

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

**APPENDIX 2E – DRAFT EIR/EIS**

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**2E-1. Draft EIR/EIS Overview and Commendation**

The Draft EIR/EIS for the Sunrise Powerlink Proposal is a 7000 page document representing a tremendous expenditure of high quality talent and effort. Before delving into a critique of this document, it is important to emphasize what the preparers have done correctly. Its thoroughness, which as we understand it is unprecedented for projects of this type, should set a new and we think appropriate standard by which future projects should be analyzed. As this critique will make clear, the tremendous real and potential impacts that would arise from the construction of the Sunrise Powerlink or alternative transmission projects are such that even an EIR/EIS of this scope did not sufficiently address all of them. Some deficiencies were inevitable given the amazing circumstance of the October 2007 fires occurring so close to the deadline for the EIR/EIS submission. We hope that issues arising from the fires are being more closely scrutinized for inclusion in the final EIR/EIS, but we will note their omission in any case.

The draft EIR/EIS contains over 300 pages of analysis related to wildland fire and power lines, and conducts a fire and fuels analysis for every alternative to the project. This is an area that MGRA has offered testimony and argument in throughout these proceedings, and is therefore prepared to judge many aspects of EIR/EIS. We would like to especially commend the CPUC, BLM and preparers on the following aspects of the Draft EIR/EIS:

- Every alternative identified as part of the EIR/EIS was specifically analyzed with respect to wildland fire impacts.
- Field surveys were conducted along the SPL route and all alternatives in order to gauge the fuel load and fire hazard according to sound metrics.

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- Worst-case fire spread modeling was performed for each fireshed to determine the potentially impacted areas.
- An analysis of the impact of the project on firefighting along the project route and alternative routes was performed.
- Class I immitigable impacts due to the potential for the transmission line to start fires were determined to be present in most firesheds traversed by the project or alternatives. These results concur with MGRA Phase 1 and Phase 2 direct testimony, which discuss the hazards from transmission lines in great detail.
- Class I immitigable impacts due to the impact of transmission lines on wildland firefighting were determined to be present in most firesheds traversed by the project or alternatives.
- Fire and Fuels Management impacts were used in the weighting that determined the environmentally superior transmission routes.
- Non-transmission alternatives were deemed by the EIR/EIS to be environmentally superior and preferable to additional transmission lines.
- Mitigation in the form of payments by the company to potentially affected homeowners to enable fire-protective measures.

We would like to emphasize that we regard none of these analyses as superfluous or out of scope for a project of this type. As we will show, all of it – and more – needs to be included in the final EIR/EIS.

## **2E-2. Draft EIR/EIS Material Factual Deficiencies**

### **2E-2.1. *Impacts of expansions are not adequately addressed***

#### **2E-2.1.1. EIR/EIS Sections Affected**

Section ES3.1, p. ES-9; Section ES5.8, p. ES-31; Section A.1, p. A-4; Section B.2, p. B-5; Section B.2.7, p. B-23; Section C.5.8.25, p. C-138; Section D.1.2.3, p. D.1-3; Section D.15.3 (Future Transmission System Expansion), p. D.15-147; Section E.X.15.5 (Future Transmission System Expansion for Alternative X); others.

#### **2E-2.1.2. Analysis Performed by the EIR/EIS**

The EIR/EIS addresses primarily two expansion scenarios: 1) adding additional 230 kV circuits to the substations used to distribute power from the 500 kV SPL or alternative input and 2) additional 500 kV expansion to interconnect with other service areas. These

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possible expansions are mentioned in many places throughout the Draft EIR/EIS, and each project alternative discusses the potential for expansion and what its effect would be.

The topic of expansion of the proposed project has been addressed at the direction of the July 24, 2007 ruling by Commissioner Grueneich, in which she stated that “the Commission must thoughtfully consider how this potential future expansion should be analyzed in the EIR/EIS”<sup>1</sup>, and cites and quotes from the case *Laurel Heights Improvement Ass'n v. Regents of Univ. of Cal.* (1998): “All phases of a project must be considered when evaluating its impact on the environment.”<sup>2</sup>

#### 2E-2.1.3. Material Deficiencies of the EIR/EIS

There are two material deficiencies that arise in the analysis of system expansion. Additionally, there are two identifiable classes of system expansion, which are in fact identified as separate concepts in the Draft EIR/EIS: 230 kV expansion and 500 kV interconnection to other transmission networks.

