming year's fire season, typically the late summer and fall seasons of each year. For example, fire perimeters and other fire protection measures are updated annually and reflected in the HRFA maps. In addition, the methodologies used to develop the HRFA map are reviewed and modified to ensure that lessons learned are incorporated into the map. As an example, SDG&E assures that the HRFA includes areas where there are data indicating a coincidence of high winds and dense vegetation. As noted above, the Commission has authorized SDG&E to use its FTZ map until such time as the Commission issues its final rules and regulations governing the development and maintenance of fire-threat maps as part of Phase 3 of Rulemaking 08-11-005, which is now included in rulemaking R.15-05-006. SDG&E continues to participate in that proceeding and will update its HRFA map pursuant to the further direction of the Commission.

B. Building Resiliency into the SDG&E System

In providing this Fire Prevention Plan, SDG&E takes note that the Commission's order focuses specifically on the measures taken by SDG&E related to the

[4] In assessing fire risks and prioritizing fire prevention activities, SDG&E considers the potential that an uncontrolled fire will threaten members of the public and/or property. Based on expert analyses provided by the Fire Coordinator team, SDG&E considers the potential path a wildfire is likely to take and prioritizes its activities along those corridors where the risk to life and property are greatest.

occurrence of "three-second wind gusts…that may exceed the structural or mechanical design standards for overhead power-line facilities." In reviewing the SDG&E Fire Prevention Plan, the Commission should be aware that SDG&E organizes its activities around addressing the threat of fire posed by various conditions and, in particular, on reducing the potential that SDG&E's facilities or operations might provide an original or contributing source of ignition for a fire. As the *Fire Safety Order* correctly anticipates, forecasted and ambient wind conditions, especially when high winds combine with the hot, dry conditions typically experienced during the late summer and fall seasons in southern California, are an important factor in assessing and addressing fire threats.

Three-second gusts represent a "measurement standard" rather than an independent "fire condition". That is, the weather instruments relied upon by SDG&E for measuring wind conditions are designed and calibrated to measure, record and report wind speeds across ten-minute periods – the average of the wind speeds recorded across any single ten-minute period is reported as the "sustained wind". In computing wind data for each ten-minute period, wind speeds are measured across three-second intervals and the highest wind speed reached during any three-second interval within any ten-minute period is separately recorded as the highest "gust" for the period. With respect to assessing and responding to the potential threat of fires, SDG&E takes potential and actual wind speeds into account, both as to sustained winds and gusts. Although both sustained wind speeds and gusts are considered, SDG&E's Fire Prevention Plan programs and activities are not designed around either wind measure. Rather, both are considered within a full range of inputs related to Fire Prevention Plan programs and activities.[5] The three-second interval by which "gusts" are measured is not, then, an independent operational planning standard or the focus of facility design and construction standards. Thus, SDG&E closely monitors the current weather situation and adjusts its operation to take into account current wind speeds "that may exceed the structural or mechanical design standards for overhead power-line facilities", however SDG&E's safety-related activities cannot be said to address the potential for strong wind *gusts* as a stand-alone criterion.

Using the FTZ and HRFA maps, SDG&E evaluated the prudent and cost-effective system improvements it could make to its transmission and distribution system

[5] As an example, among the non-environmental factors taken into account as SDG&E evaluates the threat of fire is whether firefighting assets are available or unavailable. Where local firefighting assets might have been previously deployed to a distant locale to fight an existing fire, SDG&E would be more conservative in assessing the actions it might take to abate or mitigate the potential threats within its service area. Winds would be a factor, but not the single determining factor under this circumstance, in deciding SDG&E's response to the local threat of fire.

which would reduce the potential for SDG&E's facilities in the FTZ and HRFA to provide the source of ignition for a fire. In part, this evaluation was performed in conjunction with the Commission's Rulemaking 08-11-005 – during Phase 1 of the proceeding, the Commission modified, with SDG&E's full support, various design, construction, maintenance, and inspection standards consistent with reducing the threat of fire posed by overhead electric and communications facilities.

1. Design and Construction Standards

To reflect the more stringent design and construction standards adopted by the Commission and so as to improve the performance of the SDG&E system in terms of meeting fire-prevention goals, the SDG&E Facilities Design Manual was modified to include an entirely new section aimed at providing guidance for hardening circuits against the risk of fire. These modifications include both proactive measures designed to reduce the incidence of ignitions and reactive measures by which SDG&E can respond to the threat of fires and mitigate the threat of fires.

SDG&E is also an aggressive advocate for modernizing those portions of the Commission's General Order 95 which provide the rules and regulations governing the design and construction of overhead electric and communications facilities. SDG&E continues to participate in the discussions regarding fire safety regulations for a new "High Fire Risk District" with stakeholders in rulemaking R.15-05-006 with the objective of improving General Order 95's focus on fire-safety and system-reliability objectives. SDG&E submitted 11 proposed regulations to enhance fire safety in the new High Fire-Threat District in the rulemaking. Fire safety begins with the design and construction standards pursuant to which utility facilities are designed, built and operated, so improving these regulations will provide the foundation for assuring that facilities built in the future will be stronger and safer than those built under prior versions of the rules.

2. Wood-to-Steel Program

Of significance is SDG&E's program to undertake replacement of wood poles used in those portions of the SDG&E sixty-nine (69) kilovolt transmission and twelve (12) kilovolt distribution system located in the FTZ and HRFA, substituting steel poles in their place. Wood poles are constructed to withstand working loads under stress of fifty-six miles per hour (56 mph) wind speeds. These new steel poles are designed to withstand working loads under the stress of eighty-five mile-per-hour (85 mph) wind speeds and in some specific cases up to one hundred and ten miles-per-hour (110mph). To date, SDG&E has installed over 5,000 new steel poles in the FTZ, and plans on further investment to continue to replace wood distribution and transmission poles with steel poles. These new steel pole facilities are being installed in conjunction with the application of higher strength conductors and

increased spacing between lines beyond the requirements of Commission General Order 95, resulting in a decrease in the likelihood of energized lines coming into contact with one another or arcing after being struck by flying debris. In addition, SDG&E's current design standards now reflect the use of steel poles over wood poles in the FTZ.

3. Undergrounding Line Segments and Facilities

SDG&E formed a technical team with expertise in the undergrounding of distribution systems and facilities. The team evaluated the undergrounding of various circuits, segments, elements, and equipment located in the HRFA. These experts provided senior management with an understanding of the potential for undergrounding portions of the overhead system in order to mitigate the risk of fire and the results are being used on circuit analysis to underground portions where feasible.

4. Special Case – Cleveland National Forest

The Cleveland National Forest Master Special Use Permit (MSUP) and Permit to Construct (PTC) for Power Line Replacement Projects. SDG&E currently operates and maintains a network of electric facilities located within the Cleveland National Forest (CNF). On September 19th, 2016 SDG&E received a "Master Special Use Permit" (MSUP) to operate and maintain facilities within CNF. The MSUP allows SDG&E to develop a series of projects and activities aimed at increasing safety and reliability of existing electric facilities within and near the CNF. Final approval for these projects and associated permits have been received and work has been on-going since September of 2016.

These projects will 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. The proposed projects include replacement and some select undergrounding of several existing 12 and 69 kilovolt electric facilities spread throughout an approximately 880 square mile area in Eastern San Diego County. The existing electric lines located within CNF also extend outside of CNF boundaries. The overall project includes operational components complementing SDG&E's Community Fire Safety Program, which in turn includes community outreach, new fire prevention measures, and enhanced emergency response.

The project design was based on various recommendations addressing fire prevention and the Forest's environmental values and aesthetics. Using an analytical matrix reflecting elements of fire risks and environmental concerns, SDG&E and the Forest Service collaborated to determine which sections of the

system should be upgraded. Each segment required a custom solution based on many factors, including the location of the customer being served by the distribution system, the topography of the land, and various biological, cultural and environmental factors.

5. Automated Reclosers

As part of its Community Fire Safety Program, SDG&E has undertaken one of the largest deployments of state-of-the-art pulse reclosers, focusing heavily on the FTZ and HRFA. This equipment allows SDG&E to operate its system with significantly reduced energy flows during reclosing operations and be able to sectionalize various elements of its distribution system to better manage system operations and reliability. These pulse reclosers and other Supervisory Controlled and Data Acquisition ("SCADA") controlled reclosers are managed remotely by SDG&E Distribution System Operators. In addition, SDG&E has implemented more sensitive relay settings to all SCADA reclosers in the HRFA. These sensitive relay settings provide very fast clearing of faults on distribution circuits and are remotely operated via SCADA, allowing for real-time adjustments triggered by adverse weather conditions.

6. Fire Detection and Mitigating the Threat of Fire

In addition to hardening the SDG&E electrical system, SDG&E is leveraging its assets to address fire threats. Along these lines, SDG&E has placed high-visibility, high-resolution rotating cameras on twenty-nine (35) key structures located in the FTZ and HRFA. The cameras can be controlled remotely and can rotate a full 360 degrees.

