



**OFFICE OF ENERGY INFRASTRUCTURE SAFETY**

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Caroline Thomas Jacobs, Director

March 19, 2024

Dear Stakeholders,

Enclosed is the Office of Energy Infrastructure Safety's Annual Report on Compliance regarding San Diego Gas & Electric Company's execution of its 2021 Wildfire Mitigation Plan.

This Annual Report on Compliance is hereby published as of the date of this letter. San Diego Gas & Electric Company may, if it wishes to do so, file a public response to this Annual Report on Compliance within 14 calendar days of the date of publication. Comments must be submitted to the Office of Energy Infrastructure Safety's E-Filing system in the 2021 Annual Report on Compliance docket.<sup>1</sup>

Sincerely,

*Patrick Doherty*

Patrick Doherty  
Program Manager | Compliance Assurance Division  
Electrical Infrastructure Directorate  
Office of Energy Infrastructure Safety

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<sup>1</sup> Submit responses to the [2021-ARC](https://efiling.energysafety.ca.gov/EFiling/DocketInformation.aspx?docketnumber=2021-ARC) docket via the Office of Energy Infrastructure Safety's E-Filing system here: <https://efiling.energysafety.ca.gov/EFiling/DocketInformation.aspx?docketnumber=2021-ARC>



**OFFICE OF ENERGY INFRASTRUCTURE SAFETY**  
**ANNUAL REPORT ON COMPLIANCE**  
**SAN DIEGO GAS & ELECTRIC COMPANY**  
**2021 WILDFIRE MITIGATION PLAN UPDATE**

March 2024

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# Executive Summary

The Office of Energy Infrastructure Safety (Energy Safety) is tasked with evaluating and either approving or denying the Wildfire Mitigation Plans (WMPs) or WMP Updates annually filed by electrical corporations pursuant to Public Utilities Code sections 8386 et seq. Pursuant to Public Utilities Code section 8386.3, Energy Safety oversees compliance by an electrical corporation with its WMP or WMP Update.

Energy Safety considered the totality of all compliance assessments completed with respect to San Diego Gas & Electric Company's (SDG&E's) approved 2021 WMP Update, including audits, field inspections, and analysis of data submitted by SDG&E to Energy Safety. Energy Safety considered SDG&E's self-assessment in its Electrical Corporation Annual Report on Compliance and the findings of its independent evaluator. Energy Safety also analyzed metrics related to SDG&E's performance including ignition, wire down, outage, and Public Safety Power Shutoff risk during the 2021 WMP Update compliance period.

Energy Safety's evaluation found that SDG&E completed the large majority (68 out of 77, or 88%) of its key 2021 WMP initiatives, including nine out of the top 10 initiatives with the largest allocated expenditure.

While SDG&E did not meet all targets for its WMP initiatives, the failure to meet certain targets did not materially hinder SDG&E's ability to mitigate its wildfire risk.

SDG&E had fewer total ignitions on its system in 2021 compared to 2020 and to the average from recent years. At the same time, 2021 was a year where SDG&E's service territory saw significantly fewer days with higher risk of fire danger (Red Flag Warning Days) when compared to those same time horizons. When considering the number of ignitions relative to Red Flag Warning Days in 2021, SDG&E had a higher rate of ignitions relative to Red Flag Warning Days than in recent years. Although there was a higher relative rate of ignitions, the consequence of those ignitions resulted in relatively minor overall outcomes. During 2021, SDG&E reported reductions in acreage burned (two acres total for 2021), only one critical infrastructure damaged, and no fatalities or injuries.

SDG&E had only one Public Safety Power Shutoff event in 2021, with significant declines in Public Safety Power Shutoff duration, frequency, and scope of events, as well as reduced impacts on customers and critical infrastructure.

Energy Safety acknowledges that SDG&E undertook significant efforts to reduce its wildfire risk, and in many instances, SDG&E achieved its objectives and targets. On balance, SDG&E was largely successful in executing an actionable and adaptive plan for wildfire risk mitigation. While Energy Safety found that SDG&E achieved its overarching WMP objectives, there are still areas for improvement and continued learning.

# 1. Introduction and Background

This Annual Report on Compliance (ARC) presents the Office of Energy Infrastructure Safety's (Energy Safety's) assessment of San Diego Gas & Electric Company's (SDG&E's) compliance with its 2021 Wildfire Mitigation Plan (WMP) Update.<sup>1</sup>

SDG&E submitted its 2021 WMP Update on February 5, 2021. Energy Safety approved SDG&E's WMP on July 14, 2021.<sup>2</sup>

## 1.1 Legal Authority

Energy Safety is responsible for overseeing compliance with electrical corporations' WMPs.<sup>3</sup> Energy Safety has broad authority to obtain and review information and data and to inspect property, records, and equipment of every electrical corporation in furtherance of its duties, powers, and responsibilities.<sup>4</sup> In addition to performing an overall assessment of compliance<sup>5</sup> with the WMP, Energy Safety audits each electrical corporation's vegetation management work for compliance with WMP requirements<sup>6</sup> and performs other reviews and audits. Energy Safety may rely upon metrics<sup>7</sup> to evaluate WMP Compliance, including performance metrics adopted by the California Public Utilities Commission (CPUC).<sup>8</sup> Annually, in consultation with Energy Safety, the CPUC adopts a wildfire mitigation plan compliance process.<sup>9</sup> The CPUC adopted the 2021 Compliance Process via Resolution M-4860 on December 2, 2021.<sup>10, 11, 12</sup>

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<sup>1</sup> California Public Utilities Code § 8386.3(c).

<sup>2</sup> Office of Energy Infrastructure Safety, "Evaluation of 2021 Wildfire Mitigation Plan Update SDG&E," July 14, 2021. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51660&shareable=true>

<sup>3</sup> California Public Utilities Code § 8386.3(c).

<sup>4</sup> Government Code § 15475.

<sup>5</sup> California Public Utilities Code § 8386.3(c)(4).

<sup>6</sup> California Public Utilities Code § 8386.3(c)(5)(A).

<sup>7</sup> California Public Utilities Code §§ 326(a)(2), 8389(b)(1).

<sup>8</sup> California Public Utilities Code § 8389(d)(4).

<sup>9</sup> California Public Utilities Code § 8389(d)(3).

<sup>10</sup> California Public Utilities Code § 8386.3(c)(4).

<sup>11</sup> California Public Utilities Commission, "Resolution M-4860," Dec. 02, 2021. [Online]. Available:

<https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M428/K722/428722129.PDF>

<sup>12</sup> Office of Energy Infrastructure Safety, "Attachment 3: 2021 Wildfire Mitigation Plan Compliance Process," Oct. 13, 2021. [Online]. Available:

<https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M428/K146/428146324.pdf>

## 1.2 Annual Compliance Process Cadence

Pursuant to Public Utilities Code section 8385(a)(1), a "compliance period" means a period of approximately one year. In its Compliance Operational Protocols issued on February 16, 2021, Energy Safety defined the compliance period for 2020-2022 WMPs as January 1 to December 31 for each calendar year of the three-year WMP.<sup>13</sup>

Public Utilities Code section 326(a)(3) requires Energy Safety to utilize visual inspection of electrical corporation infrastructure and wildfire mitigation programs as a means of assessing WMP compliance. Furthermore, Public Utilities Code section 8386.3(c) outlines the baseline statutory framework for assessing WMP compliance through a series of audits, reviews, and assessments performed by Energy Safety, independent evaluators, and the electrical corporations themselves. The statutory framework also lays out a defined timeframe for several of the compliance assessment components, as follows:

- Three months after the end of an electrical corporation's compliance period, each electrical corporation must submit an Electrical Corporation Annual Report on Compliance (EC ARC) addressing the electrical corporation's compliance with its plan during the prior calendar year.<sup>14</sup>
- Six months after the end of an electrical corporation's compliance period, an independent evaluator must submit an Independent Evaluator Annual Report on Compliance (IE ARC). The independent evaluators are engaged by each electrical corporation to review and assess the electrical corporation's compliance with its plan for the prior year. As a part of this report, the independent evaluator must determine whether the electrical corporation failed to fund any activities included in its plan.<sup>15</sup>
- In parallel with the above assessments, Energy Safety audits vegetation management activities. The results of the audit must specify any failure of the electrical corporation to fully comply with the vegetation management requirements in the WMP. Energy Safety then grants the electrical corporation a reasonable amount of time to correct and eliminate any deficiency specified in the audit.<sup>16</sup> Subsequently, Energy Safety issues a report describing any failure of the electrical corporation to substantially comply with the substantial portion of the vegetation management requirements in the electrical corporation's WMP.<sup>17</sup>

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<sup>13</sup> California Public Utilities Commission, "Compliance Operational Protocols," Feb. 16, 2021. p. 1. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52615&shareable=true>

<sup>14</sup> California Public Utilities Code § 8386.3(c)(1).

<sup>15</sup> California Public Utilities Code § 8386.3(c)(2)(B)(i).

<sup>16</sup> California Public Utilities Code § 8386.3(c)(5)(C).

<sup>17</sup> *Id.*

- Within 18 months after the electrical corporation submits its compliance report pursuant to Public Utilities Code section 8386.3(c)(1), Energy Safety must complete its annual compliance review.<sup>18, 19, 20</sup> Energy Safety memorializes the findings of its compliance review in this ARC.

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<sup>18</sup> California Public Utilities Code § 8386.3(c)(4).

<sup>19</sup> California Public Utilities Commission, "Resolution M-4860," Dec. 02, 2021. [Online]. Available: <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M428/K722/428722129.PDF>

<sup>20</sup> Office of Energy Infrastructure Safety, "Attachment 3: 2021 Wildfire Mitigation Plan Compliance Process," Oct. 13, 2021. p. 2. [Online]. Available: <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M428/K146/428146324.pdf>

## 2. ARC Compliance Framework

Pursuant to Government Code section 15475.1, Energy Safety's primary objective is to ensure that electrical corporations reduce wildfire risk and comply with energy infrastructure safety measures. Each electrical corporation is required to construct, maintain, and operate its infrastructure in a manner that will minimize the risk of catastrophic wildfire.<sup>21</sup>

Energy Safety's compliance assessment examines the totality of data and findings before the department. Compliance is the successful implementation of the electrical corporation's stated narratives, actions, targets, outcome metrics, and objectives in the electrical corporation's approved WMP, including providing supporting documentation. Energy Safety aims to ensure WMP implementation through the authorities and requirements outlined in Public Utilities Code sections 8386 – 8389.<sup>22, 23, 24</sup>

Energy Safety considers the following as part of its assessment:

1. Whether the electrical corporation implemented the wildfire mitigation initiatives in its approved WMP, including evaluating whether the electrical corporation funded and performed the commitments stated for each initiative. Further, whether the electrical corporation prioritized completion of work with the highest potential for reducing wildfire risk.<sup>25</sup>
2. Whether the electrical corporation achieved or sufficiently progressed its WMP objectives.
3. Wildfire risk reduction, including the performance of the electrical corporation's infrastructure relative to its wildfire risk, as measured by changes in the occurrence of events that correlate to wildfire risk.
4. Whether the electrical corporation made a good faith attempt to achieve its goals and comply with its WMP.
5. Whether the electrical corporation exhibited issues related to its execution, management, or documentation in the implementation of its WMP. This analysis may expand beyond the scope of any single WMP initiative.<sup>26</sup>

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<sup>21</sup> California Public Utilities Code § 8386(a).

<sup>22</sup> California Public Utilities Code § 8386.3(c)(4).

<sup>23</sup> California Public Utilities Commission, "Resolution M-4860," Dec. 02, 2021. [Online]. Available: <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M428/K722/428722129.PDF>

<sup>24</sup> Office of Energy Infrastructure Safety, "Attachment 3: 2021 Wildfire Mitigation Plan Compliance Process," Oct. 13, 2021. p. 4. [Online]. Available: <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M428/K146/428146324.pdf>

<sup>25</sup> Energy Safety evaluates funding data to ensure electrical corporations are dedicating resources to their initiative commitments. Energy Safety does not evaluate whether the cost of implementing each electrical corporation's plan was just and reasonable.

<sup>26</sup> Office of Energy Infrastructure Safety, "Compliance Guidelines (Section 7.1)," Sept. 2023. p. 16. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=55586&shareable=true>

## 3. SDG&E's 2021 WMP Update

This section provides a summary of SDG&E's commitments in its 2021 WMP Update. This section organizes SDG&E's commitments into two major categories:

1. 2021 WMP Update Objectives
2. 2021 WMP Update Initiatives

### 3.1 2021 WMP Update Objectives

The 2021 WMP Update Guidelines required each electrical corporation to describe the specific objectives of its 2021 WMP Update with respect to the following timeframes: Before the next Annual WMP Update; Within the next three years; and Within the next 10 years – long-term planning beyond the three-year cycle.<sup>27</sup>

In reviewing compliance with SDG&E's 2021 WMP Update, Energy Safety considered whether SDG&E achieved or sufficiently progressed the objectives it set out to achieve before the next Annual WMP Update.

SDG&E's stated objectives to achieve before the next Annual WMP Update were:

- Continue to make progress on the initiatives outlined in the 2020 WMP with a key focus on improving risk analytics to enhance decision-making.
- Enhance data collection and analysis, develop more granular risk assessments, and further develop PSPS mitigation initiatives.<sup>28</sup>

### 3.2 2021 WMP Update Initiatives

The 2021 WMP Update Guidelines require each electrical corporation to group its discussion of wildfire mitigation initiatives into the 10 categories listed in Table 1 below.

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<sup>27</sup> California Public Utilities Commission, "Resolution WSD-011 Attachment 2.2: 2021 Wildfire Mitigation Plan Guidelines Template," November, 2020. p. 29. [Online]. Available: <https://energysafety.ca.gov/wp-content/uploads/docs/wmp-2021/attachment-2.2-to-wsd-011-2021-wmp-guidelines-template.pdf>

<sup>28</sup> San Diego Gas & Electric Company, "2020 - 2022 Wildfire Mitigation Plan Update," Feb. 05, 2021. p. 111. [Online]. Available: <https://www.sdge.com/sites/default/files/regulatory/SDG%26E%202021%20WMP%20Update%2002-05-2021.pdf>

SDG&E's 2021 WMP Update included a total of 77 initiatives allocated across the 10 categories.<sup>29, 30, 31</sup>

Table 1 below provides a summary of SDG&E's allocation of WMP initiatives across categories, its reported planned expenditure in each category for 2021, and the percentage of the total 2021 WMP Update budget the expenditure in each category comprised.

Some initiatives included quantitative targets (e.g., miles completed for system hardening). Other initiatives included qualitative targets (e.g., integration of all vegetation data into a singular database as a data governance initiative).

*Table 1: SDG&E's 2021 WMP Update Planned Expenditure by Category*

<b>Initiative Category</b>	<b>No. of Initiatives</b>	<b>2021 Planned Expenditure (\$K)</b>	<b>% of 2021 WMP Update Planned Budget</b>
<b>1. Risk assessment and mapping</b>	1	\$1,539	0.24%
<b>2. Situational awareness and forecasting</b>	7	\$7,914	1.22%
<b>3. Grid design and system hardening</b>	17	\$415,358	64.25%
<b>4. Asset management and inspections</b>	16	\$68,357	10.57%

<sup>29</sup> SDG&E reported a total of 78 initiatives in its EC ARC. Following a data request, SDG&E agreed, in an email dated December 7, 2023, that the total number of initiatives reported in its EC ARC of 78 was incorrect. The total number of initiatives should be 77. SDG&E counted one initiative (7.3.3.17.2 – Overhead Transmission Fire Hardening) as two because it had two quantitative targets. Based on this clarification, all references to SDG&E's reported initiatives in this compliance report will use the count of 77. San Diego Gas & Electric Company, email, Dec. 07, 2023. Unpublished.

<sup>30</sup> San Diego Gas & Electric Company, "2020 - 2022 Wildfire Mitigation Plan Update," Feb. 05, 2021. pp. 138-348. [Online]. Available: <https://www.sdge.com/sites/default/files/regulatory/SDG%26E%202021%20WMP%20Update%2002-05-2021.pdf>

<sup>31</sup> The 2021 WMP Update Guidelines provided ten initiatives categories: 1. Risk assessment and mapping, 2. Situational awareness and forecasting, 3. Grid design and system hardening, 4. Asset management and inspections, 5. Vegetation management and inspections, 6. Grid operations and protocols, 7. Data governance, 8. Resource allocation methodology, 9. Emergency planning and preparedness, and 10. Stakeholder cooperation and community engagement. California Public Utilities Commission, "Resolution WSD-011 Attachment 2.2: 2021 Wildfire Mitigation Plan Guidelines Template," November 2020. p. 43. [Online]. Available: <https://energysafety.ca.gov/wp-content/uploads/docs/wmp-2021/attachment-2.2-to-wsd-011-2021-wmp-guidelines-template.pdf>

Initiative Category	No. of Initiatives	2021 Planned Expenditure (\$K)	% of 2021 WMP Update Planned Budget
<b>5. Vegetation management and inspections</b>	10	\$71,639	11.08%
<b>6. Grid operations and protocols</b>	7	\$20,731	3.21%
<b>7. Data governance</b>	4	\$22,693	3.51%
<b>8. Resource allocation methodology</b>	2	\$7,387	1.14%
<b>9. Emergency planning and preparedness</b>	7	\$17,626	2.73%
<b>10. Stakeholder cooperation and community engagement</b>	6	\$13,222	2.05%
<b>Total</b>	<b>77<sup>32</sup></b>	<b>\$646,466<sup>33</sup></b>	<b>100%</b>

Table 2 provides an overview of SDG&E's planned 2020-2022 WMP expenditure.

*Table 2: SDG&E's Planned Expenditure by Year<sup>34</sup>*

Year	Planned Expenditure (\$K)
<b>2020</b>	\$444,544

<sup>32</sup> SDG&E identified 77 initiatives as relevant/applicable to SDG&E in 2021. There are an additional 44 initiatives prescribed in the development of the 2021 WMP that were defined as not applicable to SDG&E and are designated as N/A in the status column of the 2021 Q4 QIU. San Diego Gas & Electric Company, "2021 Quarterly Initiative Update - WMP Initiative Status Updates - Q4," Feb. 01, 2022. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51993&shareable=true>

<sup>33</sup> San Diego Gas & Electric Company, "2020 - 2022 Wildfire Mitigation Plan Update," Feb. 05, 2021. p. 8. [Online]. Available: <https://www.sdge.com/sites/default/files/regulatory/SDG%26E%202021%20WMP%20Update%2002-05-2021.pdf>

<sup>34</sup> San Diego Gas & Electric Company, "2020 - 2022 Wildfire Mitigation Plan Update," Feb. 05, 2021. p. 7. [Online]. Available: <https://www.sdge.com/sites/default/files/regulatory/SDG%26E%202021%20WMP%20Update%2002-05-2021.pdf>

Year	Planned Expenditure (\$K)
2021	\$646,466
2022	\$669,869
<b>2020-2022 Plan Period</b>	<b>\$1,760,879</b>

Table 3 lists the top 10 initiatives by planned expenditure. The last row in Table 3 shows that the 10 listed initiatives (out of 77 total) make up 79% of SDG&E's total 2021 WMP Update planned expenditure.

