

**BEFORE THE OFFICE OF ENERGY INFRASTRUCTURE SAFETY  
OF THE STATE OF CALIFORNIA**

**OPENING COMMENTS OF THE UTILITY REFORM NETWORK  
ON SAN DIEGO GAS AND ELECTRIC COMPANY'S  
2023-2025 WILDFIRE MITIGATION PLAN**



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**TABLE OF CONTENTS**

- I. ENERGY SAFETY MUST ENSURE THAT ITS RESOLUTION OF THIS WMP IS CONSISTENT WITH THE CPUC’S RESOLUTION OF SDG&E’S PENDING GENERAL RATE CASE ..... 1
  - A. Much of SDG&E’s WMP Proposal Is Currently Under Scrutiny in SDG&E’s General Rate Case, Where TURN and Numerous Other Parties Raised Serious and Well-Supported Challenges to the Same System Hardening Plan Presented Here..... 1
  - B. The Decision on SDG&E’s WMP Must Respect the Careful Balance that the CPUC Must Strike in Its GRC Decision ..... 5
- II. SDG&E’S QUANTITATIVE RISK ANALYSIS FOR ASSESSING SYSTEM HARDENING ALTERNATIVES IS HEAVILY BIASED IN FAVOR OF UNDERGROUNDING..... 7
  - A. SDG&E’s Modeling Does Not Account for the Additional Mileage that Is Added By the Circuitous Routing Often Required for Undergrounding ..... 8
  - B. SDG&E Exaggerates the Cost of Covered Conductor..... 10
  - C. SDG&E Exaggerates the PSPS-Related Risk Reduction Benefits from Undergrounding, While Understating Those Benefits from Covered Conductor..11
  - D. SDG&E’s Risk Modeling Does Not Account for the Fact that, for a Given Project, Covered Conductor Can Generally Be Deployed Much More Quickly than Undergrounding ..... 13
- III. SDG&E’S DECISION-MAKING PROCESS FOR CHOOSING AMONG SYSTEM HARDENING ALTERNATIVES IS HEAVILY BIASED TO SELECT UNDERGROUNDING IN MOST INSTANCES ..... 14
- IV. A NEUTRAL DECISION-MAKING PROCESS WOULD RESULT IN MUCH MORE COVERED CONDUCTOR AND MUCH LESS UNDERGROUNDING..... 16
- V. TURN’S RECOMMENDATIONS ..... 18
  - A. To Gain Approval, SDG&E Should Be Required to Change Its System Hardening Decision-Making Process and Re-Scope Its System Hardening Programs ..... 18
  - B. SDG&E Should Be Directed to Address Additional Issues Raised by Its WMP ..... 20
- VI. CONCLUSION..... 20

## SUMMARY OF RECOMMENDATIONS

1. Energy Safety should avoid undermining the CPUC's pending General Rate Case (GRC) decision by including clear guidance regarding the intent and effect of the WMP decision. Specifically, the decision on this WMP should state the following:
  - a. In instances when the GRC has determined or will determine the authorized scope of a wildfire mitigation activity that may be recovered in rates, the WMP decision does not authorize a utility to perform additional work beyond what is authorized in the GRC;
  - b. If a utility nevertheless chooses to perform work beyond what the CPUC approves in the GRC, it should be aware that the WMP decision will not be allowed to serve as justification for rate recovery for the additional work.
2. Energy Safety should require SDG&E to make the following changes to its WMP in order to gain approval:
  - a. Undergrounding must be viewed as a targeted mitigation measure for the highest risk circuits where it is cost-effective. SDG&E should ensure that at least 80% of undergrounding miles are deployed to the top 20% of wildfire risk, based on the most up to date modeling results. (See TURN's Comments on PG&E's WMP, Section IV.)
  - b. In choosing among system hardening alternatives – which should include undergrounding, covered conductor and covered conductor coupled with other ignition limiting technologies -- SDG&E must make a location-specific determination of the best alternative for that location, based on the specific risk factors present in the location.
  - c. The location-specific selection among system hardening alternatives must expressly consider the extent to which the execution and schedule risks for undergrounding described in PG&E's 2021 WMP are present in the location and recognize the benefits of deploying an alternative that will achieve risk reduction sooner than other alternatives.
  - d. SDG&E should correct the deficiencies in its calculation of Risk Spend Efficiency (RSE) described in Section III, including: (1) using an accurate, location-specific undergrounding-to-overhead conversion factor in calculating undergrounding RSEs for the project in question; (2) using reasonable costs for covered conductor for the project in question; (3) accurately reflecting the PSPS risk reduction benefits of both undergrounding and covered conductor, specific to the location in question; and (4) properly discounting risk reduction benefits that are achieved later in time to reflect the fact that risk reduction becomes less valuable the longer it takes to be achieved.

