Wildfire Safety Division (WSD)
Quality Control (QC) Report on GIS Data
Submitted by San Diego Gas and Electric (SDG&E)
on September 9, 2020
ISSUED BY CALIFORNIA PUBLIC UTILITIES COMMISSION (CPUC)

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TABLES

1. BACKGROUND AND INTRODUCTION

This document summarizes the Wildfire Safety Division's (WSD's) findings on completeness and quality of geographic information systems (GIS) data submitted by San Diego Gas and Electric (SDG&E), as part of its first quarterly report submission due on September 9, 2020. SDG&E's September 9, 2020 submission was its first attempt to adhere to the Draft WSD GIS Data Reporting Requirements issued in August 2020.[1] This review document, along with an Excel document with WSD notes ("SDGE Status Spreadsheet with WSD Notes.xlsx") comprise the full package of quality control (QC) review deliverables that the WSD provides to SDG&E regarding its September 9, 2020 GIS data submission. This review document summarizes key findings, but the Excel document provides additional supporting details of the WSD's QC review. Although this review is being delivered after the submittal of SDG&E's December quarterly data report, this review was substantially completed before that submission, and addresses only the September quarterly data submission. If any issues identified in this report were rectified in the December data submission, that is appreciated, but will not be reflected in this report.

As part of its QC review, the WSD identified successes and problems with submitted data. For example, appropriately submitted data are acknowledged with star icons in tables throughout Section 3. Data problems are covered by icons and comments throughout Section 3 as well as by some commentary in Section 2. For example, Section 2.4 covers related table issues. Among other issues, it identifies the major problem of the absence of the required "Initiative Asset Log" table. This table's absence is not acceptable and diminishes the value of the initiative data that were submitted.

The WSD acknowledges that there was limited time, between the August publication of WSD Data Reporting Requirements and the September due date for the initial quarterly data submissions, to substantively reorganize data in accordance with the new reporting standard. SDG&E's efforts are appreciated, but there is also room for improvement, and this report emphasizes data absences and issues discovered during QC review. Due to the ongoing quarterly reporting nature, the WSD fully expects that future data submissions will continuously improve over prior submissions until high quality, standardized data submissions become routine.

This document summarizes overall data review findings and provides detailed schema compliance assessments that break down data quality and completeness for each individual field in the data tables. Throughout this document, the term "tables" is used to refer to both attribute tables associated with feature classes and related tables that can be joined to feature classes, as needed. The terms "feature class" and "layer" are used synonymously.

In the future, the WSD will addresses utility questions and concerns expressed in the Excel status report document[2] and provide details on planned data requirement changes. The WSD will also provide a revised "WSD GIS Data Preparation & Submittal Guidance.pdf" document. Additional next steps in the WSD's GIS data acquisition efforts will involve sharing revised data requirement and geodatabase (GDB) files with electrical corporations. If an electrical corporation fails to make a good faith effort to fulfill the next GIS data submission, the WSD will factor such

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[1] [1] The Draft WSD GIS Data Reporting Requirements are available at:
ftp://ftp.cpuc.ca.gov/WSD/GISguidance/WSD%20GIS%20Data%20Reporting%20Requirements_DRAFT_2020082
1.pdf
[2] SDG&E's completed version of the "WSD_DataSchema_StatusReport_20200909.xlsx" file, which the WSD provided to SDG&E in August 2020 to track data submission status and progress.

actions into subsequent wildfire mitigation plan (WMP) compliance reviews, and may recommend enforcement actions if such issues persist.

2. OVERALL FINDINGS

2.1 Completeness Summary

Table 1 below summarizes the overall completeness of SDG&E's submitted data. Of the 53 required tables in the Draft WSD GIS Data Reporting Requirements, SDG&E submitted 32 that contained data. SDG&E did not include any photo log data or photos in its submission. Additionally, as shown in Table 1, SDG&E did not include any initiative asset log data. Lack of initiative asset log data prevents the WSD from being able to relate assets to specific WMP initiatives and significantly limits the value of data provided in the "Initiative" data category.

In the "Completeness" column of Table 1, two percentage values are presented. The percentage on the left represents the percent complete strictly based on null values. The percentage on the right represents the percent complete based on null, "-99," and "Unknown" values. Neither percentage calculation accounts for null values in comment fields. Completeness percentages are approximate. Additional detail on the completeness breakdown methodology can be found in Section 3.1. Gray cells represent data that were not included in SDG&E's September 9, 2020 submission. A table providing completeness percentages for all California electrical corporations subject to these requirements is provided in Appendix A. The table presented in Appendix A provides context on how complete SDG&E's submission is relative to other utilities.

Table 1. Completeness of SDG&E 9/9/20 GIS data submission

DATA	COMPLETENESS
Asset Point	
1. Camera	76.5% | 49.7%
2. Connection Device	68.7% | 51.5%
3. Customer Meter	68.7% | 51.5%
4. Fuse	76.7% | 57.5%
5. Lightning Arrester	64% | 40%
6. Substation	74.8% | 60.5%
7. Support Structure	62.5% | 50%
8. Support Structure Crossarm Detail	
9. Switchgear	72% | 59%
10. Transformer	83% | 83%
11. Transformer Detail	77.7% | 57.7%
12. Weather Station	70.6% | 47%
Asset Line	
13. Transmission Line	56.2% | 40.6%
14. Primary Distribution Line	74.8% | 61.5%
15. Secondary Distribution Line	
PSPS Event	
16. PSPS Event Log	
17. PSPS Event Line	
18. PSPS Event Polygon	
19. PSPS Event Customer Meter Point	
20. PSPS Event Damage Point	
21. PSPS Event Conductor Damage Detail	
22. PSPS Event Support Structure Damage Detail	
23. PSPS Event Other Asset Damage Detail	
24. PSPS Damage Photo Log	
Risk Event	
25. Wire Down Event	80% | 80%
26. Ignition	61.1% | 60%
27. Transmission Outage	77.8% | 77.4%

DATA	COMPLETENESS
28. Transmission VM Outage	
29. Distribution Outage	
30. Distribution VM Outage	84.8% | 84.8%
31. Risk Event Asset Log	30.5% | 30.5%
32. Risk Event Photo Log	
Initiative	
33. Vegetation Management Inspection Log	81.2% | 81.2%
34. Vegetation Management Inspection Point	84.9 | 84.9%
35. Vegetation Management Inspection Line	
36. Vegetation Management Inspection Polygon	
37. Vegetation Management Project Log	48.6% | 48.6%
38. Vegetation Management Project Point	89.6% | 89.6%
39. Vegetation Management Project Line	
40. Vegetation Management Project Polygon	
41. Asset Inspection Log	80.4% | 80.4%
42. Asset Inspection Point	83.2% | 83.2%
43. Asset Inspection Line	81.8% | 81.8%
44. Asset Inspection Polygon	
45. Grid Hardening Log	71.2% | 71.2%
46. Grid Hardening Point	86% | 86%
47. Grid Hardening Line	84.4% | 84.4%
48. Initiative Asset Log	
49. Initiative Photo Log	
Other Required Data	
50. Other Power Line Connection Location	82.6% | 71.8%
51. Critical Facility	76.8% | 74%
52. Red Flag Warning Day Polygon	90.9%| 90.9%
53. Administrative Area	100% | 100%
Total number of submitted tables	**32**

2.2 Quality of Entries in Excel Tracking Document

2.2.1 Reporting Accuracy
SDG&E's entries in the "WSD_DataSchema_StatusReport_20200909.xlsx" Excel document provided a sample for data completeness and provided explanations for data absence. The WSD appreciates the considerable effort involved with filling in the tables in this Excel document. However, there were many instances of inaccurate data reporting that the WSD does not want to see repeated in future submissions. This reporting did not adhere to the guidance[3] provided by the WSD on how to complete the spreadsheets. Moreover, this inaccuracy in reporting resulted in delays to complete the QC review and squandered limited WSD staff resources. In the Excel status file with WSD notes ("SDG&E status spreadsheets with WSD Notes"), rows with major reporting concerns are highlighted in yellow. Rows with more minor concerns are highlighted in tan. In the future, the WSD will provide more specific responses to SDG&E's questions and concerns raised in the status spreadsheets, as part of additional guidance that addresses questions or concerns raised by all respondent electrical corporations.

Inaccurate submission status values were a major problem with the spreadsheets, resulting in significant impacts and wasted resources. Of the 32 data tables provided, 24 (75%) had inaccurate status statements in the Excel tracking document. In numerous cases, submission spreadsheets indicated data were either partially or completely provided, but no such GIS data were received. SDG&E also occasionally said "No" when "Yes" was appropriate, which was

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[3] Guidance on how to complete the Excel status spreadsheets can be found in Section 3 of the "WSD GIS Data Preparation & Submittal Guidance_20200821.pdf" document the WSD provided to electrical corporations in August 2020.

odd because these were cases in which SDG&E did not give itself credit for providing data. For the tables below, some data in individual fields were falsely reported as being completely present (i.e. indicated by a "Yes" value under the "Data provided in latest submission?" column) when they were completely missing or only partially present. In many cases, "Partially" should have been entered instead of "Yes."

- Camera
- Connection Device
- Customer Meter
- Fuse
- Lightning Arrestor
- Substation
- Support Structure
- Switchgear
- Transformer
- Transformer Detail
- Weather Station
- Transmission Line
- Primary Distribution Line
- Ignition
- Transmission Outage
- Distribution VM Outage
- Risk Event Asset Log
- Vegetation Management Inspection Point
- Vegetation Management Project Log
- Vegetation Management Project Point
- Asset Inspection Log
- Grid Hardening Log
- Other Power Line Connection
- Critical Facility

2.2.2 Data Absence and Timeframe Explanations

Statements were absent from the "Availability Explanations," "Data procurement actions" and "Estimated delivery timeframe" columns in many cases when they should have been there. Therefore, for many instances in which SDG&E provided partial data, never provided data, or said data were unknown, it never provided an explanation for why, how, or when it might acquire any data or remaining data. However, there were some instances of somewhat informative field-specific explanations entered for the "Availability Explanations" column. Below are examples:

- "Inspection data not directly related to linear features, i.e. OH Structures"
- "Ignitions are not currently given IDs. All ignition information listed is subject to change because our process for inputting and validating the data is built for an annual report."
- "Not currently tracked. Ignitions have associated dates and locations but RFW is not a utility product. We use the district and the FPI."

Instead of field-specific explanations, SDG&E more commonly provided general explanations. Some frequently occurring ones are listed below:
- "Not captured in GIS"
  - This was very common for asset data, and there were several variations of it that essentially said the same thing.
- "Data not collected and/or not currently in the GIS database"
- "Substation attributes would need to be extracted and related to this asset info. Would need to be evaluated for estimate of work"

Details on data procurement actions (i.e. what it would take to acquire and deliver the data) were rarely provided. Moreover, they were sometimes unnecessarily provided for data that were submitted (e.g., "Wire Down Event" feature class). When data for a field are provided, the WSD does not need an explanation for how they can be acquired. In the WSD's submission guidance[4], instructions for the "Data Procurement Actions" column say, "Enter information in this column for unavailable and partially available data. Explain what actions the electrical corporation has taken and plans to take to collect and report currently unavailable or partially available data." Below are some of the data procurement action statements that were provided for unavailable or partially available data:
- "Should know what Substations are associated with Trans, Primary, and secondary conductors. Need estimate on how the information could be derived and estimate of time to develop related information"
- "need to retrieve from Work History record"
- "Investigate potential ways to provide inspection work order linkages to Tree Trim and Pole brush activities."
- "Improve field data collection technology by recording the specific GPS location of each asset."
- "May be queriable from GIS data based on AiID."