Table 3: SDG&E's 2021 WMP Update Top 10 Planned Expenditure Initiatives<sup>35</sup>

Initiative Number	Initiative	2021 Planned Expenditure (\$K)	% of WMP Planned Budget
<b>7.3.3.16</b>	Undergrounding of electric lines and/or equipment (strategic undergrounding)	\$123,383	19%
<b>7.3.3.17.1</b>	Distribution overhead system hardening (Bare Conductor Hardening)	\$94,000	15%
<b>7.3.3.3</b>	Covered conductor installation	\$56,500	9%
<b>7.3.3.18.1</b>	Distribution communications reliability improvements	\$50,328	8%
<b>7.3.4.9.2</b>	Drone assessments of distribution infrastructure	\$48,953	8%

<sup>35</sup> San Diego Gas & Electric Company, "2020 - 2022 Wildfire Mitigation Plan Update," Feb. 05, 2021. p. 7. [Online]. Available: <https://www.sdge.com/sites/default/files/regulatory/SDG%26E%202021%20WMP%20Update%2002-05-2021.pdf>

<b>Initiative Number</b>	<b>Initiative</b>	<b>2021 Planned Expenditure (\$K)</b>	<b>% of WMP Planned Budget</b>
<b>7.3.5.2</b>	Detailed inspections of vegetation around distribution electric lines and equipment (tree trimming)	\$49,765	8%
<b>7.3.3.8.2</b>	Microgrids	\$20,370	3%
<b>7.3.6.6.1</b>	Aviation firefighting program	\$17,795	3%
<b>7.3.7.1</b>	Centralized repository for data	\$19,004	3%
<b>7.3.9.7</b>	Other - Emergency management operations	\$17,626	3%
<b>Total</b>		<b>\$497,724</b>	<b>79%</b>

## 4. Information Sources Used for ARC Assessment

Energy Safety relied upon the following sources of information to conduct its analysis for SDG&E's ARC:<sup>36, 37, 38</sup>

- Information provided by the electrical corporation via the EC ARC and quarterly initiative update (QIU).
- Information provided by the independent evaluator via the IE ARC.
- Findings from Energy Safety field inspections.
- Findings from Energy Safety audits and assessments of the electrical corporation.
- Data submitted to Energy Safety by the electrical corporation,<sup>39</sup> including responses to data requests.
- Information provided by third parties also engaged in assessment activities of the electrical corporation.

This section provides the most relevant information from the sources listed above for the purposes of Energy Safety's assessment of SDG&E's compliance with its 2021 WMP.

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<sup>36</sup> California Public Utilities Code § 8386.3(c)(4).

<sup>37</sup> California Public Utilities Commission, "Resolution M-4860," Dec. 02, 2021. [Online]. Available: <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M428/K722/428722129.PDF>

<sup>38</sup> Office of Energy Infrastructure Safety, "Attachment 3: 2021 Wildfire Mitigation Plan Compliance Process," Oct. 13, 2021. [Online]. Available: <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M428/K146/428146324.pdf>

<sup>39</sup> Energy Safety receives data from the electrical corporation through three main paths: quarterly advice letter submissions, quarterly data request submissions, and quarterly initiative updates.

## 4.1 Electrical Corporation (EC) ARC

### 4.1.1 Background

Three months after the end of the compliance period, the electrical corporation must submit its EC ARC. The Compliance Operational Protocols outline the minimum requirements and structure for each electrical corporation's 2021 EC ARC.<sup>40</sup> The 2021 EC ARCs must include:

- An assessment of whether the electrical corporation achieved its risk reduction intent by implementing all of its approved WMP initiatives, i.e., the degree to which initiative activities have reduced ignition probabilities. If the electrical corporation failed to achieve the intended risk reduction, Energy Safety required the electrical corporation to provide a detailed explanation of why and reference where associated corrective actions were incorporated in its most recently submitted WMP.
- A full and complete listing of all change orders<sup>41</sup> and any other operational changes, such as initiative location changes, made to WMP initiatives, with an explanation of why the changes were necessary, and an assessment of whether the changes achieved the same risk reduction intent.
- Descriptions of all planned WMP initiative expenditures versus actual WMP initiative expenditures and an explanation of any differentials between the planned and actual expenditures.
- A description of whether the implementation of WMP initiatives changed the threshold(s) for triggering a PSPS event and/or reduced the frequency, scale, scope, and duration of PSPS events.
- A summary of all defects identified by Energy Safety within the annual compliance period, the corrective actions taken, and the completion and/or estimated completion date.

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<sup>40</sup> California Public Utilities Commission, "Compliance Operational Protocols," Feb. 16, 2021. pp. 10-12. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52615&shareable=true>

<sup>41</sup> See WSD-002 for detail regarding the 2020 WMP change order process. See WSD-002 for detail regarding the 2020 WMP change order process. California Public Utilities Commission, "Resolution WSD-002," June 11, 2020. pp. 32-35. [Online]. Available: <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M340/K859/340859823.PDF>

## 4.1.2 Relevant Information

SDG&E timely submitted its EC ARC on March 31, 2022. In its EC ARC, SDG&E reported that it did not meet its targets for seven of its 77 initiatives.<sup>42</sup>

The seven initiatives with missed targets were:<sup>43</sup>

1. Advanced Protection (7.3.3.9):
  - a. SDG&E completed four of eight circuits (50% complete).<sup>44</sup>
2. Standby Power Programs (7.3.3.11.2):
  - a. SDG&E completed installation of 355 of 413 generators (86% complete).<sup>45</sup>
3. Intrusive Pole Inspections (7.3.4.6):
  - a. SDG&E completed 8,721 of 9,796 inspections (89% complete).<sup>46</sup>
4. Drone Assessments of Distribution Infrastructure (7.3.4.9.2):
  - a. SDG&E completed 21,420 of 22,000 inspections (97% complete).<sup>47</sup>
5. Visual Inspections of Transmission Equipment (7.3.4.11):
  - a. SDG&E completed 6,423 of 7,024 inspections (91% complete).<sup>48</sup>

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<sup>42</sup> SDG&E reported a total of 78 initiatives in its EC ARC. Following a data request, SDG&E agreed, in an email dated December 7, 2023, that the total number of initiatives reported in its EC ARC of 78 was incorrect. The total number of initiatives should be 77. SDG&E counted one initiative (7.3.3.17.2 – Overhead Transmission Fire Hardening) as two because it had two quantitative targets. Based on this clarification, all references to SDG&E's reported initiatives in this compliance report will use the count of 77. San Diego Gas & Electric Company, email, Dec. 07, 2023. Unpublished.

<sup>43</sup> For initiative 7.3.3.11.3, Expanded Generator Grant Program, SDG&E missed its planned target of 1,250 generators purchased by customers. However, SDG&E did not self-report this missed target in its EC ARC, because it offered 1,850 rebates to customers and only 735 purchased a generator.

<sup>44</sup> San Diego Gas & Electric Company, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Mar. 31, 2022. p. 20. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52368&shareable=true>

<sup>45</sup> San Diego Gas & Electric Company, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Mar. 31, 2022. p. 23. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52368&shareable=true>

<sup>46</sup> San Diego Gas & Electric Company, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Mar. 31, 2022. p. 36. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52368&shareable=true>

<sup>47</sup> San Diego Gas & Electric Company, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Mar. 31, 2022. p. 40. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52368&shareable=true>

<sup>48</sup> San Diego Gas & Electric Company, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Mar. 31, 2022. p. 45. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52368&shareable=true>

6. Fuels Management (7.3.5.5):
  - a. SDG&E cleared 463 of 500 poles (93% complete).<sup>49</sup>
7. Other discretionary inspection of vegetation around distribution electric lines and equipment, beyond inspections mandated by rules and regulations (7.3.5.9):
  - a. SDG&E completed 12,578 of 17,000 trims/removals (74% complete).<sup>50</sup>

For the seven initiatives with missed targets SDG&E reported the following:

- Three of the seven missed targets met the risk reduction intent of the initiative (Intrusive Pole Inspections (7.3.4.6), Visual Inspections of Transmission Equipment (7.3.4.11) and Other Discretionary Inspection of Vegetation Around Distribution Electric Lines and Equipment (7.3.5.9)). With regard to these targets, SDG&E states the original targets were "either erroneously derived or did not accurately capture the intent of the initiative."<sup>51</sup>
- Another three of the seven missed targets were in progress and would be completed in 2022 (Standby Power Programs (7.3.3.11.2), Fuels Management (7.3.5.5), and Drone Assessments of Distribution Infrastructure (7.3.4.9.2)).<sup>52 53</sup>
- For the remaining missed target (Advanced Protection (7.3.3.9), SDG&E states this target was missed because of SDG&E's need to review potential conflicts with the Strategic Undergrounding Program and determine a more optimal mitigation strategy.<sup>54</sup>

In addition to the information regarding missed initiatives, SDG&E also reported the following:

- SDG&E fire hardened 163 miles of its electric system within the HFTD in 2021.
- SDG&E completed annual routine and HFTD-focused distribution, substation, and transmission inspections, including timely remediation of findings per general order requirements.

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<sup>49</sup> San Diego Gas & Electric Company, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Mar. 31, 2022. p. 51. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52368&shareable=true>

<sup>50</sup> San Diego Gas & Electric Company, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Mar. 31, 2022. p. 54. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52368&shareable=true>

<sup>51</sup> San Diego Gas & Electric Company, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Mar. 31, 2022. p. 2. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52368&shareable=true>

<sup>52</sup> San Diego Gas & Electric Company, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Mar. 31, 2022. p. 2. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52368&shareable=true>

<sup>53</sup> SDG&E's 2021 ARC was submitted March 31, 2022. Updated information regarding 2022 outcomes can be found in the Q4 2022 QDR dated February 1, 2023.

<sup>54</sup> San Diego Gas & Electric Company, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Mar. 31, 2022. p. 2. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52368&shareable=true>

- SDG&E completed vegetation management annual inspections and trimming in accordance with its 2021 WMP, including inspection of over 17,000 targeted species and the trim or removal of over 12,500 targeted species trees in HFTD areas to enhanced clearance levels.
- SDG&E enhanced situational awareness capabilities by upgrading and rebuilding 46 weather stations capable of providing readings every 30 seconds.
- SDG&E conducted one PSPS event. SDG&E states that its PSPS mitigation programs enabled it to limit the scope of this PSPS event to 5,858 customers, which was 8,300 fewer customers than were originally scoped for the event.<sup>55</sup>

Additional information from the EC ARC is included in Appendix A and is discussed, as relevant, in the Discussion section of this report.

## 4.2 Independent Evaluator (IE) ARC

### 4.2.1 Overview

Each year before March 1, Energy Safety, in consultation with the Office of the State Fire Marshal, must publish a list of qualified independent evaluators.<sup>56</sup> An electrical corporation must engage an independent evaluator from the list to review and assess its compliance with its approved WMP.<sup>57</sup> The independent evaluator must issue its IE ARC by July 1 of each year, covering the previous calendar year.<sup>58</sup> Energy Safety considered the independent evaluator's findings in this ARC. However, the independent evaluator's findings are not binding on Energy Safety's final determination of WMP compliance.<sup>59</sup>

### 4.2.2 Relevant Information

SDG&E selected 4LEAF Inc., AerialZeus LLC, and MM+Co CPA as the independent evaluators to assess its compliance with its 2021 WMP Update. 4LEAF Inc, AerialZeus LLC and MM+Co CPA (henceforth referenced as “the IE”) issued a combined IE ARC on July 1, 2022.

The IE evaluated 96 initiatives. Of those, the IE found SDG&E noncompliant with nine of the 96 initiatives.

Table 4 below provides a summary of the IE's findings. A finding of “Undetermined” means the IE was unable to determine whether SDG&E met its WMP target.

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<sup>55</sup> San Diego Gas & Electric Company, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Mar. 31, 2022. p. 2. [Online]. Available:

<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52368&shareable=true>

<sup>56</sup> California Public Utilities Code § 8386.3(c)(2)(A).

<sup>57</sup> California Public Utilities Code § 8386.3(c)(2)(B).

<sup>58</sup> California Public Utilities Code § 8386.3(c)(2)(B).

<sup>59</sup> California Public Utilities Code § 8386.3(c)(2)(B)(ii).

Table 4: Summary of SDG&amp;E's IE ARC Findings

Finding Category	# of Initiatives
<b>Compliant</b>	54
<b>Noncompliant</b>	9
<b>Undetermined</b>	33
<b>Total</b>	96

The nine initiatives with IE findings of noncompliance are provided below.

- 7.3.3.18.2 Lightning arrestor removal and replacement
  - IE Finding: 924 lightning arrestors removed and replaced out of goal of 1,789 arrestors to be removed and replaced.<sup>60</sup>
  - SDG&E did not self-identify this initiative as noncompliant.
- 7.3.5.20 Vegetation management to achieve clearances around electric lines and equipment (“pole brushing”)
  - IE Finding: 35,102 poles brushed out of goal of 35,500 poles brushed.<sup>61</sup>
  - SDG&E did not self-identify this initiative as noncompliant.
- 7.3.3.9 Installation of System Automation Equipment – Advance Protection
  - IE Finding: Advanced protection system automation equipment installed on 4 out of 8 circuits targeted in 2021.<sup>62</sup>
  - SDG&E did self -identify this initiative as noncompliant.
- 7.3.4.1 Detailed Inspections of Distribution Lines
  - IE Finding: 22,345 detailed inspections out of goal of 22,269 inspections. 11 out of 99 (11%) of the inspection samples showed missing information.<sup>63</sup>
  - SDG&E did not self-identify this initiative as noncompliant.

<sup>60</sup> 4LEAF Inc., AerialZeus LLC, MM & Company, "Final Independent Evaluator ARC" June 30, 2022. p. 49. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52688&shareable=true>

<sup>61</sup> 4LEAF Inc., AerialZeus LLC, MM & Company, "Final Independent Evaluator ARC" June 30, 2022. p. 65. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52688&shareable=true>

<sup>62</sup> 4LEAF Inc., AerialZeus LLC, MM & Company, "Final Independent Evaluator ARC" June 30, 2022. p. 113. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52688&shareable=true>

<sup>63</sup> 4LEAF Inc., AerialZeus LLC, MM & Company, "Final Independent Evaluator ARC" June 30, 2022. p. 78. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52688&shareable=true>

- 7.3.4.4 Infrared Inspections of Distribution Electric Lines
  - IE Finding: 17,068 infrared inspections out of goal of 18,000 infrared inspections.<sup>64</sup>
  - SDG&E did not self-identify this initiative as noncompliant.
- 7.3.5.5 Fuels management and reduction of “slash” from vegetation management activities
  - IE Finding: 463 poles brushed out of 500 poles.<sup>65</sup>
  - SDG&E did self-identify this initiative as noncompliant.
- 7.3.5.9 Other discretionary inspection of vegetation around distribution electric lines and equipment, beyond inspections mandated by rules and regulations
  - IE Finding: 12,578 trees trimmed or removed out of goal of 17,000 trees trimmed or removed.<sup>66</sup>
  - SDG&E did self-identify this initiative as noncompliant.
- 7.3.3.8 Microgrids
  - IE Finding: 0 out of 2 microgrids installed.<sup>67</sup>
  - SDG&E did not self-identify this initiative as noncompliant. Energy Safety approved a Change Order for the Microgrids initiative to reduce the target from two to one.<sup>68</sup>
- 7.3.4.6 Intrusive pole inspections
  - IE Finding: 8,721 intrusive wood pole inspections out of goal of 9,796 intrusive wood pole inspections.<sup>69</sup>
  - SDG&E did self-identify this initiative as noncompliant.

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<sup>64</sup> 4LEAF Inc., AerialZeus LLC, MM & Company, "Final Independent Evaluator ARC" June 30, 2022. p. 81. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52688&shareable=true>

<sup>65</sup> 4LEAF Inc., AerialZeus LLC, MM & Company, "Final Independent Evaluator ARC" June 30, 2022. p. 57. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52688&shareable=true>

<sup>66</sup> 4LEAF Inc., AerialZeus LLC, MM & Company, "Final Independent Evaluator ARC" June 30, 2022. p. 62. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52688&shareable=true>

<sup>67</sup> 4LEAF Inc., AerialZeus LLC, MM & Company, "Final Independent Evaluator ARC" June 30, 2022. p. 113. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52688&shareable=true>

<sup>68</sup> Office of Energy Infrastructure Safety, "2021 WMP Change Order Decision," p. 6. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52258&shareable=true>

<sup>69</sup> 4LEAF Inc., AerialZeus LLC, MM & Company, "Final Independent Evaluator ARC" June 30, 2022. p. 83. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52688&shareable=true>

After considering SDG&E's response to the IE ARC, Energy Safety agrees with six of the nine IE findings of noncompliance. Those include:

- 7.3.3.9 Installation of System Automation Equipment – Advance Protection
- 7.3.4.4 Infrared Inspections of Distribution Electric Lines
- 7.3.5.5 Fuels management and reduction of “slash” from vegetation management activities
- 7.3.5.9 Other discretionary inspection of vegetation around distribution electric lines and equipment, beyond inspections mandated by rules and regulations
- 7.3.3.8 Microgrids
- 7.3.4.6 Intrusive pole inspections

Additional information from the IE ARC is discussed, as relevant, in the Discussion section of this report.

## 4.3 Inspections

### 4.3.1 Overview

Pursuant to Public Utilities Code section 326(a)(3), Energy Safety conducts field inspections of each electrical corporation's infrastructure to ensure WMP compliance. In 2021, Energy Safety conducted field inspections of each electrical corporation's infrastructure to validate WMP compliance and assess infrastructure for deficiencies, errors, or conditions with the potential to increase ignition risk.

In November 2021, Energy Safety transitioned from Inspection Program v1 to Inspection Program v2. Inspections conducted in 2021 under Inspection Program v1 were general inspections of the electrical corporation's infrastructure including WMP initiatives and general wildfire safety. During Inspection Program v1, all findings were issued to the electrical corporations as defects. Inspections conducted under Inspection Program v2 were comprised of two types of inspections: WMP inspections and General Wildfire Safety (GWS) inspections. WMP inspections are specific to WMP initiative completeness and utilize information contained in the electrical corporations' quarterly data report (QDR) submissions. During WMP inspections, Energy Safety ensures that the data reported by the electrical corporation is accurate, that the electrical corporation completed the initiative activity as reported, and that the electrical corporation adhered to the applicable initiative protocols and procedures. If Energy Safety finds inaccurate data, incomplete work, or that the electrical corporation failed to adhere to protocols or procedures, it issues a Notice of Violation (NOV) to the electrical corporation.

GWS inspections assess electrical corporation infrastructure for deficiencies, errors, or conditions with the potential to increase ignition risk. If Energy Safety finds a deficiency, error, or condition with the potential to increase the risk of ignition, a Notice of Defect (NOD)<sup>70, 71</sup> is issued. An NOD is defined as “A deficiency, error, or condition increasing the risk of ignition posed by electrical lines and equipment.”

### 4.3.2 Relevant Information

Energy Safety performs inspections utilizing an electrical corporation's initiative activity data applicable to the WMP year compliance period. Energy Safety conducted 8,670 inspection activities in SDG&E's service territory in 2021.

Under Inspection Program v1, examples of defects found during Energy Safety's inspections included vegetation touching guy wire above the insulator and loose down guy wires. SDG&E timely corrected the defects identified by Energy Safety. As a result of inspection activities under Inspection Program v2, Energy Safety notified SDG&E of 64 conditions presenting minor risk. Minor Risk Notifications included crossarm decay, dislodged avian protection covers, and inaccurate GIS QDR pole numbers.

## 4.4 Audits

### 4.4.1 Overview

Public Utilities Code section 8386.3(c)(5) requires Energy Safety to perform an audit to determine whether the electrical corporation "substantially complied with the substantial portion"<sup>72</sup> of its vegetation management requirements in its WMP. Energy Safety refers to this audit as the Substantial Vegetation Management (SVM) audit. Pursuant to Public Utilities Code section 8386(c)(5), Energy Safety conducted an audit of SDG&E's compliance with the vegetation management requirements in its 2021 WMP Update.

### 4.4.2 Relevant Information

On September 12, 2023, Energy Safety issued its SVM Audit for SDG&E. The purpose of the SVM Audit is to assess whether SDG&E met its quantitative commitments and verifiable statements in its 2021 WMP Update related to vegetation management activities.

In the SVM Audit, Energy Safety found one instance where SDG&E did not perform all required work and required SDG&E to provide a response in its Corrective Action Plan.

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<sup>70</sup> Government Code § 15475.2.

<sup>71</sup> 14 California Code Regulations § 29302(b)(1).

<sup>72</sup> California Public Utilities Code § 8386.3(c)(5)(C).

After reviewing SDG&E's Corrective Action Plan, on December 13, 2023, Energy Safety issued its SVM Audit Report finding that SDG&E sufficiently addressed the Corrective Action<sup>73</sup> and substantially complied with the substantial portion of the vegetation management requirements in its 2021 WMP Update.<sup>74, 75</sup>

The specific findings from Energy Safety's SVM Audit Report are detailed in Appendix B.

