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SDG&E RESPONSE
DATE RECEIVED: FEBRUARY 17, 2015
DATE RESPONDED: MARCH 4, 2015

The following questions are in regard to SDG&E's response to question MGRA-25 of MGRA Data Request No. 1, specifically regarding the risk assessment matrix used for evaluating circuits:

MGRA-35 Please provide the risk matrix shown in Figure 2 of SDG&E's response to question MGRA-25 as an Excel spreadsheet.

SDG&E Response:

See attached for requested Excel spreadsheet – "MGRA 35 - FTZ_Ranking_Matrix".

As requested, the information provided in response to MGRA-25 is provided in an Excel spreadsheet. As stated in the response to MGRA-25, this is the matrix that was developed by the RIRAT, and was used in planning the initial stages of FiRM at the time the GRC forecast was developed. The risk matrix and associated data is dynamic and will change over time depending on a variety of conditions including changing risk assessment, additional information, new technology, alternative solutions or emergent work. The FiRM team has moved some projects forward based on updated information on wind speeds and fire risk, and the evaluative methods are also subject to change.

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MGRA-36 Circuit length in Figure 2 is given in Column C. Please state which of the Risk and Impact columns have values that have a dependence on overall circuit length (extrinsic) and which measure the properties of the circuit or its location regardless of length (intrinsic). For example, number of capacitors would likely be an intrinsic value because it is a fixed number regardless of circuit length. For another example, if fuel risk were averaged over the line length, then a 5 mile segment through a #2 fuel hazard would present lesser risk than a 20 mile segment with the same fuel risk. This would be an extrinsic risk factor. The purpose of this question is to determine how the effect of weighting the score by circuit length would affect the relative rankings. However such a weighting would only be appropriate for extrinsic risk and impact factors, not intrinsic ones.

SDG&E Response:

The circuit length has no direct associated dependencies. It represents the distance length of the segment of circuit being evaluated in the matrix. Segments were defined by experienced SDG&E staff who considered factors such as fuel types, wind exposure, line characteristics and other factors that were common to that segment. Common factors allow the line segment to be evaluated as a unit.

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MGRA-37 Risk and impact factors in Figure 2 are given a rating of 0 to 3. Please provide quantitative and qualitative criteria for the 0-3 classification for the following columns described in Figure 1. We assume that 0 means lowest risk/impact and 3 means highest risk impact, however we're looking for specific details how each of the risk and impact factors is categorized.:
#2 Wind Factor
#3 Tree Factor
#4 Fuel
#5 Fire ignition risk
#6 Number of capacitors in each segment
#7 Expulsion fuse factor
#8 Switch factor
#9 Conductor factor
#10 Transformer factor
#11 High risk transformer factor
#12 Ranking by District Operation Center
#13 5 year outage history
#14 Relative structure value
#15 Reduction in number of customers impacted by safety shutoff plan
#16 Service to critical facilities
#17 Environmental
#18 Cultural

SDG&E Response:

MGRA is correct in their assumption that a score of 0 represents the lowest risk, and a score of 3 represents the highest risk. Risk values in the matrix are a simple ordinal scale assigned by experienced SDG&E personnel based on their subject-matter assessment of the available geographical, meteorological, distribution system outage data, equipment failure database, wire down presentations and input from experienced engineers and field personnel.

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MGRA-38 How is risk Factor 5, Fire ignition risk, determined? How is it differentiated from fuel and wind risk factors?

SDG&E Response:

For each segment, the fire ignition risk value was assigned by SDG&E Fire Coordinators, based on the specific location and exposure of the circuit segment within the generalized area. These individuals have extensive experience in wildland fire matters and have served in leadership and expert roles related to fire prevention and fire fighting for various fire agencies including CalFire and local fire agencies. The fuel factor value for each segment is also assigned by the Fire Coordinator based on available data related to fuel quantities, fuel conditions, geography and their expert opinion. Similarly, wind factors are assigned by SDG&E meteorologists based on an understanding of wind conditions and forecasted frequency of extreme wind events.

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The following questions are related to the response of SDG&E to question MGRA-13, MGRA-20, and MGRA-32, regarding measures that SDG&E is taking to reduce risk of wildfire ignition.

MGRA-39 What fraction of the 3,400 circuit miles of distribution line and 923 miles of above ground transmission line within the FTZ have currently been analyzed by the FiRM A-Team and had a fire risk determination?

SDG&E Response:

SDG&E reviews the condition of all 3,400 miles of line on an annual basis as part of the inspection process associated with its General Order 165 Corrective Maintenance Program. SDG&E also regularly reviews outage data, wire-down events, equipment failures and other pertinent data on a regular basis, but these types of analyses do not correspond well to line mile metrics. With respect to a detailed engineering type analysis, SDG&E completed analysis of over 32.4 miles (1%) of distribution in 2014 and anticipates completing the analysis of at least another 174 (5%) miles during 2015 for a total of about 210 miles (6%).

As SDG&E is not requesting funding for transmission facilities as part of this GRC application; transmission data is not in scope of this proceeding.

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MGRA-40 What fractions of the SDG&E distribution and transmission systems that have already been evaluated by the FiRM A-Team currently meets the new SDG&E design specifications described in the response to MGRA-13?

SDG&E Response:

SDG&E completes designs in accordance with standards and specifications in effect at the time of issuance. For FiRM related projects, these totals equate to over 6%, as stated in the response to MGRA-39.

As SDG&E is not requesting funding for transmission facilities as part of this GRC application; transmission data is not in scope of this proceeding.

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MGRA-41 When is the FiRM A-Team expected to complete its evaluation of risk factors for the entire SDG&E distribution and transmission networks?

SDG&E Response:

At this time, SDG&E has no established date to complete its evaluation of risk factors for the entire SDG&E network. SDG&E anticipates that at some level, it will always be evaluating the risks of its network as operating and equipment condition change over time and new risk and performance data is gathered and analyzed.

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MGRA-42 What is the estimated total cost to bring the entire SDG&E infrastructure up to the current SDG&E fire safety design specifications?

SDG&E Response:

At this time, SDG&E has not completed a study of this nature.

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MGRA-43 Of the total distribution network in the FTZ already analyzed, what fraction will require some form of remediation in order to meet current fire safety design standards. This fraction can be in terms of circuit miles, where appropriate, or in asset fractions (poles or other system components).