Though the procurement statements were sometimes so vague as to be useless (e.g., "GIS Asset data" being a statement in itself), some of the field-specific statements (like those above) were helpful.

The "Estimated Delivery Timeframe" column was left empty most of the time when it should have had values. As stated in the WSD's submission guidance[5], "Enter information in this column for unavailable and partially available data. State when such data can be submitted to the WSD. Explain time delays or other timing issues as needed." Below are most of the instances when SDG&E entered values for this column:
- For the "SubstationID" and "SubstationName" fields of the "Customer Meter" feature class, SDG&E simply said "Would need to be evaluated for estimate of work."
- For various "Wire Down" feature class fields, SDG&E wrote "1 hour" or "3-4 hour" for data they already provided. There's no need for delivery timeframe information when data were already provided.

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[4] Guidance on how to complete the Excel status spreadsheets can be found in Section 3 of the "WSD GIS Data Preparation & Submittal Guidance_20200821.pdf" document the WSD provided to electrical corporations in August 2020.
[5] Guidance on how to complete the Excel status spreadsheets can be found in Section 3 of the "WSD GIS Data Preparation & Submittal Guidance_20200821.pdf" document the WSD provided to electrical corporations in August 2020.

- For various "Ignition" feature class fields for which data were provided, SDG&E said, "Already in place," which is a vague and useless statement. For two ignition fields not provided, SDG&E merely said "Extended." For the "IgnitionID" field, SDG&E said "This can be created with additional direction," which is a statement that would make more sense in the "Data procurement actions" column.
- For several "Risk Event Asset Log" fields, SDG&E wrote "1 year."
- Though still largely missing, SDG&E provided some substantive timeframe information for various initiative table fields with statements that include "Quarter 1, 2021," "2022-23," and "Likely in next quarterly report."

Absent and overly vague availability, data procurement, and timeframe entries are unacceptable. More complete, field-specific, and detailed availability and delivery information is expected in the next data submission. SDG&E must strive to provide meaningful updates via its Excel status tracker submissions.

2.2.3 Confidentiality Assessments

As directed in the WSD submittal guidance, throughout the data status spreadsheets, SDG&E indicated when data were confidential or not. Data that were submitted and not submitted had confidentiality status listed. Per directions from the WSD, confidentiality was identified at the field level and included various "Yes," "No," and "Partially" values.

SDG&E classified nearly all of its asset data and future PSPS data as not being confidential with the exception of any data tied to transmission lines with voltages of 230kV or above. Most risk event data were not confidential, except for two exceptions: data associated with lines that have voltages of 230kV or above, and all "Wire Down" feature class data fields, which have the following confidentiality status statement: "Partially, confidential if an open claim has been received." The only initiative and "Other Power Line Connection" data classified as confidential were the tables and fields involving transmission lines with voltages of 230kV or above. SDG&E was the only corporation that specifically categorized assets with a voltage of 230kV or greater as confidential. All critical facility fields were also classified as confidential while red flag warning day and administrative area polygons were not.

In accordance with General Order 66-D, Section 3.2, a confidentiality declaration document ("Confidentiality Declaration for SDGE 2020 WMP Quarterly Report Q3.pdf") was provided. The confidentiality declaration document was signed by John D. Jenkins (Vice President – Electric System Operations, SDG&E). The confidentiality declaration document does not specifically call out GIS data layers. However, it refers to the following as "Protected Information":
- Critical customers/facilities names and addresses
- Substation infrastructure 230kV and greater
- Transmission infrastructure 230kV and greater

This is consistent with the data classified as confidential in the Excel data status tables. The document also provides citations to justify customer privacy and lists the following regulations to justify the confidential status of data associated with transmission lines with voltages of 230kV or greater:
- Homeland Security's regulations related to Protected Critical Infrastructure Information ("PCII") Program (6 C.F.R. Part 29) and Sensitive Security Information (49 C.F.R. Part 1520)

- Federal Energy Regulatory Commission ("FERC") Order No. 630 – Critical Energy Infrastructure Information ("CEII") regulations

Regarding the confidential transmission line data, the document goes on to say:

"The confidential GIS data contains Protected Information that provides Transmission Substation and Transmission Line connectivity, construction details, and operating limitations that are considered by SDG&E and the North American Electric Reliability Corporation ("NERC") to be sensitive information and requires protection from disclosure to non-operations personnel and the public. The document has been assigned and published by SDG&E at a security level of INTERNAL and treated as CONFIDENTIAL under NERC's Rules of Procedure, Section 1500 et seq."

2.3 Overall Schema and Requirement Adherence
Overall, for the data that were provided, SDG&E generally adhered to the Draft WSD Data Reporting Requirements.[6] Submitted data were provided in the geodatabase, feature classes, and tables provided by the WSD, which ensured formatting was often correct. However, there were still some issues with SDG&E's submission. Below are some areas where PG&E did not adhere to the WSD's requirements that repeatedly appeared in the data:
- Values were sometimes all capitalized or had inconsistent capitalization when they were required to all have sentence style capitalization.
- Domain values provided by the WSD were not always used.

2.4 Related Table Issues
A major related table problem is the absence of the required "Initiative Asset Log" table. This table enables initiative data to be linked to specific assets that are the focus of initiatives or in the proximity of initiatives, thereby enabling one to identify the specific location and attributes of an asset involved with an initiative. Without "Initiative Asset Log" data, the value of all initiative data provided is significantly diminished and is unacceptable. The missing "Initiative Asset Log" data is a significant failing of SDG&E's submission, as this data is of critical importance. The "Initiative Asset Log" table must be provided in future submissions.

Aside from the related table issue indicated above, SDG&E generally did a good job filling in the related tables that were provided. For the related tables submitted, relationships made sense and fit requirements and expectations for the following data categories:
- Vegetation Management Inspection
- Vegetation Management Project
- Grid Hardening

However, there was an apparent SDG&E misunderstanding regarding the WSD's expectations for the "Asset Inspection Log" related table. A one-to-many relationship was expected and implied by entity-relationship diagrams (ERDs). However, the "Asset Inspection Log" table has 43,709 rows, and the point and line feature classes to which it relates have fewer rows individually and cumulatively. There are 42,678 "Asset Inspection Line" rows, 21 "Asset Inspection Point" rows, and a total 42,699 rows when the line and point rows are added together. This indicates many-to-one and one-to-one relationships and was not what the WSD intended in the data requirements.

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[6] These requirements are described in detail in a document titled "WSD GIS Data Reporting Requirements_DRAFT_20200821.pdf" which WSD provided to electrical corporations in August 2020.

2.5 Submission Procedure Adherence

The major way in which SDG&E did not adhere to the data reporting and submission guidance[7] provided by the WSD was by submitting empty tables back to the WSD. Every table the WSD provided to SDG&E appeared to be submitted back to the WSD, whether or not it contained data. This necessitated checking various tables to ensure they were empty, which was what the WSD specifically tried to avoid by providing the following statement in Section 4 of the submission guidance document: "If a feature class or table is completely empty, delete such empty feature classes and tables prior to submission to the WSD. Only submit feature classes and tables that have data."

2.6 Metadata

Metadata requirements are described in detail in the data preparation and submittal guidance document provided by the WSD.[8] When the WSD provided electrical corporations with customized geodatabase file templates, the WSD included prepopulated metadata. However, information covering the following items was required to be added to the metadata by each electrical corporation: data availability, data development methodology, timeframes, communication protocols, credits, use limitations, and definitions for certain fields. SDG&E made no metadata additions covering these items.

Field definitions are among the higher priority metadata that were absent. Per page 6 of the submittal guidance[9], electrical corporations are required to provide "definitions for electrical corporation-generated field values for fields that do not have predetermined values assigned as attribute domains in the provided GDB (e.g., the 'SwitchgearType' field in the 'Switchgear' feature class)." In ArcGIS Pro, field definitions can be added under "Entity and Attribute Information" in the "Fields" section.

Defining field values is important both when there are no preset domains and when preset domains are not followed. For example, the values entered for the "SwitchgearType" field of the "Switchgear" feature class included a variety of apparent abbreviations without clear meanings (e.g., "IRPS," "MVS 3PH 200-200A," "RXE," etc.). With no definitions for what these values mean, they provide no useful information.

Another portion of high priority absent metadata concerns the methodology for how data were pulled from original sources and cross-walked into the schema provided by the WSD. Page 7 of the data submittal guidance[10] states: "Describe the methodology for how the data were developed. This includes, at a minimum, identifying the sources (by filename) from which the data were derived and an explanation of how data were pulled from those sources. Also, describe any data field collection techniques." Knowing this information can help the WSD better understand the effort and practicality (or impracticality) involved with specific data requests.

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[7] Described in section 4.2 of the "WSD GIS Data Preparation & Submittal Guidance_20200821.pdf" document the WSD provided to electrical corporations in August 2020.

[8] "WSD GIS Data Preparation & Submittal Guidance_20200821.pdf" document the WSD provided to electrical corporations in August 2020.

[9] "WSD GIS Data Preparation & Submittal Guidance_20200821.pdf" document the WSD provided to electrical corporations in August 2020.

[10] "WSD GIS Data Preparation & Submittal Guidance_20200821.pdf" document the WSD provided to electrical corporations in August 2020.

2.7 Data Absent in 9/9/20 Submission but Present in Previous Submissions

Some requested data that were not included in SDG&E's September 9, 2020 GIS data submission had been previously submitted to the WSD as part of 2020 WMP data requests made in the winter and spring. Table 2 below summarizes these instances and only covers entirely absent tables. All entries of "Yes" in the "Previously Received in Some Form" column of Table 2 indicate some form or portion of the data (i.e., geometry or values for one or more fields) were previously submitted. Gray values indicate data from a table was not previously received.[11]

The scope of applicable previously submitted data that was not included in SDG&E's September 9, 2020 submission ranges from a few fields to entire layers with key geometry (e.g., PSPS event data). Because much of the data exists, the WSD expects to receive previously provided data identified below in future submissions.

Table 2. Summary of missing data with identification of previously received data that is absent in 9/9/20 submissions

ABSENT DATA	PREVIOUSLY RECEIVED IN SOME FORM?
Asset Point	
1. Support Structure Crossarm Detail	
Asset Line	
2. Secondary Distribution Line	
PSPS Event	
3. PSPS Event Log	Yes
4. PSPS Event Line	
5. PSPS Event Polygon	Yes
6. PSPS Event Customer Meter Point	
7. PSPS Event Damage Point	
8. PSPS Event Conductor Damage Detail	
9. PSPS Event Support Structure Damage Detail	
10. PSPS Event Other Asset Damage Detail	
11. PSPS Damage Photo Log	
Risk Event	
12. Transmission VM Outage	Yes[12]
13. Distribution Outage	Yes
14. Risk Event Photo Log	Yes
Initiative	
15. Vegetation Management Inspection Line	
16. Vegetation Management Inspection Polygon	
17. Vegetation Management Project Line	
18. Vegetation Management Project Polygon	
19. Asset Inspection Polygon	
20. Initiative Asset Log	
21. Initiative Photo Log	
Total absent data tables for which some data items were previously received	5

2.8 Photos

SDG&E did not submit any photo log data or photos, but photos are a requirement and expected in future submissions. Per previous submissions, the WSD knows SDG&E has photos showing things like asset damage, vegetation/line contact, and wire down events. Photo submission requirements are described in guidance the WSD provided in August 2020.[13]

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[11] The WSD is grateful that SDG&E submitted a tremendous amount of data in early 2020. However, because of the large amount of data, review for the presence of some previously submitted data was somewhat cursory. As such, a few previously submitted fields matching the latest requests may have been missed.