## 4.5 Data

### 4.5.1 Overview

Energy Safety analyzed performance metrics and other data when assessing whether the electrical corporation complied with its 2021 WMP Update.<sup>76, 77</sup> Energy Safety required each electrical corporation to submit spatial and non-spatial data through QIUs, QDRs, and Quarterly Notifications (QNs).

### 4.5.2 Relevant Information

Energy Safety analyzed whether SDG&E met its 2021 WMP quantitative and qualitative initiative targets and analyzed performance of SDG&E's infrastructure relative to certain ignition risk and outcome metrics.

Energy Safety's Initiative Performance Analysis is detailed in Appendix C.

Energy Safety's Ignition Risk and Outcomes Metrics Analysis is detailed in Appendix D.

Findings from those analyses are included, as relevant, in the Discussion section of this report.

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<sup>73</sup> Office of Energy Infrastructure Safety, "2021 Substantial Vegetation Management Audit Report San Diego Gas & Electric Company" Dec. 2023. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56052&shareable=true>

<sup>74</sup> California Public Utilities Code § 8386.3(c)(5)(C).

<sup>75</sup> Office of Energy Infrastructure Safety, "Compliance Guidelines (Section 6.1)," Sept. 2023. p. 14. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=55586&shareable=true>

<sup>76</sup> California Public Utilities Commission, "Resolution M-4860," Dec. 02, 2021. [Online]. Available: <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M428/K722/428722129.PDF>

<sup>77</sup> Office of Energy Infrastructure Safety, "Attachment 3: 2021 Wildfire Mitigation Plan Compliance Process," Oct. 13, 2021. pp. 4-5, 9. [Online]. Available: <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M428/K146/428146324.pdf>

## 4.6 Third-Party Reports

### 4.6.1 Overview

When available, Energy Safety also utilizes authoritative, third-party reports to inform its compliance assessment. For example, Energy Safety may utilize CPUC or CAL FIRE wildfire investigation reports, CAL FIRE Wildfire Activity Statistics, and other reports to supplement and corroborate the evidence collected during its compliance assessment of the electrical corporation.

## 5. Discussion

This section provides Energy Safety's assessment of SDG&E's performance in 2021 in relation to each of the five evaluation criteria set forth in Energy Safety's Compliance Guidelines:

1. Whether the electrical corporation implemented the wildfire mitigation initiatives in its approved WMP, including evaluating whether the electrical corporation funded and performed the commitments stated for each initiative. Further, whether the electrical corporation prioritized completion of work with the highest potential for reducing wildfire risk.<sup>78</sup>
2. Whether the electrical corporation achieved or sufficiently progressed its WMP objectives.
3. Wildfire risk reduction, including the performance of the electrical corporation's infrastructure relative to its wildfire risk, as measured by changes in the occurrence of events that correlate to wildfire risk.
4. Whether the electrical corporation made a good faith attempt to achieve its goals and comply with its WMP.
5. Whether the electrical corporation exhibited issues related to its execution, management, or documentation in the implementation of its WMP. This analysis may expand beyond the scope of any single WMP initiative.

### 5.1 Criteria 1: 2021 WMP Initiative Implementation

This section considers whether SDG&E implemented the wildfire mitigation initiatives in its approved WMP, including whether SDG&E funded and performed the commitments stated for each initiative.

To accomplish this, Energy Safety assessed:

1. Whether SDG&E met the quantitative and qualitative targets provided in its 2021 WMP Update, and
2. The extent to which SDG&E funded each initiative.

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<sup>78</sup> Energy Safety evaluates funding data to ensure electrical corporations are dedicating resources to their initiative commitments. Energy Safety does not evaluate whether the cost of implementing each electrical corporation's plan was just and reasonable.

### 5.1.1 Completion of 2021 WMP Quantitative and Qualitative Targets

Based on Energy Safety's analysis, in conjunction with the department's review of the EC ARC and IE ARC, Energy Safety finds that SDG&E met or exceeded its targets for 63 of its 77 2021 WMP Update initiatives. Of those 77, SDG&E met all of its qualitative initiative targets and 21 of its 35 quantitative initiative targets.<sup>79</sup>

Of the 14 quantitative initiatives where SDG&E did not meet its target, five were within 95% of the target. For the purposes of this compliance assessment, Energy Safety considers those five initiatives substantively met.

Therefore, when accounting for the initiatives for which SDG&E substantively met its target, Energy Safety finds that SDG&E either met, exceeded, or substantively met 68 of its 77 2021 WMP Update initiative targets. This represents an 88% initiative completion rate.

Appendix C provides detail at the initiative level on Energy Safety's comprehensive assessment of SDG&E's performance against its stated initiatives.

The following are the nine quantitative initiatives for which SDG&E did not meet or substantively meet its targets:

#### Grid Design & System Hardening

1. Grid Topology Improvements to Mitigate or Reduce PSPS Events (7.3.3.8.2):
  - Completed 0 of one microgrid, a 0% completion rate.
  - SDG&E reported it did not complete the one microgrid due to delays in land acquisition that pushed the final design and construction outside of 2021.
2. Advanced Protection Initiative (7.3.3.9):
  - Completed 4 of 8 circuits, a 50% completion rate.
  - SDG&E reported that one of the circuits was completed in July 2021 but not reported until Q1 2022 QDR while three specifically identified circuits had project scope changes or permitting requirements that delayed them. One of the circuits was targeted for completion in 2023 and the other two in 2025.
3. Standby Power Programs (7.3.3.11.2):
  - Completed 355 of 413 generators, an 86% completion rate.
  - SDG&E reported it completed the remaining 58 generators in 2022.

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<sup>79</sup> Because three of the initiatives had both quantitative and qualitative targets, Energy Safety tracked a total of 80 targets for the 77 initiatives.

4. Resiliency Assistance Programs (7.3.3.11.3):
  - Completed 735 of 1,250 generators, a 59% completion rate.
  - SDG&E reported offering 1,850 rebates to customers with only 735 ultimately purchasing them.

### **Asset Management & Inspections**

5. Detailed Inspections of Transmission Electric Lines & Equipment (7.3.4.2):
  - Completed 1,975 of 2,715 inspections, a 73% completion rate.
  - SDG&E did not report this initiative as incomplete. SDG&E's 2021 WMP included a target of 2,715 inspections. In its EC ARC, it reported the original target as 1,680 inspections. In its 4<sup>th</sup> Quarter QIU it reported the target at 1,943 inspections. It is not clear what created the discrepancy in original target reporting across documents.
6. Intrusive Pole Inspections (7.3.4.6):
  - Completed 8,721 of 9,796 inspections, an 89% completion rate.
  - Of the 1,075 inspections missed, SDG&E reported it completed 700 of these inspections early in 2020 and it did not complete the other 375 inspections due to 1) scope changes resulting from intrusive inspections it performed earlier than required and 2) poles being replaced or removed.
7. Patrol Inspections of Transmission Electric Lines and Equipment (7.3.4.11):
  - Completed 6,423 of 7,024 inspections, a 91% completion rate.
  - SDG&E reported that to forecast plan targets, it converted the target for transmission inspections from "transmission lines inspected" to "transmission structures inspected" in 2021, and used an average structure count per transmission line. Based on this calculation, the actual structure count of the transmission lines due in 2021 was lower than the average. SDG&E reported the forecasted 2021 target did not accurately capture the completed inspections.

### **Vegetation Management & Inspections**

8. Fuels Management and Reduction of "Slash" from Vegetation Management Activities (7.3.5.5):
  - Cleared 463 of 500 poles, a 93% completion rate.
  - SDG&E reported it cleared the remaining 37 poles in 2022.
9. Other Discretionary Inspection of Vegetation Around Distribution Electric Lines and Equipment, beyond Inspections Mandated by Rules and Regulations (7.3.5.9):
  - Completed 12,578 of 17,000 trims/removals, a 74% completion rate.
  - SDG&E reported that it conducted trims on all trees for which inspections showed enhanced clearances were needed. It stated that in the future how it determines which trees require annual work will incorporate factors such as proximity to the lines, hazards, expected growth rate, and the annual trim cycle.

In terms of total count of completed initiatives, overall, SDG&E completed or substantially completed 88% of its initiatives. Of the nine missed targets discussed above, four of them were within 86 and 93% of the target.

Energy Safety also notes that Energy Safety's inspections to verify SDG&E's implementation of its WMP initiatives showed only minor overall defect rates and identified defects were remediated in a timely manner.

Therefore, Energy Safety finds that SDG&E completed the significant majority of its 2021 WMP initiatives.

### 5.1.2 2021 WMP Update Initiative Funding

Energy Safety evaluated the extent to which SDG&E funded its initiative targets in its 2021 WMP Update, utilizing data from SDG&E's EC ARC and IE ARC.

Each EC ARC includes descriptions of all planned WMP initiative expenditure versus actual expenditure and an explanation of any differences between the planned and actual expenditure.<sup>80</sup>

SDG&E's planned expenditure for 2021 was approximately \$646 million. SDG&E's actual reported expenditure was approximately \$543.9 million, representing an under-expenditure of approximately \$102 million.<sup>81</sup>

The under-expenditure was primarily driven by costs savings, totaling approximately \$71 million, for two initiatives for which SDG&E reached its targets: Undergrounding (7.3.3.16) and Covered Conductor Installations (7.3.3.3).<sup>82</sup>

Energy Safety's review of SDG&E's EC ARC found six initiatives for which SDG&E both missed its targets and expended less than originally projected. Those include: Microgrids (7.3.3.8.2), Advanced Protection (7.3.3.9), Fixed Backup Power Program (7.3.3.11.2), Expanded Generator Grant Program (7.3.3.11.3), Circuit Ownership (7.3.4.9.3) and Fuels Management (7.3.5.5).<sup>83</sup>

While the initiatives identified above represent initiatives where SDG&E missed its target and expended less than forecast, Energy Safety did not find evidence of SDG&E failing to fund any of its planned initiatives.

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<sup>80</sup> California Public Utilities Commission, "Compliance Operational Protocols," Feb. 16, 2021. pp. 10-12. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52615&shareable=true>

<sup>81</sup> Office of Energy Infrastructure Safety, "Evaluation of 2022 Wildfire Mitigation Plan Update San Diego Gas & Electric Company" July 2022. pp. 14-15. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52635&shareable=true>

<sup>82</sup> San Diego Gas & Electric Company, "2021 Q4 Quarterly Data Report, Non-Spatial Data," February 1, 2022. Table 12 [Online]. Available: <https://www.sdge.com/sites/default/files/regulatory/2021Q4%20QDR%20-%20Non-Spatial%20Data%2002%2001%202021.xlsx>

<sup>83</sup> San Diego Gas & Electric Company, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Mar. 31, 2022. pp. 19, 20, 23, 24, 41, and 51. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52368&shareable=true>

In terms of significance of completed initiatives relative to expenditure, SDG&E completed targets for nine of the top 10 expenditure initiatives. Further, when assessing the significance of the missed targets, the nine missed targets totaled approximately 10% of the overall 2021 planned expenditure.

## 5.2 Criteria 2: 2021 WMP Update Objectives

This section considers whether SDG&E achieved or sufficiently progressed its 2021 WMP objectives.

SDG&E's specific objectives for its 2021 WMP year (i.e., before the next Annual WMP Update) were:

- Objective 1: Continue to make progress on the initiatives outlined in the 2020 WMP with a key focus on improving risk analytics to enhance decision-making.
- Objective 2: Enhance data collection and analysis, develop more granular risk assessments, and further develop PSPS mitigation initiatives.

SDG&E's performance relative to these objectives is discussed below.

### 5.2.1 Objective 1: Improving risk analytics to enhance decision-making

In 2021, SDG&E made a number of enhancements focused on improving risk analytics to enhance decision-making. Specifically, SDG&E enhanced its new wildfire risk model – the Wildfire Next Generation System (WiNGS) model. Those include automating decision-making models like WiNGS-Planning, developing a proof-of-concept tool to visualize WiNGS-Planning and enable interactive scenario analysis, and developing WiNGS-Ops,<sup>84</sup> an iteratively improving real-time risk assessment model to evaluate and compare Wildfire and PSPS risks at the asset level (pole/span) and the sub-circuit/segment level at hourly intervals.

SDG&E also developed Probability of Ignition (PoI) models to better understand and predict ignitions from various sources.<sup>85, 86, 87</sup> These models are intended to improve the way that ignition sources are accounted for in decision-making models like WiNGS-Planning (Section

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<sup>84</sup> San Diego Gas & Electric Company, "2020 - 2022 Wildfire Mitigation Plan Update," Feb. 11, 2022. p. 198. [Online]. Available: <https://www.sdge.com/sites/default/files/regulatory/SDG%26E%202022%20WMP%20Update%2002-11-2022.pdf>

<sup>85</sup> California Public Utilities Commission, "Draft Action Statement on San Diego Gas & Electric Company's 2021 Wildfire Mitigation Plan Update," June 2021. [Online]. Available: <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M387/K708/387708478.pdf>

<sup>86</sup> San Diego Gas & Electric Company, "San Diego Gas & Electric 2021 WMP Action Statement Supplemental (Action Item SDGE-21-01)," p.6. Nov. 01, 2021. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51857&shareable=true>

<sup>87</sup> San Diego Gas & Electric Company, "2020 - 2022 Wildfire Mitigation Plan Update (Table 4-2)," Feb. 11, 2022. p. 142. [Online]. Available: <https://www.sdge.com/sites/default/files/regulatory/SDG%26E%202022%20WMP%20Update%2002-11-2022.pdf>

4.5.1.7 Wildfire Next Generation System-Planning) and WiNGS-Ops (Section 4.5.1.8 Wildfire Next Generation System-Operations). Enhancements and progress made to Probability of Ignition (PoI) models in 2021 included:<sup>88</sup>

- Developing a model to predict conductor-related failures and ignitions.
- Developing preliminary models for predicting ignitions from vehicle contacts, vegetation contacts, animal contacts, and balloon contacts.
- Initiating the migration of the balloon contact model to the cloud.
- Integrating the Conductor model into the PSPS dashboard.

In 2021, SDG&E also indicated it improved the Ignition Management Program (IMP), which gathers information on ignitions and near-ignitions.<sup>89</sup>

In light of the enhancements identified above, Energy Safety finds that SDG&E sufficiently progressed its objective to improve risk analytics to enhance decision-making.

## **5.2.2 Objective 2: Enhancing data collection and analysis, develop more granular risk assessments, and further develop PSPS mitigation initiatives**

*Enhancing data collection and analysis:*

Energy Safety finds that SDG&E provided evidence of its efforts to enhance its data collection and analysis in 2021.

SDG&E's efforts in this area included advancement of its Data Governance Framework and Central Repository reporting strategy (which leverages common data sources to meet reporting requirements). Specifically, SDG&E developed Data Governance Frameworks for Vegetation Management, Fire Science and Climate Adaption (FS&CA), Asset GIS, Asset Inspections (Distribution, Transmission, Substations), Outages (Distribution, Transmission), Safety, PSPS, Financial, and the Central Repository, and developed role-based training outlines for data owners and data stewards.<sup>90</sup>

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<sup>88</sup> San Diego Gas & Electric Company, "2020 - 2022 Wildfire Mitigation Plan Update," Feb. 11, 2022. p. 199. [Online]. Available: <https://www.sdge.com/sites/default/files/regulatory/SDG%26E%202022%20WMP%20Update%2002-11-2022.pdf>

<sup>89</sup> San Diego Gas & Electric Company, "2020 - 2022 Wildfire Mitigation Plan Update," Feb. 11, 2022. p. 6. [Online]. Available: <https://www.sdge.com/sites/default/files/regulatory/SDG%26E%202022%20WMP%20Update%2002-11-2022.pdf>

<sup>90</sup> San Diego Gas & Electric Company, "2020 - 2022 Wildfire Mitigation Plan Update," Feb. 11, 2022. pp. 316-317. [Online]. Available: <https://www.sdge.com/sites/default/files/regulatory/SDG%26E%202022%20WMP%20Update%2002-11-2022.pdf>

SDG&E also reported it made progress in implementing Energy Safety's requirements GIS data reporting standards.<sup>91</sup>

*Developing more granular risk assessments:*

Energy Safety finds that SDG&E provided evidence of its development of more granular risk assessments.

For example, SDG&E made enhancements to its Wildfire Risk Reduction Model (WRRM) and WRRM-Ops 2021 model to provide more granular fire weather forecasting capabilities, including, updating the Live Fuel Moisture data in the model to improve consequence modeling and updating the fire growth algorithms to improve the accuracy of consequence modeling.<sup>92</sup>

SDG&E also developed a model to predict conductor-related failures and ignitions, and preliminary models for predicting ignitions from vehicle contacts, vegetation contacts, animal contacts, and balloon contacts.<sup>93</sup>

*Further developing PSPS mitigation initiatives:*

Energy Safety finds that SDG&E provided evidence of its further development of its PSPS mitigation initiatives.

For example, SDG&E installed 10 sectionalizing devices, established a reserve of backup batteries for delivery during active PSPS events, provided 355 generators to customers, and conducted grid hardening. SDG&E experienced one PSPS event in 2021 with 5,858 customers de-energized. During this event, SDG&E indicated that its PSPS mitigation programs resulted in approximately 8,300 customers avoiding de-energization during the PSPS event, who would have otherwise been de-energized.<sup>94</sup>

It should be noted that SDG&E did miss its microgrids initiative target, which is a target directly related to SDG&E's ability to further develop its PSPS mitigation initiatives. Of the nine initiatives with missed targets, this was the only one with an impact relevant to this objective.

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<sup>91</sup> San Diego Gas & Electric Company, "2020 - 2022 Wildfire Mitigation Plan Update," Feb. 11, 2022. p. 316. [Online]. Available: <https://www.sdge.com/sites/default/files/regulatory/SDG%26E%202022%20WMP%20Update%2002-11-2022.pdf>

<sup>92</sup> San Diego Gas & Electric Company, "2020 - 2022 Wildfire Mitigation Plan Update," Feb. 05, 2021. p. 198. [Online]. Available: <https://www.sdge.com/sites/default/files/regulatory/SDG%26E%202021%20WMP%20Update%2002-05-2021.pdf>

<sup>93</sup> San Diego Gas & Electric Company, "2020 - 2022 Wildfire Mitigation Plan Update," Feb. 05, 2021. p. 184. [Online]. Available: <https://www.sdge.com/sites/default/files/regulatory/SDG%26E%202021%20WMP%20Update%2002-05-2021.pdf>

<sup>94</sup> San Diego Gas & Electric Company, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Mar. 31, 2022. p. 66. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52368&shareable=true>

## 5.3 Criteria 3: Wildfire Risk Reduction and Performance

This section considers the performance of SDG&E's infrastructure relative to its wildfire risk, as measured by changes in the occurrence of events that correlate to wildfire risk.

To accomplish this, Energy Safety:

- Performed a trend and year-over-year analysis on Ignition Risk Metrics.
- Performed a trend and year-over-year analysis on Outcome Metrics.

### 5.3.1 Ignition Risk Metric Analysis

Ignition data analysis can provide the most direct measure of electrical corporation wildfire risk for a given year. Other metrics, such as wire down events and unplanned outages, can be instructive as well, as they correlate with wildfire risk because some portion of these events will result in ignitions.

Energy Safety conducted a detailed analysis of SDG&E's performance relative to these metrics over the 2015 to 2021 time horizon. That analysis is available in Appendix D. The most salient takeaways from that analysis are provided below.

SDG&E had fewer total ignitions on its system in 2021 compared to both 2020 and to the six-year average from 2015-2020. At the same time, 2021 was a year where SDG&E's service territory saw significantly fewer days with higher risk of fire danger (as measured by Red Flag Warning Days) when compared to those same time horizons. The only other year from 2015 to 2021 in which SDG&E had a similarly small amount of Red Flag Warning days was 2015.

Energy Safety normalizes ignitions by Red Flag Warning Overhead Circuit Mile Days (RFWOCMD) to depict wildfire risk normalized for the size of fire weather events in an electrical corporation's service territory. Use of this metric allows for comparisons across electrical corporations and enables assessment of performance in 2021 relative to trends from 2015 to 2020.