The first material factual deficiency is that the expansion routes do not get the same class of analysis that is performed on the proposed SPL route or its alternatives. The standard analyses – burn probability modeling, fire behavior trend modeling, and wildfire containment conflict modeling – are not explicitly performed on the expansion routes. This does not allow the reader the ability to compare impacts between routes once their potential expansions are taken into account.

The second material factual deficiency is that when the expansion route is identical to the primary transmission route (as is the case in ESNA and the proposed SPL route), the impacts are simply classified as “Class I” and left at that. The problem with this approach is that there is no indication that a route having an expansion line added will have additional risk compared to a route having just the original line. Both are “Class I” before and after the expansion. A more quantitative approach should be adopted generally throughout the Draft EIR/EIS. This issue is discussed in another section.

The lack of full treatment in the Draft EIR/EIS is excused because “approval of the SRPL would not result in automatic approval of the potential future expansions to the SRPL and all future 230 or 500 kV lines would require new applications by SDG&E, followed by preparation of project-level environment documents and separate approvals

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<sup>1</sup> California Public Utilities Commission; Assigned Commissioner’s Ruling Addressing Newly Disclosed Environmental Information; A.06-08-010; July 24, 2007; p. 6.

<sup>2</sup> *Laurel Heights Improvement Ass'n v. Regents of Univ. of Cal.* (1998) 47 Cal.3d at 396; 14 Cal. Code Regs. Sec. 15126

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from the CPUC prior to permitting and construction.”<sup>3</sup> However, as per the citation by the Assigned Commissioner, this exemption is not true if any of these expansions can be considered another phase of the project.

As to the potential for 500 kV interconnection and 230 kV expansion, these should be studied and judged separately as to their relation to the project.

### **230 kV Expansion**

For the 230 kV expansions in particular, there is a very strong case to be made that these expansions should be considered “full build-out” of the project and hence need to be fully analyzed within the scope of the EIR/EIS. The 500 kV transmission line that would form the backbone of the SPL transmission infrastructure has twice the capacity of the transmission line that would feed from it at the proposed Central Substation<sup>4</sup>. Adding additional circuits might be possible within 10 years after completion of the primary route. The routes for these additional circuits, if approved, would most likely follow the ROW already disturbed by construction of the SPL or other routes: “From a planning perspective, SDG&E would, to the extent possible, site additional lines in already disturbed corridors using existing ROWs. As a result, at least one or two additional circuits could follow segments of the proposed Sunrise Powerlink 230 kV transmission corridor...”<sup>5</sup>

Fire would not be the only consideration. Visual impacts would be greater with 230 kV build-out, as would other potential impacts under CEQA/NEPA.

The 230 kV expansions are easily foreseeable expansions to the project or its alternatives, and would never themselves occur without the project being in place. Hence, they should be viewed as part of the project and fully analyzed.

### **500 kV Expansion**

In Section B.2.7.2, the exact route for a northern 500 kV interconnection between the Central Substation and the SCE transmission network is laid out. This shows that this expansion is fairly advanced in its planning stage. Furthermore, it cannot occur without the interconnection to SPL at the Central Substation.

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<sup>3</sup> Draft EIR/EIS; Section B.2; p. B-5.

<sup>4</sup> Ibid. The 500 kV line can feed up to four 230 kV circuits. Only two are proposed for the SPL and for alternative routes.

<sup>5</sup> Ibid; Sec. B.2.7.1; p. B-24.

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Should this expansion be considered yet another phase of the SPL “grand project” the impacts of this route should also be included in the EIR/EIS.

## **2E-2.2. *Fire analyses do not allow quantitative route comparison***

### **2E-2.2.1. EIR/EIS Sections Affected**

Section D.15.X (Wildfire Model Results; many instances); Section E.X.15.Y (Wildfire Model Results; many instances); Appendix H (many places); others.

### **2E-2.2.2. Analysis Performed by the EIR/EIS**

The Draft EIR/EIS performs three main modeling analyses for the proposed SPL route and for alternative routes: burn probability modeling, fire behavior trend modeling, and wildfire containment conflict modeling. All of these gauge different aspect of the hazard created by power lines. Two of them in particular – burn probability modeling and wildfire containment conflict modeling – are carried out along the studied route, sometimes based upon physical surveys of the route. A hazard metric is obtained, and the area affected is displayed graphically in a manner that displays the route map and the color-coded hazard metric in a corridor surrounding the proposed route.

