

**Sunrise Powerlink Transmission Line Project
Application No. 06-08-010
MGRA Phase 2 Direct Testimony, Appendix 2A**

APPENDIX 2A – OCTOBER 2007 FIRES

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2A-1. Data Sources

2A-1.1. *Cal Fire October Fires Data Set*

Distribution: Provided upon request

Location: Cal Fire FRAP project:

CDF Attn: FRAP; PO Box 944246; Sacramento CA 94244-2460
Phone: (916) 327-3939 Fax: (916) 324-1180

Processed file is attached below for convenience:

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Oct2007Fires.xls

File 2A-1 – This list of October 2007 fires has been extracted from the Cal Fire GIS data provided to MGRA upon request. We have modified it by 1) highlighting purported power line fires in color, and 2) changing the ID ‘11’ which indicates power line fires.

Description: These are the preliminary data files created by Cal Fire that describe the fires associated with the October 2007 fire storm. These are identical to other FRAP fire perimeter data in format.

Fields: Name, acres, agency, cause, year, month, day

Version: Provided in January, 2008. Preliminary.

Restrictions and Limitations: This is public yet uncirculated Cal Fire data. Cal Fire ordinarily updates its public records for a given year in April of the following year, however that would not be timely for the Sunrise Powerlink proceedings. This data set is restricted in time to only those fires associated with the “October 2007 Firestorm”, occurring throughout Southern California during the fourth week of October 2007. Due to its specificity, it cannot simply be added to the general Cal Fire data set for use in rate or other calculations without introducing a sampling bias. However it can be analyzed on its own. Another shortcoming is that not all cause information has been finalized and included.

Processing: Analyzed with ArcView. Purported power line fires were assigned an ID of ‘11’, and the data was extracted into an Excel spreadsheet (attached). Suspected power line fires were also color-coded, and the area burned by these fires and by non-power line fires were summed separately.

2A-1.2. *Mesowest Weather Data*

Distribution: Open

Location: <http://www.met.utah.edu/mesowest/>

Description: Data for RAWS and other weather stations in a database searchable by web interface. Hourly data can be obtained for any date extending back to the time that collection started for a particular station. This data is displayed in graphical (and optionally tabular) form for windows extending from 12 hours up to 30 days.

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Fields: Temperature, relative humidity, wind speed (sustained & gust), wind direction, precipitation

Restrictions & Limitations: Data for SD County RAWS stations goes back to 1999, with many coming on-line between 1999 and 2001. Non-RAWS stations sometimes lack wind gust data. Data quality is considered marginal for older data. Anomalous functioning can often be identified by “wild swings” in measurements for one parameter or another, or by missing blocks of data.

Processing: RAWS data was downloaded for a window surrounding key wind events with a width of at least 12 hours.

2A-1.3. *Raws Weather Data*

Distribution: Western Regional Climate Institute

Location: <http://www.raws.dri.edu/wraws/scaF.html>

Description: DRI offers downloads of the most recent 30 days of weather station data from any specified weather station free of charge. It also offers historical data for a fee.

Fields: Temperature, relative humidity, wind speed (sustained & gust), wind direction, precipitation

Restrictions & Limitations: Data for SD County RAWS stations goes back to 1999, with many coming on-line between 1999 and 2001. Non-RAWS stations sometimes lack wind gust data. Data quality is considered marginal for older data. Anomalous functioning can often be identified by “wild swings” in measurements for one parameter or another, or by missing blocks of data.

Processing: Data for specified weather stations was downloaded in the aftermath of the 2007 fires in Excel spreadsheet format.

2A-1.4. *Cal Fire Fact Sheets*

Distribution: Public

Location:

http://www.fire.ca.gov/communications/downloads/fact_sheets/20LACRES.pdf
http://www.fire.ca.gov/communications/downloads/fact_sheets/20LSTRUCTURES.pdf

Description: These tables show the top 20 fires in terms of structure loss and in terms of total acreage burned. These have been updated to take into account the October 2007 fires.

2A-1.5. *Cal Fire Press Release – Cause of October 2007 Fires*

Distribution: Public, issued by Cal Fire

Location: On request from Cal Fire. Attached below



October Fire Causes.pdf

File 2A-2 – Press release from Cal Fire that provisionally lists the cause of the Rice, Guejito, and Witch Creek Fires as being power lines.

Description: This press release from the San Diego unit of Cal Fire lists the causes of the Rice Fire, the Witch Creek Fire, and the Guejito Fire (which merged with the Witch Creek Fire) as being power lines.

Restrictions and Limitations: These results are preliminary.

2A-1.6. *CA Governor’s Office Fire Report*

Distribution: Public

Location: <http://gov.ca.gov/fact-sheet/8020/>

Description: This is a list of all fires. In general, cause information is not provided, with the exception of the Sedgewick Fire in Santa Barbara County, which is attributed to power lines.

2A-1.7. *California Department of Insurance Press Release*

Distribution: Public, issued by the California Department of Insurance.

Title: Insurance Commissioner Poizner Hosts Insurance Recovery Forum to Assist San Diego Wildfire Survivors with Recovery Efforts.