SDG&E is also collaborating with the staff at the University of California, San Diego, responsible for the operation of the San Diego High-Performance Wireless Research and Education Network (HPWREN). This high-speed wireless data network is designed to connect hard-to-reach areas in remote environments and provide real-time data; the network includes earthquake sensors and mountaintop cameras; the latter having become a part of the emerging early fire-detection and fire-warning system being deployed in the San Diego backcountry. Currently, there are a total of 22 camera locations each with multiple camera views. In addition, SDG&E continues to work with multiple vendors specializing in early fire detection systems, and will continue to work with these vendors to develop new and improved ways of spotting fires before they become uncontrolled wildfires.

7. Testing and Deploying Emerging Technologies

SDG&E continues to evaluate and incorporate new technologies and equipment into its overhead electric system. SDG&E's Electric Distribution Engineering

Department is responsible for evaluating and creating new equipment and use standards for emerging and pre-commercial technologies. Using equipment failure data, the department determines which technologies should be incorporated into the SDG&E system and which could be improved prior to application. This department continually evaluates the many new types of technologies which may improve electric reliability and public safety, and gives special attention to technologies that may contribute to SDG&E's fire-safety goals and objectives. As an example, SDG&E is beginning to apply and analyze more advanced fault-clearing equipment that contain algorithms to improve the ability of the system to clear "wire-down" faults more quickly and which will serve to reduce the potential such faults might provide an ignition source.

8. Facility Inspection and Repair Program

In addition to adding, redesigning and replacing facilities and elements as described above, SDG&E has implemented more stringent monitoring and inspection programs in the FTZ and HRFA, which will intensify our efforts to identify potential substandard system facilities and elements. As an example of these efforts, SDG&E is developing the use of pole-loading algorithms which more accurately calculate working loads and stresses. In addition, SDG&E coordinates these activities with communications infrastructure providers which jointly use SDG&E's poles and facilities.

SDG&E also maintains a comprehensive outage database which is used for reliability measurement and reporting purposes. Correlations between outages and locations are analyzed to determine whether certain equipment is prone to outage or has the potential to be an ignition source. This analysis is then matched to weather and other environmental conditions. Where it is determined that certain types of hardware have higher incidents of failure and potentially a higher incidence rate for ignition, they are replaced or prioritized for replacement. Vegetation Management also maintains a comprehensive outage database. Outages related to trees and or vegetation are investigated, documented, and results analyzed to determine if additional pruning or removal measures are warranted to prevent any reoccurrence.

SDG&E is in the process of conducting facility testing using three-dimensional light detection and ranging ("LiDAR") surveys in the HRFA. This technology is being used to perform aerial scans of the sixty-nine kilovolt transmission system in the HRFA on a three-year cycle. These surveys provide detailed depictions of terrain, vegetation and other obstacles in the vicinity of SDG&E's facilities. This data is processed and modeled by the SDG&E Power Line System Computer-Aided Design and Drafting technology to depict actual field conditions. The information

produced is used to ensure safe and proper clearances are met so as to reduce the potential for line faults occurring in the HRFA. Where potential issues are discovered, SDG&E will address them by September 1st, the calendar start of the peak fire season, subject to permitting requirements and other exigencies and conditions.

9. Oversight of Activities in the Rural Areas

Early in 2010, a multi-disciplinary technical team of subject matter experts within SDG&E, named the "Reliability Improvements in Rural Areas Team" ("RIRAT"), was formed and tasked with (a) developing a multi-dimensional understanding of the complex fire-risk issue within the SDG&E service territory, (b) assessing the conditions which pose the greatest risks related to fire, (c) determining the level of risk mitigation that could be provided by various proposed projects, and (d) assigning priorities to capital and operating programs and projects that could address fire-related risks in the FTZ. As is evident from the FTZ map that is attached to this Fire Prevention Plan, it is in these areas where the potential for uncontrolled wildfires, and potentially the greatest losses, is the highest. The RIRAT focused its attention on facilities and activities in these areas so as to assure cost-effective fire-prevention measures are promptly evaluated and implemented.

In 2016, the RIRAT was replaced with the Electric Risk Analysis (ERA) team. This team is chartered to address safety and reliability risks for electric distribution infrastructure across the entire service territory with continued focus on reviewing equipment failures that cause wire down events. As with the RIRAT team, the ERA oversees the evaluation and implementation of various fire-hardening activities while following these specific goals and objectives:

- Enhance the distribution system in the San Diego backcountry (a.k.a FTZ and HRFA);
- Develop statistical measures for assessing distribution-system performance relevant to fire-related risks so as to provide an understanding of the scope of the risks that must be addressed and develop metrics for measuring improvement;
- Identify and prioritize areas posing the greatest fire-related risks;
- Develop guidelines and a portfolio of solutions to minimize fire-related risks;
- Develop a multi-year plan for the rebuilding of circuits of greatest fire-related risk;
- Review and analyze all reports of "wire-down" occurrences; and,
- Use the "wire-down" analysis to identify causes and best solutions so as to minimize future occurrences and further reduce fire-related risks.

In order to meet their goals, the ERA adopted the following guiding principles:

- Utilize risk-based prioritizations to maximize risk-mitigation;
- Improve design specifications to reduce the potential for igniting fires;
- Consider and, to the extent prudent and cost-effective, employ technology-based solutions to reduce fire risks and improve overall system reliability;
- Prioritize system-rebuild efforts based on a matrix of available projects, considering the most important input factors such as the recent occurrence of a "wire-down", wind and weather conditions, fire risks, values at risk, outage history, conductor type, condition of equipment, environmental conditions, and resulting customer impacts;
- Systematically consider and evaluate the following options:
    - Fire-hardening sections of feeder circuits or individual circuit branches;
    - Undergrounding by traditional undergrounding or cable-in-conduit;
    - Adjusting protective equipment by revising settings, balancing loads, adding reclosers, replacing expulsion fuses with fault tamers, and/or reducing fuse size; and,
    - Employing new methods and/or technologies, such as spacer cables, wireless fault indicators, "off-grid" solutions, and Smart Grid technologies;
- Replace higher-risk equipment based upon statistical analytics;
- Use tree guards and/or insulated aerial cables; and,
- Assess the costs and benefits of optional solutions for reasonableness.

10. Fire Risk Mitigation (FiRM) Program

In 2013, SDG&E started an overhead distribution fire hardening re-building effort with a program called the Fire Risk Mitigation (FiRM) Program. FiRM addresses fire risk by hardening facilities in the HRFA and by replacing aged line elements, utilizing advanced technology, and safeguarding facilities from known local weather conditions driven largely by the analysis of the ERA.

III. Operational Practices for Reducing the Risk of Ignition

Despite all the efforts SDG&E might take in designing, redesigning, improving, replacing, and fire-hardening various elements of its overhead electric system, there will be some remaining potential risk that SDG&E's facilities might be the source of ignition for a fire. To address these risks, SDG&E has designed and

implemented a number of operations, maintenance and inspection programs directly addressing fire prevention and the mitigation of effects from fires.

A. System Management: Quality Assurance and Quality Control

SDG&E has enhanced its system-management programs so as to assure that, to the extent possible, SDG&E's overhead system, facilities and equipment are unlikely to become the source of ignition for a fire. These programs generally encompass inspection and maintenance functions, and have been modified to focus on minimizing the probability that damaged or aging facilities will provide the ignition source for a fire. Inspection and repair of the SDG&E transmission and distribution systems have particularly intensified in the FTZ and HRFA. To that end, SDG&E performs a G.O. 165-type system maintenance patrol of the entire overhead electric system in the FTZ on an annual basis. Safety related non-conformances identified in those patrols are scheduled for follow up repair. These patrols are twice as frequent as that required of the overhead system in general. In addition, SDG&E has implemented Quality Assurance and Quality Control standards and programs throughout its service territory, with a special focus in the HRFA during fire season.[6] These proactive programs are designed to identify potential structural and mechanical problems before they fail. Distribution facilities within the HRFA are currently inspected in detail on a three-year cycle and corrections are made in the same year before fire season begins. Where the facility in need of repair is owned by a party other than SDG&E, *e.g.*, by a communication infrastructure provider, SDG&E will issue a notice to repair to the facility owner and work with the facility owner to ensure necessary repairs are completed promptly. SDG&E's operational goal, subject to permitting requirements and other exigencies and conditions, is to complete all facility and equipment repairs before September 1st of each year[7].

Annual adjustments to the HRFA map, if any, are also reflected in the scope of the Quality Assurance and Quality Control program.

The SDG&E Transmission Quality Assurance and Quality Control program is similar in nature to its distribution counterpart. Transmission lines within the HRFA, subject to any annual adjustments to the HRFA boundaries that might be made based on updated data, are inspected on a three-year cycle.[8] Matters of concern are

[6] The Quality Assurance and Quality Control program augments the five-year inspection cycle imposed under the provisions of Commission General Order 165.
[7] September 1st marks the beginning of the "fire season", although the highest risks of and from fire in the SDG&E service territory typically peak in October and November.
[8] The three-year inspection cycle for transmission facilities coincides with the normal cycle specified in SDG&E's Transmission Maintenance Practice manual.

identified for repair, and SDG&E makes best efforts, subject to permitting requirements and other exigencies and conditions, to complete all repairs within the HRFA by September 1st.