### **2E-2.2.3. Material Factual Deficiencies of the EIR/EIS**

While we make no claim as to whether the metrics that were chosen are superior or inferior to other metrics that might have been applied, we do acknowledge that they are thorough, diverse in approach, and based upon field data. However, one thing that they lack is a quantitative approach to the result presentation, particularly for the burn probability modeling and wildfire containment conflict metrics. The results are sometimes presented in tabular form, for example in Table E.1.15-13 (Interestate 8 Alternative Burn Probability Route Summary) and other route summaries for alternatives, these results are presented as percentages, rather than absolute distances. Absolute distances should be presented as well, since these can be used for direct comparison between alternatives.

We have assumed in our Phase 1 and Phase 2 testimony that wildland fire risks are proportional to the length of line that is exposed to flammable vegetation. Hence, one would expect that the Draft EIR/EIS would allow a simple comparison of routes as to their degree of fire hazard. Instead, all are simply lumped into the “Class I” category for comparison in Section H, without quantitative data being presented in any quantitative way. This is a shame, because the approach taken by the preparers would lend itself very well to a comparison of line exposure for different types and severity of hazard. Without this, it becomes difficult for the Commission to correctly differentiate between hazards posed by the various alternatives. Such an analysis should be added to the final EIR/EIS.

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### **2E-2.3. “Type Conversion” is not adequately addressed**

#### **2E-2.3.1. EIR/EIS Sections Affected**

Section D.15; Section D.2 (multiple); Section E.X.15; Section E.X.2.

#### **2E-2.3.2. Analysis Performed by the EIR/EIS**

The Draft EIR/EIS gives a detailed definition of type conversion and discusses the sensitivity of San Diego County wildlands to conversion due to fires that occur too frequently. It notes that if the project were to cause a fire, this could cause immitigable impacts to the affected vegetation communities.

#### **2E-2.3.3. Material Factual Deficiencies of the EIR/EIS**

Type conversion was noted as an effect in the MGRA Phase 1 Direct Testimony<sup>6</sup>, and in the MGRA Phase 1 Opening Brief, the MGRA requested that the EIR/EI EIS address the issue of type conversion thoroughly in Recommendations 14-16:

“

14. **A general study in the EIR/EIS of “type conversion” brought on by wildland fire should be conducted for the proposed route and all alternative routes.** The Commission should consider the EIR/EIS acceptable and complete only if it contains a general study of the vulnerability of the environment to “type conversion” in the event of power line induced fire for all areas within ten miles of any proposed route.
15. **A study should be undertaken for the EIR/EIS regarding the historical exposure of lands in San Diego County to “type conversion”.** The Commission should consider the EIR/EIS acceptable and complete only if it contains a study of the average historical exposure to lands in San Diego County to type conversion by looking at fire history throughout the county.
16. **A probability study of the loss of multiple habitats due to a potential catastrophic fire event caused by the project should be required for the EIR/EIS and the costs of such an event should**

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<sup>6</sup> MG-1; Appendix H.

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**be calculated and added to the cost of the project.** The EIR/EIS should be deemed acceptable and complete only if it contains an estimate of the probability of loss of multiple habitats due to a large conflagration caused by the project, and that the potential cost impacts be weighted and included in the project's cost estimates.”<sup>7</sup>

None of the analyses performed for the proposed SPL route or alternatives have conducted a type conversion study specific to that area. Instead, type conversion is treated as a general impact that could occur as a result of a powerline fire. There are certain areas of recent burn, however (such as the Witch Creek, Harris, Cedar and Paradise fire scars), that will be much more sensitive to type conversion effects for a significant fraction of the lifetime of the proposed or alternative projects. These should be treated specifically, rather than generally, as requested in the MGRA Phase 1 Opening Brief.

**2E-2.4. *Impacts of the October 2007 fires are not adequately addressed***

**2E-2.4.1. EIR/EIS Sections Affected**

Section D.15; Section D.2; Section E.X.15; Section E.X.2.