- e. The location-specific selection among alternatives must include a comparison of the location-specific cost-effectiveness of each alternative, based on the RSE measure. If the utility wishes to select an alternative that does not have the highest RSE, it must show special and compelling circumstances that justify deployment of a lower RSE alternative in that location.
  - f. SDG&E must present a revised system hardening plan for 2023-2025 that it has developed using a process that complies with the preceding requirements. The revised plan should include workpapers showing how SDG&E determined its target mileage consistent with the above requirements for each of the system hardening alternatives it proposes in its revised plan.
3. The following deficiencies should be corrected in SDG&E's next WMP submission:
- a. In order to develop realistic data-based underground to overhead conversion factors, SDG&E should be required to maintain a database of actual results from SDG&E's undergrounding projects that identifies, for each project, the underground miles deployed and the miles of overhead conductor replaced. In addition, as applicable, the database should describe the reasons that undergrounding needed to deviate from the direct overhead path.
  - b. To have data to compare the reliability of undergrounded facilities to overhead hardened facilities, SDG&E should be required to keep separate reliability measures (e.g., SAIFI and MAIFI) for overhead circuit segments with covered conductor. (See TURN's Comments on PG&E's 2023-2025 WMP, Section VI.C.)
  - c. SDG&E should describe its policy for undergrounding of secondary conductor and services and discuss its expectations for whether poles will be removed in underground locations. The discussion should address the effect that remaining overhead wires and poles in locations with undergrounding have on the estimated risk reduction from undergrounding and specifically the risk associated with ingress and egress in locations where fire is present, whether or not ignited by utility facilities. (See TURN's Comments on PG&E's 2023-2025 WMP, Section VI.B).

**OPENING COMMENTS OF THE UTILITY REFORM NETWORK  
ON SAN DIEGO GAS AND ELECTRIC COMPANY’S  
2023-2025 WILDFIRE MITIGATION PLAN**

The Utility Reform Network (“TURN”) submits these comments on the 2023-2025 Wildfire Mitigation Plan (WMP) submitted by San Diego Gas and Electric Company (“SDG&E”).

**I. ENERGY SAFETY MUST ENSURE THAT ITS RESOLUTION OF THIS WMP IS CONSISTENT WITH THE CPUC’S RESOLUTION OF SDG&E’S PENDING GENERAL RATE CASE**

**A. Much of SDG&E’s WMP Proposal Is Currently Under Scrutiny in SDG&E’s General Rate Case, Where TURN and Numerous Other Parties Raised Serious and Well-Supported Challenges to the Same System Hardening Plan Presented Here**

Much of the same wildfire mitigation work presented in SDG&E’s WMP is also being reviewed and analyzed by the CPUC in SDG&E’s pending General Rate Case (GRC), Application (A.) 22-05-015 et al. This includes SDG&E’s most expensive proposed wildfire mitigation, undergrounding. In this WMP, SDG&E proposes to perform 359 miles of undergrounding in 2023-2025, almost the same amount it proposed for that period in its GRC.<sup>1</sup> Because the GRC addresses SDG&E’s revenue requirements for the four-year period, 2024-2027,<sup>2</sup> SDG&E’s GRC request includes its proposal to carry out an additional 330 miles of undergrounding in 2026 and 2027. The total proposed GRC cost for SDG&E’s 2024-2027 undergrounding request is \$1.6 billion, making it by far the most costly program proposal in SDG&E’s GRC.

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<sup>1</sup> SDG&E response to TURN Data Request (DR) 3, question 2, Grid Hardening Attachment, which shows that SDG&E proposed 355 miles of undergrounding in its GRC request for 2023-2025. SDG&E’s responses to data requests are available at: <https://www.sdge.com/2023-wildfire-mitigation-plan>

<sup>2</sup> In order to determine revenue requirements for 2024-2027, the CPUC must also approve capital spending amounts for 2022 and 2023, including the amount for undergrounding in those years.

The CPUC’s GRC decision will review each of SDG&E’s proposed programs, including undergrounding and SDG&E’s other wildfire mitigation proposals, and determine the appropriate scope of those programs that should be funded in rates. The CPUC will base its decision on an extensive record of testimony, data request responses, cross examination of witnesses sponsoring testimony, and two rounds of briefs based on the evidentiary record. Evidentiary hearings will take place in June 2023, followed by the submission of briefs in August 2023. A proposed decision is scheduled for the second quarter of 2024.

TURN’s GRC testimony of its wildfire risk expert, Eric Borden, which is attached to these comments, recommends a very different and much less costly wildfire mitigation strategy than SDG&E proposed.<sup>3</sup> TURN recommended that SDG&E focus its system hardening efforts on covered conductor, which is much more cost-effective, has many fewer risks and impediments, and is faster to deploy than undergrounding, points that we address in the following sections of these WMP comments. TURN recommended much more covered conductor than SDG&E – 400 miles compared to SDG&E’s 140 miles for the 2024-2027 period. And instead of SDG&E’s 605 miles of undergrounding for that period, TURN recommended 140 miles.

To demonstrate the striking over-reach of SDG&E’s undergrounding proposal, TURN’s GRC testimony includes the following points:

- Based on various measures, SDG&E’s service territory has a small share of California’s wildfire risk compared to California’s other large utilities.<sup>4</sup>

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<sup>3</sup> Appendix A to these Comments.

<sup>4</sup> Appendix A, Borden/TURN GRC testimony, pp. 9-12.

- Despite its relatively small share of wildfire risk, SDG&E proposes to spend significantly more on system hardening than PG&E and SCE on a per HFTD mile and per customer basis.<sup>5</sup>
- SDG&E's long-term plan is to underground an even higher percentage of its HFTD than even PG&E would do under PG&E's unfounded 10,000 mile undergrounding plan.<sup>6</sup>
- SDG&E's proposal does not reflect the more than a decade of elevated wildfire mitigation spending paid by ratepayers to make SDG&E's the safest system in California.<sup>7</sup>
- Compared with the other 187 investor-owned utilities in the United States, SDG&E already had the *fifth* highest electric rates as of 2021, including an astronomical on-peak rate of 83 cents per kilowatt hour for the utility's default time of use rate.<sup>8</sup>
- SDG&E was unable to provide any affordability constraints that it used in developing its proposal.<sup>9</sup>

Even though some of these issues may not have a direct bearing on Energy Safety's review, it is important that Energy Safety appreciate the evidence and arguments against SDG&E's undergrounding proposal that have been made at the CPUC, particularly those related to the affordability of an essential service. Needless to say, if a household cannot afford electricity, such as to provide necessary cooling during the hottest part of a San Diego County summer day, the service is of no use to that household.