B. Enhanced Vegetation Management and Clearance Program

SDG&E currently maintains records for over 463,000 trees located near its power lines. Almost 100,000 of these trees are located within the SDG&E HRFA. All of the 460,000+ inventory trees in SDG&E's database are monitored using known species and specimen growth rates, with additional consideration given to the amount of rainfall occurring during periods affecting overall tree growth, and past pruning practices. Each tree is visited by a staff arborist on an annual cycle. The annual inspections are routine maintenance and hazard tree assessments to ensure that every tree remains fully compliant for the duration of the cycle and/or is trimmed according to accepted standards and clearances. Prior to fire season, SDG&E requires vegetation management contractors to perform annual training on hazard tree assessment. This refresher training helps set the stage for a second inspection and corresponding tree-hazard evaluation is performed for each tree in the HRFA. The tree evaluation includes 360-degree assessment of every tree within the 'strike zone' of the conductors and maximize time-of-trim clearances. To the extent unsafe clearances may exist, an order to clear vegetation is issued and trimming is completed prior to September 1st of each year. In addition, SDG&E conducts off cycle patrols for Century Plant blooms and bamboo. The off- cycles are performed throughout the entire service territory during their peak growth to prevent the new growth from encroaching the minimum clearances of overhead conductors. These activities ensure safe minimum vegetation clearances are achieved prior to the peak fire season.

In addition, SDG&E continues a robust tree removal program to remove problematic species, this occurs system wide. The SDG&E "Right Tree-Right Place Program assists customers in the selection of the tree species and planting locations which will minimize interference with nearby power lines and facilities. SDG&E also offers free tree replacements in the event that an existing tree cannot be maintained safely near power lines and should be removed rather than trimmed. Notably, SDG&E has, for the 15th consecutive year, been recognized by the National Arbor Day Foundation as a "Tree Line USA" utility company in recognition of our "best practices" combining worker education and training, public outreach, quality tree care, and system reliability.

SDG&E also manages over 35,000 poles within the CAL FIRE jurisdictional areas that have been designated as "subject poles".[9] For poles within the CAL FIRE jurisdiction that bear these "non-exempt" attachments, SDG&E is required to perform "pole brushing", that is, clearing all vegetation within a ten-foot radius of the pole. To further reduce potential ignition sources, vegetation management works closely with the FiRM Team and engineering to reduce the number of non-exempt power line components by replacing such equipment, where feasible, with exempt equipment, which should also reduce the potential for pole attachments to become an ignition source.

Lastly, SDG&E Vegetation Management provides electrical equipment training with Cal Fire representatives. This training is in preparation for a Cal Fire Inspection for PRC 4292 and 4293 in the State Responsible Areas. Over the years, the program has developed a great working relationship with Cal Fire. The training provided helps to ensure SDG&E is maintaining proper clearances of vegetation to conductors and equipment as we enter the fire season. Cal Fire Inspections have been jointly performed with SDG&E, however, the training is intended for Cal Fire to better understand how our system operates and what equipment requires mitigations to prevent an ignition source. This training can be used by Cal Fire while they are conducting their own day to day operations and inspections in the field.

C. Coordination with Communications Infrastructure Providers

In 2012, SDG&E developed and began using a new web based communication conduit to simplify the recordkeeping for, and approval, inspection and repair of, pole attachments owned by Communications Infrastructure Providers. Named the "Telecommunication Equipment Attachment Management System" ("TEAMS"), the system was placed in operation in October 2012. TEAMS provides a direct communication link between SDG&E and Communications Infrastructure Providers and a shared-recordkeeping functionality. There are four key benefits provided by TEAMS. First, TEAMS enable Communications Infrastructure Providers to file pole attachment applications on-line – tracking of these applications and accompanying documents can now be performed electronically. This provides the baseline data necessary for SDG&E to monitor the equipment and resulting working loads placed on SDG&E facilities. Second, all attachment applications can be delivered and tracked by the applicant and SDG&E. Third, this system is also used for requesting and tracking requests for pole transfers and other transactions involving changes to equipment on jointly used poles with communications-related attachments. Finally, if during an inspection SDG&E discovers any pole attachment to be non-

[9] These attachments are designated as "subject poles" by virtue of posing some potential risk for becoming an ignition source.

compliant and/or in need of repair, notices and the tracking of repairs will be done through TEAMS. This provides both SDG&E and the Communications Infrastructure Providers with electronic records of the actions taken by both to assure overhead facilities are in good repair and less of a risk to be a source of ignition for a fire.

SDG&E is also an active participant in the Commission's investigation into a centralized database for pole attachments I.17-06-027 which is reviewing improvements to the pole attachment process. SDG&E also proposed several rules in the safety rulemaking R.15-05-006 designed to improve the safety of pole attachments in the new High Fire-Threat Districts.

D. Workforce Training and Field Practices

SDG&E believes that an important line of defense against the ignition of fires is a well-trained and alert workforce. Internally, SDG&E has created a culture of fire prevention. To that end, SDG&E has adopted an extensive set of work rules and complementary training programs designed to minimize the likelihood that SDG&E's facilities or field work not be the source of ignition for a fire. The rules and training programs are in large part embodied in SDG&E Electric Standard Practice No. 113.1 ("ESP 113.1"), which specifically addresses wildland fire prevention and fire safety. ESP 113.1 was developed by SDG&E's expert team of Fire Coordinators based on their experience (over 100 years of combined work experience) in fire behavior, fire prevention and firefighting techniques. ESP 113.1 also incorporates principles and concepts drawn from various federal, state and local protocols and standards addressing wildland fire prevention and suppression.

ESP 113.1 describes the conditions under which the threat of fire is considered high, and the changes in field practices and resources which will be implemented as the threat increases. These changes affect work rules, equipment which will be made available to work crews under different conditions, and even worker attire. ESP 113.1 specifies minimum training requirements and annual refresher requirements for all SDG&E and contract personnel working in the FTZ and HRFA. The work rules and training also apply to personnel working in SDG&E's Electric Distribution Operations and Electric Grid Operations control centers.

As an essential part of ESP 113.1, SDG&E has reviewed and has an understanding of the Incident Command System. This system provides a structure for disciplined communications and decision-making under the threat of fire as well as during fire emergencies. SDG&E field supervisors are assigned varying levels of on-scene command responsibilities in terms of coordinating and managing the SDG&E response to threat and emergency conditions. Training in the Incident Command

System protocols and responsibilities is a key element of the annual training conducted by SDG&E. ESP 113.1 is also reviewed annually and any needed changes adopted and made known to all affected.

E. Senate Bill 1028 (SB 1028)

In September of 2016 SB 1028 was chaptered into law. This new law requires each electrical corporation to prepare and submit a wildfire mitigation plan which shall include the objectives of the plan, a description of preventive strategies and programs that are focused on minimizing risk associated with electric facilities, and a description of the metrics that the electric corporation uses to evaluate the overall wildfire mitigation plan performance and assumptions that underlie the use of the metrics.

Fire Prevention Plan

Since the wildfires of 2007 SDG&E has been developing, expanding and refining its SDG&E's Community Fire Safety Program (CFSP). Today the CFSP has evolved into a mature and comprehensive program that improves power line safety, increases reliability and helps to keep SDG&E service territory prepared in the event of an overall emergency. As part of this plan, SDG&E has made significant enhancements in system design, weather analysis and prediction, operational changes and outage prediction, supplemental inspection and maintenance practices, active vegetation management, and created first of its kind fire models to allow SDG&E to move where the risk is the greatest and be able to predict where fire may travel in the event of active fire situation. These programs and policies are all as described in this Fire Prevention Plan which is contained within the CFSP umbrella.

Metrics

SB 1028 asks that the utilities describe metrics that SDG&E proposes to use and evaluate the overall plan performance. As such, SDG&E proposes to utilize two metrics.

The first metric is proposed to be the reportable ignitions associated with electric overhead powerlines in SDG&E's Fire Threat Zone ("FTZ"). The data to be utilized as a metric is the number of powerline-involved fire incidents annually reported to the CPUC per Decision 14-02-015, that occurred within SDG&E's Fire Threat Zone. Generally, a reportable ignition includes all of the following: a) Ignition is associated with SDG&E powerlines and b) something other than SDG&E facilities burned and c) the resulting fire traveled more than one meter from the ignition point. In 2016, SDG&E had 17 ignitions in its Fire Threat Zone. SDG&E proposes to track

the number of these events going forward as a measure to compare with SDG&E's hardening efforts.