**2E-2.4.2. Analysis Performed by the EIR/EIS**

Section D.15 of the Draft EIR/EIS discusses the Witch Fire in a number of places, giving the total size. It also determines what fraction of each fireshed was burned by the Witch Fire. For the Santa Ysabel fireshed, it describes the likely effect of the fire on the local environment: “A large portion (64%) of this fireshed burned during the 2003 Cedar Fire, and the scar was recovering, but the disturbance of the recent Witch Fire is likely to further contribute to a dominant vegetation community of non-native grasses. Table D.15-10 summarizes the vegetation communities present in the Santa Ysabel Fireshed just prior to the fires of 2007.”

**2E-2.4.3. Material Factual Deficiencies of the EIR/EIS**

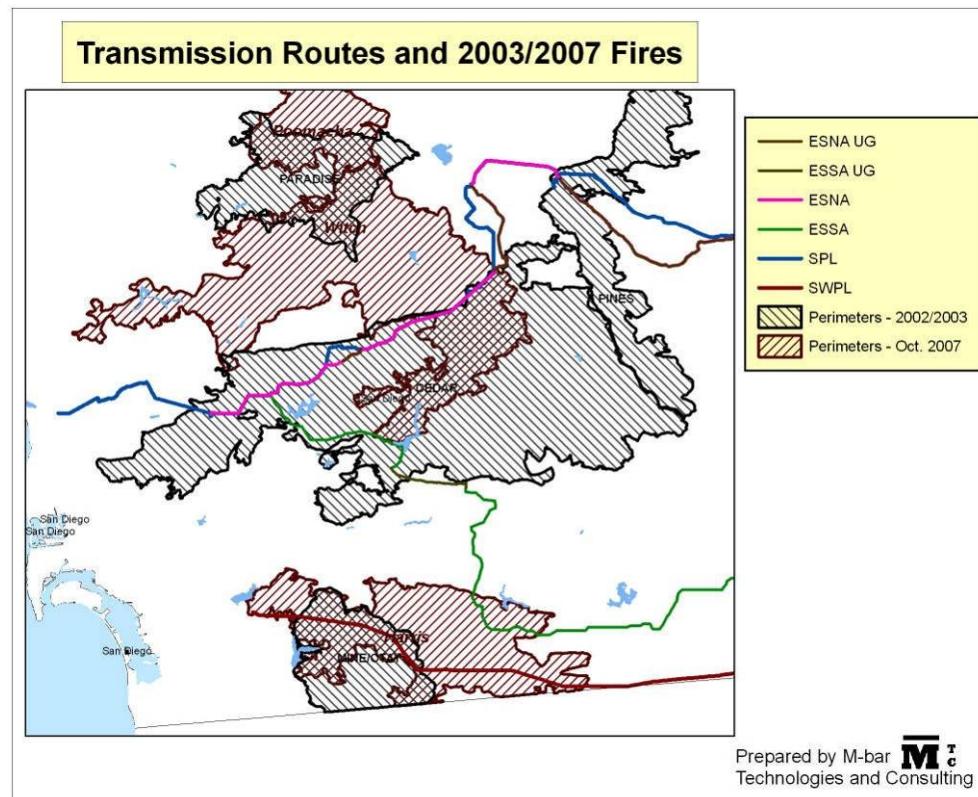
The statement above regarding the Santa Ysabel fireshed is the only mention made of the potential impact on the October 2007 fires on the biota of any region under study for the SPL route by the Draft EIR/EIS. There is likewise a mention of the size of the

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<sup>7</sup> MGRA; Phase 1 Opening Brief; A.06-08-010; p. 8.

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Harris fire in Section E.4.15<sup>8</sup>. There is no mention whatsoever of either the Harris or Witch Creek fires in the biological sections of either the SPL route analysis or of any of the alternative routes. Yet, for significant portions of the line, the October 2007 fires may be the determining factor of the ecology of the areas along the route for the coming years – and perhaps permanently. The effect of the October 2007 fires on the proposed and alternative routes is shown in the figure below:



**Figure 2E-1** – This figure shows the scars of the October 2007 and October 2003 fires superimposed on the proposed and alternative transmission line routes. The Pines fire from 2002 is also included.

As can be seen above, the proposed and alternative routes pass through large areas burned in either the 2003 or 2007 fires – or both. Areas burned by only one fire are especially prone to type conversion – a process discussed in Appendix H of the Phase 1 testimony and in Appendix 2A of the Phase 2 MGRA testimony, as well as in some detail in the Draft EIR/EIS itself. These areas are highly sensitive to future fires and other types of disturbance, and if their native vegetation is lost this may be an irrevocable loss of California habitat. Those regions burned in both fires are in an even more dire situation,

<sup>8</sup> Draft EIR/EIS; Section E.4.15; pp. 2, 7.