SDG&E Response:

The completion of the FiRM program does not mean that all SDG&E distribution segments in the FTZ will be compliant with new SDG&E design standards. The transmission Wood-to-Steel program will ultimately address all transmission segments within the FTZ (along with the associated distribution underbuild), and the new facilities will be designed to the latest overhead design criteria. Moreover, the FiRM program does not entail rebuilding every overhead circuit in the FTZ. This is not economical, and is not necessary. The FiRM program targets areas of risk and prioritizes work based on risk. The work proposed for a given circuit could entail an entire rebuild, to reconductor only, to only rebuilding a small segment of a circuit, to just replacing a few poles and/or equipment, to merely adjusting protection relays/settings. As circuits are evaluated, pole loading analysis will be performed as part of the design work, and will determine where poles need to be upgraded based on the known local conditions. Any new pole that is installed will be designed to meet the latest overhead design criteria.

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MGRA-44 What are the criteria for successful completion of the FiRM program?

SDG&E Response:

At this time, SDG&E has no established date to complete the FiRM program. SDG&E anticipates that there will always be some level of effort to evaluate the risks of its network as operating and equipment condition change over time and new risk and performance data is gathered and analyzed. A sign of success for any of SDG&E's fire risk reduction efforts, including FiRM, would be enhanced system performance in fire prone areas during extreme wind events. This can be measured by looking at outages and equipment failures, and comparing the data to historical data.

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MGRA-45 Does completion of the FiRM program mean that all SDG&E distribution and transmission segments in the FTZ will be compliant with new SDG&E design standards?

SDG&E Response:

See response to MGRA-43.

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MGRA-46 In the reply to MGRA-32, it states that "SDG&E has a 'tool box' of hardening methodologies available to reduce risk. Many of the efforts listed in the toolbox do not relate to a fraction of the system in any general format." Please clarify which 'toolbox' components cannot be related to a fraction of the system?

SDG&E Response:

See the response to MGRA-13. Utilizing technology with additional functionality such as programmable reclosers that can have different settings for various operating conditions, advance relays and improved relay and fuse sizing and coordination, all improve the operating safety of the system but do not necessarily correspond to a percent or mileage of the system.

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MGRA-47 How many miles of Hendrix spacer cable have currently been deployed in the FTZ? What are the criteria for adoption of Hendrix spacer cable in an area?

SDG&E Response:

SDG&E has deployed approximately 1.5 miles of Hendrix Cable and currently estimates deploying approximately 5 miles in 2015.

Hendrix wire is a candidate for use in areas with high exposure to trees that could contact the line and where reasonable tree trimming activities cannot achieve clearances necessary for safe deployment of conventional open wire construction.

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Regarding SDG&E's response to MGRA-14 and the division of the FTZ into Potential Damage Zones:

MGRA-48 Please provide a map of the Potential Damage Zones in PDF and shapefile formats.

SDG&E Response:

See attached for the requested documents:

"MGRA 48 - PDZ_Map" (pdf file)

"MGRA 48 - PDZ Shape Files" (zip file)

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Regarding SDG&E's responses to MGRA-16, MGRA-17 and MGRA-18 regarding the SDG&E fire camera program - Answers were not fully responsive and we restate some of these questions in other terms:

MGRA-49 What fraction of the area of the SDG&E FTZ is currently visible from the fire cameras?

SDG&E Response:

With each camera aimed at the section of powerline attached to the tower that it is mounted on, visibility is generally limited to a linear view of less than one mile. Overall this represents less than 5% of the FTZ area with the cameras in the monitoring mode.

Note: The use of the pan/tilt/zoom feature allows the cameras to view a much greater area with detail decreasing as the viewing distance increases.

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MGRA-50 The SDG&E response to MGRA-17 indicates that the fire cameras monitor assets "located primarily along the 500 KV line in the backcountry of the SDG&E service territory". What fraction of the cameras monitor assets along the 500 kV line as described in this response?

SDG&E Response:

Of the 27 fire detection cameras currently in use, 22 are attached to the 500KV Sunrise towers, two are attached to the 500KV SWPL towers, two are on distribution poles and one is on a communications site.

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MGRA-51 SDG&E's response to MGRA-17 also states that "there have been a number of cases where the system did detect fires and the appropriate action was taken to notify First Responders." Please give a list of incidents identified by SDG&E cameras, the reported location of the fire, the first responder notified, and the time of the first responder notification.

SDG&E Response:

During days of high fire risk, the various cameras across San Diego County are monitored two to three times per hour for any visible evidence of smoke plumes within the area. The following incidents were identified by SDG&E cameras:

On May 14, 2014, the Tomahawk Fire broke out on Camp Pendleton and was visible from the westward facing High Performance Wireless Research & Education Network (HPWREN) camera on Red Mountain. The fire broke out at 9:45 AM and was spotted roughly 30 minutes later. Electric troubleshooters were dispatched to the vicinity of the smoke plumes.

Later in the day on May 14, 2014, the Poinsettia Fire was also identified via the fire cameras. Electric troubleshooters were dispatched to the area as well.

Additionally, on May 14, 2014, the cameras were very helpful in verifying media reports as the fires began. Some confusion and conflicting information were being reported at the onset of the events and information from the cameras was used to confirm media reports.

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The following questions relate to the SDG&E response to MGRA-21 and MGRA-22. The answers were not responsive. We restate these here in nearly identical terms. We believe these to be extremely important questions because they identify the incremental benefit of SDG&E fire safety program spending. We urge SDG&E to undertake a study to identify which programs might be harmed by a decrease in spending, and conversely which other programs might be added or more hastily completed with an increase of spending, and how these programs affect public safety.

MGRA-52 How would a 20% smaller request affect wildfire safety? Please provide quantitative and qualitative estimates.

SDG&E Response:

As stated in response to MGRA-01 Question 21 and 22, SDG&E has not undertaken such a study, and so the quantitative and qualitative estimates are not known. SDG&E as yet does not have a mechanism to determine an objective incremental safety benefit of a particular project or group of projects, in part because there is not a universally-accepted definition of a 'safety benefit'. The projects identified as fire-safety related are evaluated on a set of objective and subjective factors which does not include cost (see MGRA-01 Question 25 and Question 27). Such a mechanism may result from the development of SDG&E's Enterprise Risk Management functions, presently underway. A decreased allowance in spending may require that some projects be re-evaluated, reprioritized and possibly deferred, while an increased allowance in spending may result in a hastened completion of projects, although this is not simply dependent on the projects themselves but also on the available resources of planning, analysis, permitting, internal and contractor material, equipment and labor.