When considering the number of ignitions relative to Red Flag Warning Days in 2021, SDG&E had a higher rate of ignitions in Tier 2 and 3 HFTD than it did compared to 2020 or to the six-year average. In comparing the two years with similarly low numbers of Red Flag Warning Days (2015 and 2021) Tier 3 HFTD normalized ignitions were relatively similar, and Tier 2 and non-HFTD normalized ignitions were significantly lower in 2021 than in 2015.

Although there was a higher rate of normalized ignitions in 2021 compared to the average, it is important to also analyze the consequence of those ignitions. In 2021, SDG&E ignitions resulted in relatively minor overall outcomes. During 2021, SDG&E reported reductions in acreage burned (just two acres in total for 2021 compared to 13 acres in 2020), only one structure damaged, and no fatalities or injuries.

In terms of the drivers of the ignitions, SDG&E saw significant increases in contact from object and equipment/facility failure ignitions as compared to its six-year average. Notably, SDG&E reported no vegetation contact ignitions in 2021.

In looking at other metrics that also correlate with risk, in 2021, SDG&E's normalized wire down events, unplanned outages, and vegetation-caused outages increased across its distribution infrastructure compared to 2020. For transmission infrastructure, there was an increase in normalized outages but no incidents of wire down events or vegetation-caused outages.

Regarding PSPS risk, the normalized scope and frequency of PSPS events decreased significantly from 2020 to 2021. PSPS data show fewer PSPS events (only one in 2021) and that PSPS events were shorter, impacted fewer customers, and had decreased impacts on critical infrastructure.

### 5.3.2 Outcome Metric Analysis

As discussed above, while normalized utility-caused ignition levels rose in 2021, there were limited adverse consequences from those ignitions. Only two acres burned from SDG&E-ignited wildfires in 2021. This continues a downward trend, and represents the lowest total acreage burned from SDG&E-ignited wildfires, over the seven years between 2015 and 2021.

In addition, there were no fatalities or injuries resulting from SDG&E-ignited wildfires in 2021. SDG&E reported damage to only one<sup>95</sup> structure and the total value of destroyed assets in 2021 reported was \$0.

### 5.3.3 Discussion

Taken together, the variation in results across the metrics above demonstrates the nuances and complexities attached to the exercise of analyzing an electrical corporation's success at reducing risk on its system in a given year. While overall total ignitions went down, the number of ignitions relative to Red Flag Warning days went up. In light of the expected climate change-driven extreme weather events and likely year to year fluctuations, the uneven ignitions outcomes in SDG&E territory in 2021, in a changing climate, underscores the importance of effective and timely wildfire mitigation planning and execution.

Energy Safety will continue to monitor ignitions and wildfire consequence over the course of the 2020-2022 WMP cycle compliance reviews.

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<sup>95</sup> SDG&E data indicated 0.4 structures. Energy Safety rounded this number to the nearest whole integer of 1.

## 5.4 Criteria 4: Satisfaction of 2021 WMP Update Goals

This section considers whether SDG&E made a good faith attempt to achieve its goals and comply with its WMP.

The goal of the WMP is to reduce the risk of catastrophic wildfires caused by utility infrastructure. Based on a review of the evidence presented in this ARC, Energy Safety finds that SDG&E made a good faith effort to comply with its WMP.

SDG&E was largely successful in achieving its initiatives, having met or exceeded 68 of its 77 initiative targets (89%). These initiatives, when taken together, are intended to have the effect of lowering the risk of utility-caused ignitions. SDG&E's nine missed targets, and the impacts of those missed targets, did not substantially hinder SDG&E's ability to meet its overarching objective to mitigate the risk of wildfires caused by utility equipment. As discussed above, in terms of significance of completed initiatives relative to expenditure, SDG&E completed targets for nine of the top 10 expenditure initiatives, with the nine missed targets representing approximately 10% of the overall 2021 planned expenditure.

While overall total ignitions went down, the number of ignitions relative to Red Flag Warning days went up compared to the six-year average from 2015 to 2020. One driver for this outcome was an increase in normalized equipment and facility failures. Although there was an increased in normalized ignitions, the impacts from ignitions decreased in 2021, with lower overall acreage burned, no fatalities/injuries, and limited structure damage.

## 5.5 Criteria 5: Execution, Management, and Documentation

This section considers whether SDG&E exhibited issues related to its execution, management, or documentation in the implementation of its WMP.

To accomplish this, Energy Safety undertook a holistic evaluation of all relevant information sources and assessments, including field verifications, for any systemic failings that may have hindered SDG&E's ability to reduce the risk of igniting a catastrophic wildfire. Such failings could contribute to increased risk on the system even if WMP targets are achieved.

Energy Safety did not find any systemic issues that hindered SDG&E's ability to adequately implement its WMP in 2021.

While SDG&E did exhibit some data consistency issues in both the SVM and WMP compliance processes, they did not rise to the level of being considered systemic. Consistency and clarity of information is vital to ensuring that wildfire mitigation efforts can be effectively implemented and that Energy Safety and stakeholders have a clear understanding of SDG&E's plans, commitments, and progress. Energy Safety cannot overemphasize the importance of accurate recordkeeping and data management to achieving wildfire risk reduction.

## 6. Conclusion

Overall, SDG&E had positive outcomes related to implementation of its 2021 WMP. It met its targets for 68 of the 77 mitigation initiatives (88%) identified in its WMP, including nine out of the top 10 initiatives with the largest allocated expenditure.

While SDG&E did not meet all targets for its WMP initiatives, the failure to meet certain targets did not materially hinder SDG&E's ability to mitigate its wildfire risk.

SDG&E had fewer total ignitions on its system in 2021 compared to 2020 and to the average from recent years. At the same time, 2021 was a year where SDG&E's service territory saw significantly fewer days with higher risk of fire danger (Red Flag Warning Days) when compared to those same time horizons. When considering the number of ignitions relative to Red Flag Warning Days in 2021, SDG&E had a higher rate of ignitions than in recent years. Although there was a higher relative rate of ignitions, the consequence of those ignitions resulted in relatively minor overall outcomes. During 2021, SDG&E reported reductions in acreage burned (two acres total for 2021), only one critical infrastructure damaged, and no fatalities or injuries.

SDG&E had only one PSPS event in 2021, with significant declines in PSPS duration, frequency, and scope of events, as well as reduced impacts on customers and critical infrastructure.

Energy Safety acknowledges that SDG&E undertook significant efforts to reduce its wildfire risk, and in many instances, SDG&E achieved its objectives and targets. On balance, SDG&E was largely successful in executing an actionable and adaptive plan for wildfire risk mitigation. There are, however, still areas for improvement and continued learning, including ensuring it is consistent in its documentation and reporting of compliance with its WMP.

Energy Safety will continue to monitor SDG&E's implementation of its ongoing wildfire mitigation activities and push SDG&E to improve its ability to ultimately achieve the elimination of utility-caused catastrophic wildfires in California.

**DATA DRIVEN**  
**FORWARD-THINKING**  
**INNOVATIVE**  
**SAFETY FOCUSED**



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# 1. Appendix A

## 1.1 EC ARC

SDG&E timely submitted its EC ARC on March 31, 2022. SDG&E's EC ARC included the five components required by Energy Safety. The subsections below summarize relevant portions of SDG&E's EC ARC.

### 1.1.1 Achievement of Risk Reduction

In its EC ARC, each electrical corporation is required to provide an assessment of whether the electrical corporation achieved its risk reduction intent by implementing all of its approved WMP Update initiatives, i.e., the degree to which initiative activities have reduced ignition probabilities. If the electrical corporation failed to achieve the intended risk reduction, it must provide a detailed explanation of why and a reference to where associated corrective actions are incorporated into its most recently submitted WMP.

SDG&E timely submitted its EC ARC on March 31, 2022. In its EC ARC, SDG&E reported that it did not meet its targets for seven of its 77 initiatives.<sup>1</sup>

The seven initiatives with missed targets were:<sup>2</sup>

1. Advanced Protection (7.3.3.9)
  - a. SDG&E completed four of eight circuits (50% complete).<sup>3</sup>
2. Standby Power Programs (7.3.3.11.2)
  - a. SDG&E completed installation of 355 of 413 generators (86% complete).<sup>4</sup>

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<sup>1</sup> SDG&E reported a total of 78 initiatives in its EC ARC. Following a data request, SDG&E agreed, in an email dated December 7, 2023, that the total number of initiatives reported in its EC ARC of 78 was incorrect. The total number of initiatives should be 77. SDG&E counted one initiative (7.3.3.17.2 – Overhead Transmission Fire Hardening) as two because it had two quantitative targets. Based on this clarification, all references to SDG&E's reported initiatives in this compliance report will use the count of 77. San Diego Gas & Electric Company, email, Dec. 07, 2023. Unpublished.

<sup>2</sup> For initiative 7.3.3.11.3, Expanded Generator Grant Program, SDG&E missed its planned target of 1,250 generators purchased by customers. However, SDG&E did not self-report this missed target in its EC Annual Report on Compliance, because it offered 1,850 rebates to customers and only 735 purchased a generator.

<sup>3</sup> San Diego Gas & Electric Company, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Mar. 31, 2022. p. 20. [Online]. Available:

<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52368&shareable=true>

<sup>4</sup> San Diego Gas & Electric Company, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Mar. 31, 2022. p. 23. [Online]. Available:

<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52368&shareable=true>

3. Intrusive Pole Inspections (7.3.4.6)
  - a. SDG&E completed 8,721 of 9,796 inspections (89% complete).<sup>5</sup>
4. Drone Assessments of Distribution Infrastructure (7.3.4.9.2)
  - a. SDG&E completed 21,420 of 22,000 inspections (97% complete).<sup>6</sup>
5. Visual Inspections of Transmission Equipment (7.3.4.11)
  - a. SDG&E completed 6,423 of 7,024 inspections (91% complete).<sup>7</sup>
6. Fuels Management (7.3.5.5)
  - a. SDG&E cleared 463 of 500 poles (93% complete).<sup>8</sup>
7. Other discretionary inspection of vegetation around distribution electric lines and equipment, beyond inspections mandated by rules and regulations (7.3.5.9)
  - a. SDG&E completed 12,578 of 17,000 trims/removals (74% complete).<sup>9</sup>

For the seven initiatives with missed targets SDG&E reported the following:

- Three of the seven missed targets met the risk reduction intent of the initiative (Intrusive Pole Inspections (7.3.4.6), Visual Inspections of Transmission Equipment (7.3.4.11) and Other Discretionary Inspection of Vegetation Around Distribution Electric Lines and Equipment (7.3.5.9)). With regard to these targets, SDG&E states the original targets were “either erroneously derived or did not accurately capture the intent of the initiative.”<sup>10</sup>

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<sup>5</sup> San Diego Gas & Electric Company, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Mar. 31, 2022. p. 36. [Online]. Available:

<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52368&shareable=true>

<sup>6</sup> San Diego Gas & Electric Company, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Mar. 31, 2022. p. 40. [Online]. Available:

<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52368&shareable=true>

<sup>7</sup> San Diego Gas & Electric Company, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Mar. 31, 2022. p. 45. [Online]. Available:

<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52368&shareable=true>

<sup>8</sup> San Diego Gas & Electric Company, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Mar. 31, 2022. p. 51. [Online]. Available:

<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52368&shareable=true>

<sup>9</sup> San Diego Gas & Electric Company, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Mar. 31, 2022. p. 54. [Online]. Available:

<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52368&shareable=true>

<sup>10</sup> San Diego Gas & Electric Company, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Mar. 31, 2022. p. 2. [Online]. Available:

<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52368&shareable=true>

- Another three of the seven missed targets were in progress and would be completed in 2022 (Standby Power Programs (7.3.3.11.2), Fuels Management (7.3.5.5), and Drone Assessments of Distribution Infrastructure (7.3.4.9.2)).<sup>11 12</sup>
- For the remaining missed target (Advanced Protection (7.3.3.9), SDG&E states this target was missed because of SDG&E's need to review potential conflicts with the Strategic Undergrounding Program and determine a more optimal mitigation strategy.<sup>13</sup>

In addition to the information regarding missed initiatives, SDG&E also reported the following:

- SDG&E fire hardened 163 miles of its electric system within the HFTD in 2021.
- SDG&E completed annual routine and HFTD-focused distribution, substation, and transmission inspections, including timely remediation of findings per general order requirements.
- SDG&E completed vegetation management annual inspections and trimming in accordance with its 2021 WMP, including inspection of over 17,000 targeted species and the trim or removal of over 12,500 targeted species trees in HFTD areas to enhanced clearance levels.
- SDG&E enhanced situational awareness capabilities by upgrading and rebuilding 46 weather stations capable of providing readings every 30 seconds.
- SDG&E conducted one PSPS event. SDG&E states that its PSPS mitigation programs enabled it to limit the scope of this PSPS event to 5,858 customers, which was 8,300 fewer customers than were originally scoped for the event.<sup>14</sup>
- SDG&E did not report the actions it took or planned to take to improve its performance of these seven missed initiatives.

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<sup>11</sup> San Diego Gas & Electric Company, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Mar. 31, 2022. p. 2. [Online]. Available:

<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52368&shareable=true>

<sup>12</sup> SDG&E's 2021 ARC was submitted March 31, 2022. Updated information regarding 2022 outcomes can be found in the Q4 2022 QDR dated February 1, 2023.

<sup>13</sup> San Diego Gas & Electric Company, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Mar. 31, 2022. p. 2. [Online]. Available:

<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52368&shareable=true>

<sup>14</sup> San Diego Gas & Electric Company, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Mar. 31, 2022. p. 2. [Online]. Available:

<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52368&shareable=true>

SDG&E reported the following regarding the degree to which initiative activities reduced ignition probabilities:

- SDG&E's 2021 and 2022 WMP Updates detail the Risk Reduction Estimation Methodology that SDG&E used to quantify the risk reduction potential for each WMP initiative with a quantitative target.<sup>15</sup> SDG&E reported a total of 35 initiatives with a quantitative target.<sup>16</sup>
- SDG&E's initial 2021 estimate of ignition risk reduction compared to its actual 2021 ignition risk reduction was provided for each of the 35 initiatives with a quantitative target. In total, SDG&E had originally estimated 11.871 ignition risk reductions in 2021 based on 100% implementation of the 35 planned initiatives.<sup>17</sup>
- SDG&E also provided its final 2021 ignition risk reduction outcome, based on actual implementation of the 35 initiatives with a quantitative target. Totaled together, these 35 initiatives increased SDG&E's overall 2021 risk reduction from the original value of 11.871 to a final value of 12.278 ignition risk reductions. From these calculations, SDG&E indicated that, on a combined basis, it exceeded its risk reduction intent for the year.
  - While SDG&E indicated it met the total risk reduction intent on a combined basis, in its 2021 EC ARC, SDG&E specified that it did not meet the risk reduction intent for four of the 35 initiatives with quantitative targets.<sup>18</sup> In response to a data request, SDG&E identified these four initiatives as:
    - Advanced Protection (7.3.3.9)
    - Fixed Backup Power Program (7.3.3.11.2)
    - Drone Assessments of Transmission Infrastructure (7.3.4.9.4)
    - Fuels Management (7.3.5.5).<sup>19</sup>
  - SDG&E also reported that 11 of the 35 quantitative initiatives had no expected or actual ignition risk reduction for 2021 so effectively they had no impact on this risk reduction analysis.<sup>20</sup>

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<sup>15</sup> San Diego Gas & Electric Company, "Office of Energy Infrastructure Safety Data Request: OEIS-SDGE-2023Wildfire Mitigation Plan-167 SDG&E Response," June 26, 2023. p. 15. Unpublished.

<sup>16</sup> San Diego Gas & Electric Company, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Mar. 31, 2022. p. 1. [Online]. Available:

<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52368&shareable=true>

<sup>17</sup> San Diego Gas & Electric Company, "Office of Energy Infrastructure Safety Data Request: OEIS-SDGE-2023Wildfire Mitigation Plan-167 SDG&E Response," June 26, 2023. pp. 16-19. Unpublished.

<sup>18</sup> San Diego Gas & Electric Company, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Mar. 31, 2022. p. 2. [Online]. Available:

<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52368&shareable=true>

<sup>19</sup> San Diego Gas & Electric Company, "Office of Energy Infrastructure Safety Data Request: OEIS-SDGE-2023Wildfire Mitigation Plan-167 SDG&E Response," June 26, 2023. p. 14. Unpublished.

<sup>20</sup> San Diego Gas & Electric Company, "Office of Energy Infrastructure Safety Data Request: OEIS-SDGE-2023Wildfire Mitigation Plan-167 SDG&E Response," June 26, 2023. pp. 15-16. Unpublished.

- For the other 20 of 35 initiatives (i.e., 35 less four less 11), SDG&E met or exceeded its planned quantitative targets. Where is exceeded the target, SDG&E also reported proportionately exceeding the risk reduction intent.<sup>21</sup>
- This resulted in SDG&E reporting 0.407 more ignition risk reductions for 2021 (12.278 minus 11.871).

### 1.1.2 Planned vs Actual WMP Update Initiative Expenditures

In its EC ARC, each electrical corporation is required to provide descriptions of all WMP initiative planned expenditure versus WMP initiative actual expenditure and an explanation of any differences between the planned and actual expenditure.

SDG&E reported the following regarding planned vs actual WMP Update expenditure:

*Table 1: SDG&E's Planned Versus Actual Expenditure by Year (in thousand \$s)<sup>22</sup>*

Year	Planned Cost (K\$)	Actual Cost (K\$)	Difference (\$K)
2020	\$444,544	\$569,237	\$124,693
2021	\$646,466	\$543,912	(\$102,554)

As identified in Table 1, SDG&E expended over \$102 million less than the planned amount in 2021. Table 4 provides a summary of selected initiatives where SDG&E expended less than planned amount.

For two initiatives identified in Table 4, SDG&E expended significantly less than the planned amount, but still exceeded its targets. SDG&E provided the following explanations for why it expended significantly less than the planned amount:

- Strategic Undergrounding (7.3.3.16) - SDG&E indicated that it more efficiently constructed new underground circuits<sup>23</sup> and that projects did not encounter expected unusual subsurface conditions which require re-routing or alternate construction methods.

<sup>21</sup> To determine the actual ignition risk reduction SDG&E multiplied the actual percentage completion of a quantitative target by the original expected ignition risk reduction figure. San Diego Gas & Electric Company, "Office of Energy Infrastructure Safety Data Request: OEIS-SDGE-2023Wildfire Mitigation Plan-167 SDG&E Response," June 26, 2023. pp. 16-19. Unpublished.

<sup>22</sup> Office of Energy Infrastructure Safety, "Evaluation of 2022 Wildfire Mitigation Plan Update SDG&E," July 2022. pp. 14-15. [Online]. Available:

<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52635&shareable=true>

<sup>23</sup> SDG&E indicated that it more efficiently constructed the new underground circuits through development of new construction standards which helped reduce underground costs per-mile. San Diego Gas & Electric Company, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Mar. 31, 2022. p. 25. [Online]. Available:

<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52368&shareable=true>

- Covered Conductor Installations (7.3.3.3) - SDG&E indicated that it experienced delays in beginning engineering/design work (related to finalizing survey and basemaps) for installations targeted for 2023 construction.<sup>24</sup>

For most of the initiatives where SDG&E expended less than its planned amount, it exceeded its targets. However, Table 7 identifies six initiatives where SDG&E expended less than the planned amount and did not meet its targets. Below is a summary of SDG&E explanations for why it expended less than planned for these six initiatives:

- Microgrids (7.3.3.8.2) - SDG&E did not provide an explanation for the lower expenditure level even though the difference exceeded 20% of planned expenditure (SDG&E's variance guideline for providing an explanation).<sup>25</sup>
- Advanced Protection (7.3.3.9) – SDG&E expended \$267,000 below the \$11,092,000 planned amount while installing protection on 4 of 8 targeted circuits.
- Fixed Backup Power Program (7.3.3.11.2) – SDG&E expended \$1,416,000 less than the \$10,350,000 planned amount while installing 355 of the targeted 413 generators.
- Expanded Generator Grant Program (7.3.3.11.3) – SDG&E expended \$1,084,000 less than the \$1,828,000 planned amount while providing rebates to 735 of the targeted 1,250 customers.
- Circuit Ownership (7.3.4.9.3)<sup>26</sup> – In its EC ARC, SDG&E indicated that it stopped this initiative in 2021 due to lack of participation and other initiatives that provided other ways to report fire-related concerns (e.g., SDG&E's Near Miss application that allows employees to report items of concern).
- Fuels Management (7.3.5.5) – SDG&E expended \$1,856,000 less than the \$6,206,000 planned amount while clearing 463 of the targeted 500 poles.