Location: Posted on the Internet, at location <http://www.insurance.ca.gov/0400-news/0100-press-releases/0060-2007/release120-07.cfm>

Description: This press release discusses the cost of the October 2007 fires in California. Total exposure of insurers is estimated at \$1.6 B.

2A-1.8. *News Media on Fire Causes*

Distribution: Public distribution of news stories by newspaper websites.

Location:

Mozingo, Joe; Downed power lines: a fiery culprit only money can stop; Los Angeles Times; November 4, 2007;
http://www.latimes.com/la-me-power4nov04_0,1082839_full.story?coll=la-home-center

Jones, J. Harry and Kristina Davis; Tracing the root of a fire takes time; The San Diego Union-Tribune; November 11, 2007;
http://www.signonsandiego.com/uniontrib/20071111/news_1m11cause.html

Laetz, Hans; The Canyon Fire, Sunday Night Update; Malibu Surfside News; October 21, 2007;
<http://malibusurfsidenews.com/blog/2007/10/malibu-canyon-fire-oct-21-2007.html>

Clauder, Sam H. II; Fires Rage Through Mountains; Crestline Courier News; October 26, 2007;
<http://www.crestlinecourier-news.com/articles/2007/10/26/news/news1.txt>

Description: It is widely acknowledged by fire services that a number of fires that occurred during the October 2007 fire siege were caused by power lines. However, each of these requires a full official investigation, and the results of these may not be available during the SPL Phase 2 testimony period. We therefore offer news reports that have discussed fire origins, where available by local reporters.

Limitations: Official ongoing investigations are being conducted for all the fires mentioned in these articles, and the results of these investigations will supersede any preliminary assessments offered to the press.

2A-1.9. *Poisson statistics calculator*

For determining confidence levels and statistical uncertainties for small values, the Poisson.rb¹ calculator was used (available from M-bar Technologies & Consulting). This calculator estimates the probability of a random event occurring within a specified interval for a given distribution mean. It is used iteratively to determine 90% confidence levels. For a two-tailed distribution, this entails determining the 95% upper and 95% lower interval.

¹ Attached as Poisson.rb

2A-1.10. *SANDAG Land Ownership*

Distribution: Open

Location:

http://www.sandag.cog.ca.us/resources/maps_and_gis/gis_downloads/land.asp

File Name: own.zip

Description: Publicly owned land boundaries, along with owner.

Fields: Owner.

2A-2. Analyses

2A-2.1. *Power line contributions to the October 2007 fires*

2A-2.1.1. Goal

To determine the contribution of power line ignition starts to the October 2007 fire siege, and to determine the implications for SDG&E and Sunrise Power Link.

2A-2.1.2. Description

The mechanism by which power line fires can contribute to the start of catastrophic fires was described in MGRA Phase 1 direct testimony². In the third week of October, 2007, a strong “Santa Ana” wind event hit Southern California, and the scenario described in the MGRA testimony was played out a number of times, and under a number of different circumstances. Nowhere, though, was the effect as dramatic as San Diego County, where the Witch, Rice, and Guejito Fires together burned almost 2000 structures³. The Witch Fire is now the fourth largest wildland fire in recorded California history, and ranks third in the number of structures destroyed. The Rice Fire ranks 19th out of the total number of structures destroyed⁴. The economic damage that these fires incurred is significant – the state insurance commissioner estimates that the total

² MG-1; Mussey Grade Road Alliance Phase 1 Direct Testimony; pp. 2-3.

³ Cal Fire October Fire Causes Press release; see File 2A-2.

⁴ Cal Fire; Fact Sheets; 20 Largest California Wildland Fires; (by Acres burned and by Structures Destroyed); http://www.fire.ca.gov/communications/downloads/fact_sheets/20LSTRUCTURES.pdf
http://www.fire.ca.gov/communications/downloads/fact_sheets/20LACRES.pdf

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exposure of insurance companies in California is \$1.6B⁵. The lion's share of this damage occurred in San Diego County, which is the preponderance of the SDG&E service area.

This analysis determines the statistical significance of these fires and implications for the Sunrise Powerlink project.

2A-2.1.3. Methods

Origins of all significant wildland fires are investigated by the responsible fire agency. These investigations take time, and so it is unlikely that formalized reports will be available within the time frame of the SPL Phase 2 testimony. Nevertheless, some preliminary results have been released by Cal Fire, which attribute the Guejito, Witch, and Rice Fires to power lines (see attachment File 2A-2). Also, a fact sheet released by the Governor's office⁶ attributes the Sedgewick Fire in Santa Barbara County to power lines. Additionally, a number of news reports have attributed many of the October 2007 fires to power lines (see Section 2A-1.8).

The Cal Fire FRAP program⁷ releases an updated version of its fire perimeter database on an annual basis, usually in April. Therefore, the October 2007 fires will not be included in the full data set within the time frame of the Phase 2 SPL testimony. However, a preliminary fire perimeter data set has been made available (see Section 2A-1.1) that contains only the data for the October 2007 fires. Because this data set has different data entry criteria than the standard FRAP set (specifically that it focuses on one specific time window that we know post-hoc to have been a period of severe fires) it is not proper to combine it with the existing fire perimeter data set. It must be separately analyzed.