[12] Data were submitted for sub-transmission faults related to tree contact.

[13] "Section 5 of " provided to electrical corporations in August 2020." provided to electrical corporations in August 2020.

3. DETAILED SCHEMA COMPLIANCE ASSESSMENT

3.1 Overview and Section Organization

This section provides detailed summaries of how data submissions complied with data reporting requirements. It is broken down into subsections organized by dataset categories (e.g., "Asset Point," "PSPS Event," etc.). Each subsection has the same organization, which starts with a checklist table of all required category data. The presence or absence of an **x** in the checklist indicates submitted data or missing data.

Completeness percentages are also featured to the right of checklist entries. Completeness percentages are approximate. In determining them, nulls in comment fields were not counted toward percent incomplete because comment fields are often supposed to have null values, unless a corresponding field value is "Other – See comment" or there is another reason to provide a comment. Completeness percentages show the following:

- Left value: % complete based strictly on nulls without counting nulls in comment fields
  - This value represents what utilities filled in. However, it includes "-99" and "Unknown" values as if they are components of complete data.
- Right value: % complete based on nulls, "-99," and "Unknown" without counting nulls in comment fields
  - This value reflects a truer picture of data completeness. "-99" and "Unknown" both indicate immediate data absence but do not provide the data being sought. These values can indicate data are unknowable or that data were not immediately known to staff filling in the feature classes and tables but could become known with more extraction from existing data and/or new data collection efforts in the future.

Individual summaries of review findings for each feature class and table submitted follow the data category checklists. These start with a description of data table size and completeness. This description is followed by a data quality table that features review outcome icons for all fields and color coding for some fields. It includes the following icons to give the report reader a quick sense of data quality.

Table 3. Review outcome icon definitions

Symbol	Definition
★	Correct values have been input where applicable, and capitalization is correct. Great job![14]
●	A field is slightly incomplete with 95% or more of the records containing data. Good job! Still not 100% complete, though.
◖	A field is partially incomplete with 50% to 95% of the records containing data. Good job, but there is potential for improvement.
◗	A field is mostly incomplete with 50% or fewer of the records containing data. The effort is appreciated, but improvements could be made.
❗	A field has incorrect values, incorrect capitalization, and/or or some other problem. Including data in the field is a step in the right direction, but there's room for improvement.[15]
🚫	Every value is null, "Unknown," and/or "-99." The strategy for completing this field needs improvement and possibly further discussion with the WSD.

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[14] This icon may also be applied to empty comment fields for which no values are needed.

[15] This icon may be used in conjunction with one of the other icons to express that a field is incomplete and has another problem.

Colors in the table below are used to indicate the priority of data issue resolution.

Table 4. Review outcome issue resolution priority colors

Color	Priority
Red	HIGH
Orange	MEDIUM
Yellow	LOW

Comments on data issues and listings of fields with no data are included below each icon/priority table summary. When no data were submitted for a feature class or table, the statement "No data" is used.

3.1 Asset Point (Feature Dataset)

3.1.1 Data Category Summary

Of the 12 "Asset Point" data layers/tables required, 10 were submitted and have an **x** in the checklist below.

Table 5. Asset Point data category completeness summary

#	Status	Name	Completeness	
1	x	SDGE_Camera_20200909	76.5%	49.7%
2	x	SDGE_ConnectionDevice_20200909	68.7%	51.5%
3	x	SDGE_CustomerMeter_20200909	76.5%	58.8%
4	x	SDGE_Fuse_20200909	76.7%	57.5%
5	x	SDGE_LightingArrestor_20200909	64%	40%
6	x	SDGE_Substation_20200909	74.8%	60.5%
7	x	SDGE_SupportStructure_20200909	62.5%	50%
8		SDGE_SupportStructureCrossarmDetail_20200909		
9	x	SDGE_Switchgear_20200909	72%	59%
10	x	SDGE_Transformer_20200909	83%	83%
11	x	SDGE_TransformerDetail_20200909	77.7%	57.7%
12	x	SDGE_WeatherStation_20200909	70.6%	47%

3.1.2 Camera (Feature Class)

The attribute table of this feature class includes 17 fields with 61 rows. Based on the number of null values, this table is 77% complete, but with "-99" and "Unknown" values treated as absent data, this table is only 50% complete

Table 6. Camera data priorities and review outcomes

Field Name	Review Outcome
AssetID	★
UtilityID	★
AssetType	★
MakeandManufacturer	🚫
ModelNumber	🚫
HFTDClass	★

Field Name	Review Outcome
County	❗
LastInspectionDate	🚫
LastMaintenanceDate	🚫
InstallationDate	🚫
InstallationYear	🚫
UsefulLifespan	🚫
CameraHeight	🚫
CameraURL	⬤
AssetLatitude	⭐
AssetLongitude	⭐

Empty value fields
- LastInspectionDate
- LastMaintenanceDate
- InstallationDate
- CameraHeight

Field comments
- **MakeandManufacturer**: 61 rows (100%) of the field are *Unknown*.
- **ModelNumber**: 61 rows (100%) of the field are *Unknown*.
- **County**: All the values of the field are in upper case.
- **InstallationYear**: There is no value for this field but *-99*.
- **UsefulLifespan**: There is no value for this field but *-99*.
- **CameraURL**: 34 rows (55.7%) of the field have white space as value.

3.1.3 Connection Device (Feature Class)

The attribute table of this feature class includes 29 fields with 146,330 rows. Based on the number of null values, this table is 69% complete, but with "-99" and "Unknown" values treated as absent data, this table is only 52% complete.

Table 7. Connection Device data priorities and review outcomes

Field Name	Review Outcome
AssetID	⭐
UtilityID	⭐
AssetType	⭐
AssetOHUG	⬤
ConnectionDeviceType	🚫
ConnectionDeviceTypeComment	🚫

Field Name	Review Outcome
ConnectionDeviceSubtype	🚫
ConnectionDeviceSubtypeComment	🚫
AssociatedNominalVoltagekV	●
AssociatedOperatingVoltagekV	●
FromStructureID	🚫
ToStructureID	🚫
CircuitID	●
CircuitName	●
SubstationID	🚫
SubstationName	🚫
MakeandManufacturer	🚫
ModelNumber	🚫
HFTDClass	★
County	❗
LastInspectionDate	🚫
InstallationDate	🚫
InstallationYear	🚫
EstimatedAge	🚫
UsefulLifespan	🚫
ExemptionStatus	🚫
AssetLatitude	★
AssetLongitude	★

Empty value fields
- ConnectionDeviceType
- ConnectionDeviceTypeComment
- ConnectionDeviceSubtype
- ConnectionDeviceSubtypeComment
- FromStructureID
- ToStructureID
- SubstationID

- SubstationName
- LastInspectionDate
- InstallationDate
- EstimatedAge

Field comments
- **AssetOHUG**: 2 rows of the field are *NULL*.
- **AssociatedNominalVoltagekV**: 10 rows of the field are *NULL*.
- **AssociatedOperatingVoltagekV**: 139 rows (0.1%) of the field have value *-99*.
- **CircuitID**: 4,813 rows (3.3%) of the field are *NULL*.
- **CircuitName**: 4,813 rows (3.3%) of the field are *NULL*.
- **MakeandManufacturer**: All rows (100%) of the field have value *Unknown*.
- **ModelNumber**: All rows (100%) of the field have value *Unknown*.
- **County**: All the values of the field are in upper case.
- **InstallationYear:** All values are *-99*.
- **UsefulLifespan:** All values are *-99*.
- **ExemptionStatus:** All values are *Unknown*.

3.1.4 Customer Meter (Feature Class)

The attribute table of this feature class includes 17 fields with 554 rows. Based on the number of null values, this table is 77% complete, but with "-99" and "Unknown" values treated as absent data, this table is only 59% complete.

Table 8. Customer Meter data priorities and review outcomes

Field Name	Review Outcome
MeterID	★
UtilityID	★
AssetType	★
CircuitID	★
CircuitName	★
SubstationID	⊘
SubstationName	⊘
MakeandManufacturer	⊘
ModelNumber	⊘
HFTDClass	★
County	❗
InstallationDate	⊘
InstallationYear	⊘
EstimatedAge	⊘
AssetLatitude	★

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Field Name	Review Outcome
AssetLongitude	★

Empty value fields
- SubstationID
- SubstationName
- InstallationDate
- EstimatedAge

Field comments
- **MakeandManufacturer**: All rows (100%) of the field has value *Unknown*.
- **ModelNumber**: All rows (100%) of the field has value *Unknown*.
- **County**: All the values of the field are in upper case.
- **InstallationYear**: All rows (100%) of the field has value *-99*.

3.1.5 Fuse (Feature Class)

The attribute table of this feature class includes 27 fields with 31,658 rows. Based on the number of null values, this table is 77% complete, but with "-99" and "Unknown" values treated as absent data, this table is only 58% complete.

Table 9. Fuse data priorities and review outcomes

Field Name	Review Outcome
AssetID	★
UtilityID	★
AssetOHUG	★
AssociatedNominalVoltagekV	★
AssociatedOperatingVoltagekV	●
SubstationID	⊘
SubstationName	⊘
CircuitID	★
CircuitName	★
MakeandManufacturer	⊘
ModelNumber	⊘
HFTDClass	★
County	❗
LastInspectionDate	⊘
LastMaintenanceDate	⊘
InstallationDate	⊘

Field Name	Review Outcome
InstallationYear	🚫
EstimatedAge	🚫
UsefulLifespan	🚫
ExemptionStatus	🚫
FuseRating	●
AssetType	◗
AssetTypeComment	🚫
AssetSubtype	◗
AssetLatitude	⭐
AssetLongitude	⭐

Empty value fields
- SubstationID
- SubstationName
- LastInspectionDate
- LastMaintenanceDate
- InstallationDate
- EstimatedAge
- AssetTypeComment

Field comments
- **AssociatedOperatingVoltagekV**: 9 rows of the field are *NULL*.
- **MakeandManufacturer**: All rows (100%) of the field have value *Unknown*.
- **ModelNumber**: All rows (100%) of the field have value *Unknown*.
- **County**: All the values of the field are in upper case.
- **InstallationYear**: All rows (100%) of the field have value *-99*.
- **UsefulLifespan**: All rows (100%) of the field have value *-99*.
- **ExemptionStatus**: All rows (100%) of the field have value *Unknown*.
- **FuseRating**: 474 rows (1.5%) of the field are *NULL*.
- **AssetType**: 5,327 rows (16.8%) of the field have value *Unknown*.
- **AssetSubtype:** 9,024 rows (29%) of the field are *NULL*.