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<sup>24</sup> San Diego Gas & Electric Company, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Mar. 31, 2022. p. 15. [Online]. Available:

<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52368&shareable=true>

<sup>25</sup> Energy Safety confirmed that SDG&E also did not complete the microgrid planned for 2021 (Sherilton Valley) in 2022.

<sup>26</sup> This initiative provides an opportunity for SDG&E's field employees, and management of field employees, to submit circuit vulnerabilities via a Mobile Data Terminal (MDT) program or mobile application. San Diego Gas & Electric Company, "2020 - 2022 Wildfire Mitigation Plan Update," Feb. 05, 2021. p. 19. [Online]. Available:

<https://energysafety.ca.gov/wp-content/uploads/docs/misc/wmp/2021/utility/sdge/sdge-2021-wmp-update.pdf>

## 2. Appendix B

### 2.1 Substantial Vegetation Management Audits

On September 12, 2023, Energy Safety issued its SVM Audit for SDG&E. The purpose of the SVM Audit is to assess whether SDG&E met its quantitative commitments and verifiable statements in its 2021 WMP Update related to vegetation management. In the SVM Audit, Energy Safety found one instance where SDG&E did not perform all required work and required SDG&E to provide a response in its Corrective Action Plan.

After reviewing SDG&E's Corrective Action Plan, on December 13, 2023, Energy Safety issued its SVM Audit Report finding that SDG&E sufficiently addressed the Corrective Action<sup>27</sup> and substantially complied with the substantial portion of the vegetation management requirements in its 2021 WMP Update.<sup>28, 29</sup>

The findings from Energy Safety's SVM Audit Report are detailed in Table 2 below.

*Table 2: Energy Safety's Findings from SDG&E 2021 SVM Audit Report of WMP Vegetation Management Initiatives*

2021 WMP Update Initiative Number	2021 WMP Update Initiative Name	Determination
7.3.5.1	Additional Efforts to Manage Community and Environmental Impacts	All Work Performed
7.3.5.2	Detailed Inspections of Vegetation Around Distribution Electric Lines and Equipment	All Work Performed
7.3.5.3	Detailed Inspections of Vegetation Around Transmission Electric Lines and Equipment	All Work Performed

<sup>27</sup> Office of Energy Infrastructure Safety, "2021 Substantial Vegetation Management Audit Report San Diego Gas & Electric Company" Dec. 2023. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56052&shareable=true>

<sup>28</sup> California Public Utilities Code § 8386.3(c)(5)(C).

<sup>29</sup> Office of Energy Infrastructure Safety, "Compliance Guidelines (Section 7.1)," Sept. 2023. p. 16. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=55586&shareable=true>

2021 WMP Update Initiative Number	2021 WMP Update Initiative Name	Determination
7.3.5.4	Emergency Response Vegetation Management Due to Red Flag Warning or Other Urgent Conditions	All Work Performed
7.3.5.5	Fuel Management and Reduction of “Slash” from Vegetation Management Activities	All Work Performed
7.3.5.6	Improvement of Inspections	All Work Performed
7.3.5.7	LiDAR Inspection of Vegetation Around Distribution Electric Lines and Equipment	All Work Performed
7.3.5.8	LiDAR Inspection for Vegetation Around Transmission Electric Lines and Equipment	All Work Performed
7.3.5.9	Other Discretionary Inspections of Vegetation Around Distribution Electric Lines and Equipment, Beyond Inspections Mandated by Rules and Regulations	All Work Performed
7.3.5.10	Other Discretionary Inspections of Vegetation Around Transmission electric lines and equipment beyond inspections mandated by rules and regulations	All Work Performed
7.3.5.11	Patrol Inspections of Vegetation Around Distribution Electric Lines and Equipment	All Work Performed
7.3.5.12	Patrol Inspections of Vegetation Around Transmission electric lines and equipment	All Work Performed
7.3.5.13	Quality Assurance/Quality Control of Inspections	All Work Performed
7.3.5.14	Recruiting and Training of Vegetation Management Personnel	All Work Performed

2021 WMP Update Initiative Number	2021 WMP Update Initiative Name	Determination
7.3.5.15	Remediation of At-Risk Species	All Work Performed
7.3.5.16	Removal and Remediation of Trees with Strike Potential to Electric Infrastructure (Hazard Tree Removal and Right Tree-Right Place)	All Work Performed
7.3.5.17	Substation Inspections	All Work Performed
7.3.5.18	Substation Vegetation Management	All Work Performed
7.3.5.19	Vegetation Inventory System	All Work Performed
7.3.5.20	Vegetation Management to Achieve Clearance Around Electric Lines and Equipment	<b>Corrective Action Plan Response Acceptable</b>

## 3. Appendix C

### 3.1 Initiative Performance

Energy Safety assessed whether SDG&E achieved its 2021 WMP Update qualitative and quantitative commitments through multiple analyses and information sources.

Energy Safety verified compliance with qualitative and quantitative commitments within SDG&E's 2021 WMP Update for its System Hardening, Asset Management and Inspections, and Vegetation Management initiatives. For each electrical corporation, the initiatives for compliance verification comprised >60% of the total WMP Update Proposed Expenditures.

Energy Safety also analyzed SDG&E's Q4 2021 QIU submission from March 31, 2021, SDG&E's EC ARC, and SDG&E's Q4 2021 QN to assess whether SDG&E achieved its 2021 WMP Update qualitative and quantitative initiative commitments.

#### 3.1.1 2021 Quarterly Reporting Initiative Performance Analysis

In accordance with Energy Safety's 2020 Compliance Operational Protocols, SDG&E submitted all four of its 2021 QIUs. The QIUs contained 77 initiatives, as shown in Table 3 below. Of SDG&E's 77 total WMP initiatives, 32 contained quantitative targets, 42 contained qualitative targets, and 3 contained both quantitative and qualitative targets.

*Table 3: SDG&E Number of 2021 WMP Update Initiatives with Quantitative and Qualitative Targets*

<b>SDG&amp;E's 2021 WMP Update Initiatives (QIU data)</b>	<b>Numbers</b>
<b>Initiatives with Quantitative Targets</b>	32
<b>Initiatives with Qualitative Targets</b>	42
<b>Initiatives with Both Quantitative and Qualitative Targets</b>	3
<b>Total Initiatives</b>	77 <sup>30</sup>

<sup>30</sup> SDG&E reported a total of 78 initiatives in its EC Annual Report on Compliance. Following a data request, SDG&E agreed, in an email dated December 7, 2023, that the total number of initiatives reported in its EC Annual Report on Compliance of 78 was incorrect. The total number of initiatives should be 77. SDG&E counted one initiative (7.3.3.17.2 – Overhead Transmission Fire Hardening) as two because it had two quantitative targets.

### 3.1.2 Initiative Performance Results

#### Results for Initiatives with Quantitative Targets

SDG&E either met or exceeded the targets for 21 of 35 initiatives (or 60%) with quantitative targets. Table 4 summarizes the initiatives with exclusively quantitative targets.

Of the 14 initiatives in which SDG&E failed to meet its narratives, actions, and/or targets in its WMP, its average progress was approximately 22% below its targets.

Of the 14 quantitative initiatives where SDG&E did not meet its target, five were within 95% of the target. For the purposes of this compliance assessment, Energy Safety considers those five initiatives substantively met. This applies to the following five initiatives:

- Infrared inspections of distribution electric lines and equipment (7.3.4.4), 95% complete
- Infrared inspections of transmission electric lines & equipment (7.3.4.5), 95% complete
- Drone assessments of distribution infrastructure (7.3.4.9.2), 97% complete
- Additional Transmission Aerial 69kV Tier 3 Visual Inspection (7.3.4.9.5), 99% complete
- Vegetation management to achieve clearances around electric lines and equipment (7.3.5.20), 99% complete.

Therefore, when accounting for the initiatives in which SDG&E substantively met its target, Energy Safety finds that SDG&E did not meet targets for nine of its 77 (or 12%) total quantitative and qualitative initiatives.

Table 4 below identifies performance against targets for all quantitative initiatives. Bold target values represent initiatives where the target was not met. The bolded list is inclusive of the five targets identified above.

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Based on this clarification, all references to SDG&E's reported initiatives in this compliance report will use the count of 77. San Diego Gas & Electric Company, email, Dec. 07, 2023. Unpublished.

Table 4: Initiatives with only Quantitative Targets

Initiative Number	Initiative Name	Target Units	WMP Target	Reported Actual Progress in QIU	Reported Actual Progress in QN	Reported Actual Progress in EC ARC
7.3.2.1	Advanced Weather Monitoring	Weather Stations	20 <sup>31</sup>	46	46	46
7.3.2.3	Wireless Fault Indicators	Indicators	500	544	544	544
7.3.2.4.1	Fire Science and Climate Adaptation Department	Cameras	17 <sup>32, 33</sup>	17	17	17
7.3.3.1	SCADA	SCADA Capacitors	32	35	35	35
7.3.3.3	Distribution OH Hardening – Covered Conductor	Miles	20	20.6	20.6	20.6
7.3.3.7	Expulsion Fuse Replacement	Fuses	3,970	3,976	3,976	3,976
7.3.3.8.1	PSPS Sectionalized Enhancements	Sectionalized devices	10	13	13	13
7.3.3.8.2	<b>Microgrids</b>	<b>Microgrids</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>
7.3.3.9	<b>Advanced Protection</b>	<b>Circuits Enabled</b>	<b>8</b>	<b>4</b>	<b>4</b>	<b>4</b>

<sup>31</sup> SDG&E identified a target of 25 weather stations in its 4th Quarter 2021 QIU. Regardless of the 2021 Plan target used, with 46 weather station upgrades, SDG&E met the target for this initiative. San Diego Gas & Electric Company, "2021 Quarterly Initiative Update - WMP Initiative Status Updates - Q4," Feb. 01, 2022. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51993&shareable=true>

<sup>32</sup> SDG&E reported a target of 2021 Plan target of installing 17 cameras in its EC ARC and 4th Quarter QIU, though did not specify a target in its 2021 WMP Update. San Diego Gas & Electric Company, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Mar. 31, 2022. p. 8. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52368&shareable=true>

<sup>33</sup> San Diego Gas & Electric Company, "2021 Quarterly Initiative Update - WMP Initiative Status Updates - Q4," Feb. 01, 2022. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51993&shareable=true>

Initiative Number	Initiative Name	Target Units	WMP Target	Reported Actual Progress in QIU	Reported Actual Progress in QN	Reported Actual Progress in EC ARC
7.3.3.10	Maintenance, Repair, and Replacement of Connectors	Hotline Clamps	2,250 <sup>34</sup>	2,743	2,743	2,743
7.3.3.11.1	Resiliency Grant Programs	Generators	2,000	2,310	2,310	2,310
7.3.3.11.2	<b>Standby Power Programs (Fixed Backup Power)</b>	<b>Generators</b>	<b>413</b>	<b>355</b>	<b>355</b>	<b>355</b>
7.3.3.11.3	<b>Resiliency Grant Program</b>	<b>Generators</b>	<b>1,250</b>	<b>735</b>	<b>735</b>	<b>735</b>
7.3.3.16	Undergrounding of electric lines and/or equipment	Miles	25	25.92	25.92	25.9
7.3.3.17.1	Distribution overhead system hardening	Miles	100	100.4	100	100.4
7.3.3.17.2 <sup>35</sup>	Transmission overhead system hardening; and (Overhead Transmission - Distribution Underbuilt)	Miles	6.7 and 2.7	6.7 and 3.4	6.7 and 3.4	6.7 and 3.4
7.3.3.17.3	Cleveland National Forest distribution and transmission system hardening Distribution Overhead	Miles	6.8	6.86	6.9	6.8
7.3.3.18.1	Distribution Communication Reliability Improvements	Base Stations	10	10	10	10
7.3.3.18.2	Lightening Arrestor Removal and Replacement	Lightening Arrestors	924	1,789	1,789	1,789

<sup>34</sup> SDG&E reported a target of 2,250 hotline clamps in its 2021 WMP Update (Table 5-2, page 116). However, in its WMP Update, SDG&E also indicated that "SDG&E plans to replace 1,650 clamps in 2021" (page 206). Regardless of the target used, SDG&E met its 2021 WMP target for this initiative. San Diego Gas & Electric Company, "2020 - 2022 Wildfire Mitigation Plan Update," Feb. 05, 2021. pp. 116, 206. [Online]. Available: <https://energysafety.ca.gov/wp-content/uploads/docs/misc/wmp/2021/utility/sdge/sdge-2021-wmp-update.pdf>

<sup>35</sup> SDG&E had two quantitative targets associated with this one initiative.



Initiative Number	Initiative Name	Target Units	WMP Target	Reported Actual Progress in QIU	Reported Actual Progress in QN	Reported Actual Progress in EC ARC
7.3.4.9.1	HFTD Tier 3 inspections	Inspections	10,815	11,535	11,535	11,535
7.3.4.9.2	<b>Drone Assessment of Distribution Infrastructure</b>	<b>Inspections</b>	<b>22,000</b>	<b>21,420</b>	<b>21,420</b>	<b>21,420</b>
7.3.4.9.4	Drone Assessment of Transmission Infrastructure	Inspections	1,200 <sup>42</sup>	1,440	1,440	1,215 <sup>43, 44</sup>
7.3.4.9.5	<b>Additional Transmission Aerial 69kV Tier 3 Visual Inspection</b>	<b>Inspections</b>	<b>1,792<sup>45, 46, 47</sup></b>	<b>1,652</b>	<b>1,652</b>	<b>1,652</b>
7.3.4.10	Patrol inspections of distribution electric lines and equipment	Inspections	86,000	86,490	86,490	86,490

<sup>42</sup> While SDG&E did not identify a target in its 2021 WMP Update or 4th Quarter QIU, SDG&E specified this 1,200 target in its 2021 EC ARC. San Diego Gas & Electric Company, "2021 Wildfire Mitigation Plan Annual Report on Compliance," p.42. Mar. 31, 2022. [Online]. Available:

<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52368&shareable=true>

<sup>43</sup> SDG&E reported completing 1,028 drone flights of transmission structures in 2021 (86% of the 1,200 target). However, in its EC Annual Report on Compliance SDG&E also indicated that it actually performed a total of 1,215 drone inspections of transmission structures in 2021, but due to the timing of the QA/QC process which can take several weeks, 187 remained in the QA/QC process at the end of 2021. San Diego Gas & Electric Company, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Mar. 31, 2022. p. 42. [Online]. Available:

<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52368&shareable=true>

<sup>44</sup> San Diego Gas & Electric Company, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Mar. 31, 2022, p.42. [Online]. Available:

<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52368&shareable=true>

<sup>45</sup> In its 2021 WMP Update, SDG&E identified a 2021 target of 1,792 inspections (see Table 5-2, page 120). In its EC ARC (page 43) and its 4th Quarter QIU, SDG&E identified the target as 1,654. It is unclear what created the discrepancy in SDG&E reporting. San Diego Gas & Electric Company, "2020 - 2022 Wildfire Mitigation Plan Update," Feb. 05, 2021. p. 120. [Online]. Available: <https://energysafety.ca.gov/wp-content/uploads/docs/misc/wmp/2021/utility/sdge/sdge-2021-wmp-update.pdf>

<sup>46</sup> San Diego Gas & Electric Company, "2021 Wildfire Mitigation Plan Annual Report on Compliance," p.43. Mar. 31, 2022. [Online]. Available:

<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52368&shareable=true>

<sup>47</sup> San Diego Gas & Electric Company, "2021 Quarterly Initiative Update - WMP Initiative Status Updates - Q4," Feb. 01, 2022. [Online]. Available:

<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51993&shareable=true>

Initiative Number	Initiative Name	Target Units	WMP Target	Reported Actual Progress in QIU	Reported Actual Progress in QN	Reported Actual Progress in EC ARC
7.3.4.11	<b>Patrol inspections of transmission electric lines and equipment</b>	<b>Inspections</b>	<b>7,024<sup>48</sup></b>	<b>6,429</b>	<b>6,429</b>	<b>6,423</b>
7.3.4.14	Substation inspection	Inspections	330	405	405	405
7.3.5.2	Detailed inspections of vegetation around distribution electric lines and equipment	Inspections	455,000	502,132	502,132	502,132
7.3.5.5	<b>Fuels management and reduction of “slash” from vegetation management activities</b>	<b>Inspections</b>	<b>500</b>	<b>463</b>	<b>203</b>	<b>463</b>
7.3.5.9	<b>Other discretionary inspection of vegetation around distribution electric lines and equipment, beyond inspections mandated by rules and regulations (7.3.5.9)</b>	<b>Inspections</b>	<b>17,000</b>	<b>12,578</b>	<b>12,579</b>	<b>12,578</b>
7.3.5.20	<b>Vegetation management to achieve clearances around electric lines and equipment (7.3.5.20)</b>	<b>Inspections</b>	<b>35,500</b>	<b>35,102</b>	<b>35,102</b>	<b>35,102</b>

<sup>48</sup> SDG&E's 4th Quarter 2021 QIU incorrectly shows a 2021 WMP target of 6,324 inspections. San Diego Gas & Electric Company, "2021 Quarterly Initiative Update - WMP Initiative Status Updates - Q4," Feb. 01, 2022. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51993&shareable=true>

## Results for Initiatives with Qualitative Targets

In its 2021 Quarter 4 QIU, SDG&E reported that it had completed all 45 of its 2021 WMP Update initiatives with qualitative targets, including:

- Enhancing its WRRM-Ops to include upgrading fuel moisture inputs into the fire behavior modeling, upgrading the forecaster interface, and incorporating the data into a PSPS decision support tool (7.3.1.1)
- Maintaining and updating its high performance computing program to stay aligned with the latest computing technology and intending to share all the data that is generated with the wildfire community (7.3.2.4.4)
- Using LiDAR to supplement grid hardening efforts and post-construction analysis (7.3.4.7); continuing routine and off-cycle hazard tree inspections in the HFTD with use of ISA-Certified internal patrollers and contractors (7.3.5.16)
- Continuing modification and process improvements to the Epoch inventory system (7.3.5.19)
- Executing a robust Wildfire Safety Community Awareness campaign to educate customers and the general public throughout its service territory (7.3.9.2).

### 3.1.3 2021 Grid Design and System Hardening Initiatives Analysis

SDG&E's Grid Design and System Hardening initiatives represented 64% of SDG&E's total planned expenditure for its 2021 WMP Update.<sup>49</sup>

Energy Safety assessed whether SDG&E met its quantitative and qualitative commitments in its 2021 WMP Update for its Grid Design and System Hardening (Section 7.3.3)<sup>50</sup> initiatives.

Energy Safety found that SDG&E met its quantitative targets and implemented its qualitative commitments for 13 out of the 17 Grid Design and System Hardening initiative commitments reviewed, as detailed in Table 5 below.