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MGRA-53 How would a 20% larger allocation than requested for wildfire safety spending be expected to affect system safety? Please provide quantitative and qualitative estimates.

SDG&E Response:

As stated in response to MGRA-01 Questions 21 and 22, SDG&E has not undertaken such a study, and so the quantitative and qualitative estimates are not known. SDG&E as yet does not have a mechanism to determine an objective incremental safety benefit of a particular project or group of projects, in part because there is not a universally-accepted definition of a 'safety benefit'. The projects identified as fire-safety related are evaluated on a set of objective and subjective factors which does not include cost (see MGRA-01 Question 25 and Question 27). Such a mechanism may result from the development of SDG&E's Enterprise Risk Management functions, presently underway. A decreased allowance in spending may require that some projects be re-evaluated, reprioritized and possibly deferred, while an increased allowance in spending may result in a hastened completion of projects, although this is not simply dependent on the projects themselves but also on the available resources of planning, analysis, permitting, internal and contractor material, equipment and labor.

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The following questions relate to SDG&E's response to MGRA-32, regarding the portion of the transmission and distribution network that has already been hardened. The purpose of this question is to ascertain the impact that SDG&E fire prevention work has had on the outage rate under high-stress conditions for upgraded circuits.

MGRA-54 Please specify the circuits that were remediated as part of the FiRM A-Team effort in 2014, the length of the circuit, and the date any upgrades were completed.

SDG&E Response:

SDG&E remediated portions of circuits during 2014. A listing of completed work is presented below. Also see attached Excel file "MGRA 54 - FiRM Distribution Circuit Work (2014)".

Circuit	Community	Project name	Footage	Construction Complete Date	Project Type
1215	Pine Valley	C1215 Long Span/Dissimilar Wire	1,132	9/13/14	Dissimilar Wire
1215	Pine Valley	C1215, CW:2013 CFSP Recon W/S Ph 1 No. of Hwy 8	13,285	3/3/14	Rebuild
1233	Fallbrook	C1233 Long Span/Dissimilar Wire	3,050	12/31/14	Long Span
157	Jamul	C157: 2013 CFSP CNF Ridge-Pin Conf.	938	9/9/14	Avian Protection
217	Valley Center	C217: Long Span	754	10/29/14	Long Span
220	Julian	C220 Ph 4 #D - Reconductor	4,580	12/15/14	Rebuild
220	Julian	C220 Ph 4 #E - Reconductor	398	11/15/14	Rebuild
220	Julian	C220 Ph 4 #F - Reconductor	4,450	12/15/14	Rebuild
221	Julian	C221:ERI 2012 Rebuilding Improv	2,600	3/21/14	Rebuild
222	Julian	C222 Fire Risk Mitig Proj Ph 1 Sec 1B	7,000	8/8/14	Rebuild
222	Julian	C222 Fire Risk Mitig Proj Ph 1 Section 2	21,015	12/31/14	Rebuild
222	Julian	C222 Fire Risk Mitig Proj Ph1 Sec 3	3,575	12/31/14	Rebuild
222	Julian	C222 Fire Risk Mitig. Proj Ph 1 Sec 1C	7,200	3/6/14	Rebuild
222	Julian	C222 Fire Risk Mitig. Proj. Ph 1 Sec 1D	2,800	3/6/14	Rebuild

Response to Question MGRA-54 (Continued)

222	Julian	C222 Fire Risk Mitig. Proj. Ph 1 Section 1	9,000	9/11/14	Rebuild
222	Julian	C222 Ph 4 Section 2 #D - Reconductor	6,614	12/31/14	Rebuild
233	Bonsal	C233 - Long Span	900	12/22/14	Long Span
233	Bonsal	C233: Long Span	500	10/26/14	Long Span
236	Romona	C236: Long Span	615	10/2/14	Long Span
239	Fallbrook	C239: Relocation to Mitigate Marking	1,363	10/21/14	Aerial Marking
350	Valley Center	C350 Long Span/Dissimilar Wire	837	11/18/14	Dissimilar Wire
354	Escondido	C354: 2013 Fire Hardening	525	8/15/14	Rebuild
354	Escondido	C354: 2013 Fire Hardening-Scada	0	12/4/14	Rebuild
357	Alpine	C357: 2011 CFSP WS,TW ON Anderson@ Holly	1,190	8/8/14	Rebuild
441	Campo	C441 Fire Risk Mitig. Proj Ph 2	8,000	5/20/14	Rebuild
441	Campo	C441 Ph 4 #A - Reconductor	4,709	11/11/14	Rebuild
441	Campo	C441 Pole Load Study/Fire Risk Mitigation Ph 2	21,000	1/24/14	Rebuild
441	Campo	C441 Pole Load Study/Fire Risk Mitigation Ph 3	3,107	5/23/14	Rebuild
441	Campo	C441 Pole Load Study/Fire Risk Mitigation Ph 4	2,520	4/11/14	Rebuild
442	Pine Valley	C442 Ph 4 #A	695	12/31/14	Rebuild
442	Pine Valley	C442 Ph 4 #E	628	10/18/14	Rebuild
444	Jacumba	C444 Branch Ln - Ph1 P41936-P246673	3,718	12/31/14	Rebuild
444	Jacumba	C444 Ph 4 #A	5,280	10/12/14	Rebuild
444	Jacumba	C444 Ph 4 #B	1,132	12/31/14	Rebuild
444	Jacumba	C444: Install NW Protection Devices in HRFA	0	8/12/14	Protection
354	Escondido	C445 Long Span/Dissimilar Wire	679	12/30/15	Disimilar Wire
445	Boulevard	C445 Ph 4 #A - Reconductor	1,235	12/1/14	Rebuild
521	Fallbrook	C521 Long Span/Dissimilar Wire	956	12/18/14	Disimilar Wire
67	Jamul	C67: Long Span	1,697	9/11/14	Long Span

Response to Question MGRA-54 (Continued)

73	Alpine	C73 Long Span/Dissimilar Wire	544	6/9/14	Disimilar Wire
73	Alpine	C73 Ph 4 #B - Reconductor	5,828	12/31/14	Rebuild
73	Alpine	C73 Ph 4 #D - Reconductor	645	12/5/14	Rebuild
78	Descanso	C78 Ph 4 #A - Reconductor	1,420	12/30/14	Rebuild
79	Descanso	C79 Ph 4 Sec 2 #D - Reconductor	530	12/31/14	Rebuild
79	Descanso	C79 Ph 4 Sec 2 #G - Reconductor	4,277	12/31/14	Rebuild
972	Romona	C972: Long Span	1,417	10/9/14	Long Span
973	Romona	Wildcat Canyon Conversion-Cable	350	10/9/14	UG Conversion
973	Romona	Wildcat Canyon Conversion-Cable Poles	570	10/9/14	UG Concersion
973	Romona	Wildcat Canyon Conversion-OH RFS	0	10/28/14	UG Conversion
973	Romona	Wildcat Canyon Conversion-Trench/Conduit	6,000	12/31/14	UG Conversion
		Total Footage	*171,258*		
		Total Miles	*32.4*		

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MGRA-55 Please specify any circuits (transmission or distribution) that were upgraded as part of the FiRM A-Team effort or previous RIRAT program prior to 2014, the length of the circuit, and the date any upgrades were completed.