3.1.6 Lightning Arrester (Feature Class)

The attribute table of this feature class includes 25 fields with 20,101 rows. Based on the number of null values, this table is 64% complete, but with "-99" and "Unknown" values treated as absent data, this table is only 40% complete.

Table 10. Lightning Arrester data priorities and review outcomes

Field Name	Review Outcome
AssetID	⭐
UtilityID	⭐
AssetType	⭐

Field Name	Review Outcome
AssociatedNominalVoltagekV	●
AssociatedOperatingVoltagekV	⊘
SupportStructureID	★
SubstationID	⊘
SubstationName	⊘
CircuitID	⊘
CircuitName	⊘
MakeandManufacturer	⊘
ModelNumber	⊘
HFTDClass	★
County	★
LastInspectionDate	⊘
LastMaintenanceDate	⊘
InstallationDate	⊘
InstallationYear	⊘
EstimatedAge	⊘
UsefulLifespan	⊘
ExemptionStatus	⊘
ArrestorRating	⊘
AssetLatitude	★
AssetLongitude	★

Empty value fields
- SubstationID
- SubstationName
- CircuitID
- CircuitName
- LastInspectionDate
- LastMaintenanceDate
- InstallationDate
- EstimatedAge
- ArresterRating

Field comments
- **AssociatedNominalVoltagekV**: 194 rows of the field have value *-99*.
- **AssociatedOperatingVoltagekV**: All rows (100%) of the field have value *-99*.
- **MakeandManufacturer**: All rows (100%) of the field have value *Unknown*.
- **ModelNumber:** All rows (100%) of the field have value *Unknown*.
- **InstallationYear**: All rows (100%) of the field have value *-99*.
- **UsefulLifespan**: All rows (100%) of the field have value *-99*.
- **ExemptionStatus**: All rows (100%) of the field have value *Unknown*.

3.1.7 Substation (Feature Class)

The attribute table of this feature class includes 16 fields with 371 rows. Based on the number of null values, this table is 75% complete, but with "-99" and "Unknown" values treated as absent data, this table is only 61% complete.

Table 11. Substation data priorities and review outcomes

Field Name	Review Outcome
SubstationID	★
UtilityID	★
AssetType	★
SubstationName	★
SubstationNominalVoltagekV	◗
AssociatedOperatingVoltagekV	🚫
SubstationRating	🚫
SubstationType	🚫
HFTDClass	★
County	❗
LastInspectionDate	🚫
InstallationDate	🚫
InstallationYear	🚫
AssetLatitude	★
AssetLongitude	★

Empty value fields
- SubstationRating
- SubstationType
- LastInspectionDate
- InstallationDate

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Field comments
- **SubstationNominalVoltagekV**: 103 rows (27.7%) of the field are *NULL*.
- **AssociatedOperatingVoltagekV**: All rows (100%) of the field have value *-99*.
- **County**: All the values of the field are in upper case.
- **InstallationYear**: All rows (100%) of the field have value *-99*.

3.1.8 Support Structure (Feature Class)

The attribute table of this feature class includes 24 fields with 231,597 rows. Based on the number of null values, this table is 63% complete, but with "-99" and "Unknown" values treated as absent data, this table is only 50% complete.

Table 12. Support Structure data priorities and review outcomes

Field Name	Review Outcome
SupportStructureID	★
UtilityID	★
AssetType	★
SubstationID	🚫
HFTDClass	★
County	❗
LastInspectionDate	🚫
LastMaintenanceDate	🚫
LastIntrusiveDate	🚫
InstallationDate	🚫
InstallationYear	🚫
EstimatedAge	🚫
UsefulLifespan	🚫
SupportStructureType	★
SupportStructureTypeComment	★
SupportStructureMaterial	★
SupportStructureMaterialComment	❗
SupportStructureMaterialSubtype	🚫
Underbuild	🚫
ConstructionGrade	🚫

Field Name	Review Outcome
CrossarmAttached	🚫
AssetLatitude	★
AssetLongitude	★

Empty value fields
- SubstationID
- LastInspectionDate
- LastMaintenanceDate
- LastIntrusiveDate
- InstallationDate
- EstimatedAge
- Underbuild
- SupportStructureMaterialSubtype
- ConstructionGrade

Field comments
- **County**: All the values of the field are in upper case.
- **InstallationYear**: All rows (100%) of the field have value *-99*.
- **UsefulLifespan**: All rows (100%) of the field have value *-99*.
- **CrossarmAttached**: All rows (100%) of the field have value *Unknown**.
- **SupportStructureMaterialComment**: Most values are upper case.

3.1.9 Support Structure Crossarm Detail (Related Table)
No data.

3.1.10 Switchgear (Feature Class)
The attribute table of this feature class includes 31 fields with 13,742 rows. Based on the number of null values, this table is 72% complete, but with "-99" and "Unknown" values treated as absent data, this table is only 59% complete.

Table 13. Switchgear data priorities and review outcomes

Field Name	Review Outcome
AssetID	❗
UtilityID	★
AssetType	★
AssetOHUG	⬤
AssociatedNominalVoltagekV	★
AssociatedOperatingVoltagekV	⬤
SupportStructureID	★
SubstationID	🚫
SubstationName	🚫

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Field Name	Review Outcome
CircuitID	★
CircuitName	★
MakeandManufacturer	◗
ModelNumber	⦸
HFTDClass	★
County	❗
LastInspectionDate	⦸
LastMaintenanceDate	⦸
InstallationDate	⦸
InstallationYear	⦸
EstimatedAge	⦸
UsefulLifespan	⦸
ExemptionStatus	⦸
CurrentRating	◖
AssetClass	★
SCADAEnabled	●
SwitchgearType	●
SwitchgearSubtype	⦸
SwitchgearInsulatingMedium	⦸
AssetLatitude	★
AssetLongitude	★

Empty value fields
- SubstationID
- SubstationName
- LastInspectionDate
- LastMaintenanceDate
- InstallationDate
- EstimatedAge
- SwitchgearSubtype
- SwitchgearInsulatingMedium

Field comments
- **AssetID**: There are duplicate values for this field.
- **AssetOHUG**: 60 rows (0.4%) of the field have value *Unknown*.
- **AssociatedOperatingVoltagekV**: 54 rows (0.4%) of the field have values *-99*.
- **SubstationID**: All rows (100%) of the field are *NULL*.
- **MakeandManufacturer**: 7,252 rows (52.8%) of the field are *NULL*.
- **ModelNumber**: All rows (100%) of the field have values *Unknown*.
- **County**: All the values of the field are in upper case.
- **InstallationYear**: All rows (100%) have value *-99*.
- **UsefulLifespan**: All rows (100%) have value *-99*.
- **ExemptionStatus**: All rows (100%) have value *Unknown*.
- **CurrentRating**: 1,685 rows (12.3%) of the field are *NULL*.
- **SCADAEnabled**: 49 rows (0.3%) of the field are *NULL*.
- **SwitchgearType**: 60 rows (2.7%) of the field are *NULL*. Some values of the field are in upper case.

3.1.11 Transformer (Feature Class)

The attribute table of this feature class includes 12 fields with 169,170 rows. Based on the number of null values, this table is 83% complete. There are no "-99" or "Unknown" values.

Table 14. Transformer data priorities and review outcomes

Field Name	Review Outcome
TransformerID	⭐
UtilityID	⭐
SupportStructureID	⭐
AssetType	⭐
AssetOHUG	⭐
HFTDClass	⭐
County	❗
InaBank	🚫
QuantityinBank	🚫
AssetLatitude	⭐
AssetLongitude	⭐

Empty value fields
- InaBank
- QuantityinBank

Field comments
- **County**: All the values of the field are in upper case.

3.1.12 Transformer Detail (Related Table)

The attribute table of this feature class includes 20 fields with 182,052 rows. Based on the number of null values, this table is 78% complete, but with "-99" and "Unknown" values treated as absent data, this table is only 58% complete.

Table 15. Transformer Detail data priorities and review outcomes

Field Name	Review Outcome
AssetID	(❗)
TransformerID	(★)
TransformerSubtype	(★)
AssociatedNominalVoltagekV	(★)
AssociatedOperatingVoltagekV	(●)
SubstationID	(★)
SubstationName	(❗)
CircuitID	(★)
CircuitName	(★)
MakeandManufacturer	(●)
ModelNumber	(🚫)
LastInspectionDate	(🚫)
LastMaintenanceDate	(🚫)
InstallationDate	(🚫)
InstallationYear	(🚫)
EstimatedAge	(🚫)
UsefulLifespan	(🚫)
ExemptionStatus	(🚫)
TransformerRating	(●)

Empty value fields
- LastInspectionDate
- LastMaintenanceDate
- InstallationDate
- EstimatedAge

Field comments
- **AssetID**: There are duplicate values for this field.
- **AssociatedOperatingVoltagekV**: 1 row of the field is *NULL*.
- **SubstationName**: All the values of the field are in upper case.
- **MakeandManufacturer**: 362 rows (0.2%) of the field have white space as value.
- **ModelNumber:** All values are *Unknown*.
- **InstallationYear**: All rows (100%) of the field have value *-99*.
- **UsefulLifespan**: All rows (100%) of the field have value *-99*.
- **ExemptionStatus**: All rows (100%) of the field have value *Unknown*.

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- **TransformerRating**: 1 row of the field is *NULL*.

3.1.13 Weather Station (Feature Class)

The attribute table of this feature class includes 17 fields with 188 rows. Based on the number of null values, this table is 71% complete, but with "-99" and "Unknown" values treated as absent data, this table is only 47% complete.

Table 16. Weather Station priorities and review outcomes

Field Name	Review Outcome
StationID	⭐
UtilityID	⭐
AssetType	⭐
MakeandManufacturer	🚫
ModelNumber	🚫
HFTDClass	⭐
County	❗
LastInspectionDate	🚫
LastMaintenanceDate	🚫
InstallationDate	🚫
InstallationYear	🚫
EstimatedAge	🚫
UsefulLifespan	🚫
WeatherStationURL	🚫
AssetLatitude	⭐
AssetLongitude	⭐

Empty value fields
- LastInspectionDate
- LastMaintenanceDate
- InstallationDate
- EstimatedAge
- WeatherStationURL

Field comments
- **MakeandManufacturer**: All rows (100%) of the field have value *Unknown*.
- **ModelNumber:** All rows are *Unknown*.
- **County**: All the values of the field are in upper case.
- **InstallationYear**: All rows (100%) of the field have value *-99*.
- **UsefulLifespan**: All rows (100%) of the field have value *-99*.
- **WeatherStationURL:** All rows are *NULL*.

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3.2 Asset Line (Feature Dataset)

3.2.1 Data Category Summary

Table 17. Asset Line data category completeness summary

#	Status	Name	Completeness	
1	x	SDGE_TransmissionLine_20200909	56.2%	40.6%
2	x	SDGE_PrimaryDistributionLine_20200909	74.8%	61.5%
3		SDGE_SecondaryDistributionLine_20200909		

3.2.2 Transmission Line (Feature Class)

The attribute table of this feature class includes 32 fields with 18,426 rows. Based on the number of null values, this table is 56% complete, but with "-99" and "Unknown" values treated as absent data, this table is only 41% complete.