The second metric is proposed to be the number of transmission and distribution wires downed within SDG&E's Fire Threat Zone. The data to be utilized as a metric is the number of instances where an electric transmission or primary distribution conductor falls to the ground or on to a foreign object (within the SDG&E Fire Threat Zone). For 2016, SDG&E had 47 such instances within the Fire Threat Zone. SDG&E proposes to track the number of wires down in the FTZ going forward as a measure to compare with SDG&E's hardening efforts.

In both cases SDG&E proposes to use its Fire Threat Zone as the area of applicability for both metrics. However, when the CPUC adopts the new High Fire Threat District then SDG&E will utilize the same metrics within SDG&E's High Fire Threat District.

SDG&E assumes that the primary purpose of the metrics is to provide longer term feedback on the efficacy of SDG&E's fire preventative strategies and programs focused on electric facilities. SDG&E notes that similar metrics are used for other purposes, e.g. wires down is used in monitoring electric reliability. In other cases, this metric is monitored with "exclusions" in order to normalize unusual events such as extreme weather. However, for fire purposes, SDG&E assumes that such metrics should include (rather than exclude) such events, and intends to monitor all wires down for fire prevention purposes, rather than only wires down during normal weather.

SDG&E also assumes that the metrics noted here should focus on the highest risk fire areas (i.e., the FTZ), rather than including the entire service territory.

IV. Mitigating the Threat of Fire: Awareness and Readiness

A. Situational Awareness

Although the risk of fire is a year-round reality, there are certain recurring environmental and weather conditions, particularly during the late summer and early fall, when the risks of and from fire, particularly from uncontrolled wildfires, in the SDG&E service territory are abnormally high and the dangers most severe. 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.

SDG&E has developed extensive, high-resolution weather databases which are used to identify those areas where the threat of and from uncontrolled wildfire is the highest and/or most dangerous. The areas which SDG&E monitors most closely are shown in the FTZ and HRFA maps – these areas are distinguished by the coincidence of high winds and combustible vegetation. SDG&E's weather databases are constantly updated using weather data provided by a number of sources, including the United States National Weather Service, local airports, and SDG&E's proprietary mesonet located throughout SDG&E's service territory.[10] SDG&E's mesonet provides over 200,000 data points per day.[11]

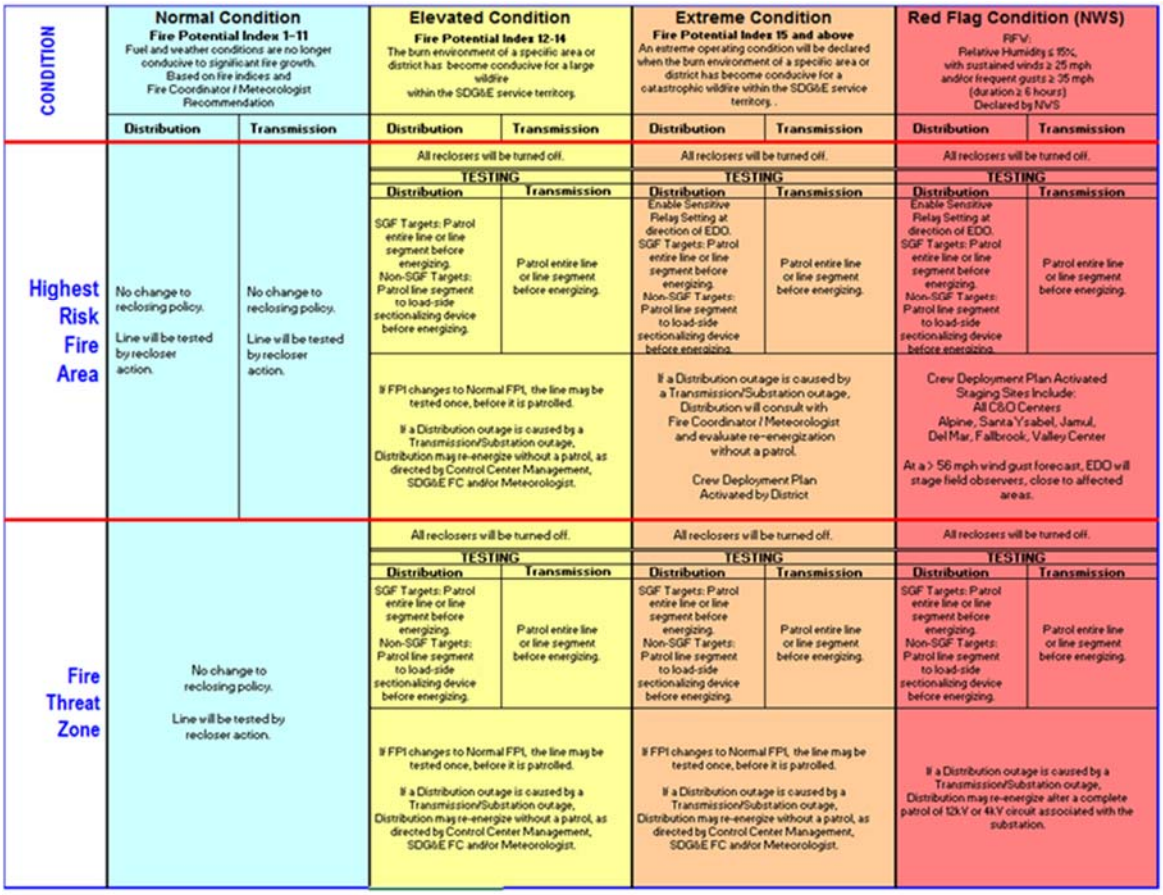
SDG&E has three (3) full-time degreed and experienced meteorologists on staff. Their responsibilities include analyzing the historical databases and, importantly, monitoring incoming data in real-time. They also provide a detailed daily forecast of weather conditions relevant to SDG&E's operations. Their forecasts, a combination of heat, humidity, wind, and other conditions, are combined into an "Operating Condition" assessment, which tracks the potential for fires occurring in any region of the SDG&E service territory. There are four (4) Operating Conditions used for these purposes:

- **Normal Condition**: This condition is declared when it has been determined by the SDG&E meteorologists and Fire Coordinator team that the burn environment is not conducive for wildfires within the SDG&E service territory;
- **Elevated Condition**: This condition is declared when it has been determined by the SDG&E meteorologists and Fire Coordinator team that the burn environment has become conducive for wildfires within the SDG&E service territory;
- **Extreme Condition**: This condition is declared when it has been determined by the SDG&E meteorologists and Fire Coordinator team that a combination of high winds, low relative humidity, and the burn environment will create critical fire weather conditions; and,
- **Red Flag Warning (RFW) Condition**: Red Flag Warning Condition is declared by the National Weather Service when high *winds and low relative humidity are forecasted to occur for an extended period of time.* Depending on the condition reported and broadcast by the meteorological staff, various operational changes and rules appropriate to each condition will be triggered

[10] The location of SDG&E's weather stations is shown on the Fire Threat Zone and Highest Risk Fire Area map attached as an appendix to this Fire Prevention Plan.
[11] SDG&E makes its weather data available to public agencies and the general public free of charge through several popular media outlets, including the Internet.

and implemented. A table summarizing the four conditions and the associated operational responses to each is shown immediately below:

Operating Chart for Normal through Red Flag Conditions



CONDITION	Normal Condition Fire Potential Index 1-11 Fuel and weather conditions are no longer conducive to significant fire growth. Based on fire indices and Fire Coordinator / Meteorologist Recommendation		Elevated Condition Fire Potential Index 12-14 The burn environment of a specific area or district has become conducive for a large wildfire within the SDG&E service territory.		Extreme Condition Fire Potential Index 15 and above An extreme operating condition will be declared when the burn environment of a specific area or district has become conducive for a catastrophic wildfire within the SDG&E service territory. .		Red Flag Condition (NWS) RFV: Relative Humidity ≤ 15%, with sustained winds ≥ 25 mph and/or frequent gusts ≥ 35 mph (duration ≥ 6 hours) Declared by NWS	
	Distribution	Transmission	Distribution	Transmission	Distribution	Transmission	Distribution	Transmission
Highest Risk Fire Area	No change to reclosing policy. Line will be tested by recloser action.	No change to reclosing policy. Line will be tested by recloser action.	All reclosers will be turned off. TESTING Distribution: SGF Targets: Patrol entire line or line segment before energizing. Non-SGF Targets: Patrol line segment to load-side sectionalizing device before energizing. Transmission: Patrol entire line or line segment before energizing. If FPI changes to Normal FPI, the line may be tested once, before it is patrolled. If a Distribution outage is caused by a Transmission/Substation outage, Distribution may re-energize without a patrol, as directed by Control Center Management, SDG&E FC and/or Meteorologist.		All reclosers will be turned off. TESTING Distribution: Enable Sensitive Relay Setting at direction of EDO. SGF Targets: Patrol entire line or line segment before energizing. Non-SGF Targets: Patrol line segment to load-side sectionalizing device before energizing. Transmission: Patrol entire line or line segment before energizing. If a Distribution outage is caused by a Transmission/Substation outage, Distribution will consult with Fire Coordinator / Meteorologist and evaluate re-energization without a patrol. Crew Deployment Plan Activated by District		All reclosers will be turned off. TESTING Distribution: Enable Sensitive Relay Setting at direction of EDO. SGF Targets: Patrol entire line or line segment before energizing. Non-SGF Targets: Patrol line segment to load-side sectionalizing device before energizing. Transmission: Patrol entire line or line segment before energizing. Crew Deployment Plan Activated Staging Sites Include: All C&O Centers Alpine, Santa Ysabel, Jamul, Del Mar, Fallbrook, Valley Center At a > 56 mph wind gust forecast, EDO will stage field observers, close to affected areas.	
Fire Threat Zone	No change to reclosing policy. Line will be tested by recloser action.		All reclosers will be turned off. TESTING Distribution: SGF Targets: Patrol entire line or line segment before energizing. Non-SGF Targets: Patrol line segment to load-side sectionalizing device before energizing. Transmission: Patrol entire line or line segment before energizing. If FPI changes to Normal FPI, the line may be tested once, before it is patrolled. If a Distribution outage is caused by a Transmission/Substation outage, Distribution may re-energize without a patrol, as directed by Control Center Management, SDG&E FC and/or Meteorologist.		All reclosers will be turned off. TESTING Distribution: SGF Targets: Patrol entire line or line segment before energizing. Non-SGF Targets: Patrol line segment to load-side sectionalizing device before energizing. Transmission: Patrol entire line or line segment before energizing. If FPI changes to Normal FPI, the line may be tested once, before it is patrolled. If a Distribution outage is caused by a Transmission/Substation outage, Distribution may re-energize without a patrol, as directed by Control Center Management, SDG&E FC and/or Meteorologist.		All reclosers will be turned off. TESTING Distribution: SGF Targets: Patrol entire line or line segment before energizing. Non-SGF Targets: Patrol line segment to load-side sectionalizing device before energizing. Transmission: Patrol entire line or line segment before energizing. If a Distribution outage is caused by a Transmission/Substation outage, Distribution may re-energize after a complete patrol of 12kV or 4kV circuit associated with the substation.	

The daily weather forecast and Operating Condition are broadcast by electronic media to personnel whose activities are affected by the declaration of the Operating Condition – the forecast, particularly when the threat of fire is high or rising, will be updated and rebroadcast as conditions warrant and as the staff meteorologists determine is appropriate. The forecast is broadcast in real-time to a large audience of SDG&E employees. Personnel receiving these weather forecasts are trained to adjust their activities, duties and priorities based upon the Operating Condition reported by the staff meteorologists.

Generally, as actual or forecasted wind speeds, measured in terms of both sustained winds (the average wind speed across ten-minute intervals) and wind gusts (the highest wind speed occurring during a three-second period within a ten-minute interval), increase, the Operating Condition will change (or "be elevated"), from "Normal" to "Elevated Condition" or "Extreme Condition" or "Red Flag

Condition", depending on environmental and weather conditions and the strength of the winds being experienced or forecasted. With each step-change in the Operating Condition, personnel are placed on appropriate levels of alert. In addition, the level of system monitoring and, ultimately, system operations and activities, are elevated according to the prevailing Operating Condition. Most importantly, as wind speeds increase, SDG&E deploys an increasing number of field crews, troubleshooters and Wildland Fire Prevention resources to areas with the highest winds and where the greatest threat of fire exists, so as to increase the probability that fires will be detected early and a response will occur as soon as possible.

B. The Fire Potential Index

SDG&E has developed a comprehensive assessment tool, known as the "Fire Potential Index" (FPI) that is used as a tool for making operational decisions which will reduce fire threats and risks. This tool converts environmental, statistical and scientific data into an easily understood forecast of the short-term fire threat which could exist for different geographical areas in the SDG&E service territory. The FPI is issued for a seven-day period, and provides SDG&E personnel time, during which they may plan and prepare accordingly.

The FPI reflects key variables such as the state of native grasses across the service territory ("green-up"), fuels (ratio of dead fuel moisture component to live fuel moisture component), and weather (sustained wind speed and dew point depression). Each of these variables is assigned a numeric value and those individual numeric values are summed to generate a Fire Potential value from zero (0) to seventeen (17), each of which expresses the degree of fire threat expected for each of the seven days included in the forecast. The numeric values are classified as "Normal", "Elevated", and "Extreme".

The state of native grasses, or "Green-Up Component", of the FPI is determined using satellite data for various locations. This component is rated on a 0-to-5 scale ranging from very wet (or "lush") to very dry (or "cured"). The scale is tied to the NDVI, which ranges from 0 to 1,[12] as follows:

[12] The Normalized Difference Vegetation Index ("NDVI") is a simple graphical indicator that can be used to analyze remote sensing measurements, typically but not necessarily from a space platform, to assess whether the target area under observation contains live green vegetation or not. More information on the NDVI scale is available at the following address: http://en.wikipedia.org/wiki/Normalized_Difference_Vegetation_Index.

FPI Green-Up Component

Very Wet/Lush: 0.65 to 1.00	0.60 to 0.64	0.55 to 0.59	0.50 to 0.54	0.40 to 0.49	Very Dry/Cured 0 to 0.39
0	1	2	3	4	5

The Fuels Component of the FPI measures the overall state of potential fuels which could support a wildfire. Values are assigned based on the overall state of available fuels (dead or live) for a fire using the following equation:

FC = FD / LFM

Where FC represents "Fuels Component" in the scale below;

And FD represents Fuel Dryness Level (using a 1-to-3 scale);[13] and,

And LFM represents Live Fuel Moisture (percentage).

The product of this equation represents the fuels component that is reflected in the FPI as follows:

FPI Fuels Component

Very Wet					Very Dry
1	2	3	4	5	6

The weather component of the FPI represents a combination of sustained wind speeds and dew-point depression as determined using the following scale:

[13] These values are taken from the Southern California Geographic Area Coordination Center, an interagency support center for fire protection and suppression. More information regarding this agency can be found at the following address: http://gacc.nifc.gov/oscc/ .

FPI Weather Component

Dewpoint/Wind	≤4 knots	5 to 9	10 to 14	15 to 19	20 to 24	>24 knots
>50ºF	2	3	3	4	5	6
40ºF to 49ºF	2	2	3	3	4	5
30ºF to 39ºF	1	2	2	3	3	4
20ºF to 29ºF	1	1	2	2	3	3
10ºF to 19ºF	0	0	1	1	1	1
<10ºF	0	0	0	0	0	0

The individual numeric values representing the three variables reflected in the FPI, shown above, are combined and placed on the following scale:

Fire Potential Index (FPI)

Normal	Elevated	Extreme
≤ 11	**12 to 14**	**≥ 15**

The FPI was developed by a team made up of SDG&E meteorologists, fire coordinator, and statistical analysts. The team has validated the FPI values and their usefulness by recreating historical values for the past ten (10) years. The historical results bore a very strong correlation to actual fire events in terms of the severity of past fires and, in particular, provided very accurate information as to when the risks of uncontrolled and large-scale wintertime fires were high. SDG&E expects to tie proactive and reactive operational practices and measures to the FPI values, with the further expectation that SDG&E will be able to reduce the likelihood its facilities and operations will be the source of ignition for a fire during times when the risk of fire as measured by the FPI elevated or extreme.

C. The SDG&E Emergency Operations Center (SDG&E EOC)

In the event the National Weather Service declares a Red Flag Warning (RFW), the SDG&E meteorologists will elevate the warning broadcast to SDG&E personnel to the highest level of alert. RFW's are typically issued when relative humidity is at or below fifteen percent (15%) and sustained winds are expected to reach twenty-five miles-per-hour (25 mph) or higher and/or frequent wind gusts exceeding thirty-five miles-per-hour (35 mph) are expected for a duration of six or more hours. A RFW will also be issued under "dry lightning conditions", where a lightning event is expected in the absence of enough precipitation to wet potential fuels which are considered critically dry. Upon the declaration of a RFW, SDG&E may activate the SDG&E EOC depending on critical fire weather conditions and forecasted wind speeds.

Because RFW Conditions present threats to the SDG&E electrical system and its component facilities and equipment, specific members of SDG&E management and operating departments are placed on alert when these conditions are present and the National Weather Service has issued a RFW. Upon such a declaration, these senior managers and operating personnel are called upon to appropriately staff the SDG&E EOC, a secure and dedicated facility which serves as a command center for SDG&E operations under high-threat conditions. The activation of the SDG&E EOC assures that appropriate decision makers and experts are assembled together, providing for the close monitoring of the electrical system and operations by all involved departments and disciplines. As the situation changes, the SDG&E EOC personnel will take appropriate and timely actions as necessary in order to protect public safety and defend against the threat that SDG&E's electrical facilities may become a source of ignition.[14]

D. Crew Mobilization and Deployment Strategy

During an Extreme Operating Condition or Red Flag Condition, the management of the SDG&E Electric Distribution Operations and Electric Grid Operations control centers work to coordinate the assignment of appropriate and needed resources to each of the affected regional operating districts. At minimum, Electric Troubleshooters and personnel from the Wildland Fire Prevention resources are made available for immediate response to address fire threats or events. If the event is more severe, additional resources will be coordinated between and assigned from Electric Distribution Operations, Electric Grid Operations, Electric Regional Operations, Construction Services, and Kearny Substation and

[14] Such actions may include those authorized by statute and CPUC decisions, including D.09-09-030 as modified by D.12-02-024.