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<sup>5</sup> *Id.*, pp. 13-14. As noted in Mr. Borden's testimony, TURN's point is decidedly not to suggest the other utilities' proposed system hardening spending is reasonable. In the accompanying comments on the WMPs of PG&E and SCE, TURN explains why those utilities' undergrounding plans are excessive and should not be approved.

<sup>6</sup> *Id.*, pp. 8-9.

<sup>7</sup> *Id.*, p. 15.

<sup>8</sup> *Id.*, p. 1.

<sup>9</sup> *Id.*, pp. 8-9.

Other parties were also severely critical of SDG&E's undergrounding proposal and presented their own recommendations. Those parties included Mussey Grade Road Alliance (MGRA), Small Business Utility Advocates (SBUA), Protect our Communities Foundation (PCF) and Cal Advocates.

Based on the extensive record, the CPUC will render a decision determining which wildfire mitigation programs, in what size, should be funded by ratepayers. Pursuant to Public Utilities Code Section 451, the CPUC must find that SDG&E has met its burden of demonstrating that its requested costs are "just and reasonable" before those costs can be approved for recovery in rates.<sup>10</sup> While it is of course difficult for any outside party to predict how the CPUC will decide, it should not be surprising if the CPUC rejects significant portions of SDG&E's wildfire mitigation proposals and adopts a different and less costly, but still effective, suite of wildfire mitigation measures, in light of the following:

- SDG&E's wildfire mitigation proposals carry a huge price tag that would significantly drive up the cost of electric service for SDG&E customers for generations.
- Even without the wildfire proposals in the pending GRC, SDG&E's rates have already been escalating far faster than inflation for years and would accelerate more steeply if SDG&E's wildfire proposals are approved, which will make it even harder for many Californians, particularly struggling families, to afford essential energy service;
- The steep rate increases that would result from SDG&E's proposal would imperil California's greenhouse gas reduction strategy, which depends on convincing consumers to switch from fossil fuel-powered vehicles and appliances to electric-powered alternatives;
- As noted, SDG&E's wildfire proposals faced strong opposition from a diverse range of intervenors; and

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<sup>10</sup> The applicability of the CPUC's just and reasonable standard to wildfire mitigation plan costs is reinforced in Public Utilities Code Section 8386.4(b)(1), which provides that "[t]he commission shall consider whether the cost of implementing each electric corporation's [wildfire mitigation] plan is just and reasonable in its general rate case application."



- Most importantly, as discussed in these comments, undergrounding is plagued by many risks and challenges that, in most locations, render it less cost-effective, riskier to accomplish, and longer to deploy than overhead hardening, leaving more risk on the system. Regulators should not be swayed by arguments regarding the use of undergrounding to mitigate PSPS risk, because there are much more efficient, quicker, cheaper, and practical ways to limit this risk than large-scale undergrounding projects.

**B. The Decision on SDG&E's WMP Must Respect the Careful Balance that the CPUC Must Strike in Its GRC Decision**

The Commission's GRC decision will require it to strike a careful and thoughtful balance among a variety of competing considerations, in determining the activities and costs that warrant ratepayer funding. The important factors that need to be balanced include: safety and reliability; the plethora of other activities that require ratepayer funding that are not at issue in this WMP; preventing SDG&E's energy services from becoming unaffordable and therefore unusable for more households; and achievement of California's greenhouse gas reduction goals. Unless affirmative care is taken to ensure consistency between the two decisions, the resolution of this WMP risks undermining the careful balance that the CPUC will need to strike in its GRC decision.

The need for consistency is evident when one considers the possibility of a WMP decision that approves a WMP with programs that are larger in scope than what the CPUC approves in the GRC. Using undergrounding as an example, if the approved WMP has mileage targets that are greater than the undergrounding mileage the CPUC ultimately approves in the GRC, SDG&E can be expected to record the costs of additional mileage beyond the GRC authorized level in the WMP memorandum account created pursuant to Public Utilities Code Section 8386.4(a). At some point in the future, SDG&E can then be expected to use the approved WMP to seek rate recovery through a CPUC application for this additional amount of undergrounding, unless its regulators make clear that such an effort would be futile. From the

perspective of ratepayers, a highly troubling outcome would be that the CPUC feels compelled to approve the additional funding because SDG&E was never informed that its WMP approval would not be allowed to justify rate recovery for undergrounding beyond what was authorized in the GRC. Even the best possible outcome of such a scenario would be undesirable from ratepayers' perspective -- the unnecessary expenditure of limited agency and stakeholder resources to obtain a decision denying such a request. Put simply, WMPs should not be allowed to circumvent the CPUC's statutory obligation to constrain utility spending plans to keep rates just, reasonable and affordable.