These fires were broken into two groups: purported power line fires and non-power line fires, and the results for each group were separately treated. The probability that the number of observed power line fires arose by chance is calculated. The average fire sizes for the power line fires and the other non-power line fires are calculated.

⁵ California Insurance Department; Insurance Commissioner Poizner Hosts Insurance Recovery Forum to Assist San Diego Wildfire Survivors with Recovery Efforts; Press Release; November 29, 2007.
<http://www.insurance.ca.gov/0400-news/0100-press-releases/0060-2007/release120-07.cfm>

⁶ California Office of the Governor; Fact Sheet; Southern California Fire Report; November 5, 2007
<http://gov.ca.gov/fact-sheet/8020/>

⁷ Cal Fire; Fire Resource and Assessment Program (FRAP); PO Box 944246; Sacramento CA 94244-2460; provides a wide variety of GIS data files relating to wildland fire in California;
<http://frap.cdf.ca.gov/index.htm>

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Also, the significance of the number of power line fires in San Diego County and their particular destructiveness is addressed through comparison in number and size of fires to other counties.

2A-2.1.4. Analysis

The October 2007 fire perimeter data set provided by Cal Fire has been extracted into the table below. Power line fires are listed at the end and are highlighted in magenta. Fires were attributed to power line starts by the sources listed in sections 2A-1.5, 2A-1.6, and 2A-1.8. The County column was added during this analysis after georeferencing the fire perimeters.

| FIRE_NAME | DATE_ | SOURCE | COUNTY | ACRE |
|-----------------------------------|--------------|------------------|-------------------------|-------------|
| <i>Non-power line fire</i> | | | | |
| Poomacha | 11/1/2007 | State agency | San Diego | 49410.977 |
| Buckweed | 10/24/2007 | Local agency | Los Angeles | 38347.477 |
| Cajon | 10/26/2007 | USFS | San Bernardino | 104.45 |
| Magic | 10/26/2007 | Local agency | Los Angeles | 2728.853 |
| Harris | 10/28/2007 | State agency | San Diego | 90730.055 |
| Santiago | 11/1/2007 | Local agency | Orange | 28173.438 |
| Coranado Hills | | San Diego County | San Diego | 58.795 |
| Ammo | | San Diego County | San Diego | 21493.912 |
| Rosa | 10/22/2007 | Riverside County | Riverside | 409.625 |
| Nightsky | 10/26/2007 | Local Agency | Ventura | 53.116 |
| Roca | | State Agency | Riverside | 0 |
| October | 10/23/2007 | Local Agency | Los Angeles | 0 |
| Total | | | | 231,511 |
| <i>Power line fires</i> | | | | |
| Canyon | 10/24/2007 | Local agency | Los Angeles | 4329.626 |
| Ranch | 10/27/2007 | USFS | Los Angeles/ Ventura | 58410.354 |
| Rice | 10/28/2007 | State agency | San Diego | 9471.855 |
| Grass Valley | 10/29/2007 | USFS | San Bernardino | 1242.371 |
| Witch | 10/31/2007 | State agency | San Diego | 163240.327 |
| Slide | 10/30/2007 | USFS | San Bernardino | 12769.254 |
| Sedgewick | 10/21/2007 | USFS | Santa Barbara | 808.812 |
| Total | | | | 250,273 |

Table 2A-1 – The October 2007 fires as listed by Cal Fire. The County column and attribution to power line was added in this analysis. The Guejito Fire in San Diego County merged with the Witch Fire, so only the Witch Fire is shown.

The location of these fires is illustrated in the following figure:

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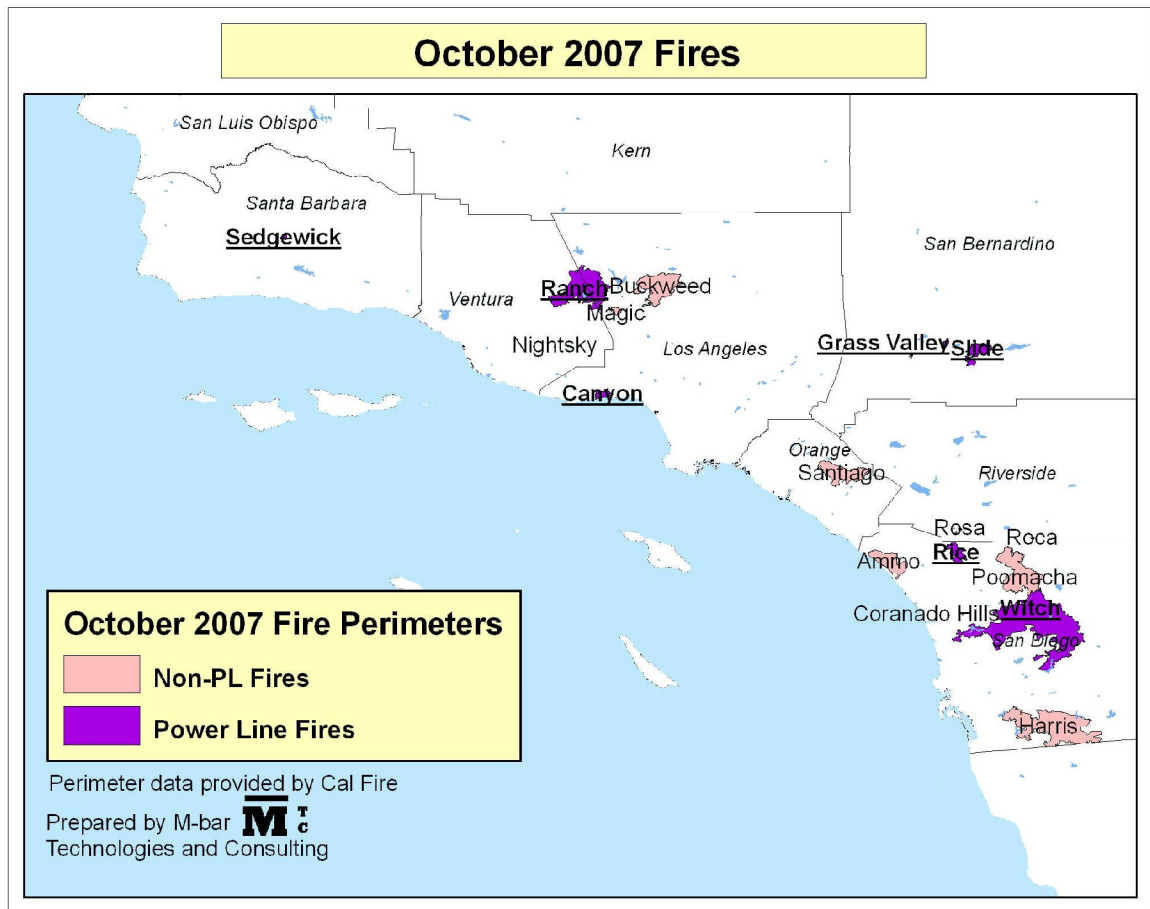