SDG&E Response:

With the exception of the FiRM program that is focused on specific drivers and upgrades of larger circuit segments, SDG&E has incorporated numerous other efforts to mitigate fire risk involving engineering, construction, operations and maintenance, all of which have been integrated into our normal business practices. Many of the upgrades completed as part of efforts overseen by the RIRAT and FiRM A-Team incorporated smaller upgrades of certain elements of the circuits or short segments such as long spans. Examples of these RIRAT/FiRM A-Team sponsored upgrades include rebuilding of short circuit segments, adding advanced reclosers such as Intellirupters, adding SCADA control on switches, adding advanced SCADA capacitors, non-expulsion fuses, wireless fault indicators and increased avian protection. An important point that needs to be understood is that any time work is done in the Fire Threat Zone, whether it is driven by reliability concerns, safety compliance upgrades, remediating deteriorated equipment or to upgrade the system to accommodate new customers or capacity needs, these fire risk reduction elements developed by the RIRAT/FiRM A-Team are incorporated into the design and construction.

As these RIRAT/FiRM A-Team developed upgrades are broadly integrated into all our normal business activities in the Fire Threat Zone, SDG&E is not able to distinctly carve out all the specific projects and upgrades that include them. SDG&E does not have the ability to extract routine fire hardening work to include upgrade type, length of circuit, nor completion date. To satisfy this request, SDG&E would have to undertake an extensive manual effort to review every project individually that was constructed within the Fire Threat zone dating back to 2008. However, in an effort to be responsive to this request, SDG&E has been able to perform a high level extract of upgrade work that is believed to be predominately associated with the RIRAT/FiRM A-Team. This information is presented in the attached spreadsheet, "MGRA 55 - SDG&E Distribution Circuit Work (2009-2013)". A listing of completed work (2009-2013) is also presented in the table below.

As SDG&E is not requesting funding for transmission facilities as part of this GRC application, because transmission data is not in scope of this proceeding.

Response to Question MGRA-55 (Continued)

ETDP Design Work Issued

Circuit	Routine Projects	Issue Date
73	C73: 2011 CFSP Upgrade Switch 73-7 to Scada IR	1/21/2014
73	C73: KEARNY SCADA WORK	1/21/2014
221	C221: Julian Generator SCADA Switch Installation	2/20/2014
221	C221: Kearny SCADA Work (OH)	2/20/2014

Circuit	Routine Projects	Issue Date
237	C237,CRE:2012 CFSP Instl SCADA capacitors & recond	10/29/2013
358	2012 CFSP C358/C357 Cutover (ug)	5/24/2013
358	2012 CFSP C358/C357 OH CUTOVER RETAG	5/24/2013
701	C701:5way Trayer Sw Prototype Eval @D205065	9/30/2013
1281	LC SUB - OH RELOCATE - SITE GRADING	9/23/2013
441	C441: OH REBUILD	9/19/2013
444	C444, Boulevard: Reconductor	3/21/2013
444	C444, BOULEVARD: KEARNY SCADA WORK (OH)	3/21/2013

Circuit	Long Spans	Issue Date
157	Distrib Long Span Eval P775470	7/31/2012
442	DISTRIB LONG SPAN P771318-P771321	6/26/2012
157	Distrib Long Span Eval P177616, P177615	7/16/2012

Circuit	Routine Projects	Issue Date
237	DISTRIB LONG SPAN P316525 P316524	3/2/2012
972	C972:ERI 2012 Wire Down Correction	10/3/2012
972	C972:CFSP 2012 Instl IR bw P13277 & P13274	10/8/2012
67	C67:CFSP 2012 Instl SCADA IR P245218 High Priority	10/30/2012
CTL1	CTL1,2011 CFSP: HENDRIX CBL INSTALLATION - UG	9/13/2012
CTL1	CTL1, 2011 CFSP: Hendrix Cbl Installation	7/12/2012
444	C444, BU:2011 CFSP Repl 444-3R & 444-2R w/ Nova SR	7/27/2012
444	C444 - KEARNY SCADA WORK	7/27/2012
908	C908:CFSP 2012 Instl Intellirupter on P117384	7/18/2012
908	C908: Kearny SCADA Work (OH)	7/18/2012
524	C524:CFSP 2012 Upgrade 524-34 w/ SCADA IR High Pr	8/31/2012
524	C524: Kearny SCADA Work (OH)	8/31/2012
236	C236:CFSP 2012 Upgrade 236-27 w/ SCADA IR High Pr	9/13/2012
236	C236: Kearny SCADA Work (OH)	9/13/2012

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Circuit	Long Spans	Issue Date
1250	Distrib Long Span Inspect Eval Z181674	2/16/2011
411	Distrib Long Span Inspect Eval P176470	5/4/2011
243	Distrib Long Span Eval Z476097	7/29/2011
1101	Distrib Long Span Eval P513494	4/11/2011
1100	Distrib Long Span Eval P817171	3/22/2011
448	Distrib Long Span Eval P43910 C448	8/5/2011
356	Distrib Long Span Eval P273100	4/29/2011
974	Distrib Long Span Eval Z577538 Z577539	3/1/2011
157	Distrib Long Span Eval P74795 P74793	8/24/2011
1166	Distrib Long Span Eval P374397 P374398	6/13/2011
1166	Distrib Long Span Eval Z272860 Z272862	8/1/2011
172	DISTRIB LONG SPAN P271934-P271835	9/29/2011
211	Distrib Long Span Z118327 - Z118326	9/9/2011
350	Distrib Long Span P816459 - P816548	5/23/2011
352	Distrib Long Span P576642 - P516650	6/7/2011
217	Distrib Long Span P218786 - P218785	2/16/2011
220	C220 DISTRIBUTION LONG SPAN-AERIAL MARKING	5/26/2011
212	Distrib Long Span Inspect Eval Z118129	8/4/2011
75	Distrib Long Span Inspect Eval P677656	11/1/2011
350	Distrib Long Span Inspect Eval P217366	3/17/2011
907	Distrib Long Span Inspect Eval Z12852	6/15/2011
75	Distrib Long Span Eval P677671-P677670	8/5/2011
908	Distrib Long Span Inspect Eval P318833	8/4/2011
350	Distrib Long Span Inspect Eval P218501	8/4/2011