The decision on this WMP can avoid these undesirable scenarios by making clear that the WMP process does not permit a utility to circumvent a CPUC GRC decision that determines the authorized scope of a wildfire mitigation activity. To allow the WMP process to provide utilities another bite at the ratepayer funding apple would be extremely poor policy and a waste of limited agency and stakeholder resources. It would also be illegal, as only the CPUC has authority to determine what can be put into utility rates. The CPUC's GRC decisions that carefully weigh and resolve a variety of competing considerations, including affordability, should not be undermined by a WMP decision that is not designed or intended to address any factors other than wildfire safety.

Energy Safety can avoid undermining the CPUC's GRC decision by including clear guidance regarding the intent and effect of the WMP decision. Specifically, the decision on this WMP should state the following:

- In instances when the GRC has determined or will determine the authorized scope of a wildfire mitigation activity that may be recovered in rates, the WMP decision does not authorize a utility to perform additional work beyond what is authorized in the GRC;

- If a utility nevertheless chooses to perform work beyond what the CPUC approves in the GRC, it should be aware that the WMP decision will not be allowed to serve as justification for rate recovery for the additional work.

In this way, while a utility is not prohibited from doing work beyond GRC authorized levels, it is put on notice that it will not be allowed to use the WMP decision as a reason to override the funding limitations prescribed in a GRC decision.

Balancing the competing objectives in achieving just, reasonable and affordable utility rates while achieving safe and reliable service is challenging. To achieve an optimal balance of those competing goals, Energy Safety and the CPUC must make clear that they will ensure consistency in their decisions.

## **II. SDG&E’S QUANTITATIVE RISK ANALYSIS FOR ASSESSING SYSTEM HARDENING ALTERNATIVES IS HEAVILY BIASED IN FAVOR OF UNDERGROUNDING**

At this point in the ever-changing evolution of mitigation strategy for reducing wildfire risk, a key choice is presented – whether to rely on undergrounding, the most costly mitigation, or to use other less expensive alternatives, such as covered conductor or other overhead hardening measures. As SCE reports in its WMP, SCE has had great success with covered conductor in reducing risk and preventing ignitions.<sup>11</sup> Until recently, SDG&E too has made considerable use of covered conductor and other methods of overhead hardening and relied much less on undergrounding.<sup>12</sup> However, in the wake of PG&E’s announcement in late 2021 that it has shifted to an undergrounding-first strategy, SDG&E has also changed its approach. SDG&E’s WMP reports that it has “re-shape[d] its grid hardening strategy to perform additional undergrounding of electric lines over the next 10 years and reduce covered conductor

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<sup>11</sup> Southern California Edison Company (SCE) 2023-2025 WMP, pp. 2-3.

<sup>12</sup> SDG&E’s WMP (p. 1) reports that, from 2020-2022, SDG&E deployed 310 miles of traditional overhead hardening and covered conductor and 105 miles of undergrounding.

installation.”<sup>13</sup> As noted in the previous section, this re-shaped strategy is considerably more costly to ratepayers and more lucrative for shareholders, by providing a significantly larger investment base (a.k.a. rate base) to increase the profits of SDG&E’s corporate parent, Sempra Utilities.

SDG&E claims that its switch to an undergrounding-focused approach is the result of improvements to its WiNGS Planning model.<sup>14</sup> The implication is that revisions to its quantitative risk modeling change the comparison of costs and benefits between undergrounding and covered conductor to make undergrounding a more attractive option than previous modeling suggested. However, as this section will show, there are numerous problems with SDG&E’s modeling that cause it to exaggerate the cost-effectiveness of undergrounding and understate the cost-effectiveness of covered conductor. When these errors and shortcomings are understood, it is clear that SDG&E’s undergrounding-first approach is not supported by sound modeling and needs a complete overhaul.

**A. SDG&E’s Modeling Does Not Account for the Additional Mileage that Is Added By the Circuitous Routing Often Required for Undergrounding**

The path that an undergrounded circuit segment needs to take is often longer and more circuitous than the “as the crow flies” path of the overhead segment it is replacing. SCE explained this point well at the April 27, 2023 workshop using the example of overhead wires spanning a canyon. To replace those overhead wires with undergrounded facilities requires running underground switchbacks down and then back up the canyon walls.

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<sup>13</sup> SDG&E WMP, p. 1.

<sup>14</sup> *Id.*

This fact means that more than one underground mile is often necessary to replace one mile of overhead facilities. This is extremely important from a risk perspective, because the wildfire risk posed by utility lines is measured and assessed by overhead miles subject to risky wildfire conditions. SDG&E’s plans and forecast are measured in underground miles, which are not equivalent to overhead miles replaced. Unless an accurate underground to overhead conversion factor is used, a risk reduction comparison between system hardening alternatives will inaccurately estimate risk reduction and cost-effectiveness (RSE).

Thus, estimates of risk reduction need to be based on the status quo overhead miles that are addressed, not the number of miles of undergrounding work performed. Overhead miles replaced, not underground mileage, is the key measure for determining risk reduction. For example, if 15 miles of undergrounding are required to replace 10 miles of overhead conductor for a given project, the conversion factor would be 1.5. In contrast, one mile of overhead hardened conductor always replaces one mile of unhardened wire and thus provides risk reduction for every mile it is deployed.

SDG&E has admitted that it does not incorporate an underground-to-overhead conversion ratio into its Risk Spend Efficiency (RSE) risk analysis.<sup>15</sup> This is a serious error. It means that SDG&E’s risk reduction estimates from undergrounding are significantly exaggerated. Consider this simplified illustrative example, where undergrounding is measured in underground miles and overhead is measured in overhead miles.