Transmission Operations Center to manage the event. Field personnel may be assigned to observe an area forecasted to experience the most adverse weather conditions – these personnel are under instructions to report flying debris, vegetation damage, or significant conductor movement. Based on these field observations, SDG&E deploys appropriate resources to address the fire threats posed by these conditions.

SDG&E has deployed three fully self-contained Emergency Mobile Command Trailers to support the ICS structure during emergency response and restoration activities. These mobile command units during established the high-risk fire season are staged in districts located within the FTZ. District personnel are fully trained each year on operations and maintenance to ensure units remain effective and functional. Future expansion of this mobile command strategy are under discussion.

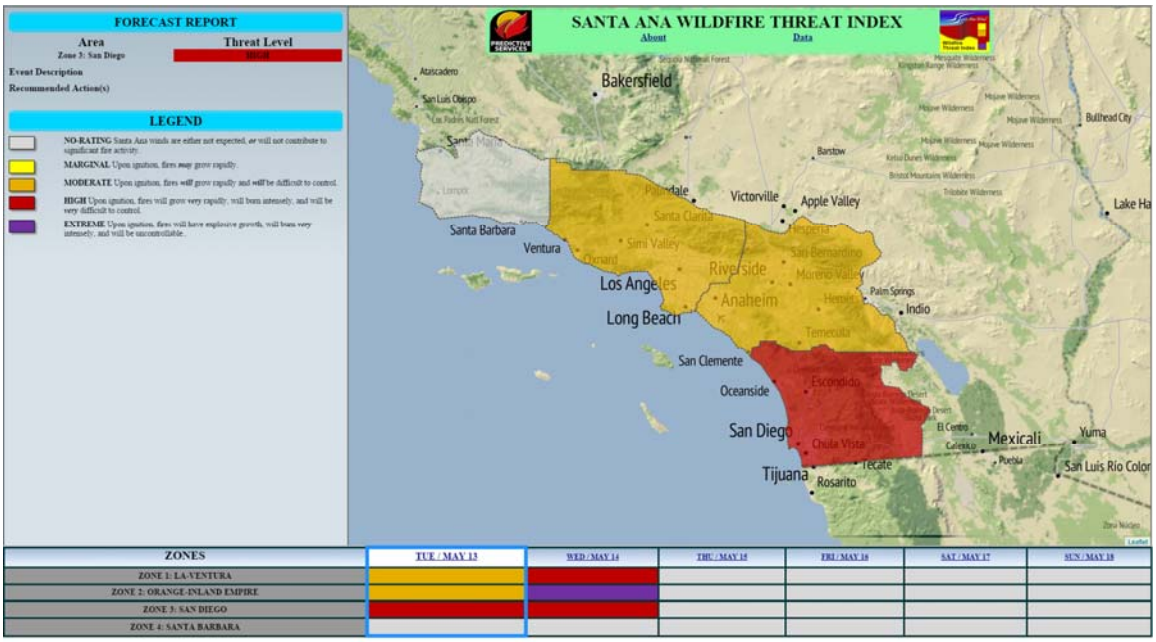
E. Field Patrols

Under Elevated, Extreme and Red Flag Warning Conditions, SDG&E may perform an appropriate patrol of any circuit sustaining a forced outage. Qualified electrical workers are dispatched to inspect the circuit, determine the cause of the outage, and evaluate the physical integrity of the circuit. Upon the appropriate evaluation, restoration will commence when repairs are completed and/or there is no longer a threat to public safety or the electric system. In some cases, and weather permitting, field personnel may be positioned to observe and test the affected circuit.

F. Santa Ana Wildfire Threat Index (SAWTI)

San Diego Gas & Electric (SDG&E), The U. S. Department of Agriculture/U.S. Forest Service, and UCLA, in collaboration with CalFire, the Desert Research Institute and the National Weather Service unveiled a new web-based tool in September 2014 to classify the fire threat potential associated with the Santa Ana winds that are directly linked to the largest and most destructive wildfires. The Santa Ana Wildfire Threat Index (SAWTI) categorizes Santa Ana winds based on anticipated fire potential. The index uses wind speed, humidity, and fuel conditions to determine how severe an event will be in terms of its impact upon the fire environment. The SAWTI, which includes four classification levels from “Marginal” to “Extreme,” will be used to help fire agencies, other first-responders and the public determine the appropriate actions to take based on the likelihood of a catastrophic wildfire fueled by high winds. The Santa Ana Wildfire Threat Index uses a comprehensive, state-of-the-art predictive model that includes dead fuel moisture, live fuel moisture, and the greenness of annual grasses to create a detailed daily assessment of the fuel conditions across Southern California. This information is

coupled with calibrated weather model output (comprised of wind speed and atmospheric moisture), to generate a 6-day forecast of Large Fire Potential. The Large Fire Potential is then compared to climatological data and historical fire occurrence to establish the index rating.



A number of fire agencies and forecasting models have used pieces of this data and various interpretations of what the information means relative to the development and potential impact of a Santa Ana wind event. This tool, however, for the first time incorporates all of the data into a single site that is available not only to first responders and government agencies, but also to the public. One of the most significant elements of the index is the “call to action” associated with each level of the index, which includes recommended steps based on the potential severity of the forecasted Santa Ana.

G. Climate Change Adaptation

Between January 1st and September 17th of 2016, 4,802 fires were reported across the state of California with a burn area totaling 307,592 acres. This is an increase of 890 fires during the same period in 2015, and stands at 123% of the 5-year averages of fires, respectively (CAL FIRE 2016). While these numbers are exacerbated by the current five-year stretch of drought conditions, data ranging back to 1984 across San Diego County confirms that the number of high fire potential days each year has increased since the early 2000s (see Figure 6). These trends are projected to continue as a combination of factors leads to increases in both fire season duration and severity through the end of the century (Melillo 2014, Kent 2015, CEP 2014).

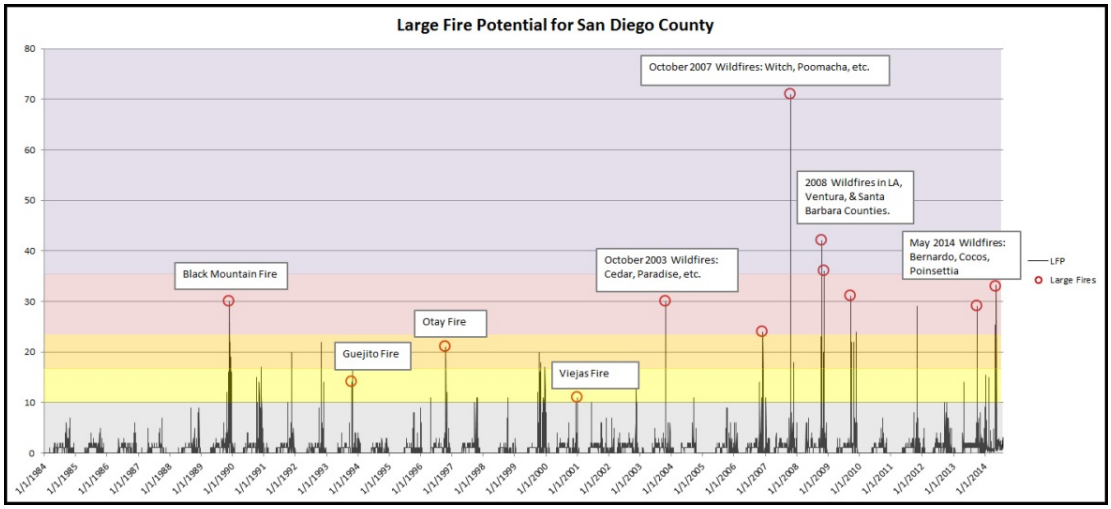


Figure 6. Large fire potential for San Diego County, calculated using a combination of weather and fuels conditions. Larger values indicate higher fire potential. Labels and red circles indicate observed large fires in San Diego County.

A 2013 study done by the National Oceanic and Atmospheric Administration (NOAA) National Environmental Satellite, Data, and Information Service (NESDIS) group found that the effects of climate change will not significantly alter the frequency of Santa Ana wind events, which typically occur 2-5 days per month between October and March and have contributed to the growth of several of the largest fires in Southern California history. However, due to overall warming across the region, Santa Ana winds are likely to bring higher temperatures and lower humidity that will increase the fire potential with each event (Kunkel et al. 2013). 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. 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, this will result in longer fire seasons across the Southwest (Kent 2015, Westerling et al. 2006).