Circuit	Routine Projects	Issue Date
CTL1	CTL1: 2010 ERI - Intellirupter Installation	5/25/2011
701	C701: 2010 CFSP Cap SCADA Conversion 701-275CW	3/10/2011
1021	C1021, LI: Move Intellirupter	3/14/2011
1021	C1021, LI: Move Intellirupter - UG	3/14/2011
1021	C1021: KEARNY SCADA WORK	3/14/2011
500	C500, CC: CFSP Partial Cutover to C1101, AR	2/14/2011
214	C214: CFSP 2011 Install Intellirupter Z118008	10/19/2011
350	C350: 2011 Fault Tamers Ph 1	8/1/2011
350	C350:2011 Fault Tamers Ph2	8/23/2011

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350	C350:2011 Fault Tamers Ph3	10/25/2011
350	C350:2011 RIRAT Pilot Cir-Install Fault Tamers Ph4	8/1/2011
350	C350: 2011 RIRAT PILOT INSTALL PH4C	8/29/2011
79	C79,DE: 2011 CFSP RELOCATE 79-656R	10/19/2011
79	C79,DE: KEARNY SCADA 79-656R	10/19/2011
222	C222, CFSP ST: 2011 Various Improvements URGENT	11/7/2011
1094	C1094: SM Scada Load Monitor Urgent	10/25/2011
1094	C1094: Kearny Scada Work	10/25/2011
221	C221: 2011 CFSP Reliability Improv Dowtown Julian	9/23/2011
1021	C1021,LI:Remove Intellirupt Switch & Install Fuses	7/13/2011
441	C441, GC: 2011 CFSP Repl SR w/ Intellirupter	7/1/2011
79	C79, DE: 2011 CFSP Install Intellirupter	7/26/2011
441	C441, GC:2011 CSFP Kearny Scada Work	7/1/2011
79	C79, DE: Kearny Scada Work	7/26/2011
79	C79, DE: Kearny Scada Work	7/26/2011
79	C79, DE: 2011 CFSP Repl Hook Stick Sw w/ Intelliru	7/26/2011
307	C307, SF:CFSP Kearny Scada Work	8/30/2011
1001	C1001, SF: 2011 CFSP Install Intellirupter	7/29/2011
307	C307, SF: 2011 CFSP Install intellirupter	8/30/2011
305	C305, CFSP SF: Kearny Scada Work	7/28/2011
305	C305, CFSP SF: Repl Electronic Sectionalizer w/ IR	7/25/2011
1001	C1001, SF: CFSP Kearny Scada Work	7/29/2011
214	C214: CFSP 2011 Install Intellirupter @ P212163	10/11/2011
470	C470: CFSP 2011 Install Intellirupters	10/11/2011
701	C701: Kearny Scada Work	3/10/2011
445	C445: 2010 CFSP Cap SCADA Conversion 445-247CW	8/10/2011
246	C246: 2010 CFSP Cap SCADA Conversion 246-309CW	3/7/2011
524	C524: 2010 CFSP Cap SCADA Conversion 524-256CW	8/10/2011
350	C350: 2010 CFSP Cap SCADA Conversion 350-1659CW	8/29/2011
520	C520: 2010 CFSP Cap SCADA Conversion 520-121CW	3/14/2011
350	C350: 2010 CFSP Cap SCADA Conversion 350-1045CW	1/3/2011
311	C311: 2010 CFSP Cap SCADA Conversion 311-77CW	9/14/2011
338	C338: 2010 CFSP Cap SCADA Conversion 338-52CF	3/8/2011
445	C445, BOULEVARD: PHASE 4	11/29/2011
445	C445, BOULEVARD: KEARNY SCADA WORK	11/29/2011

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Circuit	Long Spans	Issue Date
920	Distrib Long Span Inspect Eval P274972	6/30/2010
450	Distrib Long Span Inspect Eval P117651	6/8/2010
909	Distrib Long Span Inspect Eval P110160	6/8/2010
358	Distrib Long Span Eval P166587	10/11/2010
448	Distrib Logn Span Eval P44143	6/2/2010
448	Distrib Long Span Eval P43331	9/23/2010
240	Distrib Long Span Eval P370107	9/23/2010
157	Distrib Long Span Eval P177625	12/1/2010
157	Distrib Long Span Eval P970694	9/17/2010
157	Distrib Long Span Eval P274037	7/6/2010
449	Distrib Long Span Eval P42810 P42816	8/6/2010
354	DISTRIB LONG SPAN P511379-P101009	8/13/2010
176	Distrib Long Span P119342 - P119341	7/19/2010
212	Distrib Long Span P518788 - P518789	11/29/2010
354	Distrib Long Span P213932 - P213933	8/5/2010
354	Distrib Long Span P213930 - P213940	11/5/2010
908	Distrib Long Span P416257 - P416256	7/19/2010
908	Distrib Logn Span P512243 - P412507	8/6/2010
220	Distrib Long Span P411431 - P411434	8/2/2010
237	Distrib Long Span Inspect Eval P615374	6/23/2010
971	Distrib Long Span Inspect Eval P219730	6/22/2010

Circuit	Routine Projects	Issue Date
75	Distrib Long Span Eval P677650-P677649	6/23/2010
353	C353:2010 CFSP FIRE PREP PROGRAM-REPL SR	8/26/2010
448	C448:2010 CFSP FIRE PREP PROGRAM-REPL SR	7/8/2010
1215	C1215:2010 CFSP FIRE PREP PROG - REPL SR	9/1/2010
157	C157:2010 CFSP FIRE PREP PROGRAM-REPL SR	9/1/2010
441	C441:2010 CFSP FIRE PREP PROGRAM-REPL SR	6/21/2010
449	C449:2010 CFSP FIRE PREP PROGRAM-REPL SR	9/15/2010
222	C222: ERI CFSP 2010 Install CO95 OH Spacers & Stee	8/11/2010
211	C211, 937,210, 909, 448, 357 & 157:CFSP IR Rplcmnt	5/3/2010
357	C357 CFSP IR RPL - EA	4/14/2010
448	C448 & C157 CFSP IR REPLACEMENT-ME	4/19/2010
355	C355,AP: Install SCADA SR & Load Transfer for CFSP	8/23/2010