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<sup>49</sup> San Diego Gas & Electric Company, "2020 - 2022 Wildfire Mitigation Plan Update," Feb. 05, 2021. Attachment 2.3, Table 12. [Online]. Available:

<https://www.sdge.com/sites/default/files/regulatory/SDG%26E%202021%20WMP%20Update%2002-05-2021.pdf>

<sup>50</sup> San Diego Gas & Electric Company, "2020 - 2022 Wildfire Mitigation Plan Update," Feb. 05, 2021. pp. 189-230. [Online]. Available: <https://energysafety.ca.gov/wp-content/uploads/docs/misc/wmp/2021/utility/sdge/sdge-2021-wmp-update.pdf>

Table 5: Energy Safety's Analysis of SDG&amp;E's 2021 WMP Grid Design and System Hardening Initiatives

Initiative Number and Name	2021 WMP Update Quantitative Target	2021 Actual Reported	2021 WMP Update Qualitative Target	2021 Actual Reported	Method of Verification	Energy Safety Finding
<b>7.3.3.1 - Capacitor Maintenance and Replacement Program; (SCADA Capacitors)</b>	32 SCADA Capacitors Installed	35 SCADA Capacitors Installed	N/A	N/A	QIU, QN, EC-ARC	Commitment met
<b>7.3.3.3 - Covered Conductor Installation</b>	20 Miles Hardened with Covered Conductor	20.6 Miles Hardened with Covered Conductor	N/A	N/A	QIU, QN, EC ARC	Commitment met
<b>7.3.3.7 - Expulsion Fuse Replacement</b>	3,970 Fuses Replaced	3,976 Fuses Replaced	N/A	N/A	QIU, QN, EC ARC	Commitment met
<b>7.3.3.8.1 - PSPS Sectionalizing Enhancements</b>	10 Sectionalized Devices	13 Sectionalized Devices	N/A	N/A	QIU, QN, EC ARC	Commitment met
<b>7.3.3.8.2 - Grid Topology Improvements to Mitigate or Reduce PSPS Events</b>	1 Microgrid Installed <sup>51</sup>	0 Microgrids Installed	N/A	N/A	QIU, QN, EC ARC	<b>Commitment not met</b>
<b>7.3.3.9 Installation of system automation equipment - Advanced Protection</b>	8 Circuits Installed	4 Circuits Installed	N/A	N/A	QIU, QN, EC ARC	<b>Commitment not met</b>

<sup>51</sup> SDG&E initially had a quantitative target of 2 microgrids. This was reduced to 1 microgrid. Office of Energy Infrastructure Safety, "2021 Wildfire Mitigation Plan Change Order Decision," p. 6. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52258&shareable=true>

Initiative Number and Name	2021 WMP Update Quantitative Target	2021 Actual Reported	2021 WMP Update Qualitative Target	2021 Actual Reported	Method of Verification	Energy Safety Finding
<b>7.3.3.10 - Maintenance, repair, and replacement of connectors, including hotline clamps - Hotline Clamps</b>	2,250 Hotline Clamps <sup>52</sup>	2,743 Hotline Clamps	N/A	N/A	QIU, QN, EC ARC	Commitment met
<b>7.3.3.11.1 - Resiliency Grant Programs</b>	2,000 Generators	2,310 Generators	N/A	N/A	QIU, QN, EC ARC	Commitment met
<b>7.3.3.11.2 - Standby Power Programs</b>	413 Generators	355 Generators	N/A	N/A	QIU, QN, EC ARC	<b>Commitment not met</b>
<b>7.3.3.11.3 - Resiliency Assistance Programs</b>	1,250 Generators	735 Generators	N/A	N/A	QIU, QN, EC ARC	<b>Commitment not met</b>
<b>7.3.3.16 - Undergrounding of electric lines and/or equipment</b>	25 Miles	25.92 Miles	N/A	N/A	QIU, QN, EC ARC	Commitment met
<b>7.3.3.17.1 - Distribution overhead system hardening</b>	100 Miles	100.4 Miles	N/A	N/A	QIU, QN, EC ARC	Commitment met
<b>7.3.3.17.2 - Transmission overhead system hardening (Overhead Transmission Hardening)</b> <b>7.3.3.17.2 - Transmission overhead system hardening (Overhead Transmission - Distribution Underbuilt)</b>	6.7 Miles; 2.7 Miles	6.7 Miles; 3.4 Miles	N/A	N/A	QIU, QN, EC ARC	Commitments met

<sup>52</sup> SDG&E reported a target of 2,250 hotline clamps in its 2021 WMP Update (Table 5-2, page 116). However, in its WMP Update, SDG&E also indicated that "SDG&E plans to replace 1,650 clamps in 2021" (page 206). Regardless of the target used, SDG&E met its 2021 WMP target for this initiative. San Diego Gas & Electric Company, "2020 - 2022 Wildfire Mitigation Plan Update," Feb. 05, 2021. pp. 116, 206. [Online]. Available: <https://energysafety.ca.gov/wp-content/uploads/docs/misc/wmp/2021/utility/sdge/sdge-2021-wmp-update.pdf>

Initiative Number and Name	2021 WMP Update Quantitative Target	2021 Actual Reported	2021 WMP Update Qualitative Target	2021 Actual Reported	Method of Verification	Energy Safety Finding
<b>7.3.3.17.3 - Cleveland National Forest distribution and transmission system hardening - Distribution Overhead</b>	6.80 Miles	6.86 Miles	N/A	N/A	QIU, QN, EC ARC	Commitment met
<b>7.3.3.18.1 - Distribution Communications Reliability Improvements</b>	10 Base Stations	10 Base Stations	N/A	N/A	QIU, QN, EC ARC	Commitment met
<b>7.3.3.18.2 -Lightning arrester removal and replacement</b>	924 Lightning Arrestors	1,789 Lightning Arrestors	N/A	N/A	QIU, QN, EC ARC	Commitment met
<b>7.3.3.6 - Distribution pole replacement and reinforcement, including with composite poles - Pole Replacement and Reinforcement</b>	N/A	N/A	SDG&E plans to continue its mandated and enhanced inspection programs over the next 10 years. Regular inspections and subsequent remediations are a critical piece of preventing potential equipment failures, faults, and ignitions. Expected structure replacement forecasts are adjusted annually based on the latest inspection data results, and the location and number of assets contained in specific inspection cycles.	SDG&E continued its mandated and enhanced inspection programs. In Q4, SDG&E completed 97% of the planned pole replacements in the HFTD for Q4 2021.	Data request	Commitment met

### 3.1.4 2021 Asset Management and Inspections Initiatives Analysis

SDG&E's Asset Management and Inspections initiatives represented 11% of SDG&E's total planned expenditure for its 2021 WMP Update.<sup>53</sup>

Energy Safety assessed whether SDG&E met its quantitative and qualitative commitments in its 2021 WMP Update for its Asset Management and Inspections (Section 7.3.4)<sup>54</sup> initiatives. To perform this assessment, Energy Safety reviewed available information, and where necessary, requested additional documentation from SDG&E. Energy Safety found that in 2021, SDG&E met its quantitative targets and implemented its verifiable statements for nine out of the 16 Asset Management and Inspections initiative commitments reviewed, as detailed in Table 6 below. For four of the seven initiatives where SDG&E did not meet its targets, SDG&E was within 5% of the target.

*Table 6: Energy Safety's Analysis of SDG&E's 2021 WMP Update Asset Management and Inspections Initiatives*

Initiative Number and Name	2021 WMP Update Quantitative Target	2021 Actual Reported	2021 WMP Update Qualitative Target	2021 Actual Reported	Method of Verification	Energy Safety Finding
<b>7.3.4.1 - Detailed inspections of distribution electric lines and equipment</b>	22,269 Inspections	22,354 Inspections	N/A	N/A	QIU, QN, EC ARC	Commitment met
<b>7.3.4.2 - Detailed inspections of transmission electric lines and equipment</b>	2,715 Inspections	1,975 Inspections	N/A	N/A	QIU, QN, EC ARC	<b>Commitment not met</b>

<sup>53</sup> San Diego Gas & Electric Company, "2020 - 2022 Wildfire Mitigation Plan Update," Feb. 05, 2021. Attachment 2.3, Table 12. [Online]. Available: <https://www.sdge.com/sites/default/files/regulatory/SDG%26E%202021%20WMP%20Update%2002-05-2021.pdf>

<sup>54</sup> San Diego Gas & Electric Company, "2020 - 2022 Wildfire Mitigation Plan Update," Feb. 05, 2021. pp. 231-263. [Online]. Available: <https://www.sdge.com/sites/default/files/regulatory/SDG%26E%202021%20Wildfire Mitigation Plan%20Update%2002-05-2021.pdf>

Initiative Number and Name	2021 WMP Update Quantitative Target	2021 Actual Reported	2021 WMP Update Qualitative Target	2021 Actual Reported	Method of Verification	Energy Safety Finding
<b>7.3.4.4 - Infrared inspections of distribution electric lines and equipment</b>	18,000 Inspections	17,068 Inspections	N/A	N/A	QIU, QN, EC ARC	<b>Commitment not met</b>
<b>7.3.4.5 - Infrared inspections of transmission electric lines and equipment</b>	6,565 Inspections	6,239 Inspections	N/A	N/A	QIU, QN, EC ARC	<b>Commitment not met</b>
<b>7.3.4.6 - Intrusive pole inspections</b>	9,796 Inspections	8,721 Inspections	N/A	N/A	QIU, QN, EC ARC	<b>Commitment not met</b>
<b>7.3.4.9.1 - HFTD Tier 3 inspections</b>	10,815 Inspections	11,535 Inspections	N/A	N/A	QIU, QN, EC ARC	Commitment met
<b>7.3.4.9.2 - Drone assessments of distribution infrastructure</b>	22,000 Inspections	21,420 Inspections	N/A	N/A	QIU, QN, EC ARC	<b>Commitment not met</b>

Initiative Number and Name	2021 WMP Update Quantitative Target	2021 Actual Reported	2021 WMP Update Qualitative Target	2021 Actual Reported	Method of Verification	Energy Safety Finding
<b>7.3.4.9.4 - Drone assessment of transmission infrastructure</b>	1,200 Inspections	1,440 Inspections	SDG&E will continue to develop the program to enhance its existing inspection efforts of transmission structures in HFTD areas starting in 2020. SDG&E plans to focus on inspecting select transmission structures in both Tier 2 and Tier 3 HFTD areas in 2021, as part of an initial pilot effort.	By the end of 2021, SDG&E performed 1,440 drone flights of transmission structures in the HFTD by our Responsible Pilot in Command (RPIC) and Qualified Electric Worker (QEW) teams. During those flights, photographs of the structures were collected and the QEW completed their initial assessment. That assessment then goes through QA/QC with our intelligent image processing models and a QEW Supervisor. The full QA/QC process was completed for 1,140 transmission structures in the HFTD by the end of 2021. The issue rate continued to be low, averaging 2% with no emergency issues identified in 2021.	QIU, QN, EC ARC	Commitment met
<b>7.3.4.9.5 - Additional Transmission Aerial 69kV Tier 3 Visual Inspection</b>	1,792 Inspections	1,652 Inspections	N/A	N/A	QIU, QN, EC ARC	<b>Commitment not met</b>

Initiative Number and Name	2021 WMP Update Quantitative Target	2021 Actual Reported	2021 WMP Update Qualitative Target	2021 Actual Reported	Method of Verification	Energy Safety Finding
<b>7.3.4.10 - Patrol inspections of distribution electric lines and equipment</b>	86,000 Inspections	86,490 Inspections	N/A	N/A	QIU, QN, EC ARC	Commitment met
<b>7.3.4.11 - Patrol inspections of transmission electric lines and equipment</b>	7,024 Inspections	6,423 Inspections	N/A	N/A	QIU, QN, EC ARC	<b>Commitment not met</b>
<b>7.3.4.14 - Substation inspections</b>	330 Inspections	405 Inspections	N/A	N/A	QIU, QN, EC ARC	Commitment met
<b>7.3.4.13 - Quality assurance/ quality control of inspections</b>	N/A	N/A	SDG&E does not currently plan on implementing any improvements to this initiative. SDG&E will continue its current process of auditing its inspection and maintenance results on a quarterly basis.	SDG&E completed 100% of the QA/QC audits for the electric distribution system for Q4 2021. SDG&E performed 343 audits on the OH distribution system, with 10 additional findings found.	QIU, QN, EC ARC	Commitment met

Initiative Number and Name	2021 WMP Update Quantitative Target	2021 Actual Reported	2021 WMP Update Qualitative Target	2021 Actual Reported	Method of Verification	Energy Safety Finding
<b>7.3.4.7 - LiDAR inspections of distribution electric lines and equipment</b>	N/A	N/A	SDG&E continues to use LiDAR inspections to supplement the grid hardening efforts and post-construction analysis, where possible. SDG&E plans to implement vegetation risk analysis within the HFTD and potentially expand into non-HFTD projects. Additionally, SDG&E plans to use the results of these analyses for emergency operations during red flag and other extreme events.	LiDAR vendor was on boarded and started data collection process of all distribution lines within the HFTD Tier 2 and 3. Through the end of 2021, approximately 1,936 miles out of 4,370 miles (44%) have been captured. Processing of the data and delivery are underway.	QIU, QN, EC ARC	Commitment met

Initiative Number and Name	2021 WMP Update Quantitative Target	2021 Actual Reported	2021 WMP Update Qualitative Target	2021 Actual Reported	Method of Verification	Energy Safety Finding
<b>7.3.4.8 - LiDAR inspections of transmission electric lines and equipment</b>	N/A	N/A	SDG&E continues to use LiDAR inspections to supplement grid hardening efforts and post-construction analysis, where possible. SDG&E plans to implement vegetation and clearance checks within the HFTD and potentially expand into non-HFTD projects. Additionally, SDG&E plans to use the results of these analyses for emergency operations during red flag and other extreme events.	In Q4, SDG&E Transmission continued to use previously processed LiDAR to proactively model transmission lines that our meteorology department had identified as likely to experience high winds during red flag events, as well as lines that had previously seen high winds during red flag events in 2021. SDG&E Transmission Engineering continued to provide support to the vendors to obtain the previously requested new LiDAR for 50 miles of transmission in HFTD Tier2 for our 230kV system.	QIU, QN, EC ARC	Commitment met

Initiative Number and Name	2021 WMP Update Quantitative Target	2021 Actual Reported	2021 WMP Update Qualitative Target	2021 Actual Reported	Method of Verification	Energy Safety Finding
<b>7.3.4.9.3- Circuit ownership</b>	N/A	N/A	SDG&E plans to continue to evaluate the Circuit Ownership Program. This initiative has the potential to expand to all users in SDG&E's Electric Regional Operations or even outside departments to submit concerns.	Zero submissions were received in Q4. This project will be retired going forward due to many other initiatives that rendered this obsolete.	QIU, QN, EC ARC	Commitment met

## 4. Appendix D

### 4.1 Ignition Risk and Outcomes Metrics

Energy Safety assessed the performance SDG&E's infrastructure relative to its wildfire risk, as measured by changes in the occurrence of events that correlate to wildfire risk.

Energy Safety requires electrical corporations to report data, such as ignitions in the HFTD, that help Energy Safety assess whether an electrical corporation reduced its wildfire risk while also reducing its reliance on PSPS. In 2021, Energy Safety evaluated each electrical corporation's performance metric<sup>55</sup> data by conducting the following analyses:

- 1) For Ignition Risk Metrics:
  - a. A trend analysis of performance metrics from 2015-2021.
  - b. A year-over-year analysis of performance metrics from 2020-2021.
- 2) For Outcome Metrics:
  - a. A trend analysis of performance metrics from 2015-2021.
  - b. A year-over-year analysis of performance metrics from 2020-2021.

Additionally, Energy Safety assessed SDG&E's inspection findings data for conditions that pose potential safety and reliability risks, as well as SDG&E's progress fixing prior findings, as these conditions can increase wildfire risk.

For this analysis, Energy Safety relied on data reported in SDG&E's 2021 WMP Update and its February 1, 2022, QDR submission.

#### 4.1.1 Ignition Risk Metrics

Energy Safety reviewed the ignition risk metrics SDG&E reported in its March 18, 2022, QDR submission,<sup>56</sup> including:

1. **Ignitions** – incidents in which electrical corporation infrastructure was involved
2. **Wire down events** – incidents in which overhead electrical lines fall to the ground or land on objects

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<sup>55</sup> Progress Metrics are defined as Measurements that track how much Electrical Corporation wildfire mitigation activity has changed the conditions of Electrical Corporation wildfire risk exposure or Electrical Corporation ability to manage wildfire risk exposure, in terms of leading indicators of ignition probability and wildfire consequences. California Public Utilities Commission, "Resolution WSD-011 Attachment 2.2: 2021 Wildfire Mitigation Plan Guidelines Template (Section 6)," Oct. 13, 2021. p. 12, 32. [Online]. Available: <https://energysafety.ca.gov/wp-content/uploads/docs/wmp-2021/attachment-2.2-to-wsd-011-2021-wmp-guidelines-template.pdf>

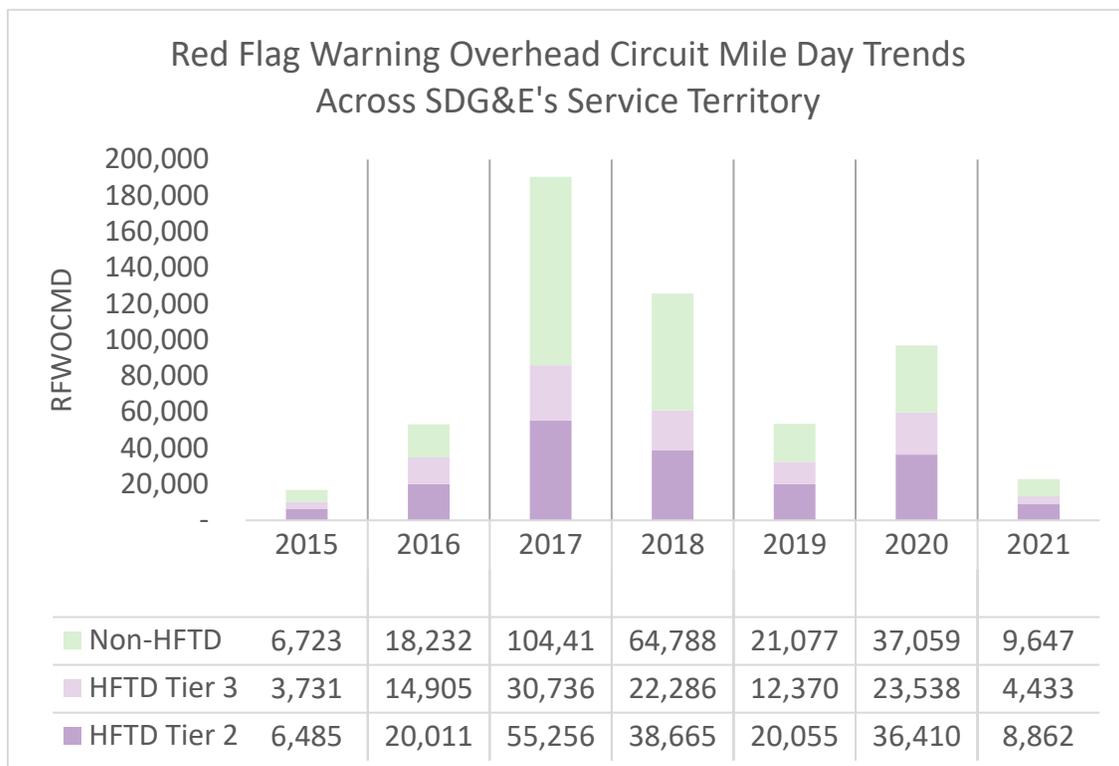
<sup>56</sup> San Diego Gas & Electric Company, "Wildfire Safety Division Attachment 2.3 Wildfire Mitigation Plan Quarterly Report - Q4 2021 (Table 7.1, Table 7.2)," Feb. 01, 2022. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51997&shareable=true>

- 3. **Vegetation-caused outages** – outages experienced in which the cause was determined to be vegetation contact with electrical lines
- 4. **Unplanned outages** – all unplanned outages experienced

For applicable metrics, Energy Safety normalized each electrical corporation’s data using the unit “Red Flag Warning Overhead Circuit Mile Days” (RFWOCMD). Energy Safety uses RFWOCMD for overhead assets to depict wildfire risk normalized for the size of fire weather events in an electrical corporation’s service territory. Use of this metric allows for comparisons across electrical corporations and enables assessment of performance in 2021 relative to previous trends from 2015 to 2020.