Figure 2A-1 – October 2007 fires in Southern California. Fires attributed to power lines are shown in purple and also by bold-face and underlining.

It is noteworthy that seven of the nineteen fires listed are attributed to power line ignitions. As noted in MGRA Phase 1 direct testimony⁸, power line fires are historically responsible for only about 3% of ignitions state-wide, though only 1% or less in San Diego County⁹, an observation that was confirmed for the numerous San Diego firesheds studied within the scope of the project Draft EIR/EIS¹⁰. Using the 3% state-wide average, the expected number of power line fires for any random sample of 19 fires would be 0.57.

⁸ MG-1; Phase 1 Testimony of the Mussey Grade Road Alliance; A.06-08-010; Appendix D., p. 4.

⁹ Ibid; p. 9.

¹⁰ California Public Utilities Commission and U.S. Department of Interior Bureau of Land Management; DRAFT Environmental Impact Report/Environmental Impact Statement and Proposed Land Use Amendment (EIR/EIS); San Diego Gas & Electric Company Application for the Sunrise Powerlink Project; SCH #2006091071; DOI Control No. DES-07-58; Prepared by Aspen Environmental Group January 2008; Section D.15 and also in most Sections E(x).15.

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The probability that this would fluctuate randomly up to seven or more events is 2.6E-06 (roughly one in 400,000). Much more likely is the mechanism described in the MGRA Phase 1 testimony whereby power line fires are much more likely to occur and grow large during Santa Ana wind events.

The total number of fires is tallied below per county, separated into power line (PL) otherwise initiated (NPL) fires.

| County | Non PL | NPL Area | NPL Avg | PL | PL Area | PL Avg |
|-----------------|---------------|-----------------|----------------|-----------|----------------|---------------|
| San Diego | 4 | 161,694 | 40,423 | 2 | 172,712 | 86,356 |
| Los Angeles | 3 | 41,076 | 13,692 | 2 | 33,535 | 16,767 |
| San Bernardino | 1 | 104 | 104 | 2 | 14,012 | 7,006 |
| Ventura | 1 | 53 | 53 | 1 | 29,205 | 29,205 |
| Riverside | 2 | 410 | 205 | 0 | | |
| Orange | 1 | 28,173 | 28,173 | 0 | | |
| Santa Barbara | 0 | | | 1 | 809 | 809 |
| | | | | | | |
| TOTAL | 12 | 231,511 | 19,293 | 8 | 250,273 | 31,284 |
| TOTAL-SD | 8 | 69,817 | 8,727 | 6 | 77,560 | 12,927 |

Table 2A-2 – This table shows the number of October 2007 fires started by power lines (PL) and by other means (NPL), tallied separately. The Ranch Fire was split evenly between Ventura and Los Angeles County, increasing the total tally by one.

The Ranch Fire burned on the border between Los Angeles and Ventura Counties, and for our purposes we have split it into two fires with equal areas, thus increasing the total fire tally by one. This will (slightly) reduce the average size of power line fires as well as increasing their total from 7 to 8.

Some points can be noted regarding the above table:

- San Diego County had a larger number of fires than any other county.
- The fires in San Diego burned (power line and non-power line) burned more area than fires in any other County. In fact, more area was burned in San Diego County than in all other counties combined.
- The fires in San Diego County (both power line and non-power line) were on the average significantly larger than fires in other counties.
- The average area burned by a power line fires was 50% larger than that burned by fires started by other sources. Interestingly, this is true even if

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one excludes the data from San Diego, which overwhelms other effects. One hypothesis that might explain this is that power line fire starts tend to come during periods when the Santa Ana wind conditions are at their most intense, since this is when the damage that causes arcing occurs in the electrical system. Other types of fire starts might come before or after maximum wind conditions, and therefore the wildfires they produce will not spread as quickly and be more amenable to control measures.