	Miles	SDG&E Effectiveness %	Risk Reduction per SDG&E	Corrected Risk Reduction with 1.5 Conversion Factor
<b>Undergrounding</b>	10	98%	9.8	6.5
<b>Covered Conductor</b>	10	65%	6.5	6.5

<sup>15</sup> Appendix A, Borden/TURN GRC Testimony, p. 32, fn. 62.

This example shows the effect of SDG&E's failure to discount its underground mileage based on the necessary conversion factor. When properly discounted, the 10 miles of undergrounding yield much less risk reduction than SDG&E models. In this example, using the conversion factor shows that the risk reduction from undergrounding is equivalent to covered conductor. Of course, because the average unit cost of covered conductor is much less than undergrounding, the RSE, *i.e.*, risk reduction per dollar, for covered conductor would therefore be much higher than for undergrounding, making covered conductor a much more cost-effective option.

An SDG&E discovery response provides one set of data points for calculating a conversion factor. SDG&E states that, in 2023, it expects 80 miles of undergrounding to replace 55.66 miles of overhead conductor, which equates to a 1.44 conversion factor.<sup>16</sup> To ensure the use of quality data to determine this important value, SDG&E should be required to maintain actual data from its completed undergrounding projects that identifies underground miles deployed and overhead miles replaced for each project.

In sum, SDG&E's failure to incorporate an appropriate conversion ratio into its risk analysis means that either: (1) it will cost more than modeled to achieve the same risk reduction; or (2) there will be less risk reduction for the costs modeled. In either case, undergrounding is made to look more cost-effective than is actually the case.

## **B. SDG&E Exaggerates the Cost of Covered Conductor**

In its GRC, SDG&E has indicated an excessive unit cost for covered conductor – approximately \$1 million per mile -- that is not supported by its historical costs or comparison with its peers. As explained in TURN's GRC testimony, SCE's unit cost for covered conductor

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<sup>16</sup> SDG&E's response to TURN DR 1, question 6.

was \$629,000 per mile in 2021, and SDG&E’s unit cost for its comparable “traditional hardening” program was \$577,000 per mile in 2023.<sup>17</sup> TURN has recommended a covered conductor unit cost for 2024 no higher than \$800,000 per mile and points out that this unit cost would be lower as economies of scale are achieved for a larger program than SDG&E currently proposes.<sup>18</sup> We note, however, that even if SDG&E’s unit costs are assumed, covered conductor is still significantly more cost-effective than undergrounding.<sup>19</sup>

**C. SDG&E Exaggerates the PSPS-Related Risk Reduction Benefits from Undergrounding, While Understating Those Benefits from Covered Conductor**

SDG&E’s RSE calculations for undergrounding significantly overstate the risk reduction benefits that will be obtained from reduced use of PSPS. As explained in TURN’s GRC testimony, SDG&E improperly applies a 100% mitigation effectiveness factor for undergrounding to *all* expected average PSPS events on the system, rather than an approximation of the PSPS events expected to be experienced by the particular miles to be undergrounded.<sup>20</sup> In addition, SDG&E’s analysis fails to recognize that undergrounding will not always eliminate the PSPS risk of a circuit, as the de-energization of a given circuit is dependent on switching and “upstream” circuit miles of the system which may still be overhead and not hardened.<sup>21</sup> As a result, SDG&E improbably attributes much more risk reduction from undergrounding to reduced PSPS than to the impact of the undergrounding on preventing ignitions.<sup>22</sup> The result of attributing excessive PSPS risk reduction to undergrounding is that SDG&E’s risk reduction

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<sup>17</sup> Appendix A, Borden/TURN GRC testimony, pp. 37-38.

<sup>18</sup> *Id.*

<sup>19</sup> Appendix A, Borden/TURN GRC Testimony, pp. 40-41.

<sup>20</sup> *Id.*, p. 23.

<sup>21</sup> *Id.*, p. 25.

<sup>22</sup> *Id.*, pp. 22-23.

estimates from undergrounding are significantly exaggerated, which, by definition, biases its RSE values upwards.

In addition, combining PSPS and wildfire risk mitigation in the same undergrounding risk reduction calculation masks the fact that undergrounding is one of the least cost-effective measures to reduce PSPS risk. As shown in TURN's GRC testimony, other mitigations such as sectionalizing, wireless fault indicators and generator programs, are much more cost-effective for reducing PSPS risk.<sup>23</sup>

Furthermore, SDG&E does not yet attribute any PSPS risk reduction benefit to covered conductor, even though SCE has found that covered conductor significantly reduces PSPS risk. SCE states that it has determined that "lines with covered conductor have a **90% reduction** in PSPS activations"<sup>24</sup> and has increased its PSPS thresholds, *i.e.*, decreased the likelihood of calling a PSPS event, on circuit segments with covered conductor.<sup>25</sup> Combining covered conductor with current limiting technologies, such as Falling Conductor Protection and Sensitive Ground Fault Protection,<sup>26</sup> should likely further increase PSPS thresholds.

Thus, SDG&E's quantitative risk modeling incorrectly creates the impression that undergrounding is vastly superior to covered conductor and other measures for reducing wildfire and PSPS risk. This is due to unrealistic assumptions that bias the utility's analysis, and is simply not the case.

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<sup>23</sup> *Id.*, pp. 25-26.

<sup>24</sup> SCE 2023-2025 WMP, p. 252.

<sup>25</sup> *Id.*; Joint IOU 2023 Covered Conductor Working Group Report, p. 38.