As shown in Figure 1 below, SDG&E has seen oscillations in RFWOCMDs since 2015 with an increase from 2015 to 2017, followed by a decrease from 2017 to 2019, an increase again in 2020, and a significant decrease in 2021 returning nearly to 2015 levels.

Figure 1: Variances in Extreme Fire Weather Across SDG&E Territory from 2015-2021 by HFTD location



### 4.1.2 Ignition Data Analysis

SDG&E had fewer total ignitions on its system in 2021 compared to both 2020 and to the six-year average from 2015-2020. At the same time, 2021 was a year where SDG&E's service territory saw significantly fewer days with higher risk of fire danger (as measured by Red Flag Warning Days) when compared to those same time horizons. The only other year from 2015 to 2021 in which SDG&E had a similarly small amount of Red Flag Warning Days was 2015.

In comparing the two years with similarly low numbers of Red Flag Warning Days (2015 and 2021) Tier 3 HFTD normalized ignitions were relatively similar, and Tier 2 and non-HFTD normalized ignitions were significantly lower in 2021 than in 2015.

Figure 2 shows the number of ignitions across SDG&E's service territory normalized by the total RFWOCMD for each year, delineated by location (i.e., Tier 3 HFTD areas, Tier 2 HFTD areas, and non-HFTD areas).

Figure 2: SDG&E Ignitions from 2015-2021 Normalized by Ignitions in HFTD Tiers/ Total RFWOCMD

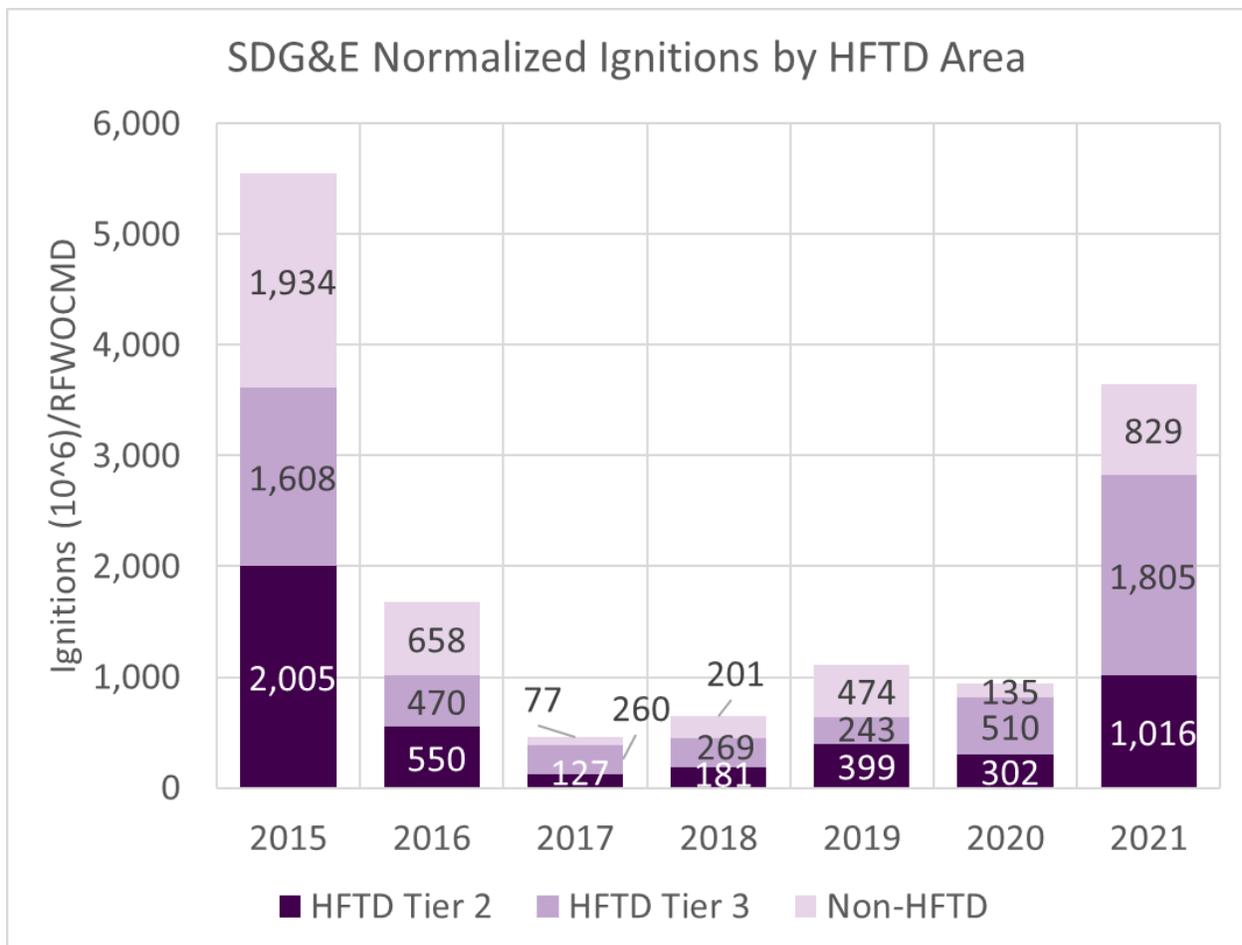


Table 7 shows a time series of SDG&E utility-related ignitions since 2015. For 2021, total ignitions of 20 was slightly below the six-year average of 25 ignitions.

*Table 7: SDG&E Count of Utility Related Ignitions (2015-2021)<sup>57</sup>*

Description	2015	2016	2017	2018	2019	2020	2021	6 Year Avg (2015-2020)
<b>Distribution</b>	24	28	21	21	15	22	16	22
<b>Transmission</b>	5	2	1	5	2	3	4	3
<b>Total</b>	29	30	22	26	17	25	20	25

The following four figures show drivers of SDG&E normalized ignitions during the 2015 to 2021 period broken out by asset classification and HFTD location (i.e., Tier 3 and Tier 2). The first two figures show ignitions on the distribution system and the second two figures show ignitions on the transmission system.

As shown in the figures below, with few exceptions, contact from objects was generally the top driver of SDG&E's normalized ignitions in Tier 2 and Tier 3 HFTD areas across both its distribution and transmission system from 2015 to 2021.

<sup>57</sup> San Diego Gas & Electric Company, "Wildfire Safety Division Attachment 2.3 Wildfire Mitigation Plan Quarterly Report - Q4 2021 (Table 7.2)," Feb. 01, 2022. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51997&shareable=true>

Figure 3: SDG&E Distribution Ignitions in Tier 3 HFTD Areas from 2015-2020  
Normalized by RFWOCMD in Tier 3 Only Broken out by Risk Driver

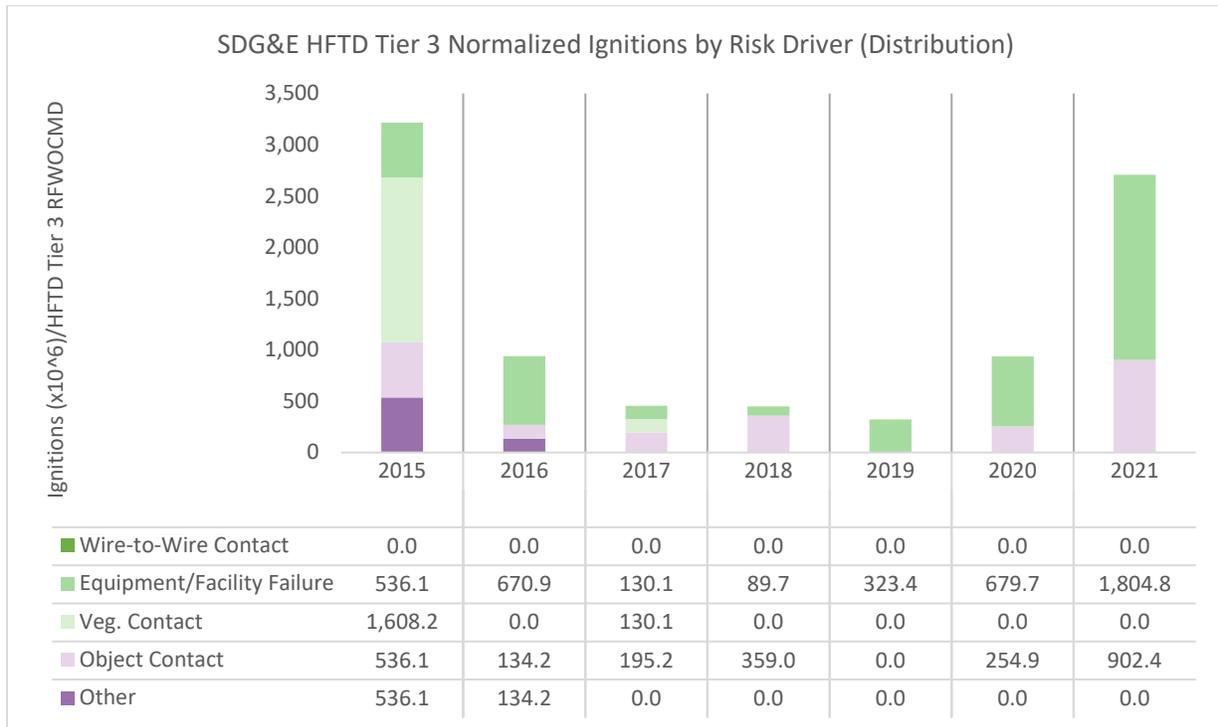


Figure 4: SDG&E Distribution Ignitions in Tier 2 HFTD Areas from 2015-2021  
Normalized by RFWOCMD in Tier 2 Only Broken out by Risk Driver

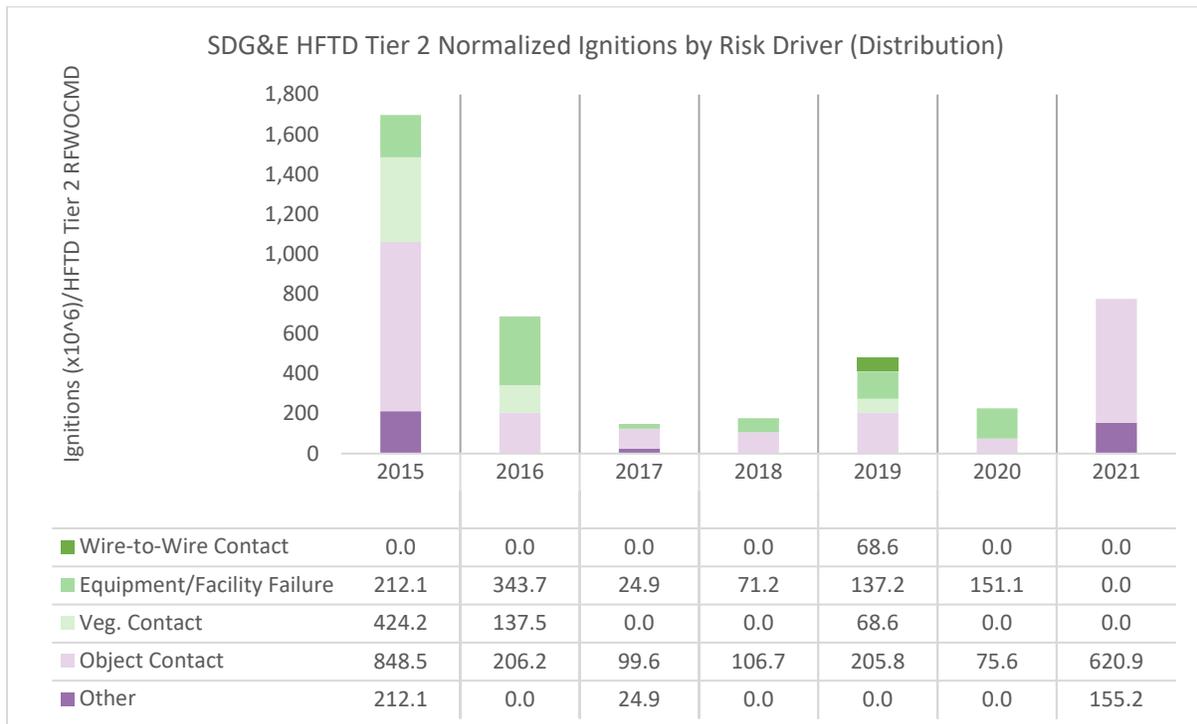


Figure 5: SDG&E Transmission Ignitions in Tier 3 HFTD Areas from 2015-2021 Normalized by RFWOCMD Tier 3 Only Broken out by Risk Driver

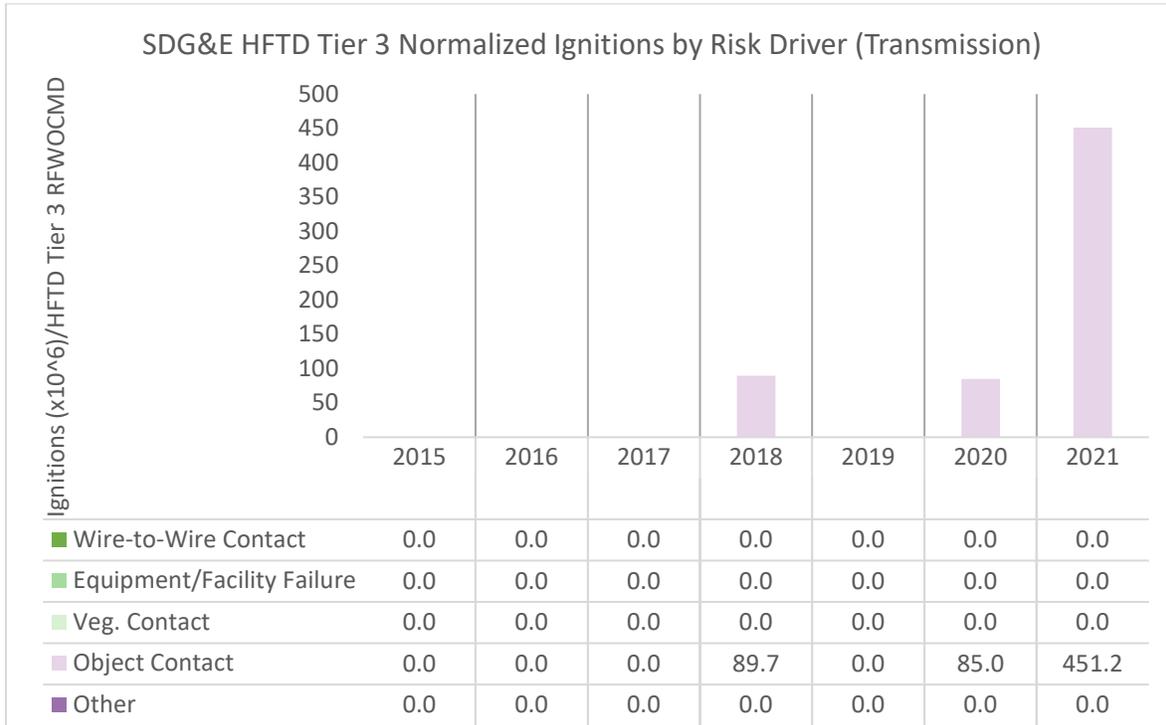
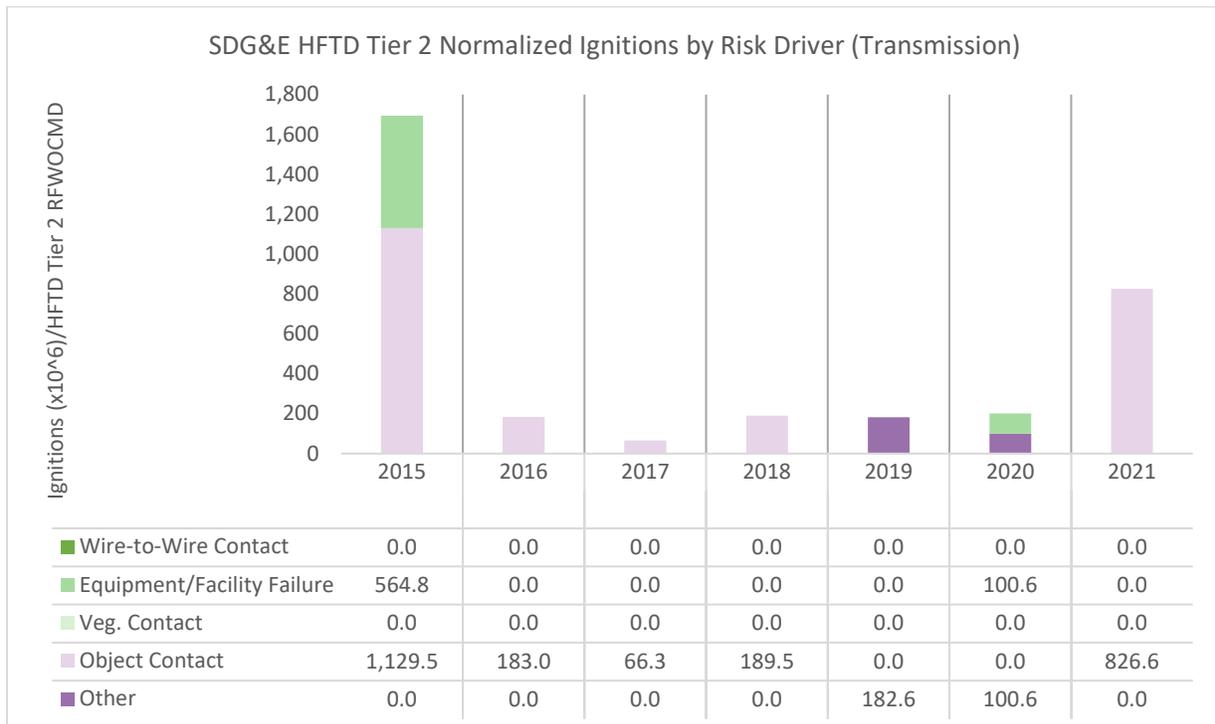


Figure 6: SDG&E Transmission Ignitions in Tier 2 HFTD Areas from 2015-2021 Normalized by RFWOCMD Tier 2 Only Broken out by Risk Driver



### 4.1.2.1 Wire Down Data Analysis

QDR Table 7.1, metrics 1 through 16 include data on SDG&E's distribution and transmission wire-down events from 2015 to 2021, which are normalized for RFWOCMD and plotted below in Figure 7. While the normalized figures show a large increase in wire down events in 2021 compared to 2020, the absolute quantity of 2021 ignitions was relatively similar to those experienced in prior years. Table 8 shows the number of SDG&E wire-down events for each year since 2015. For 2021, total wire down events of 96 fell slightly below the 6-year average of 107.5 events.