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likely to lose their native vegetation forever, and that which remains in a most precarious state. None of this is addressed in the biological studies performed for the Draft EIR/EIS.

The main reason for this material factual deficiency is likely to be time, or lack thereof. The 2007 fires occurred at the end of October 2007, and the Draft EIR/EIS faced a hard deadline put in place by the Commission in January, 2008. However, it makes no sense whatsoever to accept a biological study that does not address current biological reality for significant areas of the routes under study.

Clearly, the only alternative is to conduct additional biological studies of the areas burned in the October 2007 fires and revise the EIR/EIS with this additional information.

Another major issue that should be noted in Figure 2E-1 is the significant extent of the fires. The Witch Creek Fire, asserted by Cal Fire to have been started by a powerline, carried its damage far to the west, re-burning areas burned in the 2003 Paradise Fire and possibly dooming the native ecology in these areas. Clearly, the biological and human impact of power lines can extend far beyond the corridor under study.

## **2E-2.5. *Vegetation clearance is not sufficient mitigation for structure defense***

### **2E-2.5.1. EIR/EIS Sections Affected**

Section D.15 (multiple); Section E.X.15 (multiple). Mitigation measure F1-e – defensible space grants fund.

### **2E-2.5.2. Analysis Performed by the EIR/EIS**

The Draft EIR/EIS has suggested, as mitigation measure F1-e, the defensible space grants fund, the novel idea that SDG&E pay into a pool of funds that could be used by homeowners in the potentially affected area (determined by the fire behavior modeling study). This payment of \$2,000 per year would be used by affected homeowners to create “defensible space” around their homes.

Adequate vegetation clearance is an essential part of structure survivability during wildland fires. Therefore, a program such as this would be expected to save structures – even from the more numerous fires *not* started by power lines. Hence from a probability standpoint, this measure could create a situation where the probability of the power line fire burning a structure is less than the probability that a structure would be saved from a wildland fire by the mitigation, thus creating a net societal benefit.

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### 2E-2.5.3. Material Factual Deficiencies of the EIR/EIS

Unfortunately, this mitigation measure would not shield SDG&E, its ratepayers, the public, or the environment from the effects of wildland fires. Additionally, the type of protection offered is too narrow to offer adequate protection against wildland fires for those homeowners who would be eligible for the program.

The primary problem with a program such as this one is the tremendous size of catastrophic wildland fires. Take for instance, the extent of the Witch Fire of 2007, shown in Figure 2E-1. The distance from the origin of the fire east of Ramona to its western terminus near Del Mar is roughly 29 miles. Along its north/south axis, its maximum extent is 23 miles. This perimeter is much larger than those considered in the Draft EIR/EIS, and contains a substantial number of homes that would not be considered for mitigation. Clearly, it is not possible to protect all homeowners in the areas potentially affected by power line fires.

Citizens who lose their homes or businesses in fires started by powerlines, as well as insurers, can seek to gain redress from the utility if it is shown to be at fault. This process is already underway in the Witch Fire. Hence, even if the utility were to make payments to a mitigation fund that ended up saving more homes overall than were lost in the fire, it could still be liable for property damage due to the fire.

Furthermore, the type of mitigation being offered – payment into a “defensible space” fund – is not adequate to protect homes and could lead to a false sense of security. While adequate vegetation clearance is necessary to protect structures from radiant heat and flame, several scientific studies have shown that it is only one factor in structure survival during wildland fires<sup>9,10,11</sup>. These show that the mass transport of embers during catastrophic fires and their penetration into structures is responsible for the majority of home losses in catastrophic wildland fires. Because embers (firebrands) are transported great distances by strong winds, “defensible space” is not an adequate solution. Only measures that prevent ember (or firebrand) ignitions are effective in protecting homes<sup>12,13,14</sup>. Excessive reliance on “defensible space” may lead to a false sense of security on the part of homeowners.

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<sup>9</sup> Ramsay, G.C., McArthur, N.A. & Dowling, V.P.; Preliminary results from an examination of house survival in the 16 February 1983 bushfires in Australia; *Fire and Materials*, 11 (1987) 49.