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355	C355, AP: Install SCADA SR & Ld Trans for CFSP-OH	8/19/2010
358	C358, AL:Install SCADA SR on P78831 & P771817 CFSP	8/19/2010
1458	C1458:CFSP-REPLC 4WAY MANUAL WITH 5WAYTS	8/19/2010
520	C520,217,175/176: ERI CFSP Intellirupter Repl	9/20/2010
440,441,442	GC Sub: C440, C441 & C442 2009 Fire Prep Program	12/7/2010
1030	VC SUB: C1030 2009 FIRE PREP	3/10/2010
907	VC SUB: C907 2009 FIRE PREP	3/10/2010
908	VC Sub: REM - C908, 2009 Fire Prep - UG	9/17/2010
908	VC Sub: Remove C908 2009 Fire Prep Prog	9/17/2010
235	CRE SUB: C235 P228184	10/29/2010
971	C971: 2009 Fire Prep Program	8/27/2010
355	C355: 2009 Fire Prep Program	4/13/2010
1458	C1458: 2009 Fire Prep Program	4/29/2010
701	INTELLIRUPTER PULSECLOSER TRAILER INST.	2/5/2010
75	C75: Install Steel Poles	4/7/2010
211	C211, WR: Bridge Fuses	9/14/2010
520	C520, AV: Bridge Fuses	2/10/2010
352	C352, LI: Install Fuses	2/17/2010
237	C237, CRE: Install Fuses	2/10/2010
907	C907, VC: Bridge Fuses	1/20/2010
236	C236, CRE: Install Fuses	2/11/2010
176	C176, PO: Bridge Fuses	3/12/2010
320,321,322,323,324,000	Paradise Sub:SCADA Load Monitor Installation on PD	8/11/2010
48, 378	Division Sub: SCADA Load Monitor Installation	4/16/2010
81, 372, 374, 375	CO Sub: SCADA Load Monitor Installation on CR Cir	3/26/2010
440	Glencliff Circuit SCADA Load Monitor Installation	9/29/2010
456	C486: MH, SCADA Load Monitor Installation	3/8/2010
445	C445: Fire Upgrades PH2B P41119-P41137	6/14/2010
445	C445: Fire Upgrades PH 2A P41101 - P41119	3/15/2010
445	C445: Fire Upgrades PH3-P411.7-P41901	7/7/2010

Circuit	**Long Spans**	**Issue Date**
73	Distrib Long Span Survey: P275768-P275769	11/18/2009
212	Distrib Long Span Inspect Eval P19544	11/3/2009
73	Distrib Long Span inspect Eval P275766	11/2/2009
445	Distrib Long Span Inspect Eval P41847	11/30/2009
206	Distrib Long Span Inspect Eval	11/2/2009

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Circuit	Routine Projects	Issue Date
521	C521: 2009 Fire Prep - Sect / Rainbow MWD	3/13/2009
217	C217: 2009 Fire Prep - Sect / Yuima Pump Sta	4/24/2009
217	C217: 2009 CFSP JOB REV1	8/28/2009
176	C176: 2009 Fire Prep Program (1 of 2)	7/17/2009
176	C176:2009 FPP- P105320/P119424-HWY67	7/17/2009
246	C246: 2009 Fire Prep Program	4/17/2009
240	C240: 2009 Fire Prep Prog	5/29/2009
RB1	CRB1: 2009 Fire Prep Program	6/16/2009
1233	C1233: 2009 Fire Prep Program	4/16/2009
351	TL688 (C351) Wood to Steel Intellirupter	5/27/2009
350	C350: 2009 Fire Prep Program	6/2/2009
351	C351: 2009 Fire Prep Prog (1 of 4) Section	7/21/2009
212	C212: 2009 Fire Prep Program (1 of 3)	5/21/2009
211	C211: 2009 Fire Prep Program (1 of 2)	7/16/2009
211	C211: 2009 Fire Prep Program (2 of 2)	5/29/2009
212	C212: 2009 Fire Prep Program (3 of 3)	6/15/2009
212	C212: Fire Prep Program (2 of 3)	6/10/2009
210	C210: 2009 Fire Prep Program	6/1/2009
358	C358: 2009 Fire Prep Program	5/28/2009
356	C356: 2009 Fire Prep Program (2 of 2)	7/7/2009
175	C175: ERI Reliability Improvements	9/3/2009
973	C973: 2009 Fire Prep Program	8/19/2009
973	C973: 2009 Fire Prep Program (OH)	7/16/2009
157	C157: 2009 Fire Prep Program	8/27/2009
355,356	AL Sub: C355, C356 2009 Fire Prep Program	6/19/2009
357	ALPINE SUB:C357 CABLE POLE CFSP	7/9/2009
RB1	RB1: Install Service Restorer at Sub	6/26/2009
283, 1166	Loveland Sub:C283 and C1166 2009 Fire Prep Program	6/2/2009
79	C79: 2009 Fire Prep Program	9/1/2009
73,78,79	DE Sub: C73, C78,C79 2009 Fire Prep Program	6/18/2009
73	DE SUB: C73 CFSP JOB REV 1	8/28/2009
73	C73: 2009 Fire Prep Program	10/15/2009
222	C222: 2009 Fire Prep Program	9/10/2009
1215	Crestwood Sub: C1215 2009 Fire Prep Program	6/10/2009
210, 211, 212	Warners Sub: C210, C211, C212 2009 Fire Prep Prog	6/25/2009