Table 18. Transmission Line data priorities and review outcomes

Field Name	Review Outcome
CircuitID	❗
UtilityID	⭐
LineClass	⭐
CircuitName	⭐
County	⬤ ❗
ConductorType	⭐
AssetOHUG	⭐
NominalVoltagekV	⬤
OperatingVoltagekV	🚫
SubstationID	🚫
SubstationName	🚫
ConductorMaterial	⭐
ConductorMaterialComment	❗
ConductorSize	❗
ConductorOD	🚫
ConductorCodeName	🚫
Terminal1	🚫
Terminal2	🚫

Field Name	Review Outcome
Terminal3	🚫
Terminal4	🚫
Terminal5	🚫
Terminal(s)	🚫
LastInspectionDate	🚫
LastMaintenanceDate	🚫
InstallationDate	🚫
InstallationYear	🚫
EstimatedAge	🚫
UsefulLifespan	🚫
AmpacityRating	🚫
Greased	🚫

Empty value fields
- SubstationID
- SubstationName
- ConductorOD
- ConductorCodeName
- Terminal1
- Terminal2
- Terminal3
- Terminal4
- Terminal5
- Terminal*s*
- LastInspectionDate
- LastMaintenanceDate
- InstallationDate
- AmpacityRating

Field comments
- **CircuitID**: There are duplicate values for this field.
- **County**: All the values of the field are in upper case. 26 rows (0.1%) are *NULL*.
- **ConductorMaterialComment:** Some rows corresponding with "ConductorMaterial" values of "Other" have no values, but they should.
- **ConductorSize:** "ConductorMaterialComment" values were repeated for this field, presumably because the GDB provided to SDG&E has an alias of "ConductorMaterialComment" for this field when it should be "ConductorSize." The WSD will fix this inaccurate alias and expects size information (e.g. No. 4 Cu or 1/0 ACSR) for this field in future submissions.
- **NominalVoltagekV**: 20 rows (0.1%) of the field are *NULL*.
- **OperatingVoltagekV**: All rows (100%) of the field are *NULL*.
- **InstallationYear**: All rows (100%) of the field have value *-99*.
- **EstimatedAge**: All rows (100%) of the field have value *-99*.
- **UsefulLifespan**: All rows (100%) of the field have value *-99*.
- **Greased**: All rows (100%) of the field have value *-99*.

3.2.3 Primary Distribution Line (Feature Class)

The attribute table of this feature class includes 26 fields with 368,629 rows. Based on the number of null values, this table is 75% complete, but with "-99" and "Unknown" values treated as absent data, this table is only 62% complete.

Table 19. Primary Distribution Line data priorities and review outcomes

Field Name	Review Outcome
CircuitID	★
UtilityID	★
LineClass	★
CircuitName	★
County	❗
ConductorType	⬤ ❗
AssetOHUG	★
NominalVoltagekV	★
OperatingVoltagekV	⬤
SubstationID	★
SubstationName	❗
ConductorMaterial	★
ConductorMaterialComment	⬤ ❗
ConductorSize	⬤
ConductorOD	🚫
ConductorCodeName	🚫
LastInspectionDate	🚫
LastMaintenanceDate	🚫
InstallationDate	🚫
InstallationYear	🚫
EstimatedAge	🚫
UsefulLifespan	🚫
AmpacityRating	🚫

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Field Name	Review Outcome
Greased	🚫

Empty value fields
- ConductorOD
- ConductorCodeName
- LastInspectionDate
- LastMaintenanceDate
- InstallationDate

Field comments
- **CircuitID**: There are duplicate values for this field.
- **County**: All the values of the field are in upper case.
- **ConductorType**: The suggested attribute domain list was not utilized. 20 rows (0.01%) of the field are *NULL*.
- **OperatingVoltagekV**: 12 rows of the field are *-99*.
- **SubstationName**: All the values of the field are in upper case.
- **ConductorMaterialComment:** Some rows corresponding with "ConductorMaterial" values of "Other" have no values, but they should. Values are upper case.
- **ConductorSize:** 3 rows are *NULL*.
- **InstallationYear**: All rows (100%) of the field have value *-99*.
- **EstimatedAge**: All rows (100%) of the field have value *Unknown*.
- **UsefulLifespan**: All rows (100%) of the field have value *-99*.
- **AmpacityRating:** All values are *NULL*.
- **Greased:** All values are *Unknown*.

3.2.4 Secondary Distribution Line (Feature Class)
No data.

3.3 PSPS Event (Feature Dataset)

3.3.1 Data Category Summary
No data.

3.3.2 Entity-Relationship Diagram for PSPS Events
No data.

3.3.3 PSPS Event Log (Related Table)
No data.

3.3.4 PSPS Event Line (Feature Class)
No data.

3.3.5 PSPS Event Polygon (Feature Class)
No data.

3.3.6 PSPS Event Customer Meter (Feature Class)

No data.

3.3.7 PSPS Event Asset Damage

<u>3.3.7.2 PSPS Event Damage Point (Feature Class)</u>
No data.

<u>3.3.7.3 PSPS Event Conductor Damage Detail (Related Table)</u>
No data.

<u>3.3.7.4 PSPS Event Support Structure Damage Detail (Related Table)</u>
No data.

<u>3.3.7.5 PSPS Event Other Asset Damage Detail (Related Table)</u>
No data.

<u>3.3.7.6 PSPS Damage Photo Log (Related Table)</u>
No data.

3.4 Risk Event (Feature Dataset)

3.4.1 Data Category Summary
Of the 8 risk event data layers/tables required, 3 were submitted and have an **x** in the checklist below.

Table 20. Risk Event data category completeness summary

#	Status	Name	Completeness	
1	x	SDGE_WireDown_20200909	80%	80%
2	x	SDGE_Ignition_20200909	61.1%	60%
3	x	SDGE_TransmissionOutage_20200909	77.8%	77.4%
4		SDGE_TransmissionVmOutage_20200909		
5		SDGE_DistributionOutage_20200909		
6	x	SDGE_DistributionVmOutage_20200909	84.8%	84.8%
7	x	SDGE_RiskEventAssetLog_20200909	30.5%	30.5%
8		SDGE_RiskEventPhotoLog_20200909		

3.4.2 Wire Down Event (Point Feature Class)
The attribute table of this feature class includes 34 fields with 16 rows. Based on the number of null values, this table is 80% complete. There are no "Unknown" or "-99" values.

Table 21. Wire Down Event data priorities and review outcomes

Field Name	Review Outcome
WireDownID	★
UtilityID	★
WireDownDate	★
WireDownYear	★
SuspectedWireDownCause	❗
SuspectedWireDownCauseComment	★

Field Name	Review Outcome
ObjectContact	
EquipmentFailure	
EquipmentFailureComment	
AssociatedNominalVoltagekV	
AssociatedOperatingVoltagekV	
SpanLength	
TotalSplices	
MaxSplices	
MultipleDown	
ConductorMaterial	
ConductorMaterialComment	
ConductorSize	
ConductorOD	
ConductorCodeName	
ConductorRating	
OutageStatus	
ToutageID	
DoutageID	
Energized	
IgnitionStatus	
WireDownNotes	
HFTDClass	
City	
County	
District	
Latitude	
Longitude	

Empty value fields
- SuspectedWireDownCauseComment
- EquipmentFailureComment
- TotalSplices
- MaxSplices
- ConductorMaterialComment
- ToutageID
- WireDownNotes

Field comments
- **SuspectedWireDownCause**: Need to change the values from title case to sentence case.
- **ObjectContact**: 5 rows (31.2%) of the field are *NULL*. Need to change the title case values to sentence case.
- **EquipmentFailure**: 11 rows (68.8%) of the field are *NULL*. Need to change the title case values to sentence case.
- **ConductorMaterial**: The suggested attribute domain list was not utilized.
- **ConductorCodeName**: 13 rows (81.2%) rows of the field are *NULL*.
- **District**: District values are inconsistent with other tables.

3.4.3 Ignition (Point Feature Class)

The attribute table of this feature class includes 52 fields with 9 rows. Based on the number of null values, this table is 61% complete, but with "-99" and "Unknown" values treated as absent data, this table is only 60% complete.

Table 22. Ignition data priorities and review outcomes

Field Name	Review Outcome
IgnitionID	★
UtilityID	★
FireStartTime	★
FireStartDate	★
FireStartYear	★
FireDetectionMethod	★
FireDetectionMethodComment	★
SuspectedInitiatingCause	★
SuspectedInitiatingCauseComment	★
ObjectContact	★
EquipmentFailure	🚫
AssociatedNominalVoltagekV	★
AssociatedOperatingVoltagekV	★
SubstationID	🚫

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Field Name	Review Outcome
SubstationName	🚫
OtherCompanies	⭐
EquipmentType	⭐
Determination	🚫
DeterminationComment	🚫
FacilityContacted	◗
ContributingFactor	◗ ❗
ContributingFactorComment	🚫
RFWStatus	🚫
RFWIssueDate	🚫
RFWIssueTime	🚫
FWWStatus	🚫
FWWIssueDate	🚫
FWWIssueTime	🚫
HWWStatus	🚫
HWWIssueDate	🚫
HWWIssueTime	🚫
OriginLandUse	⭐
MaterialAtOrigin	⭐
MaterialAtOriginComment	⭐
FuelBedDescription	🚫
FuelBedDescriptionComment	🚫
FireSize	⭐
SuppressedBy	❗
SuppressingAgency	⭐
FireInvestigation	🚫

Field Name	Review Outcome
FireAHJ	🚫
OutageStatus	★
ToutageID	🚫
DoutageID	◖
IgnitionNotes	🚫
HFTDClass	★
City	★
County	★
District	❗
Latitude	★
Longitude	★

Empty value fields

- SuspectedInitiatingCauseComment
- EquimentFailure
- SubstationID
- SubstationName
- Determination
- DeterminationComment
- ContributingFactorComment
- RFWStatus
- RFWIssueDate
- RFWIssueTime
- FWWStatus
- FWWIssueDate
- FWWIssueTime
- HWWStatus
- HWWIssueDate
- HWWIssueTime
- MaterialAtOriginComment
- FuelBedDescription
- FuelBedDescriptionComment
- FireInvestigation
- FireAHJ
- ToutageID
- IgnitionNotes

Field comments

- **ObjectContact**: 4 rows (44.4%) of the field are *NULL*.
- **OtherCompanies**: 7 rows (77.8%) of the field are *NULL*.
- **FacilityContacted**: 5 rows (55.6%) of the field are *NULL*.
- **ContributingFactor**: Need to change *Outside Force* to *External Force*. 2 rows (22.2%) of the field have value *None*, which is not one of the required domains. 4 rows (44.4%) of the field have value *Unknown*.

- **ContributingFactorComment:** The "ContributingFactor" field value of "Other" should be accompanied by a corresponding comment.
- **SuppressedBy**: Need to change *Fire Agency* to *Fire agency*.
- **SuppressingAgency**: 2 rows (22.2%) of the rows are *NULL*.
- **DoutageID**: 2 rows (22.2%) of the rows are *NULL*.
- **District**: District values are inconsistent with other tables.