Wildfire Projections	**2050**	**2100**
• San Diego Foundation/SCRIPPS	• Longer and more extreme fire seasons	• Probability of large fires in SoCal could increase by 30%

Table 3. Wildfire projections for both 2050 and 2100. Many studies did not focus on wildfire impacts specific to Southern California and, thus, were not included.

Though the general consensus is that fire seasons will lengthen and become more severe through the coming century, there are still several unknowns that may alter fire behavior including shifts in vegetation type and the rebound rates of fuels in burned areas (Kent 2015, Westerling et al. 2006). It has been suggested that some vegetation types will be unable to adapt to the temperature increases, which would initially lead to an ample supply of dead fuels to carry fire, but would eventually result in a decline in fuels coverage unless the vegetation was phased out by species more apt to handle the hotter temperatures (Kent 2015). In addition, assuming the fires fully consume the fuels, increases in fire activity will eventually become limited until enough vegetation can grow back to support fire growth (Kent 2015).

H. Wildfire: Potential Vulnerabilities

Wildfire has been identified as one of the greatest weather-related risks to San Diego Gas & Electric, due to the region's complex topography, lack of summer and early fall rains, and susceptibility to dry Santa Ana winds that can accelerate fire growth. It was this combination of factors that led to the Cedar Fire of 2003 and the Witch Fire of 2007 – both of which rank among the top 10 largest wildfires in California history – that spread across San Diego County and had large impacts to the utility. Because of the known wildfire risk and the potential impacts on utility operations, SDG&E has taken a multitude of steps to adapt to our changing climate conditions across our service territory. These steps have been described in depth in this plan and include the identification of locations at greatest risk for fire growth within the service territory and instituted a process to make the electric system more resilient to wildfires that includes replacing wooden poles with steel, installing new technologies to make the electric grid more resilient to fire and building upon a robust vegetation management program to keep trees and brush clear of power lines.

Despite the proactive approach to mitigating fire risk, increases in temperature and prolonged periods of drought in the decades to come will likely lead to high risk fire areas expanding from the foothills and mountains into the lower elevation coastal canyons and wildland interfaces that have proven to historically be at lower risk for fire growth. This would result in the potential for more damaged or destroyed wooden poles with any fires that occur and may even cause household impacts if the fires run up the canyons into densely populated neighborhoods (Kohls 2015). Projections for longer fire seasons also bring the potential for an increased number of planned work cancellations due to high fire concerns, including government-issued restrictions in national forestland.

V. Fire Suppression and Recovery

When fire risk is high and a wildland fire occurs, SDG&E may mobilize its available resources (Wildland Fire resources and/or Industrial Fire Brigade, see below) as the situation dictates, to assist in the suppression of the fire and in recovery activities. These resources could be made available, if requested, to the public agencies with responsibility for fire suppression and recovery.

A. Fire Coordination Personnel

SDG&E employs a full-time staff of Fire Coordinators and contracts for additional resources and personnel on an as-needed, project-by-project basis. The five Fire Coordinators currently on staff have over a century of firefighting experience and are experts in fire behavior, fire prevention and firefighting techniques. The Fire Coordinators serve as the direct link between SDG&E and emergency-response agencies. They also serve as the single point of contact for the fire agency Incident Command System, provide periodic updates to fire emergency personnel and SDG&E personnel, establish radio and communications assignments for every fire event, assist in the coordination of activities related to de-energizing and re-energizing power lines, and update on-scene personnel, control centers, service dispatch, and the SDG&E regional operations centers as to the status of each incident. The Fire Coordinators are active in professional forums, seminars and training throughout the service territory to ensure state-of-the-art fire practices are incorporated into SDG&E operations and practices. The Fire Coordinators also participate in engineering and operational meetings to advise SDG&E personnel regarding fire threats and prevention.

The Fire Coordinators also share information with the firefighting agencies within the SDG&E service territory and, on a rotating basis, provide those agencies with electrical and gas safety training.

B. Firefighting Assets and Resources

1. Wildland Fire Prevention Resource

SDG&E has contracted for wildland fire-suppression trucks and trained firefighting personnel. Up to eight (8) fire suppression trucks are provided to SDG&E throughout the fire season, and are available to SDG&E on an on-call basis for the other months of the year. These resources are dispatched with work crews during days on which the threat of fire is high. Prior to the commencement of the day's work, firefighting personnel provide instruction and advice specifically addressing fire risks and the potential mitigation and prevention measures the crews should observe in order to eliminate or reduce the likelihood of an ignition. The firefighting crews also pre-deploy hose lines and tools as a precautionary measure and monitor the work performed by the SDG&E crews.

In the event of an ignition, the firefighting personnel have the equipment, skills and ability to respond and extinguish fires quickly.

When the fire risk is very high, SDG&E deploys additional fire trucks as needed pursuant to a proactive staging plan triggered by the declaration of "Extreme Conditions" and "Red Flag Warning Conditions". These resources are strategically placed throughout the service territory to be available as needed.

2. Aviation Services Department

This Department is responsible for contracting aviation assets and personnel, planning, supporting and managing day-to-day aviation activities, measuring aerial job performance, and supporting fire-suppression activities. With respect to its fire-suppression responsibilities, the Department coordinates the provision of SDG&E aerial resources to firefighting efforts. The Department also oversees SDG&E's contributions to, and participation in, the local Aerial Firefighting Protection Fund in collaboration with the San Diego Fire Department and the San Diego County Office of Emergency Services.

SDG&E has also contracted with Erickson Air-Crane for the provision of a Type 1 firefighting helicopter from August 1st through November 15th through the year 2017, with possible extensions as needed or as critical fire weathers dictate. This contract is under the supervision of the Department.

3. The Industrial Fire Brigade (IFB)

SDG&E has contracted a full-time 7/24/365 Industrial Fire Brigade. The IFB is specially trained in fighting fires involving electrical equipment and flammable liquids. The IFB members are housed in facilities located near the geographical

center of the SDG&E service territory and are fully equipped to handle utility-related fire emergencies.

The IFB has available four (4) portable fire-suppression trailers, each provisioned with 300 gallons of Class B Alcohol Resistant firefighting foam, 500 pounds of PKP Dry Chemical extinguishing agent, a 500 gallon-per-minute monitor, and two self-educating handlines designed to work with hydrants or other mobile fire apparatus. These trailers are located in strategic locations to SDG&E's assets and service territory. These fire-suppression trailers are available upon request to external fire agencies.

The IFB is also responsible for the development of comprehensive pre-emergency response plans for each SDG&E facility. These plans will be developed for SDG&E's high-value assets first, including SDG&E's power plants, peaker stations, and extra-high-voltage substations. These plans are designed to improve emergency response at each of these facilities significantly.

4. Miscellaneous Assets

SDG&E has been proactive in developing programs and partnerships which significantly improve emergency-event communications both internally and in cooperation with emergency-services agencies. In this regard, SDG&E has acquired Mobile Field Command Trailers and satellite phone booths for deployment to supplement essential communications during emergencies. As part of efforts to improve internal communications in remote areas, SDG&E has partnered to create the Area Situational Awareness for Public Safety Network (or "ASAPnet"). ASAPnet is designed and deployed to provide internet connectivity to and between more than seventy (70) fire stations throughout the San Diego County backcountry.

C. Recovery Activities

At the end of emergency events, the SDG&E Emergency Operations Center conducts a debrief and prepares an after-action report that identifies action items to correct or improve future responses by SDG&E.

In addition, SDG&E employees participate in a number of volunteer and charitable activities on an ongoing basis. This participation expands dramatically following local disasters. These activities include providing human, financial and other resources to the American Red Cross, San Diego County Recovery, the San Diego Burn Institute, and many other worthy organizations.

D. Fire Incident Data Collection Plan

Contained within Phase 3, Track 2 of the on-going Fire Safety OIR proceedings the parties jointly developed a plan for the IOU's to collect and report data to SED

regarding power line fires, and for SED to use this data to (1) identify and assess systemic fire safety risks associated with overhead power line facilities and (2) formulate measures to reduce the number of fires ignited by electric facilities. SDG&E has adopted the plan developed by the parties within the proceeding and further has created a plan specific to SDG&E's initiation and implementation of these requirements to insure compliance.

The CPUC/SED requirements can be summarized by the following bullets:

- Any data collection and subsequent data reporting will be in addition to the incident reporting requirements currently required of the utilities.
- Data needs to be consistent using the default formats provided within the proceeding.
- New fire reporting requirements should not be limited to designated "fire threat" zones or districts but for all areas.
- Fire reporting shall meet the following criteria;
    - Self-propagating fire of material other than electrical and/or communication facilities.
    - The resulting fire traveled greater than (1) meter from the ignition point.
    - The utility has knowledge the fire occurred.
- Information shall be objective and factual.
- Utilities will report data in an annual report for the previous calendar year before April 1st of each year.
- The data collected is raw data that is correct to the best of the utility's knowledge at the time of submission.