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170	BORREGO SUB: C170,171,172 2009 FIRE PREP	7/23/2009
220	C220: 2009 Fire Prep Program	9/8/2009
221	C221: 2009 Fire Prep Program	7/9/2009
214, 215, 217	Rincon Sub: C214, C215, C217 2009 Fire Prep Progam	5/20/2009
214, 216	Rincon Sub: C214, C216 2009 Fire Prep Program	6/25/2009
444, 445	Boulevard Sub: C444 and C445 2009 Fire Prep Progra	6/10/2009
448,449	Cameron Sub: C448 & C449 2009 Fire Prep Program	6/10/2009
908, 909	Valley Center Sub:C908,909 2009 Fire Prep	6/1/2009
176	Poway Sub: C176 2009 Fire Prep Program	5/28/2009
1233	Pala Sub: C1233 2009 Fire Prep Program	5/28/2009
445	C445: 2009 CFSP- Fire Prep Program	7/10/2009
338, 339	Cristianitos Sub:C338,C339 2009 Fire Prep Program	6/26/2009
448	C448: 2009 CFSP- Fire Prep Program	7/17/2009
357	C357: 2009 CFSP Fire Prep Program	9/3/2009
449	C449: 2009 CFSP- Fire Prep Program	7/10/2009
1021	C1021:P228460 - C352 BRANCH ISOLATION	8/21/2009
520,521	Avocado Sub: C520, C521 Fire Prep Program	6/9/2009
235,236,237,970,971	CRE Sub: C235, 236, etc 2009 Fire Prep Program	8/13/2009
75, 524	Jamacha Sub: C75, C524 2009 CFSP Fire Prep Program	6/26/2009
350, 352, 353, 354	Lilac Sub: C350, 352, 353, 354 2009 CFSP Fire	6/9/2009
442	C442: 2009- Fire Prep Program	8/31/2009
984	C984: 2009 CFSP Fire Prep Program	8/27/2009
283	C283: 2009 CFSP Fire Prep Program	10/6/2009
524	C524: 2009 CFSP Fire Prep Program	10/19/2009
354	C354: 2009 CFSP Fire Prep Program	7/14/2009
728	C728: 2009 CFSP Fire Prep Program	8/10/2009
520	C520: 2009 CFSP Fire Prep Program	7/16/2009
411	Granite Sub: C411 2009 CFSP Fire Prep Program	6/19/2009
907	C907: 2009 CFSP Fire Prep Program	7/14/2009
TM1	Temecula Sub: TM1 2009 CFSP Fire Prep Program	6/12/2009
920	C920: 2009 CFSP Fire Prep Program	8/5/2009
67, 157	Barrett Sub: C67, C157 2009 Fire Prep Program	6/10/2009
220, 221, 222	Santa Ysabel Sub: C220, C221, C222 2009 Fire Prep	6/1/2009
920	C920: CFSP Fire Prep Program	9/2/2009
236	CRE SUB: C236. 237. 970, 975 2009 CFSP	8/7/2009
445	C445: Fire Upgrades PH 1 P41083 - P41100	12/21/2009

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MGRA-56 Please state which circuits were upgraded as part of the wood-to-steel pole upgrade program, if not previously described in the previous questions. State the length of the circuit, and the date any upgrades were completed.

SDG&E Response:

As SDG&E is not requesting funding for transmission facilities as part of this GRC application, transmission data is not in scope of this proceeding. With this consideration, SDG&E responds to this question as follows:

SDG&E's "Wood-to-Steel" projects have primarily targeted the transmission system. Some of these transmission lines had distribution circuits underbuilt on those lines (attached to the same structures, but at a lower height on the pole). The total value of the distribution underbuilt is 33.26 miles. See table below for a breakdown by circuit. Also see attached Excel spreadsheet "MGRA 56 - Distribution Underbuilt Circuit Work (2009-2014)."

TRANSMISSION LINE	DISTRIBUTION CIRCUIT NUMBERS	Approximate Miles of Distribution	ENERGIZED DATE
6904	C1166, C357	1.4	11/10/2009
616	C1100, C307	1.89	6/5/2012
648	C178, C476	1.7	1/3/2011
633	C540, C502	1.38	1/12/2011
6910	C260, C536	1.28	9/24/2014
6911	C95, C93, C75, C92, C96, C91, C524 & C 525	0.3	10/11/2011
689 (Felicita/Bernardo)	C292, C791, C542	1.59	6/10/2011
6932	C1233, C249	0.47	1/29/2011
6913	C177, C920	2.1	8/8/2013
13812	C204, C200, C329, C331	0.23	5/2/2014
6927	C64, C747, C966, C968, C1152	1.43	12/30/2011
6917/635	C974, C972, C235, C971, C973	1.47	10/7/2013
698	C230, C1234, C239, C1235	7.37	7/28/2011
678	C356, C246, C247	3.86	12/1/2010
689 (Escondido/Felicita)	C473	3.57	11/17/2010
680A	C192, C497	3.22	4/5/2012
	TOTAL	33.26	

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MGRA-57 Please give the outage history for the circuits specified in the above three questions during the following calendar periods, running from 0:00 the originating (FROM) date and 23:59 on the final date (TO). Also include the peak wind gust measured at a) the nearest SDG&E weather station and b) the peak wind gust measured at the nearest RAWS station for that circuit.

FROM	TO
12-Feb-15	14-Feb-15
23-Jan-15	26-Jan-15
24-Nov-14	26-Nov-14
30-Apr-14	3-May-14
8-Mar-14	10-Mar-14
2-Feb-11	4-Feb-11
22-Jan-11	24-Jan-11
10-Jan-09	13-Jan-09
9-Dec-08	11-Dec-08
5-Dec-08	7-Dec-08
6-Nov-08	8-Nov-08
12-Oct-08	15-Oct-08
17-Jan-08	19-Jan-08
1-Jan-08	3-Jan-08
21-Oct-07	24-Oct-07

SDG&E Response:

SDG&E does not combine these separate data sources for operational or reporting purposes. Responding as requested to such a set of selective data points is onerous and creates a reasonable potential to result in misleading results. The distribution circuits identified in the previous three questions were not hardened in their entirety. Rather, sections of each circuit were hardened. Providing data at the circuit level has a high potential for misleading results as it is not possible with certainty to determine which outages and wind events were associated to hardened sections versus un-hardened sections.

Additionally, performing an analysis of outages and weather that pertains only to the portion of the circuits that were hardened is a burdensome task that has not been previously undertaken by SDG&E. The systems that produce this data were not developed with such an analysis in mind, nor is it in a form to create such a report in a reasonable period of time.

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MGRA-58 For circuits described in MGRA-54 through MGRA-57, please give the outage history for the calendar dates July 1 – July 15 for each calendar year from 2007 to 2014. This is intended as a control sample.

SDG&E Response:

The following table shows the number of outages on the approximately 100 circuits listed in responses to MGRA-54, MGRA-55, and MGRA-56. Note that there is no distinction of outages in regards to cause, location, equipment affected, weather, age of equipment or other factors.