<sup>10</sup> FOOTE, E.I.D.; 1994; Structure survival on the 1990 Santa Barbara “Paint” fire: A retrospective study of urban-wildland interface fire hazard mitigation factors. MS thesis, University of California at Berkeley.

<sup>11</sup> Cohen, Jack D. 2000. Preventing disaster: home ignitability in the wildland-urban interface. *Journal of Forestry* 98(3): 15-21.

<sup>12</sup> Mitchell, Joseph W.; Wind-enabled ember dousing; *Fire Safety Journal*; Volume 41, Issue 6, September 2006, Pages 444-458.

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An improvement to the suggested mitigation measure would allow homeowners to use the fund not only for vegetation management, but also for structural modifications or other protective measures that would reduce the risk of firebrand ignitions in the event of a wildland fire.

### **2E-2.6. *There is no treatment of wind conditions***

#### **2E-2.6.1. EIR/EIS Sections Affected**

Section D.15.

#### **2E-2.6.2. Analysis Performed by the EIR/EIS**

Wind and its relation to fire growth is discussed as part of the Fire & Fuels segment.

#### **2E-2.6.3. Material Factual Deficiencies of the EIR/EIS**

In the MGRA brief, recommendations 11 to 13 deal with the necessity of handling wind and its relation to wildland fire<sup>15</sup>. In particular, it requested that Santa Ana conditions be analyzed for the area under study using both best-available weather modeling and also the data from local weather stations.

None of this analysis was performed. Only SDG&E, in its response to MGRA data request number six<sup>16</sup>, provides any weather analysis data at all. This has effectively gone unchallenged and unexamined by the Commission, but it is of critical importance for the safety of the public.

As has been pointed out explicitly in the MGRA Phase 1 testimony, winds are a critical element in the creation of power line faults and the rapid growth of catastrophic wildland fires. Local topology is one key factor that affects the wind intensity. This makes it a crucial part of the Draft EIR/EIS Fuels Management study. A wind analysis

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<sup>13</sup> Mitchell, Joseph W. and Oren Patashnik; Firebrand Protection as the Key Design Element for Structure Survival during Catastrophic Wildland Fires; Fire and Materials 2007, San Francisco, Jan. 2007. Available at: [http://www.mbartek.com/ FM07\\_FirebrandsWildfires\\_1.1F.pdf](http://www.mbartek.com/ FM07_FirebrandsWildfires_1.1F.pdf)

<sup>14</sup> Mitchell, Joseph W.; Brand Dilution; Wildfire Magazine, March, 2005. Available at: [http://wildfiremag.com/wui/brand\\_dilution/](http://wildfiremag.com/wui/brand_dilution/)

<sup>15</sup> MGRA Phase 1 Opening Brief; pp. 7-8.

<sup>16</sup> SDG&E; Response to MGRA Data Request #6. <http://www.sdge.com/sunrisepowerlink/discovery.shtml>

that takes into account local conditions, using both modeling and local weather station data, should be performed as part of the final EIR/EIS.

## **2E-3. Draft EIR/EIS Material Factual Inaccuracies**

### **2E-3.1. *Ignitions due to component failure or wind are discounted***

#### **2E-3.1.1. EIR/EIS Sections Affected**

Section D.15

#### **2E-3.1.2. Analysis Performed by the EIR/EIS**

An overview of power line fires is given in which it is stated that: “There is a public perception that all power lines can be a direct cause of wildfire ignitions, but power line-caused fires are much more prevalent for distribution and lower-voltage transmission lines compared with higher-voltage transmission lines such as the Proposed Project.”<sup>17</sup> Also, “The primary ignition threats associated with higher-voltage transmission lines like the Proposed Project are indirect, consisting of human-caused accidents during construction and maintenance activities and as a result of increased access to wildlands.”<sup>18</sup>

#### **2E-3.1.3. Material Factual Inaccuracy of the EIR/EIS**

The testimony given in Appendix 2D of this testimony contradicts this claim, which is based upon the supposedly superior engineering characteristics of high voltage transmission lines, rather than in any quantitative study of fire rates. The problem with the approach taken by the Draft EIR/EIS (and by SDG&E in their equivalent statements regarding the line) is that it ignores the fact the defects in design, engineering, manufacturing, construction, or due to improper or inadequate maintenance can cause failures. The SDG&E network is tremendously large and complex, and consists of a huge number of individual components, many of which could be the cause of a fire were they to fail mechanically or electrically.