<sup>26</sup> SDG&E WMP, p. 163.



**D. SDG&E’s Risk Modeling Does Not Account for the Fact that, for a Given Project, Covered Conductor Can Generally Be Deployed Much More Quickly than Undergrounding**

SDG&E’s WMP downplays the significant execution and scheduling risks associated with undergrounding, which do not apply to covered conductor. PG&E explained the nature of those risks in its 2021 WMP:

Among the cost risks to installing underground assets are: accessibility, rights-of-way, public utility easements, private property crossings, the number of services, space for necessary subsurface and padmounted equipment, environmental restrictions such as naturally occurring asbestos or endangered species, Archeology and Historic Preservation, soil remediation and soil conditions to name a few.<sup>27</sup>

Based on these risks, PG&E stated that it “has found that there are many impediments to underground construction that limit its viability to be a cost-effective mitigation alternative when compared directly to overhead system hardening.”<sup>28</sup>

PG&E’s 2021 WMP also pointed out the importance of considering what it referred to as “schedule risks” when weighing system hardening alternatives:

Another impediment to this [undergrounding] alternative is its schedule risks. ***A typical overhead hardening project can advance from idea to execution, documentation, and close out in 13-16 months. Whereas an underground project can often take 18-45 months depending on the various risks presented.*** The most impactful driver in many cases is land rights. Most of our systems in the high-risk areas have existing overhead rights only and require the acquisition of new underground easements to complete the relocation. As PG&E is often unable to construct underground in the exact same path as the overhead, these easements are often required with customers and/or agencies without current agreements. ***This land rights acquisition process alone can take 6-18 months and requires the project to be at a fairly mature design stage prior to contacting property owners about the needed rights.***<sup>29</sup>

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<sup>27</sup> PG&E’s 2021 WMP (Revised 6/3/21) (hereafter “2021 WMP”), p. 600.

<sup>28</sup> *Id.*, p. 601.

<sup>29</sup> PG&E’s 2021 WMP, p. 601 (emphasis added).

SDG&E is subject to the faces the same types of property rights challenges as PG&E and the same CEQA and permitting obligations. Thus, SDG&E can be expected to encounter similar delays in deploying undergrounding compared to covered conductor.

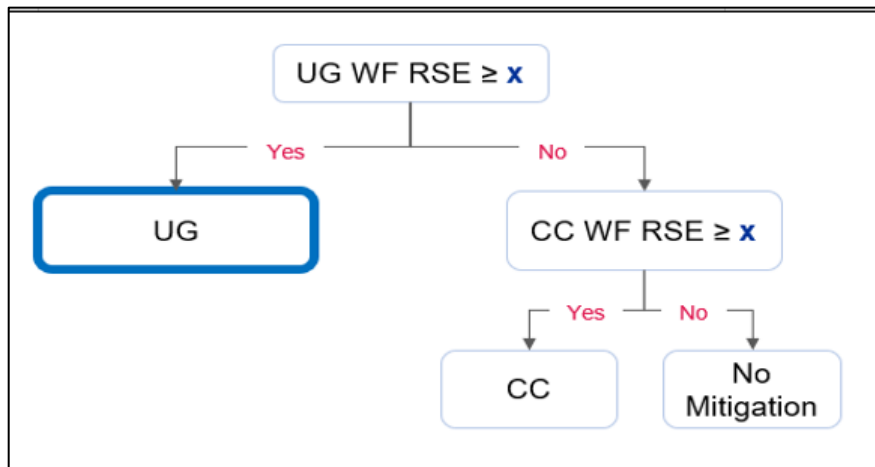
However, SDG&E's quantitative risk analysis does not reflect the value of risk reduction achieved years sooner via covered conductor compared to a relatively delayed deployment of undergrounding. Under SDG&E's underground-first approach, a location in great need of wildfire risk reduction could be deprived of any mitigation for years while SDG&E determines whether undergrounding is feasible. If undergrounding leads to a dead end, SDG&E will need to go back to the drawing board to deploy overhead hardening. In the process, SDG&E will have squandered years of significant risk reduction that could have been obtained if it had taken the timing and execution risks of undergrounding into account in choosing a system hardening alternative. SDG&E's approach is antithetical to the goal of obtaining as much risk reduction as quickly as possible and should be rejected.

### **III. SDG&E'S DECISION-MAKING PROCESS FOR CHOOSING AMONG SYSTEM HARDENING ALTERNATIVES IS HEAVILY BIASED TO SELECT UNDERGROUNDING IN MOST INSTANCES**

SDG&E implies that its WiNGS model has somehow "selected" undergrounding as the preferred option where SDG&E plans to deploy it and that SDG&E has achieved an optimal risk reduction plan. As explained in Section III, one huge problem with this claim is that SDG&E's risk modeling systematically exaggerates the risk reduction and cost-effectiveness of undergrounding and understates those measures for covered conductor. Another serious problem is that SDG&E uses a decision-making process that is heavily biased in favor of undergrounding and against covered conductor.

In SDG&E's GRC, TURN obtained through discovery the following decision tree that SDG&E uses when choosing whether to deploy covered conductor or undergrounding.<sup>30</sup>

**Figure 1. SDG&E Undergrounding Decision Tree**



Under this decision tree, SDG&E does not ask which measure would be the most cost-effective. Instead, it asks *first* whether undergrounding would meet a pre-determined – but unspecified – threshold. If not, and only in that case, does SDG&E consider covered conductor, again comparing it to an unspecified threshold.