The implications for the Sunrise Powerlink are significant. San Diego County may be an especially severe area as far as the risk of wildland fire overall.

2A-2.1.5. Limitations

Fire investigations are not complete, so it is possible that some fires listed as power line fires above are not due to power lines. The Rice Canyon and Witch fires in San Diego, however, have been confirmed as power line fires by Cal Fire. The Cal Fire listing does not contain the Guejito Fire, attributed to power lines and which merged with the Witch Fire. The Guejito Fire is significant, because it was responsible for the two deaths that occurred during the Witch Fire, and because it would have been likely to follow a similar northern route to that taken by the merged fires through the communities of Rancho Bernardo and Rancho Santa Fe.

The sample of fires is still small, and it is difficult to gauge statistical significance of the above data. However the trend of fires being worse in San Diego County is disturbing, and raises the question of whether this condition was unique to October 2007 or whether it previously existed (and still exists). This question is fully explored in Appendix 2B.

2A-2.1.6. Conclusions

San Diego County was particularly hard hit by the October 2007 fires, and sustained the greatest amount of damage of any county in Southern California. Power line fires played a significant role, both in San Diego County and elsewhere, being attributed as the cause of seven out of nineteen fires. The statistical probability of this being a random occurrence is roughly one in 400,000. Power line fires also tended to be larger than fires started by other sources.

2A-2.2. Liability aspects of the 2007 fires

2A-2.2.1. Goal

Liability impacts and potential costs were calculated in Appendix H of the MGRA Phase 1 direct testimony¹¹. The October 2007 fires demonstrate that these estimates need to be revised. We show additional costs that may be accrued by SDG&E if they are found to be liable for the October fires in San Diego County.

2A-2.2.2. Description

The MGRA liability calculations took into account both direct costs due to property loss and potential liability for habitat restoration by public agencies. We look at the potential costs that could accrue to SDG&E for property loss and also for areas which sustained particular environmental damage during the October 2007 fires, and which might require rehabilitation to restore their native vegetation, or replacement with equivalent habitat.

2A-2.2.3. Methods

To calculate the cost of property loss that could potentially accrue to SDG&E if they were found liable for the October 2007 fires, two sources were used. First, the November Press release by Cal Fire details the estimated costs-to-date of the fires (see section 2A-1.5) and the press release from the California Department of Insurance (see section 2A-1.7). These set low and high boundaries for the costs of the fires. This is compared against Phase 1 testimony estimates.

To calculate liability costs for habitat damage, the areas prone to “type conversion” due to being re-burned too soon (less than 10 to 20 years) after a fire are calculated. This process is described by Halsey, who also gives a good listing of the original literature on the topic¹². It is also described thoroughly in the EIR/EIS¹³. The topic of type conversion as a potential source of liability was discussed in Appendix H of the MGRA testimony¹⁴. A large fraction of these lands are held by public agencies, and are preserved as National Forest or BLM, or City of San Diego holdings, provided by the data set described in section 2A-1.10. As described in the MGRA testimony, there is the potential that these

¹¹ MG-1; Phase 1 Testimony of the Mussey Grade Road Alliance; A.06-08-010; Appendix H.

¹² Halsey, Richard W; Fire, Chaparral, and Survival in Southern California; Sunbelt Publications; San Diego; 2005; pp. 25-26.

¹³ EIR/EIS; Section D2.5; p. D2-82.

¹⁴ MG-1, Appendix H, pp. 9-12.

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agencies could seek to collect the costs of seeking to prevent loss of native vegetation in their jurisdictions.

Exposure of public agency land to potential habitat loss due to type conversion was determined by correlating land ownership with the fire perimeters, using the SANDAG data for land ownership and the Cal Fire fire perimeter data. This analysis is contained in the attached spreadsheet:



File 2A-3 – This worksheet calculates total area burned in 2003 and 2007 fires and cross-references it to the ownership of the land using SANDAG land ownership data.

The costs for land rehabilitation as determined by MGRA during Phase 1 direct testimony was determined to be between \$5,000 and \$50,000 per acre¹⁵. Costs for land replacement would vary from \$4,000 to \$6000 per acre at current prices¹⁶. Applying these to the cost of public lands re-burned in the October 2007 fires, we can determine the potential liability costs faced by SDG&E should they be found culpable for the Witch Creek Fire.

2A-2.2.4. Analysis

According to the California Department of Insurance, the potential cost of insurance claims submitted as a result of the October 2007 fires is estimated at \$1.6 B. This is based upon the loss of 2000 homes¹⁷. According to the Cal Fire November press release, “The Witch Fire burned 197,990 acres, destroyed 1,650 structures, valued at over \$236 million, costing taxpayers \$18 million in suppression costs. There were two civilian fatalities, 40 firefighters injured. The Rice Fire burned 9,472 acres, destroyed 248 structures, valued at over \$30 million, costing taxpayers \$6.5 million in suppression costs.”¹⁸ This gives a total estimated cost of \$290 M. The majority of homes destroyed were in San Diego, so one would expect that a considerable portion of the \$1.6 B insurance claim burden would be

¹⁵ Ibid.; p. 16.