Year	Outage Count
2007	19
2008	17
2009	17
2010	42
2011	46
2012	21
2013	9
2014	21

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MGRA-59 If advanced reclosers, advanced relays or wireless fault indicators were installed that affect the circuits described in the previous questions, please give the date when the installation of those devices was completed for these circuits.

SDG&E Response:

The following table shows the date ranges for installations of advanced reclosers, advanced relays, and wireless fault indicators for the circuits listed in responses to MGRA-54 through MGRA-56.

YEAR	Advanced Reclosers	Advanced Relays	Wireless Fault Indicators
2009	28	0	0
2010	63	0	0
2011	26	1	8
2012	32	1	191
2013	4	1	483
2014	11	7	43
2015	2	0	6

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The following questions relate to SDG&E's fire preparedness programs and projects in the previous GRC.

MGRA-60 What was the total funding request for fire-related issues during SDG&E's previous GRC (2012 cycle)?

SDG&E Response:

SDG&E is not able to specify a precise value. In the 2012 GRC (A.10-12-005) testimony of Mr. Alan Marcher, exhibit SDG&E-06 for Electric Distribution Capital, a category of projects under the heading 'Fire Hardening Specifics and Advanced Metering Infrastructure' identified a total of forecasted spending (2010-2012) of $28,171,000 expressed in direct labor and nonlabor in 2009 dollars (2009$). Removing the funding requested for Advanced Metering in that category of $1,273,000 leaves $26,898,000. 'Fire Preparedness' is also identified as a contributing driver of many other projects, although not the sole driver for them. In the testimony of Mr. Scott Furgerson, exhibit SDG&E-05 for Electric Distribution O&M, 'Fire Preparedness' is discussed throughout as a driver of activity, although no specific fraction of the requested funding is attributed to fire preparedness alone.

Prior to and throughout the 2012 GRC cycle to the present, SDG&E's fire risk mitigation efforts are not discrete activities, but instead consist of a multifaceted approach involving engineering, construction, operations and maintenance that has been broadly integrated into its business.

For example, SDG&E has been changing its design standards and placing more emphasis on incorporating design and equipment elements that reduce fire risk in areas where fire threat is a significant concern. These include elements such as steel poles, fiberglass cross-arms, increased spacing between conductors, non-expulsion fuses, wireless fault indicators, stronger conductors, polymer insulators, polymer lightning arrestors, advanced reclosers, advanced capacitors, advanced relays, upgraded connectors, additional avian protection, as well as Hendrix aerial cable and underground construction in certain locations. From an engineering perspective, the engineers and designers are spending more time to complete their designs using more sophisticated tools such as LiDAR and PLS CADD that incorporates three dimensional finite element analyses into structural loading considerations. All of this is done while integrating the increased amount of information available from SDG&E's weather network, where engineers are adjusting their designs to account for updated known local wind conditions.

During construction SDG&E has increased its efforts to consider fire prevention during construction with adjustments made in construction activities to give consideration to mitigating fire risk during construction. Activities that are embedded into construction include increased tools and equipment on the job site for fire suppression including the use of dedicated fire watch personnel and trucks with onboard water, hoses and pumps to wet areas as necessary. Additionally, on days of extreme fire risk such as Red Flag days, construction activities may be altered, reduced or suspended.

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Fire risk mitigation activities have also been broadly and deeply integrated into operations and maintenance and are not tracked exclusively as they have become part of SDG&E's normal way of doing business. Over the years, changes include increasing patrols in rural areas from once every two years to annually. Additional detailed safety inspections of the overhead electric distribution system are performed in the High Risk Fire Areas on a three year cycle instead of the typical five year cycle in urban areas. The costs for these inspections and any follow-up repairs are embedded in SDG&E's overall O&M expenses. SDG&E has also increased its efforts to monitor and understand fire and weather risk with its extensive network of weather stations, improved forecasting tools and use of expert meteorologists. This information is then operationalized by changing the system protection settings of advanced reclosers and relays as well as providing information to be planned into deployment of additional fire protection crews and restriction of high risk operations during period of elevated or extreme fire risk. Examples include deploying fire suppression crews, troubleshooters and field repair crews during Red Flag events and patrolling lines before re-energizing when automatic reclosers have been proactively disabled during high fire risk periods.

As outlined above, given that SDG&E's fire risk mitigation efforts have been broadly integrated into our regular business and are embedded into our overall cost of service, SDG&E did not carve out an overall specific funding level for fire risk mitigation and request it as part of the 2012 GRC. Therefore, due to the fact that costs are indistinctly embedded in our overall request, SDG&E is not able to provide a specific value.

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MGRA-61 What amount of funding directly related to fire preparedness and prevention was approved for the 2012 GRC request?

SDG&E Response:

Consistent with the information provided in the response to MGRA-60, the decision in the 2012 GRC did not provide explicit and distinct funding levels for fire risk mitigation activities, but instead provided capital and O&M funding in more generalized groupings which implicitly included the efforts described in the response to MGRA-60.

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DATE RESPONDED: MARCH 4, 2015

MGRA-62 What amounts have been spent for fire-related issues during the 2012-2015 funding cycle?

SDG&E Response:

As discussed in the response to MGRA-60, SDG&E's fire risk mitigation efforts are not discrete activities, but instead consist of a multifaceted approach involving engineering, construction, operations and maintenance that has been broadly integrated into its business. Given that costs for fire risk mitigation activities are indistinctly embedded and integrated in normal business, SDG&E does not have a way to separate and extract the specific requested data.

MGRA DATA REQUEST
MGRA-SDG&E-DR-2
SDG&E 2016 GRC – A.14-11-003
SDG&E RESPONSE
DATE RECEIVED: FEBRUARY 17, 2015
DATE RESPONDED: MARCH 4, 2015

MGRA-63 What specific prevention and preparedness projects were undertaken during the 2012-2015 funding cycle, how much was allocated for them, and how much was spent on them?

SDG&E Response:

As explained in the responses to MGRA-60 and MGRA-62, SDG&E's overall fire risk mitigation effort is multifaceted and integrated into its business and consequently is not conducive to being able to extract all the specific projects and costs undertaken during the 2012-2015 cycle. However, the description of efforts described in the response to MGRA-60 and the data provided in response to MGRA-54, 55 and 56 provides a general representation of the efforts undertaken during that period.