Thus, SDG&E clearly is not making its selection based on the most cost-effective alternative (even under its biased risk modeling). SDG&E's process puts undergrounding in the pole position and only gives covered conductor an opportunity for consideration if the undergrounding RSE falls below a certain value, for which we have seen no justification regarding how and why this value was selected.

Energy Safety should also be troubled by SDG&E's failure to disclose this decision tree in its WMP. It should have been presented in response to Area of Continuing Improvement (ACI) 22-14, in which Energy Safety stated: "SDG&E's description of how it selects mitigation

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<sup>30</sup> TURN GRC testimony, p. 39.

initiatives based on risk factors lacks detail, such as how its listed considerations affect initiative selection.”<sup>31</sup> As required progress, Energy Safety stated that the information SDG&E must provide shall include:

A description of its analysis of how it selects mitigation initiatives based on risk factors evident in certain locations. This should include how SDG&E selects mitigation initiatives to optimize risk reduction for specific ignition risks.<sup>32</sup>

The decision tree shown above is obviously central to how SDG&E selects system hardening initiatives and should have been disclosed. Energy Safety should require SDG&E to explain why it withheld this important information, which reveals the evident bias in how SDG&E chooses between undergrounding and system hardening.

#### **IV. A NEUTRAL DECISION-MAKING PROCESS WOULD RESULT IN MUCH MORE COVERED CONDUCTOR AND MUCH LESS UNDERGROUNDING**

If SDG&E chose between undergrounding and covered conductor based on which mitigation is more cost-effective in a given location, TURN’s GRC analysis shows that covered conductor would likely be chosen in most locations. Even using SDG&E’s biased risk modeling as discussed in Section III, including an excessive cost for covered conductor, TURN found that covered conductor has a higher RSE at all risk levels for the top 50 percent of wildfire risk where SDG&E has planned an undergrounding project, as shown in the following figure:<sup>33</sup>

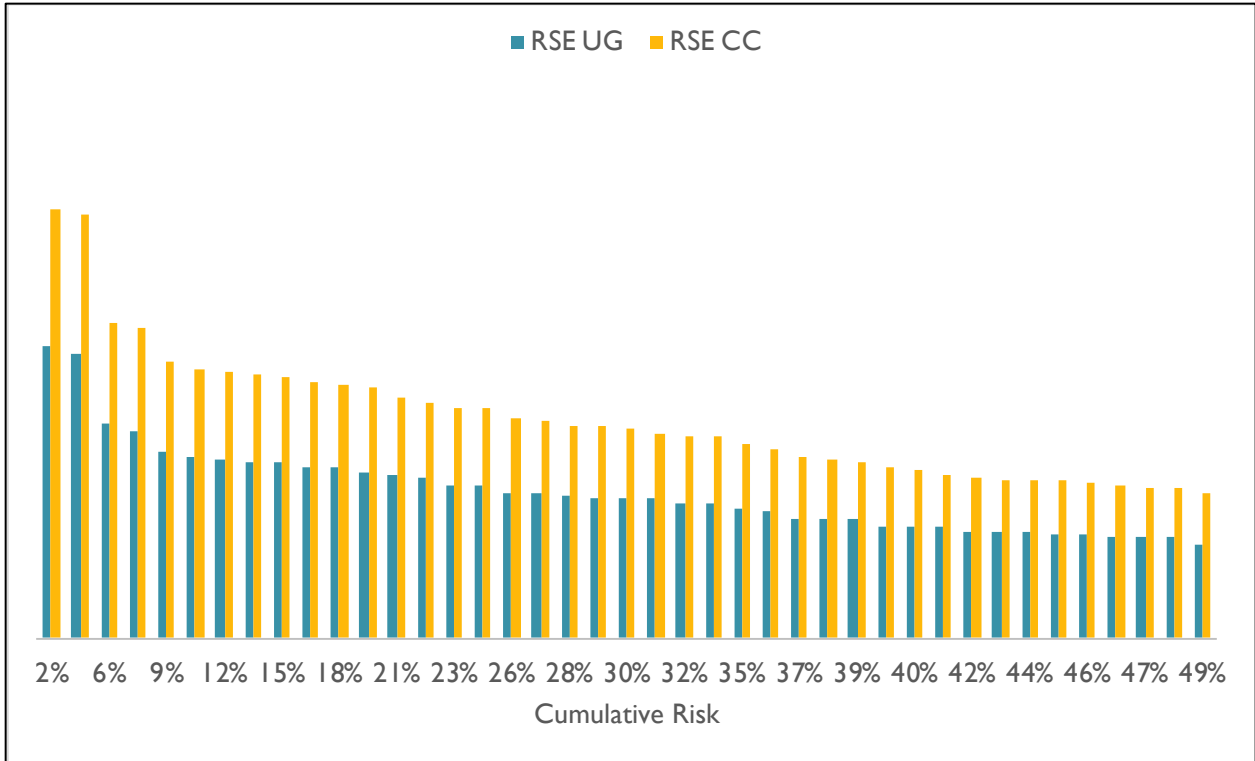
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<sup>31</sup> SDG&E WMP, Appendix D, p. 17.

<sup>32</sup> *Id.*

<sup>33</sup> Appendix A, Borden/TURN GRC testimony, pp. 40-41.