The SDG&E Data Collection plan further specifies responsibilities and accountability for compliance with this plan;

- Fire Coordination: The Fire Coordination group will continue to manage the current fire database and continue to work with Emergency Services to move this process into the SDG&E Emergency Incident Reporting (EIR) system. The transition will occur without disruption or loss of data as well as be able to generate the required report. All qualifying fires will be reported to the On-duty Fire Coordinator.
- Compliance Management: As part of their annual calendar, Compliance Management will track and insure that this reporting requirement to the SED is met in the required timeframe.
- Claims, Legal, & Regulatory: Will continue their role and responsibilities for fires related to SDG&E facilities as well as review the annual report prior to submission.
- Control Centers: Both Distribution Operations and Grid Operations supervisors and operators will understand what denotes a reportable fire and assist in ensuring qualifying fires are reported to the On-duty Fire Coordinator.

- Electric Regional Operations and Transmission Construction Maintenance: Troubleshooters, Construction Supervisors, and line personnel will understand what denotes a reportable fire and assist in ensuring qualifying fires are reported to the On-duty Fire Coordinator.
- Training: An initial training and annual refresher training will be developed by the Fire Coordination group and delivered to the Control Center and District field personnel to insure compliance with these requirements.
- Root Cause Analysis: The data collected will continue to be shared internally with the T&D engineering group for further root cause analysis to help determine fire mitigation measures that make sense to implement in the future.

VI. Community Outreach and Public Awareness

SDG&E has created a multi-level approach to community education and outreach as our contribution to public awareness of fire threats, fire prevention and emergency preparedness. The key elements of this approach are described below.

A. Fire Safety Stakeholder Collaboration and Communication

In 2009, SDG&E customers and community leaders were invited to participate in a fire safety collaboration process. About 40 stakeholders – representing local schools, water districts, disability rights advocates, consumer groups and fire departments – worked with SDG&E for more than a year to develop a joint fire-prevention plan. This process was facilitated by a federal mediator. The process produced **more** than 100 potential solutions aimed at preventing the occurrence of major fires. SDG&E has implemented many of these solutions as identified by the stakeholders, including deactivating automatic reclosers, hardening its overhead electric system, replacing wood poles with stronger steel poles and larger conductors, and undergrounding portions of the electrical system, where feasible.

SDG&E frequently invites community leaders, government agencies and the public at-large to participate in a collaborative fire-safety process to continue dialogue and partnerships regarding public safety.

B. Partnering with Firefighting Agencies

SDG&E partners with the San Diego County Fire Chiefs' Association and other organizations to address a range of fire prevention and emergency activities. These partners include; fire agencies, Fire-Safe councils, Community Emergency Response Teams (CERTs) and other community organizations. Among the activities addressed through these partnerships are, including but not limited to:

- Participation in coordinated multi-agency preparedness and emergency events;

- Support and participate in the annual County Wildland Drill; coordinated by the San Diego Fire Training Officers;
- Participation in Fire Station and Fire Safe Council Open Houses;
- Emergency preparedness radio spots with the San Diego County Fire Chiefs' Association and the American Red Cross; The provision and underwriting of grants by SDG&E to support Volunteer Fire Fighters, CAL FIRE Public Information Officer Command Vehicles, Burn Institute programs, and the San Diego Kids Fire Safety Program;
- Fire-safety media campaigns in conjunction with the American Red Cross and local television station KUSI-TV; and,
- The "Prepare San Diego Partnership" and Sheltering Memorandum-of-Understanding executed by and with the American Red Cross;

SDG&E is a member of the California Utilities Emergency Association (CUEA), a collaboration between electric, natural gas, water and telecommunications utilities in California. CUEA serves as a point of contact for critical infrastructure utilities and the California Office of Emergency Services (Cal OES) and other governmental agencies before, during and after an event. CUEA also provides emergency response support wherever practical for electric, petroleum pipeline, telecommunications, natural gas, water and wastewater utilities.

C. Community Partnerships

SDG&E is proud to support non-profit organizations whose programs promote emergency preparedness and safety at home and in our communities. In 2012, SDG&E began providing funds to charitable organizations committed to regional and local emergency preparedness and fire safety, such as 2-1-1 San Diego, the American Red Cross, and the Burn Institute, plus dozens of volunteer fire departments, Community Emergency Response Teams, and Fire Safe Councils.

SDG&E provides regular communications to residents and businesses located in the FTZ and HRFA. These fire-safety and emergency communications include, but are not limited to;

- Customer education events, emergency preparedness symposiums for businesses, public participation meetings, and backup generator safety workshops;
- Informational and emergency preparedness mailings to customers in the HRFA;

- Educational advertising campaigns focusing on SDG&E's preparations for the fire season and the preparations SDG&E's customers should make for emergencies;
- Educational information disseminated through the Energy Notes newsletter distributed with customer billings;
- Distribution of a co-branded "newsletter" with the American Red Cross, the San Diego Office of Emergency Services, and the County Fire Chiefs Association;
- Distribution of the "pocket-Card", which provides formatted emergency information that easily folds and fits in an automobile glove box or emergency kit;
- Distribution of "refrigerator magnets" bearing important emergency information;
- The provision of weather information and system-outage status on SDGE.com;
- Dissemination of information regarding emergency-preparedness events via social media, such as Twitter and Facebook;
- Opt-in campaign offering customers electronic-mail access to safety checklists and fire-safety videos;
- Publication of information for SAFE San Diego Education and Outreach events in the community following an emergency.

In addition to routine outreach and communications, SDG&E intensifies its effort to communicate with customers when fire-threat conditions are elevated or extreme. SDG&E has instituted an early warning system advising customers that a Red Flag Warning has been declared by the National Weather Service and dangerously high winds are expected. SDG&E also opens communications with local water districts, telecommunications infrastructure providers, the San Diego County Office of Education, the San Diego County Office of Emergency Services, and the American Red Cross as soon as possible following the declaration of a Red Flag Warning. SDG&E assembles a team, including members from Business Services, SDG&E's Meteorological Department, and SDG&E's Electric Distributions Operations center, to provide updates on the status of the SDG&E system and weather conditions.

As alert conditions are elevated, SDG&E also contacts, directly and indirectly, Medical Baseline (MBL) customers, including life support and temperature sensitive customers. Under severe threats of emergencies, where SDG&E cannot make contact with these customers via our outbound-dialer system, SDG&E will send field personnel to make personal contact and, failing all else, to leave door hangers alerting the customer of the situation.

D. Fire Preparedness Website

SDG&E maintains a publicly accessible website focused on safety, including gas safety, electric safety, fire safety, tree safety, emergency preparedness, generator safety, and outage information. SDG&E Emergency Preparedness Brochures, pocket-Cards, radio spots, print advertisements, and social media postings via Facebook and Twitter, have been utilized to distribute and provide links to SDG&E's emergency preparedness and safety website:

http://www.sdge.com/safety/fire-safety/proactive-approach-fire-prevention

Additional fire-related websites supported and maintained by SDG&E are accessible using the following addresses:

- Emergency Preparedness web pages: http://www.sdge.com/safety
- Weather and Outage web pages: http://www.sdge.com/tools/windspeed-dashboard

E. Fire Mitigation Funds

In addition to providing various fire risk mitigation and -preparedness grants as described above, SDG&E funds two fire-mitigation programs as a part of the Sunrise Power Link Project. These programs, known as the "Powerline Firefighting Mitigation Fund" and the "Defensible Space and Structure Hardening Grants Fund", are operated subject to agreements with various firefighting agencies whose jurisdictions include lands along the Sunrise Power Link transmission corridor.

The Powerline Firefighting Mitigation Fund was used to provide a lump sum to each of the seven fire agencies with jurisdiction along the transmission line route. Each agency received $556,524, for a total disbursement of $3.9 million – these funds were used to purchase new fire trucks and communications equipment, increase fire patrols, and fund additional personnel during the fire season. The agencies receiving these funds include CAL FIRE, Federal Bureau of Land Management, County of San Diego, City of San Diego Fire & Rescue Department, Alpine Fire Protection District, Lakeside Fire Protection District, and the San Diego Rural Fire Protection District.

The Defensible Space & Structure Hardening Grants Program was implemented in 2012 and will remain in place as long as the Sunrise Power Link is in service. A Public Education and Outreach Program for eligible property owners includes a grant application website. The program provides funding for the creation and maintenance of defensible space around homes in close proximity to the Sunrise Power Link. This defensible space will bring those homes into with compliance with

various fire codes so as to assist firefighters in minimizing structure and property damage. These funds may also be used to fire-harden structures by retrofitting rooftops with fire-resistant materials, installing fire shutters and double-pane windows, cave boxing, and removing and/or replacing wood fencing and/or decks. SDG&E annually provides $2.8 million (2008$) to fund the program.

Appendix A

2017 Map of SDG&E FTZ, HRFA, And Meteorological Network