Figure 7: SDG&E Total Wire Down Events from 2015-2021 Normalized by RFWOCMD

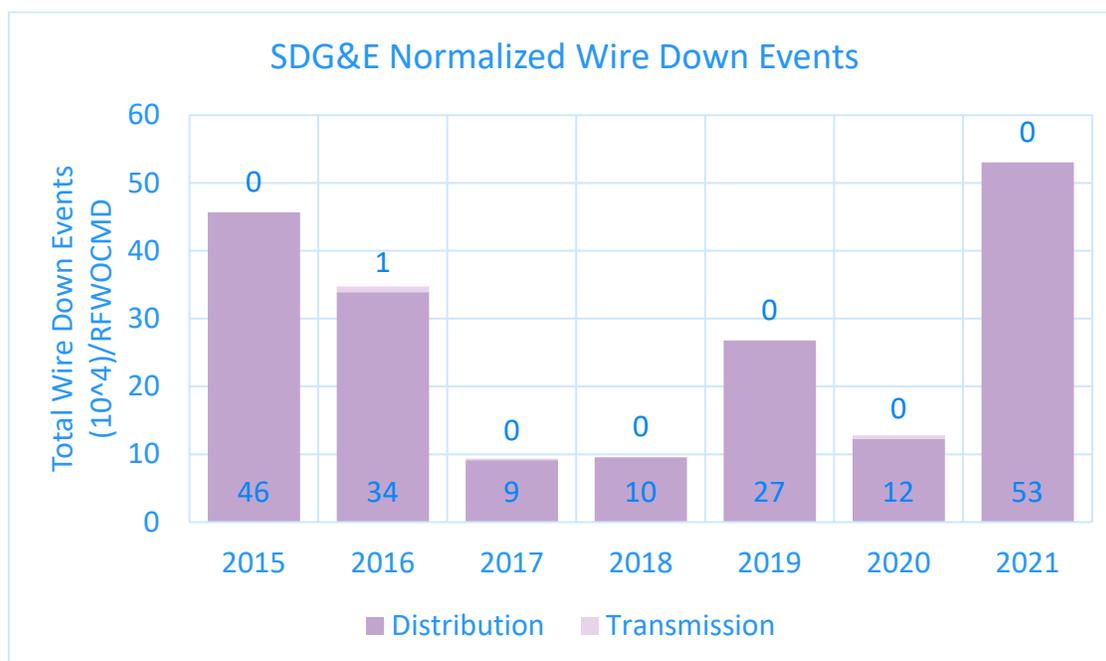


Table 8: SDG&E Count Wire Down Events (2015-2021)<sup>58</sup>

Description	2015	2016	2017	2018	2019	2020	2021	6 Year Avg (2015-2020)
<b>Distribution</b>	61	142	137	95	113	94	96	107
<b>Transmission</b>	0	1	1	0	0	1	0	0.5
<b>Total</b>	61	143	138	95	113	95	96	107.5

<sup>58</sup> San Diego Gas & Electric Company, "Wildfire Safety Division Attachment 2.3 Wildfire Mitigation Plan Quarterly Report - Q4 2021 (Table 7.1)," Feb. 01, 2022. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51997&shareable=true>

### 4.1.2.2 Outage Data Analysis

QDR Table 7.1, metrics 17 through 32 include data on distribution and transmission outages of all cause types from 2015 through 2021. Figure 8 below plots SDG&E's transmission and distribution outages normalized for RFWOCMD.

Table 9 shows a time series of SDG&E outages since 2015.

Figure 8: Outages from 2015-2021 Normalized by RFWOCMD

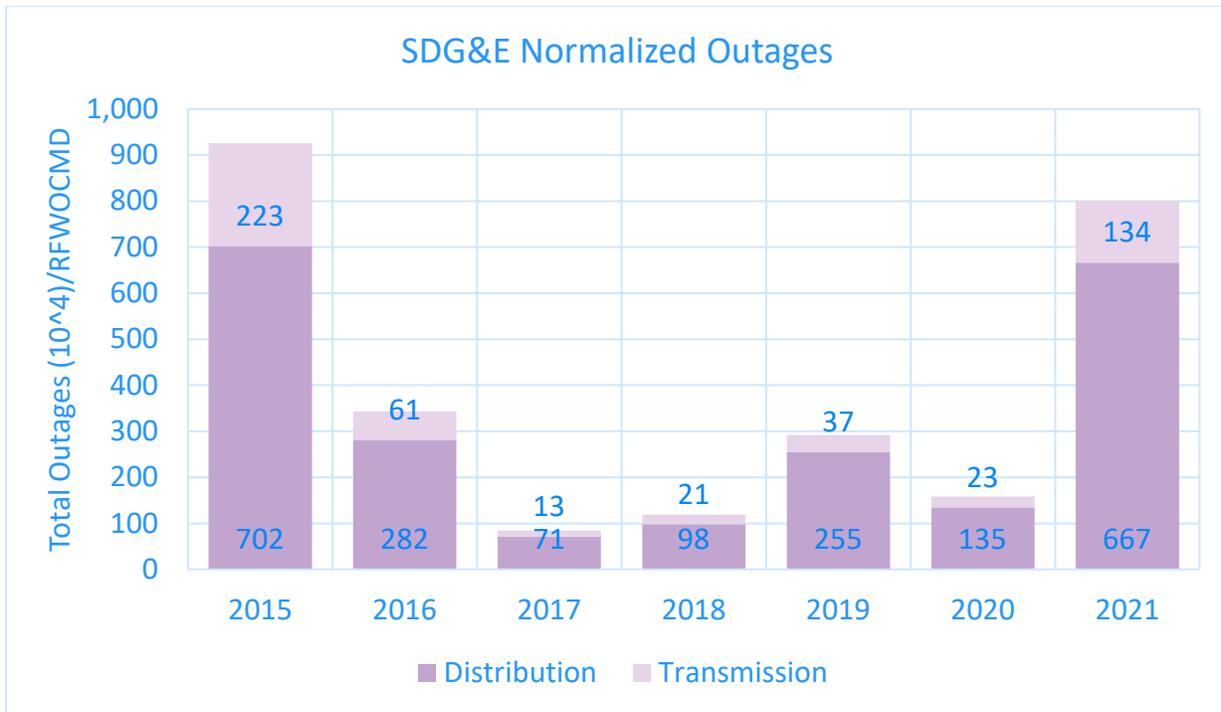


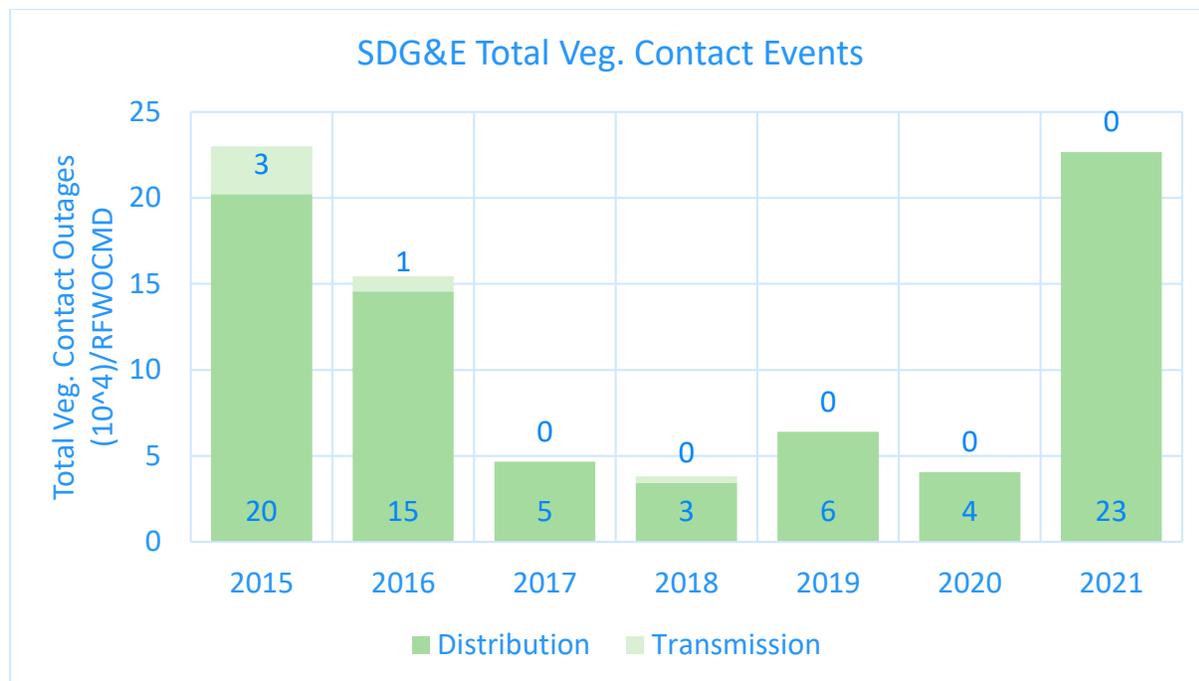
Table 9: SDG&E Count of Outages (2015-2021)<sup>59</sup>

Description	2015	2016	2017	2018	2019	2020	2021	6-Year Avg (2015-2021)
<b>Distribution</b>	938	1,180	1,073	974	1,074	1,031	1,206	1,045
<b>Transmission</b>	80	69	52	55	42	48	65	58
<b>Total</b>	1,018	1,249	1,125	1,029	1,116	1,079	1,271	1,079

<sup>59</sup> San Diego Gas & Electric Company, "Wildfire Safety Division Attachment 2.3 Wildfire Mitigation Plan Quarterly Report - Q4 2021 (Table 7.1)," Feb. 01, 2022. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51997&shareable=true>

Figure 9 below plots SDG&E's distribution and transmission vegetation contact-caused outages normalized for RFWOCMD.

Figure 9: Outages from 2015-2020 Normalized by RFWOCMD



#### 4.1.2.3 PSPS Data Analysis

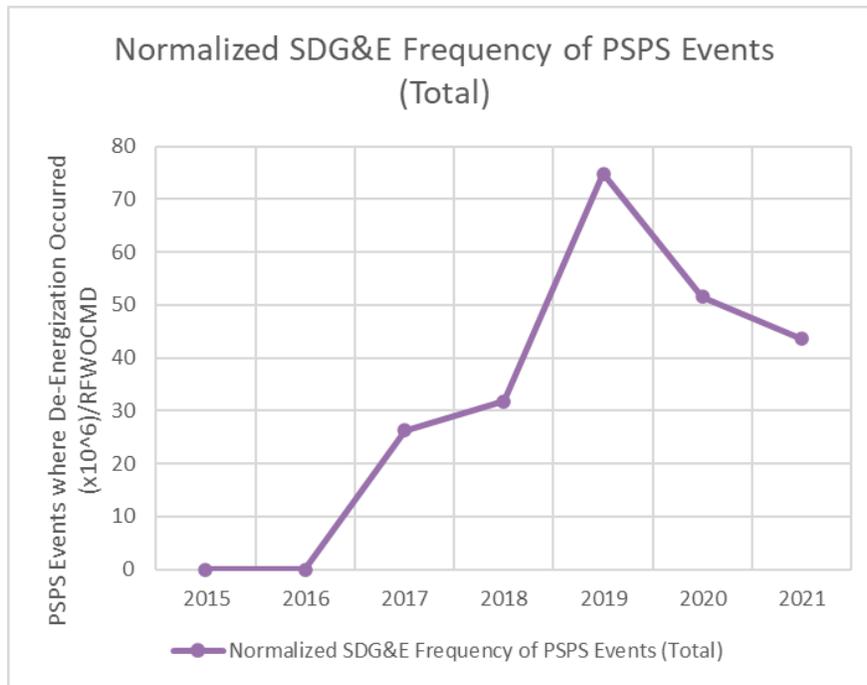
While useful as a wildfire mitigation measure, PSPS carries its own risks to customers. As such, electrical corporations must reduce the duration, scope, and frequency of PSPS events. Apart from SDG&E, for most electrical corporations, broad use of PSPS as a wildfire mitigation measure did not occur until 2018.

SDG&E reported data on its use of PSPS and other PSPS metrics in Table 11 of its QDR. Again, Energy Safety applied the RFWOCMD metric as a normalizing parameter. All the figures below demonstrate a sharp increase in usage and impact of PSPS in 2019, reflective of SDG&E's broader deployment of PSPS in the fall of 2019. In 2020, the frequency and scope of PSPS events declined, however, the duration and critical infrastructure structures impacted continued to increase from 2019 levels. Notably, in 2021, all of the normalized PSPS metrics declined significantly from 2020 as follows:

- Critical infrastructure locations impacted, measured as locations per hour multiplied by hours offline, decreased from 2,359 to 241
- PSPS events duration decreased from 2,631,784 to 147,767 customer hours
- Frequency of PSPS events, where de-energization occurred, decreased from five to one

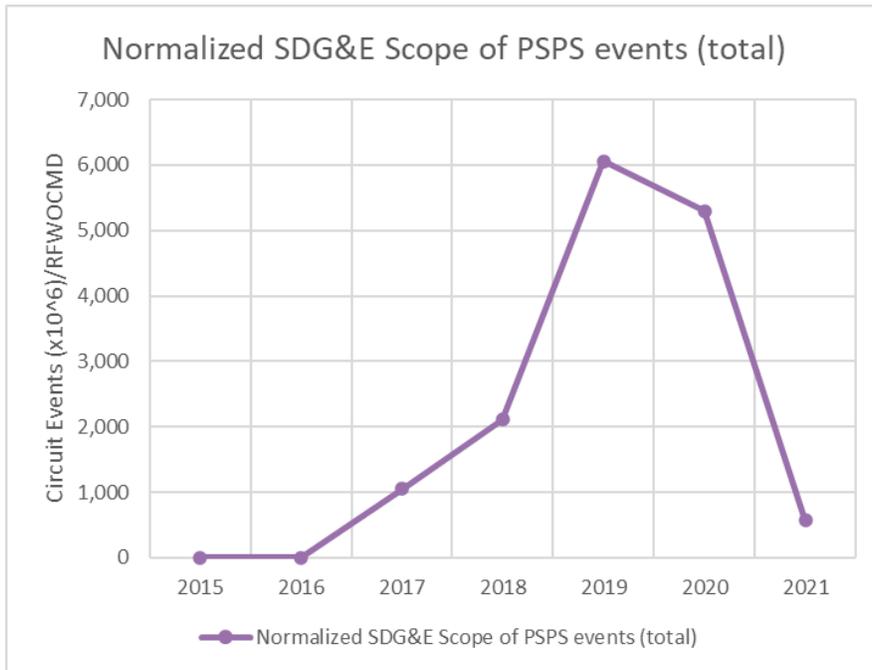
- Scope of PSPS events decreased from 514 to 13 circuit events
- Number of customers impacted by PSPS events decreased from 100,537 to 5,858 customers

Figure 10: Normalized Frequency of PSPS Events (2015-2021)<sup>60</sup>



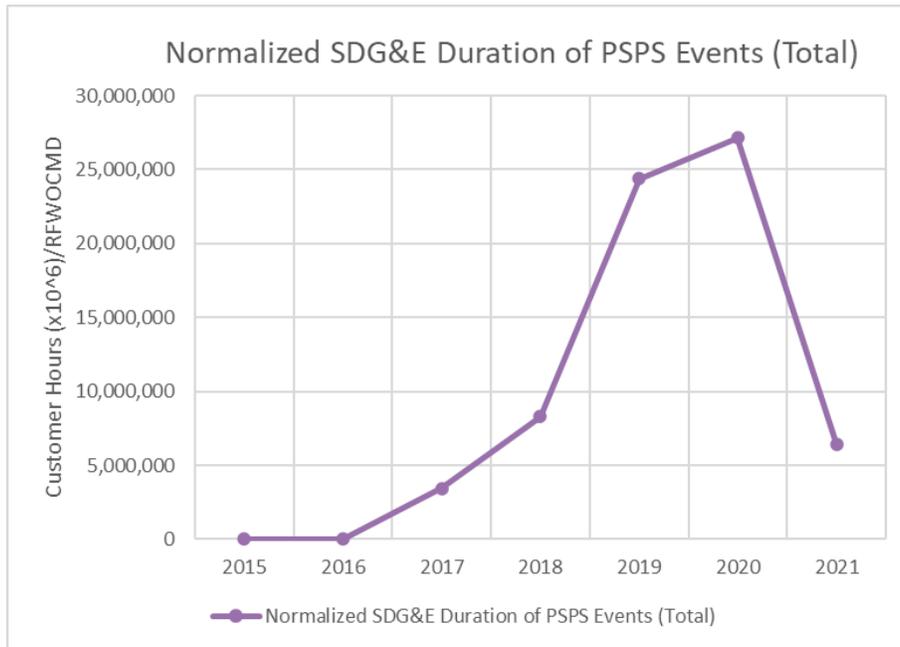
<sup>60</sup> San Diego Gas & Electric Company, "Wildfire Safety Division Attachment 2.3 Wildfire Mitigation Plan Quarterly Report - Q4 2021 (Table 11)," Feb. 01, 2022. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51997&shareable=true>

Figure 11: Normalized Scope of PSPS Events (2015-2021)<sup>61</sup>

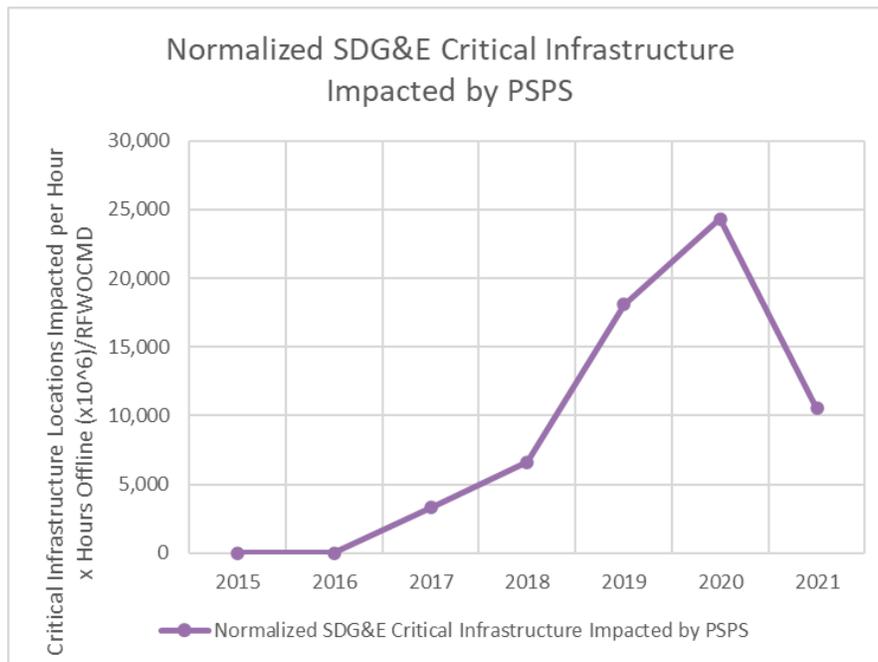


<sup>61</sup> San Diego Gas & Electric Company, "Wildfire Safety Division Attachment 2.3 Wildfire Mitigation Plan Quarterly Report - Q4 2021 (Table 11)," Feb. 01, 2022. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51997&shareable=true>

Figure 12: Normalized Duration of PSPS Events<sup>62</sup>



<sup>62</sup> San Diego Gas & Electric Company, "Wildfire Safety Division Attachment 2.3 Wildfire Mitigation Plan Quarterly Report - Q4 2021 (Table 11)," Feb. 01, 2022. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51997&shareable=true>

Figure 13: Normalized Critical Infrastructure Impacted due to PSPS (2015-2021)<sup>63</sup>

### 4.1.3 Outcome Metrics

Table 2 of the QDR (QDR Table 2) provides data on outcomes from electrical corporation-related wildfires including:

1. Acres burned
2. Structures damaged/destroyed
3. Injuries/fatalities
4. Value of assets destroyed

Table 10 below provides Energy Safety's assessment of SDG&E short and long-term outcome patterns.

<sup>63</sup> San Diego Gas & Electric Company, "Wildfire Safety Division Attachment 2.3 Wildfire Mitigation Plan Quarterly Report - Q4 2021 (Table 11)," Feb. 01, 2022. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51997&shareable=true>

Table 10: SDG&amp;E Outcome Metrics Observations

Description
<i>Short-Term Patterns, 2020 – 2021</i>
<ul style="list-style-type: none"> <li>• Acreage burned by SDG&amp;E-ignited wildfire decreased from 13 in 2020 to 2 in 2021.</li> <li>• Structures damaged or destroyed by SDG&amp;E-ignited wildfires increased from 0 in 2020 to 1 in 2021.<sup>64</sup></li> </ul>
<i>Long-Term Patterns, 2015 – 2021</i>
<ul style="list-style-type: none"> <li>• Following a peak of 212 acres burned in 2015, SDG&amp;E-ignited wildfires burned between 2 and 39 acres between 2016 and 2021.</li> <li>• No fatalities or injuries occurred, due to an SDG&amp;E-ignited wildfire, between 2015 and 2021.</li> <li>• Between 2015 and 2020, SDG&amp;E reported one structure destroyed (in 2018). In 2021, SDG&amp;E reported one critical infrastructure damaged or destroyed by an SDG&amp;E-ignited wildfire.</li> <li>• From 2015 to 2021, the total value of destroyed assets from SDG&amp;E ignited wildfires (in 2018) was \$2,900,000, representing the materials costs to replace a single 45-foot wood pole and transformer.</li> </ul>

<sup>64</sup> SDG&E data indicated 0.4 structures. Energy Safety rounded this number to the nearest whole integer of 1.