3.4.4 Transmission Outage (Point Feature Class)

The attribute table of this feature class includes 40 fields with 42 rows. Based on the number of null values, this table is 78% complete, but with "-99" and "Unknown" values treated as absent data, this table is only 77% complete.

Table 23. Transmission Outage data priorities and review outcomes

Field Name	Review Outcome
ToutageID	◖
UtilityID	★
EventYear	★
OutageStartDate	★
OutageStartTime	★
OutageEndDate	★
OutageEndTime	★
OutageDuration	★
CMI	❗
CustomersOutMomentary	❗
CustomersOutSustained	❗
CustomerCount	❗
OutageInterval	★
AssociatedNominalVoltagekV	★
AssociatedOperatingVoltagekV	★
OtherCompanies	★
OutageClass	★
SubstationID	◖ ❗
RecloserSetting	🚫

Field Name	Review Outcome
IsolationDeviceType	⭐
IsolationDeviceTypeComment	⭐
BasicCause	◖
BasicCauseComment	⭐
BasicCauseObject	●
BasicCauseObjectComment	⭐
DamagedDevice	◗
DamagedDeviceComment	⊘
ExpulsionFuseOperation	◗
OutageDescription	⭐
MED	⭐
SupplementalCause	◖
SupplementalCauseDescription	⭐
HFTDClass	⊘
LocationOrAddress	⊘
City	◖ ❗
County	◖
District	❗
Latitude	◖
Longitude	◖

Empty value fields
- RecloserSetting
- DamagedDeviceComment
- HFTDClass
- LocationOrAddress

Field comments
- **ToutageID**: 37 rows (88%) of field are *NULL*.
- .
- **CMI**: All rows (100%) of the field have value *0*. This does not makes sense when there are values for the "OutageDuration" field that are not 0.
- **CustomersOutMomentary**: 37 rows (88%) of the field have value *0*.

- **CustomersOutSustained:** All values are *0*.
- **CustomerCount**: 37 rows (88%) of the field have value *0*.
- **SubstationID**: Values are upper case. 3 rows (7.1%) of the field are *NULL*.
- **DamagedDevice:** 37 rows (88%) of field are *NULL*.
- **BasicCause**: 5 rows (11.9%) of the field are *NULL*.
- **BasicCauseObject**: 2 rows (4.8%) of the rows have value *Unknown*.
- **ExpulsionFuseOperation**: 37 rows (88.1%) of the field are *NULL*.
- **SupplementalCause:** 19 rows (45.2%) of the field are *NULL*.
- **City**: 3 rows (7.1%) of the field are *NULL*. 11 rows (26.2%) rows the field have values *County*.
- **County**: 3 rows (7.1%) of the field are *NULL*.
- **District**: District values are inconsistent with other tables.
- **Latitude:** 3 rows (7.1%) of the field are *NULL*.
- **Longitude:** 3 rows (7.1%) of the field are NULL.

3.4.5 Transmission VM Outage (Point Feature Class)
No data.

3.4.6 Distribution Outage (Point Feature Class)
No data.

3.4.7 Distribution VM Outage (Point Feature Class)
The attribute table of this feature class includes 23 fields with 2 rows. Based on the number of null values, this table is 85% complete. There are no "-99" or "Unknown" values.

Table 24. Distribution VM Outage data priorities and review outcomes

Field Name	Review Outcome
DvmOutageID	⭐
UtilityID	⭐
DoutageID	◖
EventYear	⭐
DateOut	⭐
TimeOut	⭐
InspectionDate	⭐
SubstationID	🚫
AssociatedNominalVoltagekV	🚫
AssociatedOperatingVoltagekV	🚫
TreeSpecies	⭐
TreeHeight	⭐
TreeDBH	⭐

Field Name	Review Outcome
TreeTrunkDistance	⭐
VmOutageDescription	⭐
HFTDClass	⭐
LocationOrAddress	❗
City	❗
County	⭐
District	❗
Latitude	⭐
Longitude	⭐

Empty value fields
- SubstationID
- AssociatedNominalVoltagekV
- AssociatedOperatingVoltagekV

Field comments
- **DoutageID**: 1 row (50%) of the field is *NULL*.
- **LocationOrAddress**: All the values of the field are in upper case.
- **City**: All values are upper case.
- **District**: District values are inconsistent with other tables.

3.4.8 Risk Event Asset Log (Related Table)

The attribute table of this feature class includes 16 fields with 589 rows. Based on the number of null values, this table is 31% complete. There are no "-99" or "Unknown" values.

Table 25. Risk Event Asset Log data priorities and review outcomes

Field Name	Review Outcome
ReaID	🚫
WireDownID	◗
FromDevice	◗
ToDevice	◗
IgnitionID	◗
StationID	🚫
ToutageID	◗
TvmOutageID	🚫

Field Name	Review Outcome
DoutageID	◗
DvmOutageID	🚫
IsolationDeviceID	◗
DamagedDeviceID	🚫
AssetID	🚫
CircuitID	◗
SubstationID	● ❗

Empty value fields
- ReaID
- StationID
- TvmOutageID
- DamagedDeviceID
- AssetID

Field comments
- **WireDownID**: 573 rows (97.3%) of the field are *NULL*.
- **FromDevice**: 573 rows (97.3%) of the field are *NULL*.
- **ToDevice**: 573 rows (97.3%) of the field are *NULL*.
- **IgnitionID**: 580 rows (98.5%) of the field are *NULL*.
- **ToutageID**: 584 rows (99.2%) of the filed are *NULL*.
- **DoutageID**: 47 rows (8%) of the field are *NULL*.
- **IsolationDeviceID**: 41 rows (7%) of the field are *NULL*.
- **CircuitID**: 41 rows (7%) of the field are *NULL*.
- **SubstationID**: 8 rows (1.4%) of the field are *NULL*. All values are upper case.

3.4.9 Risk Event Photo Log (Related Table)
No data.

3.5 Initiative (Feature Dataset)

3.5.1 Data Category Summary
Of the 17 initiative data layers/tables required, 10 were submitted and have an **x** in the checklist below.

Table 26. Initiative data category completeness summary

#	Status	Name	Completeness	
1	x	SDGE_VegetationManagementInspectionLog_20200909	81.2%	81.2%
2	x	SDGE_VegetationManagementInspectionPoint_20200909	84.9%	84.9%
3		SDGE_VegetationManagementInspectionLine_20200909		
4		SDGE_VegetationManagementInspectionPolygon_20200909		
5	x	SDGE_VegetationManagementProjectLog_20200909	48.6%	48.6%
6	x	SDGE_VegetationManagementProjectPoint_20200909	89.6%	89.6%
7		SDGE_VegetationManagementProjectLine_20200909		
8		SDGE_VegetationManagementProjectPolygon_20200909		
9	x	SDGE_AssetInspectionLog_20200909	80.4%	80.4%
10	x	SDGE_AssetInspectionPoint_20200909	83.2%	83.2%

#	Status	Name	Completeness	
11	x	SDGE_AssetInspectionLine_20200909	81.8%	81.8%
12		SDGE_AssetInspectionPolygon_20200909		
13	x	SDGE_GridHardeningLog_20200909	71.2%	71.2%
14	x	SDGE_GridHardeningPoint_20200909	86%	86%
15	x	SDGE_GridHardeningLine_20200909	84.4%	84.4%
16		SDGE_InitiativeAssetLog_20200909		
17		SDGE_InitiativePhotoLog_20200909		

3.5.2 Vegetation Management Inspections

3.5.2.1 Vegetation Management Inspection Log (Related Table)

The attribute table of this feature class includes 16 fields with 282 rows. Based on the number of null values, this table is 81% complete. There are no "Unknown" or "-99" values.

Table 27. Vegetation Management Inspection Log data priorities and review outcomes

Field Name	Review Outcome
VmiLogID	★
VmpLogID	🚫
InspectionDate	★
InspectorName	🚫
InspectionType	★
InspectionTypeComment	★
InspectionStatus	★
InspectionQA	★
TreeTrimmingCount	★
TreeTrimmingAcreage	🚫
InspectionComment	🚫
InspectionMethod	★
InspectionMethodComment	★
InspectionTechnology	★
InspectionTechnologyComment	★

Empty value fields
- VmpLogID
- InpsectorName
- TreeTrimmingAcreage
- InspectionMethodComment

Field comments
- **InspectionStatus**: Need to change *In Progress* to *In-progress*.
- **TreeTrimmingCount**: 42 rows (51.2%) of the field have value *0*.

3.5.2.2 Vegetation Management Inspection Point (Feature Class)

The attribute table of this feature class includes 16 fields with 149,046 rows. Based on the number of null values, this table is 85% complete. There are no "Unknown" or "-99" values.

Table 28. Vegetation Management Inspection Point data priorities and review outcomes

Field Name	Review Outcome
VmiID	❗
UtilityID	⭐
VmiLogID	⭐
InspectionLocationOrAddress	◗
ParcelAPN	🚫
TreeHealth	◗
TreeSpecies	◗
TreeHeight	◗
TreeDiameter	◗
HFTDClass	🚫
City	◖ ❗
County	🚫
District	◖
Latitude	◖
Longitude	◖

Empty value fields
- ParcelAPN
- HFTDClass
- County

Field comments
- **VmiID**: There are duplicate values for this field.
- **InspectionLocationOrAddress**: 9,040 rows (6%) of the field are *NULL*. All the values of the field are in upper case.
- **TreeHealth**: 12,998 rows (8.7%) of the field are *NULL*.
- **TreeSpecies**: 13,026 rows (8.7%) of the field are *NULL*.
- **TreeHeight**: 13,000 rows (8.7%) of the field are *NULL*.
- **TreeDiameter**: 13,000 rows (8.7%) of the field are *NULL*.
- **City**: Most of the values of the field are in upper case. 374 rows (0.3%) of the field are *NULL*.
- **District**: 48 rows (0.03%) of the field are *NULL*.
- **Latitude**: 2 rows of the field are *NULL*.

- **Longitude:** 2 rows of the field are *NULL*.

3.5.2.3 Vegetation Management Inspection Line (Feature Class)
No data.

3.5.2.4 Vegetation Management Inspection Polygon (Feature Class)
No data.

3.5.3 Vegetation Management Projects

3.5.3.1 Vegetation Management Project Log (Related Table)
The attribute table of this feature class includes 32 fields with 755 rows. Based on the number of null values, this table is 49% complete. There are no "Unknown" or "-99" values.