**Figure 2.**  
**RSE of Undergrounding vs. Covered Conductor, WiNGS Model Analysis,**  
**Sorted by Risk per Mile**



TURN found that SDG&E’s WiNGS model results show that, on average, covered conductor is about 50 percent more cost-effective than undergrounding.<sup>34</sup>

SDG&E is systematically rejecting the most cost-effective system hardening mitigation, covered conductor, in favor a much more expensive and risky option that takes longer to deploy than overhead hardening. More risk reduction can likely be obtained more quickly through deployment of covered conductor, as we show in our PG&E WMP comments. To avoid a poor

<sup>34</sup> *Id.*, p. 40.

use of limited ratepayer resources, SDG&E should be directed to revise its system hardening selection process and to correct its risk modeling that is biased in favor of undergrounding.

## V. TURN'S RECOMMENDATIONS

### A. To Gain Approval, SDG&E Should Be Required to Change Its System Hardening Decision-Making Process and Re-Scope Its System Hardening Programs

The foregoing has shown that, taking its cue from PG&E in its 2022 WMP, SDG&E has adopted a decision-making process and supporting quantitative risk modeling in which undergrounding is the heavily preferred system hardening alternative, notwithstanding the many reasons why covered conductor is the best and most cost-effective choice in most locations. In response to PG&E's 2022 RSE, Energy Safety directed PG&E in ACI PG&E-22-34 to revise its process of selecting wildfire mitigations to avoid a "default to undergrounding approach" and to select system hardening alternatives based on a location-specific analysis of the multitude of factors that need to be considered, and to take into account RSE estimates and risk model outputs at a project level early in the decision-making process.<sup>35</sup>

This is a critical time in California's efforts to prevent utility-caused wildfires. We cannot afford to squander our limited resources on a plan that unduly favors undergrounding even though in many, if not most locations, undergrounding is likely to be less cost-effective and slower to deploy than overhead hardening.

Thus, Energy Safety should direct SDG&E to fix the serious problems in its WMP now, before it can be approved. SDG&E was aware from ACI PG&E-22-34 of Energy Safety's requirements for a reasonable process for selecting among mitigation alternatives but elected not

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<sup>35</sup> See TURN's accompanying Comments on PG&E's 2023-2025 WMP, Section III.A.

to heed that direction. Specifically, Energy Safety should require SDG&E to make the following changes in order to gain approval:

- Undergrounding must be viewed as a targeted mitigation measure for the highest risk circuits where it is cost-effective. SDG&E should ensure that at least 80% of undergrounding miles are deployed to the top 20% of wildfire risk, based on the most up to date modeling results. (See TURN's Comments on PG&E's WMP, Section IV.)
- In choosing among system hardening alternatives – which should include undergrounding, covered conductor and covered conductor coupled with other ignition limiting technologies -- SDG&E must make a location-specific determination of the best alternative for that location, based on the specific risk factors present in the location.
- The location-specific selection among system hardening alternatives must expressly consider the extent to which the execution and schedule risks for undergrounding described in PG&E's 2021 WMP are present in the location and recognize the benefits of deploying an alternative that will achieve risk reduction sooner than other alternatives.
- SDG&E should correct the deficiencies in its calculation of Risk Spend Efficiency (RSE) described in Section III, including: (1) using an accurate, location-specific undergrounding-to-overhead conversion factor in calculating undergrounding RSEs for the project in question; (2) using reasonable costs for covered conductor for the project in question; (3) accurately reflecting the PSPS risk reduction benefits of both undergrounding and covered conductor, specific to the location in question; and (4) properly discounting risk reduction benefits that are achieved later in time to reflect the fact that risk reduction becomes less valuable the longer it takes to be achieved.
- The location-specific selection among alternatives must include a comparison of the location-specific cost-effectiveness of each alternative, based on the RSE measure. If the utility wishes to select an alternative that does not have the highest RSE, it must show special and compelling circumstances that justify deployment of a lower RSE alternative in that location.
- SDG&E must present a revised system hardening plan for 2023-2025 that it has developed using a process that complies with the preceding requirements. The revised plan should include workpapers showing how SDG&E determined its target mileage consistent with the above requirements for each of the system hardening alternatives it proposes in its revised plan.

## **B. SDG&E Should Be Directed to Address Additional Issues Raised by Its WMP**

The following issues do not necessarily warrant rejection of SDG&E's current WMP, but should be addressed in SDG&E's next WMP submission:

- In order to develop realistic data-based underground to overhead conversion factors, SDG&E should be required to maintain a database of actual results from SDG&E's undergrounding projects that identifies, for each project, the underground miles deployed and the miles of overhead conductor replaced. In addition, as applicable, the database should describe the reasons that undergrounding needed to deviate from the direct overhead path.
- To have data to compare the reliability of undergrounded facilities to overhead hardened facilities, SDG&E should be required to keep separate reliability measures (e.g., SAIFI and MAIFI) for overhead circuit segments with covered conductor. (See TURN's Comments on PG&E's 2023-2025 WMP, Section VI.C.)
- SDG&E should describe its policy for undergrounding of secondary conductor and services and discuss its expectations for whether poles will be removed in underground locations. The discussion should address the effect that remaining overhead wires and poles in locations with undergrounding have on the on the estimated risk reduction from undergrounding and specifically risk associated with ingress and egress in locations where fire is present, whether or not ignited by utility facilities. (See TURN's Comments on PG&E's 2023-2025 WMP, Section VI.B).

## **VI. CONCLUSION**

For the reasons set forth above, TURN urges Energy Safety to adopt the recommendations in these Comments.



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Respectfully submitted,

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