¹⁶ Ibid; p. 19.

¹⁷ California Insurance Department; Insurance Commissioner Poizner Hosts Insurance Recovery Forum to Assist San Diego Wildfire Survivors with Recovery Efforts; Press Release; November 29, 2007. <http://www.insurance.ca.gov/0400-news/0100-press-releases/0060-2007/release120-07.cfm>

¹⁸ Cal Fire; October Fire Causes; San Diego Unit; Cal Fire News Release; November 16, 2007. (see section 2A-1.5).

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assessed here. So total costs of the October 2007 wildfires in San Diego would be somewhere between \$300 M and \$1 B. Should SDG&E be found culpable for these, additional penalties due to the theory of trespass and inverse condemnation could triple this potential liability so that it lies in the range \$1 B and \$3 B. This is reasonably close to the MGRA estimate for the costs of a massive wind-driven power line fire¹⁹.

Damage to the environment, however, and potential liability arising from it is significantly underestimated in the MGRA analysis. Massive areas burned by the Cedar and Paradise fires in 2003 were burned again in the October 2007 Witch Fire. The footprints of all 2003 and 2007 fires in San Diego are shown in the figure below:

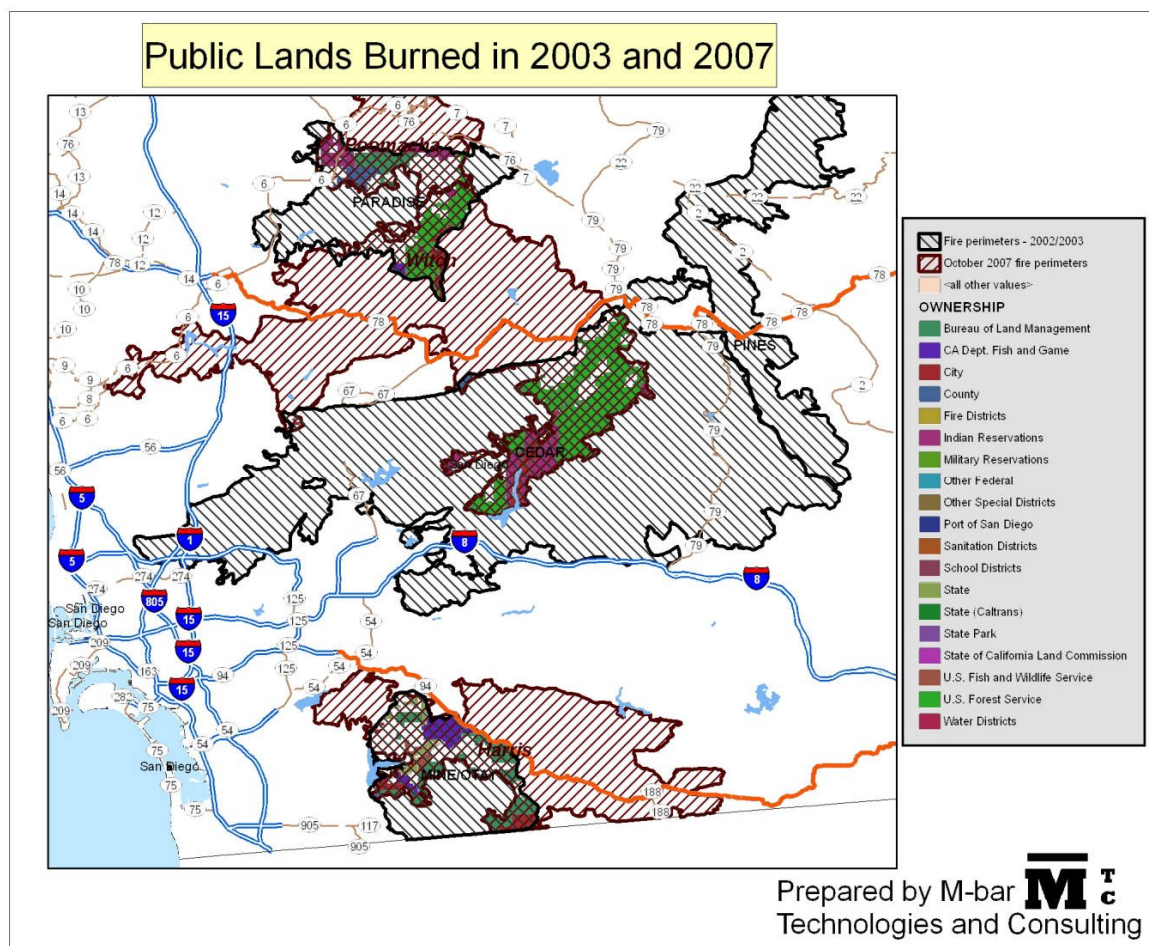


Figure 2A-2 – This figure shows the outlines of the overlap between the 2003 fires (Cedar, Paradise, and Otay), and the 2007 fires (Witch, Poomacha, and Harris) in San Diego County. Overlapping areas can be identified by cross-hatching, and these areas will be especially subject to type conversion. Public agency land holdings within these areas are indicated by the colored areas.