Table 29. Vegetation Management Project Log data priorities and review outcomes

Field Name	Review Outcome
VmpLogID	★
DateStart	★
DateEnd	★
VmpStatus	!
VmpStatusComments	🚫
PersonInCharge	◔
CoastalRedwoodExemption	◑
EncroachPermit	◑
EnvPermit	◑
EnvPermitProject	🚫
EnvPermitDocumentation	🚫
BMPApply	◑
AMMApply	◕
WoodManagement	🚫
WoodManagementComments	🚫
LandDesignation	🚫
RiparianArea	🚫
CaltransProp	🚫
ProjectCategory	★

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Field Name	Review Outcome
ProjectCategoryComment	★
TreeTrimCount	◗
TreeTrimAcreage	🚫
TreeRemovalCount	◗
TreeRemovalAcreage	🚫
TreeTrimCountActl	◗
TreeTrimAcreageActl	🚫
TreeRemovalCountActl	◗
TreeRemovalAcreageActl	🚫
VegetationTreatmentType	★
VegetationTreatmentTypeComment	★
DescriptionOfWork	★

Empty value fields
- VmpStatusComments
- EnvPermitProject
- EnvPermitDocumentation
- WoodManagement
- LandManagement
- CaltransProp
- TreeTrimAcreage
- TreeRemovalAcreage
- TreeTrimAcreageActl
- TreeRemovalAcreageActl

Field comments
- **VmpStatus**: Need to change *In Progress* to *In-progress*.
- **PersonInCharge**: 215 rows (28.5%) of the field are *NULL*.
- **CoastalRedwoodExemption**: 540 rows (71.5%) of the field are *NULL*.
- **EncroachPermit**: 540 rows (71.5%) of the field are *NULL*.
- **EnvPermit**: 540 rows (71.5%) of the field are *NULL*.
- **BMPApply**: 540 rows (71.5%) of the field are *NULL*.
- **AMMApply**: 540 rows (71.5%) of the field are *NULL*.
- **RiparianArea**: 540 rows (71.5%) of the field are *NULL*.
- **TreeTrimCount**: 540 rows (71.5%) of the field are *NULL*.
- **TreeTrimCountActl**: 540 rows (71.5%) of the field are *NULL*.
- **TreeRemovalCount**: 540 rows (71.5%) of the field are *NULL*.
- **TreeRemovalCountActl**: 309,369 rows (84.6%) of the field are *NULL*.
- **DescriptionOfWork**: Some values are upper case.

3.5.3.2 Vegetation Management Project Point (Feature Class)
The attribute table of this feature class includes 22 fields with 364,867 rows. Based on the number of null values, this table is 90% complete. There are no "Unknown" or "-99" values.

SDG&E added three fields ("VmpStatus," "LandDesignation, and "CaltransProp") beyond those that are required.

Table 30. Vegetation Management Project Point data priorities and review outcomes

Field Name	Review Outcome
VmpID	❗
UtilityID	★
VmpLogID	●
ProjectLocationOrAddress	◖
ParcelAPN	◗
TreeID	●
TreeHealth	●
TreeHazard	●
TreeSpecies	◖
SpeciesGrowthRate	◖
TreeHeight	◖
TreeDiameter	◖
HFTDClass	◗
City	❗
County	★
District	●
Latitude	●
Longitude	●
VmpStatus	◗
LandDesignation	●
CaltransProp	●

Empty value fields
- None

Field comments
- **VmpID**: There are duplicate values for this field.
- **VmpLogID:** 601 rows (0.4%) of the field are *NULL.*
- **ProjectLocationOrAddress**: 10,369 rows (7%) of the field are *NULL*.

- **ParcelAPN**: 147354 rows (99.6%) rows of the field are *NULL*.
- **TreeID**: 601 rows (0.4%) of the field are *NULL*.
- **TreeHealth**: 601 rows (0.4%) of the field are *NULL*.
- **TreeHazard**: 601 rows (0.4%) of the field are *NULL*.
- **TreeSpecies**: 19,011 rows (12.8%) of the field are *NULL*.
- **SpeciesGrowthRate**: 19,041 rows (12.9%) of the field are *NULL*.
- **TreeHeight**: 19,022 rows (12.9%) of the field are *NULL*.
- **TreeDiameter**: 19,037 rows (12.9%) of the field are *NULL*.
- **HFTDClass**: 364,838 rows (99.9%) of the field are *NULL*.
- **City**: All the values of the field are in upper case.
- **District**: 37 rows (0.03%) of the field are *NULL*.
- **Latitude:** 1 row of the field is *NULL*.
- **Longitude:** 1 row of the field is *NULL*.
- **VmpStatus:** 101,293 rows (68.5%) of the field are *NULL*.
- **LandDesignation:** 606 rows (0.4%) of the field are *NULL*.
- **CaltransProp:** 601 rows (0.4%) of the field are *NULL*.

3.5.3.3 Vegetation Management Project Line (Feature Class)
No data.

3.5.3.4 Vegetation Management Project Polygon (Feature Class)
No data.

3.5.4 Asset Inspections

3.5.4.1 Asset Inspection Log (Related Table)
The attribute table of this feature class includes 17 fields with 43,709 rows. Based on the number of null values, this table is 80% complete. There are no "Unknown" or "-99" values.

Table 31. Asset Inspection Log data priorities and review outcomes

Field Name	Review Comment
AiLogID	●
VmpLogID	⊘
InspectionStartDate	◗ ❗
InspectionEndDate	● ❗
PerformedBy	❗
PerformedByComment	★
InspectorName	⊘
InspectionType	★
InspectionTypeComment	★
InspectionQA	◣
InspectionComments	❗

Field Name	Review Comment
ComplianceFinding	⬤
InspectionMethod	⬤ ❗
InspectionMethodComment	★
InspectionTechnology	🚫
InspectionTechnologyComment	🚫

Empty value fields

- VmpLogID
- InspectionTypeComment
- InspectorName
- InspectionTechnology
- InspectionTechnologyComment

Field comments

- **AiLogID**: 618 rows (1.4%) of the field are *NULL*.
- **InspectionStartDate**: 12,181 rows (27.9%) of the field are *NULL*. **InspectionEndDate**: 305 rows (0.7%) of the field are *NULL*. **PerformedBy**: There are two versions of *Utility Staff* which might because of white space.
- **InspectorName**: 11,465 rows (26.2%) of the field are *NULL*.
- **InspectionQA**: 32,244 rows (73.8%) of the field are *NULL*.
- **InspectionComments:** Values look useful, but their meanings are not entirely clear. In the next data submission, clarification can be provided by using fewer abbreviations and/or by providing details in metadata.
- **ComplianceFinding**: 1,021 rows (2.4%) of the field are *NULL*.
- **InspectionMethod**: 79 rows of the field are *NULL*. Need to change *Walk Out* to *Walk out*.

3.5.4.2 Asset Inspection Point (Feature Class)

The attribute table of this feature class includes 12 fields with 42,678 rows. Based on the number of null values, this table is 83% complete. There are no "Unknown" or "-99" values.

Table 32. Asset Inspection Point data priorities and review outcomes

Field Name	Review Outcome
AiID	❗
UtilityID	★
AiLogID	⬤
InspectionLocationOrAddress	◗
ParcelAPN	🚫
HFTDClass	⬤
City	⬤
County	◗
District	❗

Field Name	Review Outcome
Latitude	★
Longitude	★

Empty value fields
- ParcelAPN

Field comments
- **AiID**: There are duplicate values for this field.
- **AiLogID**: 411 rows (1%) of the field are *NULL*.
- **InspectionLocationOrAddress**:246,874 rows (71.3%) of the field are *NULL*.
- **HFTDClass**: 4,308 rows (1.2%) of the field are *NULL*.
- **City**: 1 row of the field is *NULL*.
- **County**: 257,278 rows (74.3%) of the field are *NULL*.
- **District**: District values are not consistent with other tables.

3.5.4.3 Asset Inspection Line (Feature Class)
The attribute table of this feature class includes 11 fields with 20 rows. Based on the number of null values, this table is 82% complete. There are no "Unknown" or "-99" values.

Table 33. Asset Inspection Line data priorities and review outcomes

Field Name	Review Outcome
AiID	★
UtilityID	★
AiLogID	🚫
InspectionLocationOrAddress	🚫
HFTDClass	❗
HFTDClassComment	★
City	🚫
County	★
District	❗

Empty value fields
- AiLogID

Field comments
- **City**: Need to remove *County* prefix for the city inputs.
- **District**: District values are not consistent with other tables.
- **HFTDClass**: When the line spans multiple HFTD classes, use the "Other – See comment" value, and list the classes in the "HFTDClassComment" field.

3.5.4.4 Asset Inspection Polygon (Feature Class)
No data.

3.5.5 Grid Hardening

3.5.5.1 Grid Hardening Log (Related Table)
The attribute table of this feature class includes 17 fields with 2,167 rows. Based on the number of null values, this table is 71% complete. There are no "Unknown" or "-99" values.

Table 34. Grid Hardening Log data priorities and review outcomes

Field Name	Review Outcome
GhLogID	●
AiLogID	🚫
GhStatus	★
GhChangeOrder	🚫
GhChangeOrderDate	🚫
GhChangeOrderType	🚫
GhChangeOrderTypeComment	🚫
DateStart	◗ ❗
DateEnd	● ❗
LineDeenergized	◖
PersonInChargeName	◖
PerformedBy	◖
PerformedByComment	★
InitiativeActivity	★
InitiativeActivityComment	★
DescriptionOfGridHardening	★

Empty value fields
- AiLogID
- GhChangeOrder
- GhChangeOrderDate
- GhChangeOrderType
- GhChangeOrderTypeComment
- PerformedByComment

Field comments
- **GhLogID**: 18 rows (0.8%) of the field are *NULL*. There are duplicate values for this field.
- **DateStart**: 1,384 rows (63.9%) of the field are *NULL*. **EndDate**: 71 rows (3.3%) of the field are *NULL*. **LineDeenergized**: 178 rows (8.2%) of the field are *NULL*.
- **PersonInChargeName**: 178 rows (8.2%) of the field are *NULL*.
- **PerformedBy**: 128 rows (5.9%) of the field are *NULL*.

3.5.5.2 Grid Hardening Point (Feature Class)

The attribute table of this feature class includes 12 fields with 3,203 rows. Based on the number of null values, this table is 86% complete. There are no "-99" or "Unknown" values.

Table 35. Grid Hardening Point data priorities and review outcomes

Field Name	Review Outcome
GhID	❗
UtilityID	⭐
GhLogID	⬤
GridHardeningLocationOrAddress	◗
ParcelAPN	◗
HFTDClass	❗
City	⭐
County	❗
District	⭐
Latitude	⭐
Longitude	⭐

Empty value fields
> None

Field comments

- **GhID**: There are a few duplicate values for the ID.
- **GhLogID**: 4 rows (0.1%) of the field are *NULL*.
- **GridHardeningLocationOrAddress**: 2,177 rows (68%) of the field are *NULL*.
- **ParcelAPN**: 3,198 rows (99.8%) of the field are *NULL*.
- **HFTDClass**: Need to change *Tier-2* to *Tier 2*, and *Tier-3* to *Tier 3*.
- **County**: All the values of the field are in upper case.

3.5.5.3 Grid Hardening Line (Feature Class)

The attribute table of this feature class includes 11 fields with 6 rows. Based on the number of null values, this table is 84% complete. There are no "-99" or "Unknown" values.

Table 36. Grid Hardening Line data priorities and review outcomes

Field Name	Review Outcome
GhID	⭐
UtilityID	⭐
GhLogID	⭐
GridHardeningLocationOrAddress	🚫

Field Name	Review Outcome
HFTDClass	◖ ❗
HFTDClassComment	★
City	❗
County	★
District	★

Empty value fields
- None

Field comments
- 5 rows (71.4%) of the field are *NULL* when they should instead be "Other – See comment."
- **City**: All rows of the field have values *S.D. COUNTY*. This is accurate, but listing applicable cities would be more useful.