Automatic fault detection and shut-off requires that the fault occur before the shut-off can take place, which can take between 1/60 and 3/60 of a second. A 900 MVA transmission line that was fully discharged could deliver 15 to 45 MJoules of energy in

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<sup>17</sup> Draft EIR/EIS; Section D.15; p. 15-3.

<sup>18</sup> Ibid.; p. 15-4.

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the time it takes to shut it off – the equivalent of 7.5 pounds (to 22 pounds) of TNT<sup>19</sup>. While full discharge might not be likely, a serious failure on a 230 kV or 500 kV line could release significant heat energy and create fragments capable of igniting vegetation in the time it takes to de-energize the line.

Engineering considerations aside, the fact that 230 kV lines have started two fires due to component failure and wind problems during the last two years means that undeniably this sort of thing *can and does* happen. Furthermore, the calculations put forward in Appendix 2D demonstrate that there is no measurably significant difference between the fire rates for 69 kV and 230 kV transmission lines.

It would be proper to either mention this fact in the Draft EIR/EIS, or to remove the assertion that the primary expected cause of fires due to the lines are expected to be due to construction and human access, with the implication that the lines left to themselves are relatively safe. This is an extremely important point, because fires due to line faults in high winds are over ten times<sup>20</sup> more likely to develop into large fires than fires started by construction (which can be curtailed during red-flag warning days) and access by people along service roads. MGRA's extreme concern regarding power line fires is focused on the issue of catastrophic fires and wind-initiated faults or failures.

**2E-3.2. *Surveys will be biased due to reductions in vegetation due to recent fires***

**2E-3.2.1. EIR/EIS Sections Affected**

Section D.15(burn probability modeling); Section E.X.15(burn probability modeling).

**2E-3.2.2. Analysis Performed by the EIR/EIS**

The burn probability models were constructed based upon site surveys as described in Appendix 3 of the Draft EIR/EIS<sup>21</sup>. This was then used to construct burn probability

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<sup>19</sup> We use 4.6 MJ/kg for the specific combustion energy of TNT. It is usually improper to use explosives for energy comparisons, since they actually contain less energy per unit weight than other common substances such as fat (38 MJ/kg). Their destructive power is due to deflagration, or the near instantaneous release of energy. Similarly, a full discharge of 15 MJ within 1/60<sup>th</sup> of a second could be considered explosive, so we feel comfortable making the comparison.

<sup>20</sup> This can be derived from MG-1; MGRA Phase 1 Direct Testimony; Appendix F. The success of firefighting initial attack is generally 98%. This drops to 64% when there are severe winds near the fire's point of origin. The ratio of failed initial attack is 36% / 2% is 18 times.

<sup>21</sup> Draft EIR/EIS; Appendix 3, attachments 3A and 3B.

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models, and these were applied to the various routes, and burn probability maps were created for all routes that were evaluated.

#### 2E-3.2.3. Material Factual Inaccuracy of the EIR/EIS

While this appears to be a sound methodology for gauging the state of current vegetation, it is not adequate for gauging the state of future vegetation if the area has recently been burned. This was a major issue raised in the MGRA Phase 1 direct testimony – that the areas burned in the 2002 and 2003 fires if measured now would show fuel loads that were significantly less than the typical load that would be expected during the SPL lifetime<sup>22</sup>. This was confirmed by SDG&E's witness Hal Mortier during cross-examination<sup>23</sup>.

This same bias would be expected to appear in the site surveys performed by the Draft EIR/EIS. This should be adjusted for, and maps regenerated for areas of the route affected by recent fires. If this has already been taken into account in the “burn probability maps”, then the exact method used to adjust for the bias should be stated in the final draft.

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<sup>22</sup> MG-1; Appendix D; Section 2.1.5; p. 10.

<sup>23</sup> Cross Examination of witness Mortier; Public Utilities Commission, State of California; A0608010; July 17, 2007; p.1007.  
Exhibit MG – 10; CDF Fire Threat - Pre-Cedar (2003)/Pines(2002) Fires;  
Exhibit MG – 11; CDF Fire Threat - Post Cedar (2003)/Pines (2002) Fires;  
Exhibit MG – 12; CDF Fire 2003 - Pre-Cedar/Pines Enlarged "Sunrise" Northern Loop