¹⁹ MG-1; Appendix H; p. 9.

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Of particular interest in the SPL case are areas burned by the Witch Creek Fire, which has been attributed to a power line. This fire overlaps with both the Cedar and Paradise Fire footprints, as shown in the two figures below:

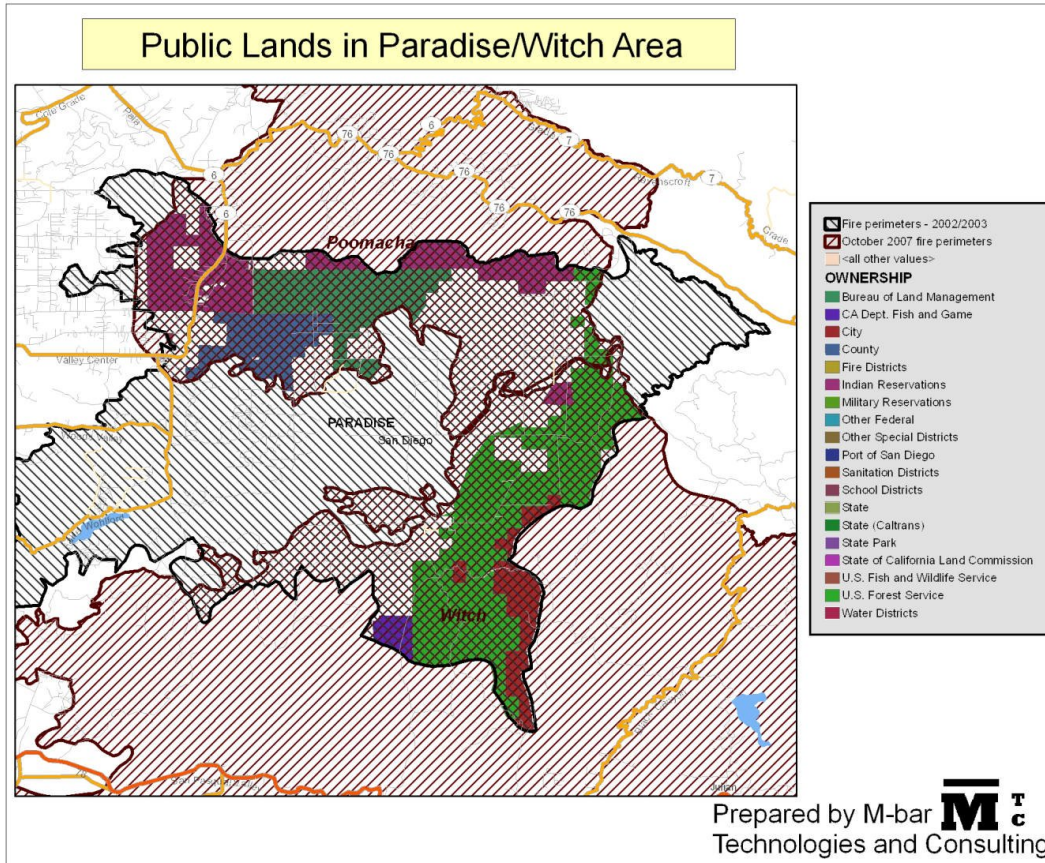


Figure 2A-3 – This figure shows the area burned by the overlap of the Paradise and Witch fires, and the public agencies managing the land in the overlap area.

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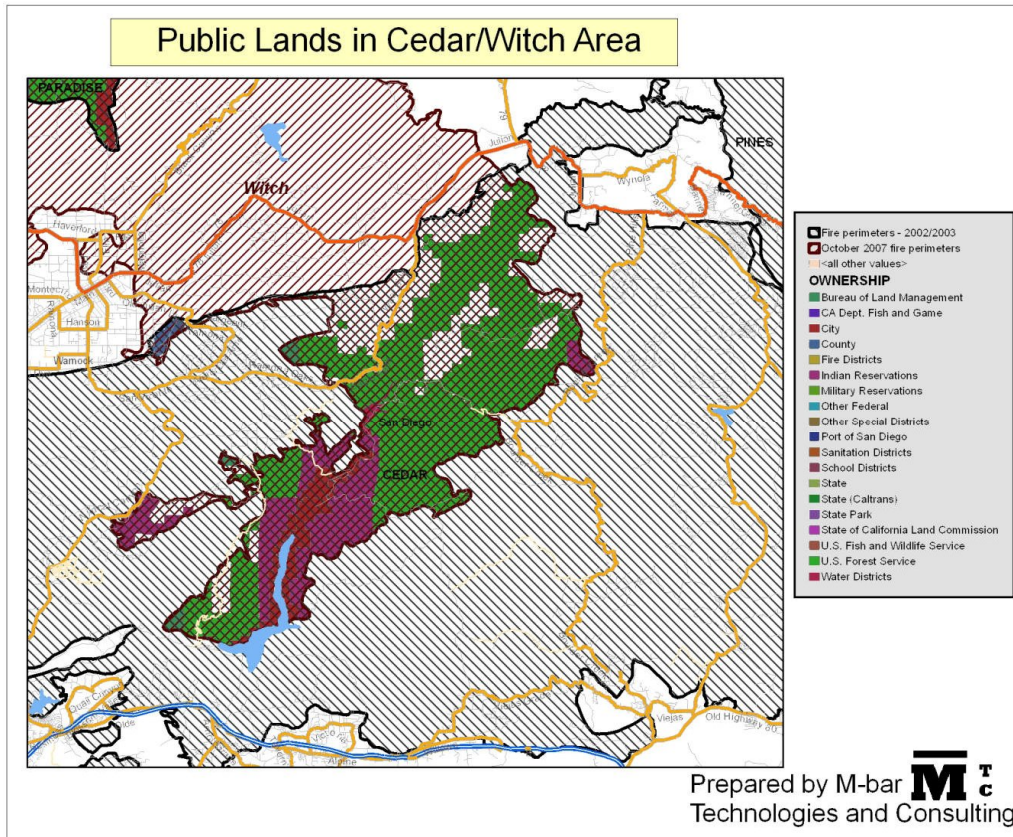