3.5.6 Data Related to Multiple Initiatives

3.5.6.1 Initiative Asset Log (Related Table)
No data. This is a major problem because this table enables initiative data to be linked to specific assets that are the focus of initiatives or in the proximity of initiatives, thereby enabling one to identify the specific location and attributes of an asset involved with an initiative. Not having the "Initiative Asset Log" table diminishes the value of all initiative data and is unacceptable. The "Initiative Asset Log" table must be provided in future submissions.

3.5.6.2 Initiative Photo Log (Related Table)
No data.

3.6 Other Required Data (Feature Dataset)

3.6.1 Data Category Summary
Of the 4 initiative data layers/tables required, 1 was submitted and has an **x** in the checklist below.

Table 37. Other Required Data data category completeness summary

#	Status	Name	Completeness	
1	x	SDGE_OtherPowerLineConnectionLocation_20200909	82.6%	71.8%
2	x	SDGE_CriticalFacility_20200909	76.8%	74%
3	x	SDGE_RedFlagWarningDayPolygon_20200909	90.9%	90.9%
4	x	SDGE_AdministrativeArea_20200909	100%	100%

3.6.2 Electrical Corporation Power Line-Other Power Line Connection Location (Point Feature Class)
The attribute table of this feature class includes 29 fields with 6 rows. Based on the number of null values, this table is 83% complete, but with "-99" and "Unknown" values treated as absent data, this table is only 72% complete.

Table 38. Other Power Line Connection Location data priorities and review outcomes

Field Name	Review Outcome
OplcID	★
UtilityID	★
OtherLineOwner	★
ConnectionAsset	★
ConnectionPointAssetID	★
CorporationLineID	★
OtherLineClass	★
HFTDClass	★
County	★
OtherConductorType	★
ConnectionType	🚫
ConnectionOHUG	❗
OtherNominalVoltagekV	★
OtherOperatingVoltagekV	★
OtherConductorMaterial	★
ConductorMaterialComment	🚫
OtherConductorSize	◖
OtherConductorOD	◖
OtherConductorCodeName	◖
ConnectionLastInspectionDate	🚫
ConnectionLastMaintenanceDate	🚫
ConnectionEstablishmentDate	◗
ConnectionEstablishmentYear	◗
EstimatedConnectionAge	◗
OtherUsefulLifespan	🚫

Field Name	Review Outcome
OtherAmpacityRating	◕
OtherLineGreased	🚫
ConnectionComments	🚫

Empty value fields
- ConnectionType
- ConductorMaterialComment
- ConnectionLastInspectionDate
- ConnectionLastMaintenanceDate
- OtherUsefulLifespan
- OtherLineGreased

Field comments
- **CorporationLineID**: 2 rows (33.3%) of the field are *N/A*. This makes sense for the row correlating with the Imperial Irrigation District, but the one correlating with SCE should have a value because SCE is a corporation.
- **ConnectionOHUG**: Need to change *All Overhead* to *Overhead*.
- **OtherConductorSize**: 2 rows (33.3%) of the field have values *Unknown*.
- **OtherConductorOD**: 2 rows (33.3%) of the field are *NULL*.
- **OtherConductorCodeName**: 2 rows (33.3%) of the field have values *Unknown*.
- **ConnectionEstablishmentDate**: 3 rows (50%) of the field are *NULL*.
- **ConnectionEstablishmentYear**: 3 rows (50%) of the field are *NULL*.
- **EstimatedConnectionAge**: 3 rows (50%) of the field have value *Unknown*.
- **OtherAmpacityRating**: 2 rows (33.3%) of the field are *NULL*.

3.6.3 Critical Facility (Point Feature Class)

The attribute table of this feature class includes 24 fields with 19,194 rows. Based on the number of null values, this table is 77% complete, but with "-99" and "Unknown" values treated as absent data, this table is only 74% complete.

Table 39. Critical Facility data priorities and review outcomes

Field Name	Review Outcome
FacilityID	❗
UtilityID	★
FacilityName	❗
FacilityCategory	★
FacilityCategoryComment	★
FacilityDescription	★
CircuitID	●
CircuitName	●
MeterID	●

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Field Name	Review Outcome
BackupPower	◗
BackupType	◗
BackupTypeComment	❗
BackupCapacity	◗
PopulationImpact	🚫
HFTDClass	🚫
PSPSDays	🚫
PSPSDaysDateBasis	🚫
ParcelAPN	◖
Address	❗
City	❗
Zip	★
Latitude	★
Longitude	★

Empty value fields
- FacilityCategoryComment
- CategoryComment
- BackupType
- BackupTypeComment
- PopulationImpact
- HFTDClass
- PSPSDays
- PSPSDaysDateBasis

Field comments
- **FacilityID**: There are duplicate values for this field.
- **FacilityName**: All the values of the field are in upper case.
- **CircuitID**: 390 rows (2%) of the field are *NULL*.
- **CircuitName**: 390 rows (2%) of the field are *NULL*.
- **MeterID**: 379 rows (2%) of the field are *NULL*.
- **BackupPower**: 13241 rows (69%) of the field have values *Unknown*. 3,205 rows (16.7%) of the field are *NULL*.
- **BackupType**: 18,932 rows (98.6%) of the field are *NULL*.
- **BackupTypeComment**: All values correlating with the "BackupType" value of "Other" are "OTHER," which provides no new information. All values are upper case.
- **BackupCapacity**: 18,756 rows (97.7%) of the field are *NULL*.
- **ParcelAPN**: 7,107 rows (37%) of the field are *NULL*.
- **Address**: All the values of the field are in upper case.
- **City**: All the values of the field are in upper case.

3.6.4 Red Flag Warning Day (Polygon Feature Class)

The attribute table of this feature class includes 10 fields with 13 rows. Based on the number of null values, this table is 91% complete. There are no "-99" or "Unknown" values.

Table 40. Red Flag Warning Day data priorities and review outcomes

Field Name	Review Outcome
RfwID	🚫
UtilityID	⭐
FireWeatherZoneID	⭐
FireWeatherZoneName	⭐
NumberRedFlagWarningDays	⭐
RedFlagWarningIssueDate	⭐
RedFlagWarningIssueTime	⭐
RedFlagDaysDateBasis	⭐

Empty value fields
- RfwID

3.6.5 Administrative Area (Polygon Feature Classes)

The attribute table of this feature class includes 9 fields with 149 rows. Based on the number of null values, this table is100% complete. There are no "-99" or "Unknown" values.

Table 41. Administrative Area data priorities and review outcomes

Field Name	Review Outcome
AdminID	⭐
UtilityID	⭐
AreaType	⭐
SubAreaType	⭐
SubAreaTypeComment	⭐
Name	❗

Field comments
- This layer consists of a combination of service area, service district, HFTD, and service territory.
- **Name**: Some values are all upper case.

APPENDIX A. COMPLETENESS PERCENTAGE BREAKDOWN FOR MULTIPLE UTILITIES

- PG&E = Pacific Gas and Electric
- SCE = Southern California Edison
- SDG&E = San Diego Gas and Electric
- BVES = Bear Valley Electric Service

- First % = percent complete strictly based on nulls without counting nulls in comment fields.
- Second % = percent complete based on nulls, "-99," and "Unknown" without counting nulls in comment and most description fields.

Data	Utility					
	PG&E	SCE	SDG&E	Liberty	PacifiCorp	BVES
Asset Point						
1. Camera	82.4% | 82.4%	64.7% | 58.8%	76.5% | 49.7%			
2. Connection Device		54.7% | 42.6%	68.7% | 51.5%			
3. Customer Meter		81.9% | 81.9%	68.7% | 51.5%			94.4% | 72.2%
4. Fuse	65% | 54%	72.8% | 62%	76.7% | 57.5%			
5. Lightning Arrestor			64% | 40%			
6. Substation	58% | 58%	70.5% | 64%	74.8% | 60.5%			70.6% | 70.6%
7. Support Structure		58.2% | 54%	62.5% | 50%			59.2% | 51.8%
8. Support Structure Crossarm Detail						
9. Switchgear		63.9% | 55%	72% | 59%			
10. Transformer		90% | 81.7%	83% | 83%			
11. Transformer Detail		54.3% | 52.8%	77.7% | 57.7%			
12. Weather Station	68.1% | 68.1%	47% | 41.2%	70.6% | 47%			67.2% | 61.1%
Asset Line						
13. Transmission Line		47.6% | 45.6%	56.2% | 40.6%			
14. Primary Distribution Line	28.4% | 28.4%	61.2% | 55.5%	74.8% | 61.5%			
15. Secondary Distribution Line		58% | 53.2%				
PSPS Event						
16. PSPS Event Log						
17. PSPS Event Line						
18. PSPS Event Polygon						
19. PSPS Event Customer Meter Point	100% | 100%					
20. PSPS Event Damage Point	62.6% | 62.6%					
21. PSPS Event Conductor Damage Detail						
22. PSPS Event Support Structure Damage Detail						
23. PSPS Event Other Asset Damage Detail						
24. PSPS Damage Photo Log						
Risk Event						
25. Wire Down Event	56.2% | 56.2%		80% | 80%			
26. Ignition	57.5% | 57.3%		61.1% | 60%			
27. Transmission Outage			77.8% | 77.4%			
28. Transmission VM Outage						
29. Distribution Outage	95.4% | 95.4%					
30. Distribution VM Outage			84.8% | 84.8%			
31. Risk Event Asset Log			30.5% | 30.5%			
32. Risk Event Photo Log						
Initiative						
33. Vegetation Management Inspection Log	87.7% | 87.7%	80.3% | 80.3%	81.2% | 81.2%			
34. Vegetation Management Inspection Point	68.8% | 68.8%	58.3% | 58.3%	84.9 | 84.9%			
35. Vegetation Management Inspection Line		63.6% | 63.6%				
36. Vegetation Management Inspection Polygon		70% | 70%				
37. Vegetation Management Project Log	49.9% | 49.9%	42.8% | 42.8%	48.6% | 48.6%			
38. Vegetation Management Project Point	89.8% | 89.8%	64.1% | 64.1%	89.6% | 89.6%			
39. Vegetation Management Project Line	81.8% | 81.8%					
40. Vegetation Management Project Polygon		67.7% | 67.7%				
41. Asset Inspection Log	88.1% | 88.1%	78.3% | 78.3%	80.4% | 80.4%			
42. Asset Inspection Point	88.4% | 81.2%	75.6% | 75.6%	83.2% | 83.2%			
43. Asset Inspection Line		64.6% | 64.6%	81.8% | 81.8%			
44. Asset Inspection Polygon						
45. Grid Hardening Log	70.6% | 70.6%	64.9% | 64.9%	71.2% | 71.2%			
46. Grid Hardening Point	90.6% | 82.8%	55.1% | 55.1%	86% | 86%			
47. Grid Hardening Line	90.4% | 82.5%	50.9% | 50.9%	84.4% | 84.4%			84.6% | 84.6%
48. Initiative Asset Log						
49. Initiative Photo Log						
Other Required Data						
50. Other Power Line Connection Location			82.6% | 71.8%			
51. Critical Facility	62.8% | 62.8%	62.5% | 62.5%	76.8% | 74%			59% | 59%
52. Red Flag Warning Day Polygon			90.9%| 90.9%			12.1% | 12.1%
53. Administrative Area		91.5% | 89.1%	100% | 100%			100% | 100%
Total submitted data	**21**	**28**	**32**	**0**	**0**	**8**