Figure 2A-4 - This figure shows the area burned by the overlap of the Cedar and Witch fires, and the public agencies managing the land in the overlap area.

The areas burned for each fire overlap area, divided by responsible agency are tallied in the following table:

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| | Poomacha-Paradise | Witch-Paradise | Witch-Cedar | Harris-Otay | Total |
|--|-------------------|----------------|--------------|--------------|--------------|
| TOTALS | 15148 | 14370 | 40647 | 25801 | 95966 |
| AGENCY | | | | | |
| U.S. Forest Service | 375 | 7043 | 22232 | | 29649 |
| Bureau of Land Management | 2660 | | 472 | 7725 | 10857 |
| Indian Reservations | 3447 | 150 | 5690 | | 9287 |
| City | | 1334 | 2561 | 2170 | 6065 |
| California Department of Fish and Game | | 371 | | 3216 | 3587 |
| State | | | | 2164 | 2164 |
| County | 1667 | | 340 | 143 | 2149 |
| U.S. Fish and Wildlife Service | | | | 632 | 632 |
| Water Districts | | | 197 | | 197 |
| School Districts | 23 | | | | 23 |
| | | | | | |
| TOTAL | 8171 | 8897 | 31492 | 16050 | 64610 |
| Private Lands | 6976 | 5472 | 9155 | 9751 | 31355 |

Table 2A-3 – This figure breaks out the multiple-burn areas by land ownership. The Witch Fire start has been attributed to a power line, making SDG&E potentially liable for vegetation replacement and mitigation.

Nearly 100,000 acres were burned in the overlap between the October 2003 and October 2007 fires. The extraordinarily short period between these burns means that the native California vegetation in this area may be permanently replaced by highly flammable invasive weeds. Two thirds of this land is in the hands of public agencies.

SDG&E could potentially be held liable for damages caused by the Witch Fire if it found culpable for the fire start. A total of 40,389 acres of the public land at risk is in the Witch Fire area. This means that SDG&E, if responsible for restoration or replacement, could be responsible for direct damages of between \$162 M (for replacement alone) and \$2.1B (if intensive restoration was done over the entire area). Furthermore, applying triple damages according to the theory of inverse condemnation would increase this range to \$480 M to \$6 B.

Hence, potential liability for environmental restoration (if requested by the responsible agencies) could exceed that due to property damage.

Experience with recent major fires, such as Witch and Cedar, reveals that the most damaging fires also traverse large tracts of public lands. The probability that two such fires will overlap within 10 to 20 years is not negligible. The case just observed should be

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considered a more likely case than the 1000 acre example analyzed in the MGRA analysis, and should supersede it.

Hence potential maximum costs for a 10% chance of this event recurring due to SPL, amortized over 40 years of operational lifetime of the line would be:

$$\$6 \text{ B} * 10\% / 40 \text{ years} = \$15 \text{ M/yr}$$

A lower range, assuming replacement at current land values would be:

$$\$480 \text{ M} * 10\% / 40 \text{ years} = \$1.2 \text{ M/yr}$$

However, it would not be trivial to purchase 40,000 acres of mitigation land that could be reasonably said to mitigate for the damage caused. It is likely that the purchase of such a large quantity of mitigation land would drive up the costs of prime habitat to the point where restoration is the preferred mitigation method.

2A-2.2.5. Limitations

This analysis assumes that the overlap of large burn areas observed in 2007 is going to be typical of similar events in the future. It is not known whether this is the case, but it is better to use observed values than it is to use rough estimates, as was done in the Phase 1 direct testimony. Actual assessed damages depend not only on culpability, but also on whether the public agencies are motivated to recover the costs to save the endangered habitat in their charge.

2A-2.2.6. Conclusions

MGRA estimates for property damage due to a major power line fire were not far from those observed in the October 2007 fires. The actual land subject to type conversion in the 2007 fires, however was much larger than the MGRA estimate, and the revised value should replace the estimate given in Phase 1 testimony. Were all public agencies to do intensive restoration of endangered habitat under their control, SDG&E could be liable for up to \$6 B in direct and additional damages. Even if replacement of damaged areas with good habitat would be an option (and it is not clear that a sufficient quantity of mitigation land would be readily found), the direct and additional damages could amount to \$480 M.